

ACTROL

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2015

Technical Resource & Price Guide

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Section 1

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Branches

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Bayswater	32/49 Corporate Boulevard, Bayswater 3153
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Laverton North	2/162-164 Fitzgerald Road, Laverton North 3026
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Mulgrave	6 Enterprise Court, Mulgrave 3170
Preston	14 Ovando Street, Preston 3072
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NSW

Albury	1/263 Macaulay Street, Albury 2640
Alexandria	1/100 O'Riordan Street, Alexandria 2015
Arndell Park	8 Holbeche Road, Arndell Park 2148
Artarmon	7/43 Herbert Street, Artarmon 2064
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Castle Hill	22/9 Hudson Avenue, Castle Hill 2154
Dubbo	24 Cobbora Road, Dubbo 2830
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QLD

Brendale	4/2 Kenworth Place, Brendale 4500
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Mackay	9 Burns Street, Mackay 4740
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Rockhampton	38 Glenmore Road, Rockhampton 4700
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Slacks Creek	2/7 Miller Street, Slacks Creek 4127
South Brisbane	2/25 Glenelg Street, South Brisbane 4101
Southport	10/19 Warehouse Road Southport 4215
Townsville	77 Duckworth Street, Garbutt 4814

SA

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Whyalla	125A Norrie Avenue, Whyalla 5600

WA

Belmont	40 Abernethy Road, Belmont 6104
Bunbury	1/9 MacKinnon Way, Bunbury 6230
Malaga	37 Millrose Drive, Malaga 6090
O'Connor	1/30 Hines Road, O'Connor 6163
Osborne Park	29 Guthrie Street, Osborne Park 6017

TAS

Hobart	59 Charles Street, Moonah 7009
Launceston	5 Wilmot Street, Launceston 7250

NT

Darwin	108 Reichardt Road, Winnellie 0820
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ACT

Canberra	33 Quilpie Crescent, Fyshwick 2609
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Actrol | 19 King St, Blackburn VIC 3130 | T: (03) 9894 1033 | F: (03) 9894 3378



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Thermostatic Expansion Valves



Alco

TI Series with Interchangeable Orifice Assembly

TI Series Valves with interchangeable orifices provide the capability of changing capacity with only the change of an orifice.

Features

- Stainless steel metering pin in orifice
- External superheat adjustment
- Refrigerants: R22, R134a, R404A, R507
- Stainless steel power element
- Safe Working Pressure: 3100 kPa
- Replaceable inlet strainer assembly

Valve Body (Less Orifice)

Flare Inlet and Outlet



Cat. No.	Model No.	Part No.	Refrigerant	Evaporating Temperature Range °C	MOP (valve closed)	Connections			Capillary Length mm	List Price \$ Exc. GST	
						Inlet	Outlet	Equaliser			
106003	TI-HW	802420	R22	-45 to +20	N/A	3/8" MF	1/2" MF	Internal	1500	\$149.90	
106023	TI-MW	802445	R134a							\$149.88	
106025	TI-SW	802459	R404A	-45 to -3	0°C					External 1/4" MF	\$149.90
106029	TI-SW75	802469	R507								\$149.92
106004	TIE-HW	802421	R22	-45 to +20	N/A			\$178.08			
106024	TIE-MW	802446	R134a								\$178.08
106026	TIE-SW	802460	R404A	-45 to -3	0°C					\$178.08	
106030	TIE-SW75	802470	R507								\$178.06

Flare Inlet and Solder Outlet

Cat. No.	Model No.	Part No.	Refrigerant	Evaporating Temperature Range °C	MOP (Valve closed)	Connections			Capillary Length mm	List Price \$ Exc. GST
						Inlet	Outlet	Equaliser		
106017	TIS-HW	802424	R22	-45 to +20	N/A	3/8" MF	1/2" OD	Internal	1500	\$149.88
106021	TIS-MW	802449	R134a							\$149.88
106027	TIS-SW	802463	R404A R507							\$149.88
106018	TISE-HW	802425	R22	-45 to +20	N/A					External 1/4" MF
106022	TISE-MW	802450	R134a					\$178.06		
106028	TISE-SW	802464	R404A					\$178.08		
106032	TISE-SW75	802472	R507	-45 to -3	0°C			\$178.08		

Connection Adaptor

Cat. No.	Model No.	Part No.	Description	List Price \$ Exc. GST
106035	TIA-038	802503	3/8 FF to 3/8 ODF Adaptor	\$46.86

Orifice Assembly (including Strainer)

Cat. No.	Model No.	Part No.	Nominal Capacity: kW*						List Price \$ Exc. GST
			R22		R134a		R404A/R507		
			M/T	L/T	M/T	L/T	M/T	L/T	
106014	0X	800532	0.5	0.3	0.3	0.2	0.4	0.3	\$40.45
106007	0	800533	1.3	0.9	0.8	0.5	0.9	0.6	\$40.45
106008	1	800534	3.3	2.2	1.8	1.2	2.2	1.5	\$40.45
106009	2	800535	5.4	3.7	2.9	1.9	3.7	2.5	\$40.45
106010	3	800536	8.7	5.9	4.7	3.1	5.8	4.0	\$40.45
106011	4	800537	14.3	9.7	7.9	5.2	9.5	6.5	\$40.45
106012	5	800538	17.4	11.8	9.6	6.3	11.6	8.0	\$40.45
106013	6	800539	20.0	13.6	11.1	7.3	13.4	9.2	\$40.45

Nominal Capacities based on:

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.



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Section 1

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Thermostatic Expansion Valves



Alco

BA Series

BA Series Thermostatic Expansion Valves feature a balanced port construction which provides stable and accurate superheat control over a wide range of operating conditions. Compared to conventional T.X. valves, under varying system conditions with wide pressure drops, the balanced port BA valve improves superheat control, system operation and valve stability.

Features

- Balanced port design improving operating and stability under low load conditions
- BAES have a removable strainer that can be cleaned without removing the valve from the line
- Bi-Flow capability
- BAE have straight through connection
- Maximum working pressure 3100 kPa
- Hermetic leak free construction
- External superheat adjustment
- BAES have angle connection
- Stainless steel power assembly
- Interchangeable with conventional T.X. valves

R22 Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	BiFlow	Connections			Capillary Length mm	List Price \$ Exc. GST
					Inlet	Outlet	Equaliser		
106059	BAE 1 HCA	063200	R22	Y	3/8" ODF	1/2" ODF	External 1/4" ODF	760	\$213.12
106060	BAE 1 1/2 HCA	061954							\$213.12
106062	BAE 2 HCA	061955							\$217.37
106061	BAE 2 1/2 HCA	061956							\$217.35
106063	BAE 3 HCA	065892							\$217.37
106064	BAE 4 HCA	061957							\$217.37
106065	BAE 5 HCA	061964			1500	\$217.37			
106066	BAE 6 HCA	062736				\$217.38			

Model No.	Nominal Capacity: kW		
	AC	MT	LT
BAE 1 HCA	4.4	4.3	3.4
BAE 1 1/2 HCA	6.8	6.7	5.1
BAE 2 HCA	9.1	8.9	7.1
BAE 2 1/2 HCA	11.5	11.3	8.7
BAE 3 HCA	13.9	13.6	10.5
BAE 4 HCA	18.0	17.7	13.6
BAE 5 HCA	22.8	22.4	17.2
BAE 6 HCA	28.3	27.8	21.4

Nominal Capacities based on:

AC: 7°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.
 MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.
 LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

Alco

C Series

The C Series is a balanced ported valve designed for high efficiency R410A Air Conditioning and heat pump applications. C valves operate over widely varying operating conditions.

Features

- Balanced port design improving operating and stability under low load conditions
- External superheat adjustment
- Screens on ODF inlet connections
- Maximum working pressure 4826 kPa

Cat. No.	Model No.	Part No.	Refrigerant	BiFlow	Nominal Capacity: kW	Connections			Capillary Length: mm	List Price \$
					AC	Inlet	Outlet	Equaliser		Exc. GST
106221	CB18CE	093021	R410A	Y	6.3	3 ⁸ ” ODF	1 ² ” ODF	External 1 ⁴ ” ODF	1500	\$356.64
106222	CB24CE	093022			8.4					\$356.64
106223	CB36CE	093023			12.6					\$358.78
106224	CB48CE	093024			16.8	1 ² ” ODF	5 ⁸ ” ODF			\$349.69
106225	CB60CE	093025			21.0					\$352.92
106226	CB72CE	093026			25.2					\$354.02
106227	CB84CE	093027			29.4	5 ⁸ ” ODF	7 ⁸ ” ODF			\$360.99

Nominal Capacities based on:

AC: 7°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

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Thermostatic Expansion Valves



Alco

R134a Balanced Port TX Valve



Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length: mm	List Price \$ Exc. GST
				Inlet	Outlet	Equaliser		
106212	BAES 1/2 MC	064244	R134a	3/8" ODF	1/2" ODF	External 1/4" ODF	760	\$224.68
106213	BAES 3/4 MC	064245						\$220.23
106214	BAES 1 MC	064246						\$220.23
106215	BAES 1 1/2 MC	064247						\$220.23
106216	BAES 2 MC	064248						\$220.23
106217	BAES 3 MC	064250						\$220.23

R404A Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length mm	List Price \$ Exc. GST
				Inlet	Outlet	Equaliser		
106190	BAES 1/4 SC	064137	R404A R507	3/8" ODF	1/2" ODF	External 1/4" MF	760	\$220.23
106191	BAES 1/2 SC	064138						\$224.62
106192	BAES 1 SC	064139						\$220.23
106193	BAES 1 1/4 SC	064140						\$220.23
106194	BAES 1 1/2 SC	064141						\$224.66
106195	BAES 2 SC	064142						\$224.62
106196	BAES 2 1/2 SC	064280						\$220.23
106197	BAES 3 SC	064281						\$224.64
106198	BAES 4 SC	064460						\$224.68

R404A Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length mm	List Price \$ Exc. GST
				Inlet	Outlet	Equaliser		
106200	BAES 1/4 SZ	064295	R404A R507	3/8" ODF	1/2" ODF	External 1/4" MF	760	\$220.23
106201	BAES 1/2 SZ	064144						\$220.23
106202	BAES 1 SZ	064145						\$220.23
106203	BAES 1 1/4 SZ	064146						\$220.23
106204	BAES 1 1/2 SZ	064273						\$224.64
106205	BAES 2 SZ	064537						\$224.64
106206	BAES 2 1/2 SZ	064434						\$220.23
106207	BAES 3 SZ	064538						\$224.64
106208	BAES 4 SZ	064780						\$224.65

Model No.	Nominal Capacity: R404A kW
	MT
BAES 1/4 SC	1.65
BAES 1/2 SC	3.15
BAES 1 SC	4.90
BAES 1 1/4 SC	6.55
BAES 1 1/2 SC	8.20
BAES 2 SC	10.0
BAES 2 1/2 SC	12.9
BAES 3 SC	16.3
BAES 4 SC	20.3

Model No.	Nominal Capacity: R404A kW
	LT
BAES 1/4 SZ	1.18
BAES 1/2 SZ	2.26
BAES 1 SZ	3.52
BAES 1 1/4 SZ	4.72
BAES 1 1/2 SZ	5.94
BAES 2 SZ	7.18
BAES 2 1/2 SZ	9.26
BAES 3 SZ	11.76
BAES 4 SZ	14.66

Model No.	Nominal Capacity: R134a kW
	MT
BAES 1/2 MC	1.55
BAES 3/4 MC	4.3
BAES 1 MC	4.6
BAES 1 1/2 MC	5.27
BAES 2 MC	7.77
BAES 3 MC	6.99

Nominal Capacities based on:

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.



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Section 1

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Thermostatic Expansion Valves

Alco HF Series

HF Series Thermostatic Expansion Valves feature a balanced port construction which provides stable and accurate superheat control over a wide range of operating conditions. Compared to conventional T.X. valves, under varying system conditions with wide pressure drops, the balanced port HF valve improves superheat control, system operation and valve stability.

Features

- Balanced port design improving operating and stability under low load conditions
- External superheat adjustment
- The HFESC series has a removable 100 mesh strainer that can be cleaned and/or replaced without removing the valve from the line
- Interchangeable with conventional T.X. valves
- Maximum working pressure 3100kPa

1



Cat. No.	Model No.	Part No.	Refrigerant	BiFlow	Connections			Capillary Length mm	List Price \$ Exc. GST		
					Inlet	Outlet	Equaliser				
106040	HFES 8 HCA	056819	R22	Y	5/8"	7/8"	External 1/4" ODF	1500	\$373.90		
106041	HFES 10 HCA	056820							\$373.90		
106042	HFES 12 HCA	065762			7/8"	1 1/8"			\$373.93		
106043	HFES 15 HCA	056825							\$373.90		
106044	HFES 20 HCA	058490							\$373.90		
106046	HFES 4 MC	057897	R134a	N	3/8"	1/2"			\$366.56		
106047	HFES 6 MC	057903			5/8"	7/8"			\$373.90		
106048	HFES 11 MC	058681			7/8"	1 1/8"			\$373.90		
106049	HFES 14 MC	064000							1 3/8"		
106087	HFESC 5 SC	058220	R404A R507		3/8"	1/2"					
106089	HFESC 10 SC	064219			5/8"	7/8"			\$389.65		
106090	HFESC 13 SC	065356			7/8"	1 1/8"			\$366.56		

Model No.	Nominal Capacity: R22 kW	
	AC	MT
HFES 8 HCA	33.4	34.7
HFES 10 HCA	41.9	44.0
HFES 12 HCA	48.6	51.3
HFES 15 HCA	62.0	65.2
HFES 20 HCA	81.7	85.9

Model No.	Nominal Capacity: R134a kW
	MT
HFES 4 MC	18.7
HFES 6 MC	26.1
HFES 11 MC	49.0
HFES 14 MC	64.5

Model No.	Nominal Capacity: R404A kW	
	AC	MT
HFESC 5 SC	27.4	24.8
HFESC 10 SC	51.5	46.6
HFESC 13 SC	67.8	61.4

Nominal Capacities based on:

AC: 7°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.



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Thermostatic Expansion Valves

Alco TRAE Series

TRAE+ Series Thermostatic Expansion Valves are designed for large capacity refrigeration, air conditioning applications.

Features

- Solid copper solder straight through connections
- External superheat adjustment
- Stainless steel Power element
- Maximum working pressure 3100kPa
- Balanced port design improving operating and stability under low load conditions



Cat. No.	Model No.	Part No.	Refrigerant	BiFlow	Connections			Capillary Length mm	List Price \$ Exc. GST
					Inlet: ODF	Outlet: ODF	Equaliser		
105014	TRAE+ 10 HC	062718	R22	N	5/8"	7/8"	External 1/4" MF	1500	\$699.63
105015	TRAE+ 15 HC	062721			7/8"	1 1/8"		3000	\$699.63
105016	TRAE+ 20 HC	062724							\$699.63
105017	TRAE+ 30 HC	062727			\$699.63				
105018	TRAE+ 40 HC	062733	1 1/8"		1 3/8"	\$699.63			
105022	TRAE+ 13 MC	063549	R404A R507		5/8"	7/8"	\$699.63		
105023	TRAE+ 12 SC	064196			7/8"	1 1/8"	\$699.63		
105024	TRAE+ 14 SC	064407					\$699.63		
105025	TRAE+ 20 SC	063927			1 1/8"	1 3/8"	External 1/4" ODF		\$699.63
105026	TRAE+ 30 SC	064435					\$699.63		
105027	TRAE 35 SC	064217			\$666.30				

Model No.	Nominal Capacity: R22 kW	
	AC	MT
TRAE+ 10 HC	52.7	56.8
TRAE+ 15 HC	76.6	82.7
TRAE+ 20 HC	85.5	92.3
TRAE+ 30 HC	129.6	139.9
TRAE+ 40 HC	178.2	192.4

Model No.	Nominal Capacity: R134A kW
	MT
TRAE+ 13 MC	60.69

Model No.	Nominal Capacity: R404A kW	
	AC	MT
TRAE+ 12 SC	57.8	46.6
TRAE+ 14 SC	64.4	50.8
TRAE+ 20 SC	97.8	79
TRAE+ 30 SC	134.4	110
TRAE 35 SC	181.5	150

Nominal Capacities based on:

AC: 7°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.



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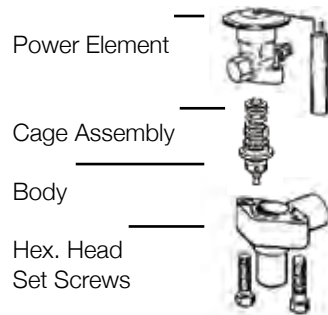
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Thermostatic Expansion Valves

Alco

T Series – Component Schedule - Model TCLE and TJLE



Features

- Angle Type
- Externally Equalised
- Single Ported for Normal Load Conditions
- Solder Connections

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Refrig.	Valve Series	Power Element			Cage Assembly			Body - Angle Type			Set Screws (2)					
		Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST			
R134a	TCLE1/4MC	102179	XB1019-MW1B	\$269.79	102117	X22440-B1B	\$121.22	102201	C501-5 3/8" x 5/8" ODF	\$97.03	102222	PS286-5	\$14.03			
	TCLE3/4MC				102118	X22440-B2B	\$121.22									
	TCLE11/2MC				102119	X22440-B3B	\$121.22									
	TCLE21/2MC				102120	X22440-B4B	\$121.22									
	TCLE31/2MC				102122	X22440-B5B	\$128.86	102202	C501-7 1/2" x 5/8" ODF	\$97.03						
	TCLE51/2MC				102123	X22440-B6B	\$128.86									
	TCLE71/2MC				102125	X22440-B7B	\$128.86				102203	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	\$94.63	102221	PS168-5	\$14.03
	TCLE9MC				102126	X22440-B8B	\$128.85									
	R22				TCLE1/2HC	102149	XB1019-HC1B	\$279.36	102117	X22440-B1B	\$121.22	102201	C501-5 3/8" x 5/8" ODF	\$97.03	102222	PS286-5
TCLE1HC		102118	X22440-B2B	\$121.22												
TCLE2HC		102119	X22440-B3B	\$121.22												
TCLE3HC		102120	X22440-B4B	\$121.22												
TCLE5HC		102122	X22440-B5B	\$128.86	102202				C501-7 1/2" x 5/8" ODF	\$97.03						
TCLE71/2HC		102123	X22440-B6B	\$128.86												
TCLE10HC		102125	X22440-B7B	\$128.86							102203	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	\$94.63	102221	PS168-5	\$14.03
TCLE12HC		102126	X22440-B8B	\$128.85												
R404A R507		TCLE1/4SC	102189	XB1019-SC1B	\$279.36				102117	X22440-B1B	\$121.22	102201	C501-5 3/8" x 5/8" ODF	\$97.03	102222	PS286-5
	TCLE1/2SC	102118				X22440-B2B	\$121.22									
	TCLE1SC	102119				X22440-B3B	\$121.22									
	TCLE2SC	102120				X22440-B4B	\$121.22									
	TCLE3SC	102122				X22440-B5B	\$128.86	102202	C501-7 1/2" x 5/8" ODF	\$97.03						
	TCLE5SC	102123				X22440-B6B	\$128.86									
	TCLE61/2SC	102125				X22440-B7B	\$128.86				102203	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	\$94.63	102221	PS168-5	\$14.03
	TCLE8SC	102126				X22440-B8B	\$128.85									
	R134a	TJLE9MC				102179	XB1019-MC1B	\$269.79	102127	XC724-B4B	\$318.31	102210	B504 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	\$193.66	102223	PS514-5
TJLE11MC		102128	XC724-B5B	\$318.31												
R22	TJLE11HC	102149	XB1019-HC1B	\$279.36	102127	XC724-B4B	\$318.31	102128	XC724-B5B	\$318.31						
	TJLE14HC				102128	XC724-B5B	\$318.31									
R404A R507	TJLE7SC	102189	XB1019-SC1B	\$279.36	102127	XC724-B4B	\$318.31	102128	XC724-B5B	\$318.31						
	TJLE9SC				102128	XC724-B5B	\$318.31									

Power elements listed are 'C' charge: Range -30 to 10°C, with 1.5m long capillary. Power elements with 'Z' charge: Range -45 to -10°C and 'W' charge: MOP are also available.



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Thermostatic Expansion Valves



Alco

T Series - Component Schedule - Model TJRE, TER, TIR, THR

Power Element ———

Cage Assembly ———

Body ———

Allen Key ———
Cap Screws ———



Features

- Angle Type
- Externally Equalised
- Balanced Double Port for Low Load conditions if needed
- Solder Connections

Refrig.	Valve Series	Power Element			Cage Assembly			Body - Angle Type			Cap Screws (2)		
		Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST	Cat. No.	Model No.	List Price \$ Exc. GST
R134a	TJRE 11MC	102179	XB1019-MW1B	\$269.79	102114	X11873-B4B	\$318.31	102199	10331 7/8" x 7/8" ODF (1 1/8" x 1 1/8" ODM)	\$148.55	102224	PS259	\$18.65
	TJRE 13MC				102115	X11873-B5B	\$318.31						
R22	TJRE 14HC	102149	XB1019-HC1B	\$279.36	102114	X11873-B4B	\$318.31						
	TJRE 18HC				102115	X11873-B5B	\$318.31						
R404A R507	TJRE 9SC	102189	XB1019-SC1B	\$279.36	102114	X11873-B4B	\$318.31						
	TJRE 11SC				102115	X11873-B5B	\$318.31						

R134a	TER 16MC	102184	XC726-MC2B	\$329.58	102129	X9117-B6B	\$318.24	102212	9153 7/8" x 7/8" ODF (1 1/8" x 1 1/8" ODM)	\$141.69	102224	PS259	\$18.65
	TER 19MC				102116	X9117-B7B	\$318.24						
	TER 25MC				102130	X9117-B8B	\$318.24						
	TER 31MC				102131	X9117-B9B	\$318.24						
R22	TER 22HC	102185	XC726-HC2B	\$329.58	102129	X9117-B6B	\$318.24						
	TER 26HC				102116	X9117-B7B	\$318.24						
	TER 35HC				102130	X9117-B8B	\$318.24						
	TER 45HC				102131	X9117-B9B	\$318.24						
R404A R507	TER 14SC	102161	XC726-SC2B	\$329.58	102129	X9117-B6B	\$318.24						
	TER 16SC				102116	X9117-B7B	\$318.24						
	TER 22SC				102130	X9117-B8B	\$318.24						
	TER 28SC				102131	X9117-B9B	\$318.24						

R134a	TIR 45MC	102184	XC726-MC2B	\$329.58	102132	X9166-B10B	\$391.92	102214	9151 7/8" x 7/8" ODF (1 1/8" x 1 1/8" ODM)	\$257.84	102225	PS370	\$26.01
R22	TIR 55HC	102185	XC726-HC2B	\$329.58									
R404A R507	TIR 39SC	102161	XC726-SC2B	\$329.58									

R134a	THR 55MC	102184	XC726-MC2B	\$329.58	102133	X9144-B11B	\$452.38	102216	9149 1 1/8" x 1 1/8" ODM	\$180.24	102225	PS370	\$26.01
	THR 68MC				102134	X9144-B13B	\$452.38						
R22	THR 75HC	102185	XC726-HC2B	\$329.58	102133	X9144-B11B	\$452.38						
	THR 100HC				102134	X9144-B13B	\$452.38						
R404A R507	THR 50SC	102161	XC726-SC2B	\$329.58	102133	X9144-B11B	\$452.38						
	THR 60SC				102134	X9144-B13B	\$452.38						

Power elements listed are 'C' charge: Range -30 to 10°C with 1.5m capillary for TJRE and 3m capillary for TER, TIR, THR.

Power elements with 'Z' charge: Range -45 to -10°C and 'W' charge: MOP. are also available.



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Thermostatic Expansion Valves

Alco

Power Elements

Power Elements include gaskets and bulb clamps

TCLE, TJLE, TJRE Series



Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi	List Price \$ Exc. GST	
102149	XB1019HC1B	053416	R22	1/4" MF	1.5	-30 to +10	None	\$279.36	
102158	XB1019HCA1B*	056039				-30 to +10		\$527.90	
102181	XB1019HW651B	089445				-45 to -1	65	\$289.86	
102147	XB1019HC2B	054390	R124		3	-30 to +10	None	\$329.18	
102138	XB1019QL1B	058120						\$558.91	
102179	XB1019MW1B	057878			R134a	1.5		-30 to +20	\$269.79
102186	XB1019MZ1B	061946	-45 to -12					\$558.91	
102165	XB1019MC2B	059548	3			-30 to +10		\$351.72	
102166	XB1019NW1002B	803483			-45 to + 14	\$272.02			
102189	XB1019SC1B	059189	R404A R507		1.5	-30 to +10			\$279.36
102192	XB1019SZ1B	062140				-45 to -12			\$633.99
102168	XB1019SW401B	059130				-45 to -18		40	\$289.86
102191	XB1019SC2B	059547			3	-30 to +10	None	\$284.91	

*Suitable for heat pump and air conditioning applications

TER, TIR, THR Series

Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi	List Price \$ Exc. GST
102185	XC726HC2B	802933	R22	1/4" MF	3	-30 to +10	None	\$329.58
102184	XC726MC2B	803384	R134a			-45 to + 14		\$329.58
102182	XC726NW1002B	803485	R407C/R22			-30 to +10		\$558.91
102161	XC726SC2B	803451	R404A R507			-45 to -12		\$329.58
102140	XC726SZ2B	063974				\$1,142.48		

TLE Series

Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi	List Price \$ Exc. GST
102172	XB1033HCA-1B	049760	R22	Internal	1.5	-30 to +10	None	\$528.28

Rapid Response

Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi	List Price \$ Exc. GST
102157	X8019FWS1B	031654	R134a	1/4" MF	1.5	-23 to +10	None	\$663.37

Accessories

Cat. No.	Model No.	Part No.	Description	List Price \$ Exc. GST
102220	X13455/1	027579	Gasket Kit	\$18.32
102243	XA-1728-4	020955	Bulb Strap Kit	\$29.45

Notes:

R-12 and R-134a are interchangeable refrigerant charges.

R-507, R-502 and R-404A are interchangeable refrigerant charges.

R-22 and R-407C are interchangeable refrigerant charges.



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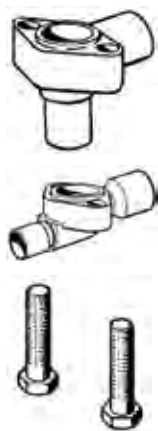
Thermostatic Expansion Valves



Alco

T Series - Bodies and Screws

1



Valve Style	Body						Screws: 2 required			
	Cat. No.	Model No.	Part No.	Connections		List Price \$ Exc. GST	Cat. No.	Model No.	Part No.	List Price \$ Exc. GST
				Inlet	Outlet					
TCLE	102201	C501-5	803232	3/8" ODF	5/8" ODF	\$97.03	102222	PS286-5	021057	\$14.03
	102202	C501-7	803234	1/2" ODF		\$97.03				
	102203	A576	027764	5/8" ODF Or 7/8" ODM	7/8" ODF Or 1 1/8" ODM	\$94.63	102221	PS168-5	026629	\$14.03
	102207	9761-4	803350	1/2" ODF	5/8" ODF	\$148.93	102222	PS286-5	021057	\$14.03
	102208	X6346-17	803330	5/8" ODF	7/8" ODF	\$125.51				
TJLE	102210	B504	044984	5/8" ODF Or 7/8" ODM	7/8" ODF Or 1 1/8" ODM	\$193.66	102223	PS514-5	026639	\$15.22
TJRE	102199	10331	803338	5/8" ODF Or 1 1/8" ODM		\$148.55	102224	PS259	020829	\$18.65
	102198	10332	803324	7/8" ODF Or 1 1/8" ODM		\$160.92				
TER	102212	9153	803244			\$141.69				
	102213	9152	803244			\$198.72				
TIR	102214	9151	803286		1 1/8" ODM	1 1/8" ODM	\$257.84	102225	PS370	021064
THR	102216	9149	803284	1 1/8" ODM			\$180.24			

Nominal Capacities

Valve Style	Cat. No.	Model No.	Part No.	Nominal Capacity: kW								List Price \$ Exc. GST
				R22			R134a			R404A/R507		
				A/C	M/T	L/T	A/C	M/T	L/T	M/T	L/T	
TCLE	102117	X22440-B1B	037035	1.8	2.0	1.3	1.4	1.4	1.0	1.2	0.9	\$121.22
	102118	X22440-B2B	037037	3.6	3.8	2.6	2.6	2.8	1.9	2.4	1.7	\$121.22
	102119	X22440-B3B	037039	7.6	8.1	5.5	5.5	5.8	3.9	5.3	3.7	\$121.22
	102120	X22440-B4B	037041	16.7	17.8	12.1	12.3	12.8	8.7	11.5	8.1	\$121.22
	102122	X22440 B5B	037043	21.5	22.8	15.5	15.7	16.4	11.1	14.8	10.5	\$128.86
	102123	X22440 B6B	037045	29.4	31.2	21.2	21.4	22.4	15.2	20.2	14.3	\$128.86
	102125	X22440-B7B	037047	39.7	42.2	28.7	29.1	30.4	20.6	27.3	19.3	\$128.86
	102126	X22440-B8B	037049	46.2	49.1	33.3	33.8	35.3	24.0	31.8	22.5	\$128.85
TJLE	102127	XC724-B4B	093343	38.6	41.7	33.8	27.7	29.1	20.9	26.9	21.7	\$318.31
	102128	XC724-B5B	038699	49.2	53.2	43.1	36.7	38.1	26.6	34.3	27.7	\$318.31
TJRE	102114	X11873-B4B	088837	56.0	59.6	40.5	40.9	42.7	29.0	37.6	26.7	\$318.31
	102115	X11873-B5B	089058	71.5	76.0	51.6	51.8	54.1	36.7	48.0	34.0	\$318.31
TER	102129	X9117-B6B	077896	87.9	93.5	63.5	64.5	67.4	45.7	59.2	42.0	\$318.24
	102116	X9117-B7B	078117	100.5	106.9	72.5	73.6	76.9	52.2	67.7	48.0	\$318.24
	102130	X9117-B8B	071155	138.2	146.9	99.8	101.7	106.3	72.2	93.1	66.0	\$318.24
	102131	X9117-B9B	029429	168.1	178.8	121.4	122.6	128.1	87.0	112.8	80.0	\$318.24
TIR	102132	X9166-B10B	070738	215.5	229.1	155.6	158.0	165.2	112.1	144.8	102.6	\$391.92
THR	102133	X9144-B11B	020846	244.5	260.0	176.5	179.0	187.0	126.9	163.6	113.9	\$452.38
	102134	X9144-B13B	021067	291.8	310.3	210.7	214.4	224.0	152.0	196.5	139.3	\$452.38

Nominal Capacities based on:

AC: 7°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.

LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling, 200kPa pressure drop across distributor and line components.



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Section 1

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Thermostatic Expansion Valves



Danfoss

Type T2, TE2- Valve Body (Less Orifice)

Flare Inlet and Outlet



Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Range Code	MOP	Connections			Capillary Length mm	List Price \$ Exc. GST
							Inlet	Outlet	Equaliser		
108050	TX2	068Z3206	R22	-40 to +10	N	N	3/8" MF	1/2" MF	Internal	1500	\$166.08
108046	TN2	068Z3346	R134a								\$166.08
108054	TS2	068Z3400	R404A R507								\$166.08
108051	TEX2	068Z3209	R22						External 1/4"		\$207.57
108047	TEN2	068Z3348	R134a								\$207.57
108055	TES2	068Z3403	R404A R507	-60 to -25	B	Y	3/8" MF	1/2" MF	External 1/4"		\$207.57
108059		068Z3404									\$228.39
108085	TS2	068Z3408	R404A R507	-40 to -15	NL	Y	3/8" MF	1/2" MF	Internal		\$166.08
108086	TES2	068Z3409		-40 to -15	NL				External 1/4"		\$228.39

Flare Inlet and Solder Outlet

Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Range Code	MOP	Connections			Capillary Length mm	List Price \$ Exc. GST
							Inlet	Outlet	Equaliser		
108043	TX2	068Z3281	R22	-40 to +10	N	N	3/8" MF	1/2" OD	Internal	1500	\$166.08
108044	TN2	068Z3383	R134a								\$166.08
108058	TS2	068Z3414	R404A R507								\$166.08
108057	TEX2	068Z3284	R22						External 1/4"		\$207.57
108045	TEN2	068Z3385	R134a								\$207.57
108056	TES2	068Z3415	R404A R507	-60 to -25	B	Y	3/8" MF	1/2" OD	Internal		\$207.57
108061	TS2	068Z3420							\$166.08		
108087	TES2	068Z3430		-40 to -15	NL				External 1/4"		\$228.39

Orifice Assembly (Including Strainer)

Cat. No.	Orifice No.	Danfoss TX Valve Nominal Capacities*						List Price \$ Exc. GST
		R22		R134a		R404A		
		M/T	L/T	M/T	L/T	M/T	L/T	
108020	0X	0.62	0.56	0.44	0.38	0.39	0.35	\$51.64
108027	00	1.29	1.13	0.81	0.66	0.83	0.70	\$51.64
108021	01	2.90	2.09	1.57	1.03	1.88	1.30	\$51.64
108022	02	4.31	2.94	2.23	1.43	2.80	1.85	\$51.64
108023	03	7.67	5.27	3.99	2.55	4.90	3.30	\$51.64
108024	04	11.40	7.76	5.87	3.73	7.30	4.90	\$51.64
108025	05	14.50	9.84	7.45	4.75	9.30	6.20	\$51.64
108026	06	17.60	11.96	9.09	5.80	11.30	7.60	\$51.64

Nominal Capacities based on:

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling.

LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling.



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Thermostatic Expansion Valves



Danfoss

Type TUA, TUAE - Valve Body Solder Inlet and Outlet

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Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Range Code	MOP	Connections			Capillary Length mm	List Price \$ Exc. GST
							Inlet	Outlet	Equaliser		
108112	TUA	068U2235	R22	-40 to +10	N	N	3/8" OD	1/2" OD	Internal	1500	\$166.08
108120		068U2205	R134a								\$166.08
108128		068U2285	R404A R507								\$166.08
108116	TUAE	068U2237	R22	-40 to -5	NM	Y	3/8" OD	1/2" OD	External 1/4"	1500	\$207.57
108124		068U2207	R134a								\$207.57
108132		068U2287	R404A R507								\$207.57
108133		068U2303	R404A R507								\$207.57

Orifice Assembly (Including Strainer)

Cat. No.	Orifice No.	Part No.	Danfoss TX Valve Nominal Capacities*						List Price \$ Exc. GST
			R22		R134a		R404A		
			M/T	L/T	M/T	L/T	M/T	L/T	
108150	0	068U1030	0.58	0.37	0.37	0.17	0.40	0.25	\$51.64
108151	1	068U1031	0.85	0.54	0.54	0.21	0.6	0.37	\$51.64
108152	2	068U1032	1.0	0.61	0.61	0.32	0.7	0.41	\$51.64
108153	3	068U1033	1.3	0.82	0.82	0.48	0.93	0.56	\$51.64
108154	4	068U1034	2.2	1.3	1.4	0.77	1.6	0.9	\$51.64
108155	5	068U1035	3.0	1.8	1.8	1.0	2.1	1.2	\$51.64
108156	6	068U1036	4.6	2.8	2.8	1.6	3.3	1.9	\$51.64
108157	7	068U1037	6.1	3.7	3.7	2.1	4.4	2.5	\$51.64
108158	8	068U1038	8.9	5.4	5.5	3.1	6.4	3.7	\$51.64
108159	9	068U1039	12.1	7.3	7.5	4.4	8.7	4.9	\$51.64

Nominal Capacities based on:

MT: -4°C evaporating temperature, 46°C condensing temperature, 1K liquid sub-cooling.

LT: -23.3°C evaporating temperature, 42°C condensing temperature, 1K liquid sub-cooling.



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Thermostatic Expansion Valves

Danfoss

Type TGE - Fixed Orifice TX Valve

R22



Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Nominal Capacity kW at 4.4°C	MOP	Connections: ODF			Capillary Length mm	List Price \$ Exc. GST		
							Inlet	Outlet	Equaliser				
	TGEX3	067N2150	R22	-40 to +10	10	N	3/8"	5/8"	External 1/4"	1500	P.O.A		
	TGEX3	067N2151			10		1/2"	5/8"			P.O.A		
108172	TGEX4	067N2152			14			7/8"			\$356.52		
108173	TGEX6	067N2153			20			5/8"			\$418.95		
108174	TGEX6	067N2154			20		5/8"	7/8"			\$418.95		
108175	TGEX6	067N2155			20						\$418.95		
108176	TGEX7.5	067N2156			27						\$418.95		
108177	TGEX11	067N2157			38						\$418.95		
	TGEX11	067N2158			38		5/8"	1 1/8"			P.O.A		
108179	TGEX12	067N2159			43			7/8"			\$570.47		

Nominal Capacities based on:

4.4°C evaporating temperature, 37°C liquid entering temperature, 38°C condensing temperature and 4K opening superheat

R407C

Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Nominal Capacity kW at 4.4°C	MOP	Connections: ODF			Capillary Length mm	List Price \$ Exc. GST
							Inlet	Outlet	Equaliser		
108196	TGEZ7	067N4156	R407C	-40 to +10	25	N	5/8"	7/8"	External 1/4"	1500	\$418.95
108197	TGEZ10	067N4157			36						\$418.95
108199	TGEZ12	067N4159			42						\$570.47

Nominal Capacities based on:

4.4°C evaporating temperature, 37°C liquid entering temperature, 38°C condensing temperature and 4K opening superheat



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Thermostatic Expansion Valves



Danfoss

Type TE5 - TE55 With Interchangeable Orifice Assembly



Cat. No.	Model No.	Part No.	Refrigerant	Evaporating Temp. Range °C	Range Code	MOP	Equaliser	Cap. Length	List Price \$ Exc. GST
109024	TEX5	067B3250	R22	-40 to +10	N	N	External 1/4"	3m	\$454.90
109028	TEN5	067B3297	R134a						\$454.90
109027	TES5	067B3342	R404A R507						\$454.90
110017	TEX12	067B3210	R22						\$629.91
109029	TEN12	067B3232	R134a						\$629.91
109030	TES12	067B3347	R404A R507						\$629.91
109031	TEX20	067B3274	R22						\$1,682.43
109032	TEN20	067B3292	R134a						\$1,682.43
109033	TES20	067B3352	R404A R507						\$1,682.43
109034	TEX55	067G3205	R22						\$1,878.96
	TEN55	067G3222	R134a						P.O.A
	TES55	067G3302	R404A R507						P.O.A

Orifice Assembly

Cat. No.	Model No.	Part No.	Valve Type	List Price \$ Exc. GST
	0.5	067B2788	TE5	P.O.A
109016	1	067B2789		\$175.20
109017	2	067B2790		\$175.20
109018	3	067B2791		\$175.20
109019	4	067B2792		\$175.20
109090	5	067B2708	TE12	\$299.02
109091	6	067B2709		\$317.88
109092	7	067B2710	TE20	\$333.06
109093	8	067B2771		\$509.04
109094	9	067B2773	TE55	\$509.04
109095	10	067G2701		\$523.70
109096	11	067G2704		\$523.70
109097	12	067G2707		\$523.70
109098	13	067G2710		\$523.70

Model No.	R22		R134a		R404A	
	M/T	L/T	M/T	L/T	M/T	L/T
0.5	9.7	6.7	6	3.9	7	4.8
1	17.9	12.4	11	7.1	12.9	8.8
2	25	17.4	15.4	10	17.9	12.3
3	31.5	21.8	19.5	12.7	22.6	15.4
4	43.1	29.4	26.5	17.1	30.9	20.8
5	50.3	34.5	32.6	21.5	40.3	26.2
6	66.5	44.5	42.8	27.8	50.5	31.9
7	81.5	55.5	54.6	36.2	60.1	38.2
8	115	78.1	67.3	43.6	70.9	46.1
9	128	84	76.8	49.0	78.6	49.6
10	145	92.9	91.6	56.5	98.2	60.3
11	157	101	100	62.2	106	65.3
12	170	108	109	67.1	114	69.6
13	204	130	133	82.0	136	82.6

Valve Body

Flare Angleway		List Price \$	Solder Angle		List Price \$	Solder Straight		List Price	Solder Flanges		List Price \$	Connections		Valve
Cat. No.	Part No.	Exc. GST	Cat. No.	Part No.	Exc. GST	Cat. No.	Part No.	\$ Exc. GST	Cat. No.	Part No.	Exc. GST	Inlet	Outlet	Type
109075	067B4013	\$178.77	109078	067B4009	\$178.77	109076	067B4007	\$178.77				1/2"	5/8"	TE5
			109079	067B4010	\$178.77	109077	067B4008	\$178.77				1/2"	7/8"	
			109080	067B4011	\$178.77		067B4032	P.O.A				5/8"	7/8"	
				067B4034	P.O.A		067B4033	P.O.A				7/8"	1 1/8"	
										067B4025	P.O.A	5/8"	7/8"	TE12
										067B4026	P.O.A	7/8"	1"	
			110053	067B4023	\$249.94	109081	067B4021	\$249.94				7/8"	1 1/8"	TE20
			109082	067G4004	\$357.46		067G4003	P.O.A				1 1/8"	1 3/8"	TE55



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Section 1

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Electronic Expansion Valves

Alco Ex Series

The E.X. range of electronic control valves from Emerson are optimised for control of liquid or gaseous mass flow in refrigeration systems. The stepper motor drive, which produces exact valve opening, is energised directly from the electrical power and therefore operates independent from differential pressure.

Application

The E.X. Series valves can be used in different control tasks, expansion valve for superheat control, suction pressure control for capacity control, liquid injection for desuperheating of compressor, condensing pressure control and hot gas bypass control to compensate excess compressor capacity and to ensure evaporating pressure does not go below a setpoint. The valve must be installed with the motor downward.

Features

- Fully hermetic design
- High linear flow capacity
- Positive shut-off function to eliminate use of additional solenoid valve
- Ceramic slide and port for highly accurate flow and minimal wear
- Compatible with all CFC's, HCFCs, HFCs, mineral and POE lubricants
- Stepper motor driven
- Wide capacity range
- Extremely wide controlling range of 10 to 100%
- Maximum working pressure 3500kPa

Valves



Cat. No.	Model No.	Part No.	Inlet Connection	Outlet Connection	Maximum Nominal Capacity: kW							List Price \$ Exc. GST
					R134a	R22		R404A		R410A		
						M/T	A/C	M/T	M/T	L/T	A/C	
107007	EX4-U31*	800617	5/8" ODF	5/8" ODF	12	16	17	11	11	18	20	\$858.37
107009	EX5-U31*	800619	5/8" ODF	7/8" ODF	37	48	51	33	33	56	59	\$907.65
107011	EX6-I31*	800622	7/8" ODF	1 1/8" ODF	89	115	122	80	80	134	143	\$925.61
107013	EX7-U31*	800626	1 3/8" ODF	1 3/8" ODF	243	316	336	219	220	369	395	\$1,025.79
107003	EX8-U21	800630	1 3/8" ODF	1 3/8" ODF	649	842	897	585	585	985	1053	\$1,606.43

* Suitable for Bi-flow applications

Superheat Controller kits



Cat. No.	Model No.	Part No.	Description	Suits	Kit Contents	List Price \$ Exc. GST
107014	EC3-X33-KIT	808036	Superheat Controller Kit	EX4 to EX8 Valves	EX3-X33 Controller K03-X33 Terminal Kit ECN-N60 Temperature Sensor PT4-07M Pressure Transducer PT4-M60 Transducer Cable ECT-623 Transformer	\$1,282.79

Accessories



Cat. No.	Model No.	Part No.	Description	List Price \$ Exc. GST
107005	EXV-M15	804663	Valve Lead 1.5 Metre	\$28.49
107018	ECD-002	807657	LED Display Unit	\$380.69
107030	ECC-N10	807860	RJ45 Connection Cable	\$11.36

Nominal Capacities based on:

M/T: 46°C condensing temperature, -4°C evaporating temperature and 1 K liquid subcooling at the inlet of the expansion valve.

L/T: 42°C condensing temperature, -23.3°C evaporating temperature and 1K liquid subcooling at the inlet of the expansion valve.

A/C: 46°C condensing temperature, 7°C evaporating temperature and 1K liquid subcooling at the inlet of the expansion valve.

Typical ordering package for expansion valve application (1 of each):

- Electronic Valve
- Valve Lead
- Superheat Controller Kit

Accessories (required for setting at start-up only):

- LED Display Unit
- RJ45 Connection Cable

As the EX Series of valves have stainless steel connections, Emerson require the use of 45% silver solder and flux during soldering and the valve must be "wet ragged".



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Electronic Expansion Valves stand out for their ability to provide accurate control and for their capacity to quickly reach and maintain the operating stability of refrigeration & air conditioning systems.

Features

- External driver motor
- Laser welded construction
- Positive valve shut-off
- Bi-directional flow (for reverse-cycle applications)
- Precision flow control (lowers energy costs)



Cat. No.	Part No.	Connection Size	Connection Size	Maximum Nominal Capacity: kW							List Price \$ Exc. GST
				R134a	R22		R404A		R410A		
				M/T	A/C	M/T	M/T	L/T	A/C	M/T	
107099	E2V05BSF00	1/2"	1/2"	1.2	1.3	1.4	0.9	1	1.5	1.7	\$455.58
107100	E2V09BSF00			2	1.9	2.4	1.5	1.7	2.6	2.9	\$455.58
107122	E2V11BSF00			3.5	3.7	4.2	2.7	3	4.6	5.2	\$455.58
107102	E2V14BSF00			5	6	6.5	4.3	4.7	7.3	8.2	\$455.58
107126	E2V18BSF00			7	8	9	6	6.4	10	11	\$455.58
107104	E2V24BSF00			14	16	18	12	12.8	19.6	22	\$455.58
107105	E2V30BSM00	5/8"	5/8"	20	24	27	18	18.9	29.5	33	\$455.58
107106	E2V35BSM00			28	35	37	23	26	40	45	\$455.58
107132	E3V45ASR00	3/4"	7/8"	47	60	65	42	45.5	71	80	\$1,095.96
107134	E3V55ASR00			70	80	95	62	67	105	117	\$1,095.96
107136	E3V65ASS00	7/8"	1 1/8"	95	115	130	85	90	140	157	\$1,195.67
107142	E4V85AST00	1 1/8"	1 3/8"	135	165	180	120	125	200	225	\$1,634.07
107144	E4V95AST00			180	230	250	165	170	270	300	\$1,808.42
107145	E5VA5AST00	1 3/8"		450	545	600	400	410	655	740	\$2,324.68
107146	E6VB2ASV00	1 5/8"	1 5/8"	900	1080	1200	750	800	1300	1450	\$2,846.52
	E7VC1ASZ00	2 1/8"	2 1/8"	1400	1730	2000	1250	1300	2080	2350	P.O.A

Nominal Capacities based on:

M/T: 46°C condensing temperature, -4°C evaporating temperature and 5k subcooling at the inlet of the expansion valve. 70% nominal capacity.

L/T: 42°C condensing temperature, -23.3°C evaporating temperature and 5k subcooling at the inlet of the expansion valve. 70% nominal capacity.

A/C: 46°C condensing temperature, 7°C evaporating temperature and 1k subcooling at the inlet of the expansion valve. 70% nominal capacity.



Electronic Expansion Valves

Carel

The EVD Evolution Series of controllers for electronic valves is the latest step in the development of the famous Carel drivers for superheat control. This instrument adds advanced functions and a new user interface that makes it even easier to use and configure. The new TWIN version can independently control two electronic expansion valves, and represents the ideal solution for two circuit units or different control functions (i.e. superheat and hot gas bypass).

The powersolution panels are prewired for a plug and play and fast installation in the field.

1

Powersolution Panels



Cat. No.	Part No.	Description	List Price \$ Exc. GST
107174	EDVPN01007	EEV Driver Panel Kit Without Ultracap (Kit contains all sensors and cables as well)	\$1,768.68
107176	EDVPN01008	EEV Driver Panel Kit With Ultracap (Kit contains all sensors and cables as well)	\$2,363.93
107177	EDVPN02008	EEV Twin Driver Panel Kit With Ultracap (Kit contains all sensors and cables as well)	\$3,133.10

Driver Kits

Cat. No.	Part No.	Description	Kit Contents	List Price \$ Exc. GST
107170	EVD00N3E5K	Driver Kit Carel Valve	E2VCABS600 EVD0000E50 SPKT0013R0 SPKC005310 NTC060HF01	\$933.46
107172	EVD00N3E2K	Driver Kit Universal Valve	E2VCABS60 EVD0000E20 SPKT0013R0 SPKC005310 NTC060HF01	\$1,265.87

Note:

The 0-5Vdc ratio-metric pressure transmitter included in the kit can be extended to a maximum distance of 10 meters. For distances up to 30 meters, a 4-20mA transmitter should be used instead.

Drivers



Cat. No.	Part No.	Description	List Price \$ Exc. GST
107164	EVD0000E50	Expansion Valve Driver EVO	Carel Valves
107166	EVD0000E20		Universal Valve Types
107165	EVD0000T50	Twin Expansion Valve Driver EVO	Carel Valves
107168	EVDIS00EN0	Removable Plug In Display for EVO	

Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
107112	E2VCABS600	Connector Cable 6m Shielded	\$97.22
107113	EEVMAG000	EEV Manual Driving Tool Set of 3	\$112.58
146382	NTC030HF03	Temperature Sensor - Clamp On	\$43.98
146326	SPKT0013R3	Pressure Transmitter - 100kPa to 930kPa	\$212.78
146147	SPKC002313	Pressure Transmitter Cable IP65	\$34.53
146116	TX60	Transformer 240V - 24V AC 60VA	\$247.81
107169	EVD0000UC0	Ultracap module: power fail backup device for EVD Evolution	\$549.48

Typical ordering package for expansion valve operation (1 of each):

• Electronic Valve • Valve Driver • Transformer • Connector Cable • Pressure Transmitter • Transmitter Cable • Temperature Sensor
EVDISS00EN0 removable display is used for commissioning & programming.



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UltraCella platform

The innovative solution for your cold rooms

UltraCella is the result of analysis, experience and understanding of current and future market requirements. It is a new generation of controllers based on the latest CAREL technology: this powerful platform can connect more probes and loads than other standard solutions, managing these with optimised and advanced control algorithms, for total cold room control.

With **UltraCella**, special care has been focused on usability in three different stage: installation, configuration and everyday operation. Users and customers with different levels of knowledge can use the unit easily according to their needs. With UltraCella, the user experience is highly satisfying for everyone, thanks to functions that are unique in the segment of cold room controllers.

ADRIACI PAC

CAREL Australia PTY LTD
PO BOX 6809, Silverwater Bus. Ctr. N.S.W. 1811 - Unit 37,
11-21 Underwood Rd Homebush N.S.W. 2140
Tel. (+61) 2 8762 9200 - Fax (+61) 2 9764 6933 - sales.au@carel.com

carel.com



Head Pressure Control Valves

Alco HP Series

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW (Min Capacity: kW)				List Price \$ Exc. GST
				R134a	R22	R404A R507	R407C	
117074	HP8T5-165	803512	5/8"	43.9 (8.8)	47.5 (9.5)	30.6 (6.1)	45.6 (9.1)	\$784.99

Nominal Capacities based on: 4°C evaporating temperature, 38°C condensing temperature, 1K liquid sub-cooling.

Head Pressure Control Valves

Alco CPHE Series

All CPHE hot gas bypass regulators are modular in design for easy installation and service and CPHE-3 to CPHE-6 valves provide superior partial load performance due to their double seat orifice design. All valves have external equalization.

Component Schedule

Valve Style	Power Assembly				Cage Assembly				Body					
	Cat. No.	Model No.	Part No.	List Price \$ Exc. GST	Cat. No.	Model No.	Part No.	List Price \$ Exc. GST	Cat. No.	Model No.	Part No.	Connections		List Price \$ Exc. GST
												Inlet	Outlet	
CPHE-1	117062	X7118-4	803202	\$735.21	102122	X22440-B5B	037043	\$128.86	102202	C501-7	065861	1/2" ODF	5/8" ODF	\$97.03
CPHE-2					102126	X22440-B8B	037049	\$128.85	102203	A576	027764	5/8" ODF or 7/8" ODM	7/8" ODF or 1 1/8" ODM	\$94.63
CPHE-3					102115	X11873-B5B	089058	\$318.31	102199	10331	029411	5/8" ODF or 1 1/8" ODM		\$148.55
CPHE-3.5	117064	X7428-2	803203	\$581.83	102116	X9117-B7B	078117	\$318.24	102212	9153	027919	7/8" ODF or 1 1/8" ODM	1 1/8" ODM	\$141.69
CPHE-4					102131	X9117-B9B	029429	\$318.24						
CPHE-5					102132	X9166-B10B	070738	\$391.92						
CPHE-6					102134	X9144-B13B	021067	\$452.38	102216	9149	028030	1 1/8" ODM	1 1/8" ODM	\$180.24



Danfoss KVC Hot Gas Bypass Capacity Regulators



Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R22	R134a	R404A R507	R407C	
117126	KVC12	034L0143	1/2"	7.6	4.8	6.9	8.4	\$512.88
117127	KVC15	034L0147	5/8"	14.9	9.4	13.6	16.4	\$512.88
117128	KVC22	034L0144	7/8"	19.1	12.0	17.4	21.0	\$769.57

Nominal Capacities based on: -10°C evaporating temperature, 25°C condensing temperature, Offset 70kPa

CPCE Capacity Regulators



Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R22	R134a	R404A R507	R407C	
117134	CPCE12	034N0082	1/2"	17.4	7.9	16.4	19.0	\$1,072.88

Nominal Capacities based on: -10°C evaporating temperature, 30°C condensing temperature, 4K reduction of suction temperature / suction pressure



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Crankcase Pressure Regulators



Alco

PRC Series

PRC Crankcase Pressure Regulators accurately maintain a predetermined maximum outlet pressure.

Cat. No.	Model No.	Part No.	Connection: ODF	Press. Range: kPa	Factory Setting: kPa	Press. Change Per Turn: kPa	Nominal Capacity: kW				List Price \$ Exc. GST
							R134a	R22	R404A R507	R407C	
118080	PRC-11A	SRJY5QALG1	5/8"	50 to 690	200	60	3.0	4.8	4.5	4.5	\$323.81
118081	PRC-11B	SRJY7QALG1	7/8"								\$323.81
118082	PRC-21D	SRJY9QALG1	1 1/8"			40	7.4	11.9	11.1	11.1	\$481.31
118083	PRC-21E	SRJY11QALG1	1 3/8"								\$481.31



Danfoss

KVL Series

Specifications

- Refrigerants CFC, HCFC, HFC
- Regulating range 20 to 600 kPa
- Factory setting 200 kPa
- Maximum working pressure 1800 kPa
- Temperature of medium -60°C to 130°C

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R22	R134a	R404A R507	R407C	
118030	KVL12	034L0043	1/2"	7.1	5.3	6.3	6.4	\$441.69
118032	KVL15	034L0049	5/8"				6.5	\$441.69
118035	KVL22	034L0045	7/8"					\$525.25
118037	KVL28	034L0046	1 1/8"	17.8	13.2	15.9	16.4	\$665.32
118039	KVL35	034L0052	1 3/8"					\$721.74

Nominal Capacities based on: -10°C suction temperature, 25°C condensing temperature, 20kPa Pressure drop in regulator



Throw away that old wet rag - here's your new space-age WetRag

Viper WETRAG® is a reusable putty made from the same materials found in the heat shield of the space shuttle.



- Reusable like a wet rag
- Protects surfaces, valves and other sensitive parts from heat damage
- Blocks direct and conductive heat transfer
- Use with MAP/Pro, Oxy/Acetylene, Mig, Tig, Arc and Propane torches
- Non toxic – no mess formula

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Evaporator Pressure Regulators

Alco PRE Series

Cat. No.	Model No.	Part No.	Connection: ODF	Press. Range: kPa	Factory Setting: kPa	Press. Change Per Turn: kPa	Nominal Capacity: kW				List Price \$ Exc. GST
							R134a	R22	R404A R507	R407C	
119003	PRE-11A	ERJY5QALG1	5/8"	50 to 690	200	60	3.0	4.8	4.5	4.5	\$404.88
119004	PRE-11B	ERJY7QALG1	7/8"								\$404.88
119005	PRE-21D	ERJY9QALG1	1 1/8"			40	7.4	11.9	11.1	11.1	\$586.47

Nominal Capacities based on:

4°C evaporating temperature, 38°C condensing temperature & 14kPa pressure drop across valve.

EPRB Series



Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R134a	R22	R404A/ R507	R407C	
119252	EPRB12T9	057242	1 1/8"	11.99	15.72	13.26	17.94	\$1,299.08
119254	EPRB16T11	057248	1 3/8"	21.10	27.71	23.35	29.19	\$1,792.69
119256	EPRB20T13	057251	1 5/8"	39.36	51.70	43.58	54.51	\$2,244.78

EPRBS Series

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R134a	R22	R404A /R507	R407C	
119262	EPRBS12T9	057245	1 1/8"	11.99	15.72	13.26	17.94	\$1,587.16
119264	EPRBS16T11	057250	1 3/8"	21.10	27.71	23.35	29.19	\$2,081.73
119266	EPRBS20T13	057253	1 5/8"	39.36	51.70	43.58	54.51	\$2,532.16

Note: Valves are supplied less coil (240V coil to suit: Cat. No. 123285 & J/Box Cat. No. 123050)



Danfoss KVP Series

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW				List Price \$ Exc. GST
				R22	R134a	R404A/ R507	R407C	
119207	KVP12	034L0023	1/2"	4.0	2.8	3.6	3.7	\$509.78
119206	KVP15	034L0029	5/8"					\$509.78
119203	KVP22	034L0025	7/8"					\$538.23
119204	KVP28	034L0026	1 1/8"	8.6	6.1	7.7	7.9	\$831.10
119205	KVP35	034L0032	1 3/8"					\$856.51

Nominal Capacities based on:

-10°C evaporating temperature, 25°C condensing temperature, 20kPa Pressure drop in regulator, 60 kPa offset



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Solenoid Valves



Alco

M36 Series

The M36 Series are 3 way solenoid valves, typically used for heat reclaim applications.

Features

- Compact size
- Maximum working pressure 3500kPa
- Pilot connection to suction line required, no minimum pressure drop
- No disassembly necessary for brazing
- Uses standard ASC solenoid coils



Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW			List Price \$ Exc. GST
				R134a	R22	R404A R507	
123212	M36-118	801421	1 1/8"	28.9	35.1	31.3	\$635.56

Note: Valves are supplied less coil (240V coil to suit: Cat. No. 123285 & J/Box Cat. No. 123050)

Nominal Capacities based on: 4°C evaporating temperature, 38°C condensing temperature, 15kPa pressure drop between valve inlet & outlet.

200RB Series (Less Coil)

Normally Closed Pilot-Operated – For Liquid and Discharge or Suction Gas Service

Features

- Extended Copper Tails for easy installation
- One coil fits all valve sizes
- Maximum working pressure 3450 kPa
- Low pressure differential required for full opening
- Maximum fluid temperature 121°C



Cat. No.	Part No.	Connection: ODF	Port Size mm	Nominal Liquid Capacity: kW						Opening Diff. Pressure kPa Min.	List Price \$ Exc. GST
				R134a		R22		R404A R507			
				Pressure Drop Across Valve: kPa							
				136	272	136	272	136	272		
123321	200RB4T3T	3/8"	6	15.2	21.5	16.2	22.9	10.7	15.1	Min 14 Max. 2070	\$154.84
123322	200RB4T4T	1/2"	6	15.2	21.5	16.2	22.9	10.7	15.1		\$154.23
123324	200RB7T5T	5/8"	11	42.8	60.6	45.1	63.8	29.8	42.1		\$257.00

240RA Series (Less Coil and Manual Stem)

Normally Closed Diaphragm Type – For Liquid and Discharge or Suction Gas Service

Features

- Extended Copper Tails for easy installation
- Stainless enclosing tube
- Maximum fluid temperature 121°C
- Reinforced teflon diaphragm with woven fiberglass
- Low pressure differential required for full opening
- Maximum working pressure 3450 kPa



Cat. No.	Part No.	Connection: ODF	Port Size mm	Nominal Liquid Capacity: kW			List Price \$ Exc. GST
				R22	R134a	R404A R507	
123109	240RA-9T7-T	7/8"	15	90	85	59.4	\$390.92
123113	240RA-16T9-T	1 1/8"	25	172	162.7	113.2	\$643.71
123114	240RA-16T11-T	1 3/8"					\$846.30
123116	240RA-20T13-T	1 5/8"	32	285.6	255.6	188	\$1,080.49

Solenoid Coils

For 200RB, 240RA, 702RA Valves

Cat. No.	Type	Voltage & Frequency	List Price \$ Exc. GST
123286	ASC2	24VAC 50/60Hz	\$105.13
123285		240VAC 50/60Hz	\$105.13
123287		120VAC 50/60Hz	\$132.06
123283	DS2- N15*	Cable Assy 1.5mt with 24VDC Chopper Plug	\$110.10

Type ASC2 have PG9 plug-in junction box

* Converts 123286 24VAC Coil to 24VDC applications



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Solenoid Valves

Castel

102, 103, 104, 105, 107 and 109 Series

For Fluorinated Refrigerants

Cat. No.	Part No.	Connection	240V Coil Included	Port Diam. mm	Opening Differential Pressure kPa		Fluid Temp. °C	Max Work Press. kPa	Kv** Factor m³/hr	List Price \$ Exc. GST
					Min.	Max. (MOPD)				

Normally Closed – Direct Operated – for Liquid and Hot Gas

123032	1020/2A7	1/4" Flare	Y	2.5	0	2100	-35 to 110	4500	0.175	\$103.71
123034	1028/2A7	1/4" ODS		2.2					0.15	\$114.06

Normally Closed – Servo Operated – for Liquid, Suction and Hot Gas

123036	1064/3A7	3/8" Flare	Y	7	5	2100	-35 to 110	4500	0.8	\$149.07	
123040	1068/3A7	3/8" ODS								\$160.56	
123037	1070/4A7	1/2" Flare		12.5					2.2	\$194.90	
123041	1078/4A7	1/2" ODS								\$212.72	
123038	1070/5A7	5/8" Flare								2.61	\$213.17
123042	1078/5A7	5/8" ODS									\$256.05
123043	1090/6A7	3/4" Flare		16.5					5.7	\$330.40	
123045	1098/6A7	3/4" ODS								\$363.89	
123044	1098/7A7	7/8" ODS								\$376.37	
123052	1099/9A7	1 1/8" ODS								\$464.90	
123054	1078/11A7	1 3/8" ODS		27	7				16	\$1,200.93	
123056	1079/13A7	1 5/8" ODS								\$1,247.57	
123057	1079/17A7	2 1/8" ODS							25	\$1,935.21	

A coil junction box is required- Cat. No. 123050 All Castel solenoid valves are supplied with a mounting bracket

1133 Series

For Water, Air, Light Oils and Brine (glycol-water solution)

Cat. No.	Part No.	Connection: FPT	240V Coil Included	Port Diam. mm	Opening Differential Pressure kPa		Fluid Temp. °C	Max. Work Press. kPa	Kv** Factor m³/hr	List Price \$ Exc. GST
					Min.	Max. (MOPD)				

Normally Closed – Servo Operated

123022	1133/3A7	3/8"	Y	12.5	10	1700 (247)	-15 to 110	3000	2.1	\$192.47
123023	1133/4A7	1/2"							2.2	\$192.47
123024	1133/6A7	3/4"		20	15	1200 (174)		1500	5.5	\$316.88
123025	1133/8A7	1"							6	\$325.42

A coil junction box is required- Cat. No. 123050. All Castel solenoid valves are supplied with a mounting bracket. When the valve is used with oils, the viscosity of the oil must be checked to ensure that the valve will 'Open'. **Kv Factor: Capacity of valve in m³/hr of water at 100 kPa pressure drop across valve.

Solenoid Coils

Cat. No.	Part No.	Power Supply	Suits Model	List Price \$ Exc. GST
123072	SM2/9200/RA7	240V, 50/60HZ	1133	\$44.26
123073	9149/R01	Junction Box		\$6.31
123046	HM2/9100/RA7	240V, 50/60 HZ	1020, 1028, 1034, 1038, 1048, 1050, 1058, 1064, 1068, 1070, 1078, 1079, 1090, 1098, 1099, 1132	\$36.68
123048	HM2/9100/RA2	24V, 50/60 HZ		\$36.68
123047	HM3/9120/RD1	12VDC		\$84.64
123049	HM3/9120/R22	24VDC		\$84.64
123050	9150/R02	Junction Box		\$6.78



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Solenoid Valves

Danfoss

EVR Series

EVR is a direct or servo operated solenoid valve for liquid, suction, and hot gas lines with fluorinated refrigerants. Valves are supplied less coil, which must be ordered separately.

Features

- Wide choice of coils for a.c and d.c
- Designed for media temperatures up to 105°C
- Suitable for all fluorinated refrigerants
- Extended ends for soldering make installation easy



Cat. No.	Model No.	Part No.	Connections		Coil Type	Manual Op.	Opening Differential Pressure With Standard Coil: kPa				Fluid Temp. °C	Max Work. Press. kPa	kv Value: m³/hr	List Price \$ Exc. GST					
			Size	Type			Min.	Max. (= MOPD) liquid											
								10W a.c.	12W a.c.	20W d.c.									
	EVR2	032F8056	1¼"	MF	a.c.	0.0	25		18	-40 to 105	4520	0.16	P.O.A						
		032F1201		ODF									P.O.A						
122151	EVR3	032F8107		MF	a.c./d.c.		N	0.05				21	25	3500	0.8	\$113.86			
122152		032F1206	ODF			\$113.86													
		032F8116	MF			P.O.A													
122150	032F1204	ODF		\$113.86															
122153	EVR6	032F8072	MF	a.c.		Y			0.20		21					25	3200	10.0	\$154.63
122154		032F1212	ODF																
		032F8079	MF				P.O.A												
122186	032F1209	ODF			\$154.63														
122155	EVR10	032F8095	MF		a.c.		Y	0.20				21	25	3200	16.0				\$265.63
122156		032F1217	ODF																
		032F8098	MF			P.O.A													
122188	032F1214	ODF		\$265.63															
122157	EVR15	032F8101	MF	a.c.		N			0.20	21	25					3200	25.0	\$322.63	
122158		032F1228	ODF																\$322.63
		032F8100	MF				P.O.A												
	032F1227				P.O.A														
122191	EVR20	032F1225			a.c./d.c.		Y	0.20				21	25	3200	16.0			122191	
122159		032F1240																	
		032F1254																	
	032F1264																		
	032F1274																		
	032F1244	1 1⁄8"		a.c.		N													P.O.A
	EVR22	032F3267	1 3⁄8"								6.0	P.O.A							
122160	EVR25	032F2201	1 1⁄8"	ODF	a.c/d.c	0.20	21	25	18	3200	10.0	\$1,470.59							
		032F2200										N		P.O.A					
		032F2208										Y		P.O.A					
	032F2207	1 3⁄8"	N										P.O.A						
	042H1106		Y										P.O.A						
	042H1105		N										P.O.A						
	042H1104		Y		P.O.A														
	042H1103	1 5⁄8"										16.0	P.O.A						
	EVR40	042H1110										25.0	P.O.A						
		042H1109										P.O.A							
		042H1112	2 1⁄8"									P.O.A							
		042H1111											P.O.A						

1) The kv is the waterflow in m³/h at a pressure drop across valve of 100kPa

2) MOPD for media in gas form is approx. 100kPa greater

3) Min. diff. pressure 7kPa is needed to stay open



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Solenoid Valves



Danfoss Solenoid Coils Alternating Current - AC



Cat. No.	Part No.	Voltage: v	Frequency: Hz	Watts	Connection	Applications	List Price \$ Exc. GST
122065	018F6707	24	50	10	Terminal Box IP67	EVR2 to 40 (NC) EVR6 to 22 (NO) EVRH4 to 40	\$132.82
122066	018F6711	115				EVRC	\$132.82
122067	018F6702	240				EVRA EVRAT	\$116.97
122068	018F6704	420				EVRS / EVRST PKVD	\$213.45
122071	018F6730	110	50/60			EVM (NC)	\$132.82

Direct Current - DC

Cat. No.	Part No.	Voltage: v	Watts	Connection	Applications	List Price \$ Exc. GST
122069	018F6856	12	20	Terminal Box IP67	EVR 2 to 15 (NC) EVR25 to 40 (NC/NO) EVR6 to 15 (NO) EVRC10 to 15 EVRA3 to 15 (NC) EVRA25 to 40 (NC) EVRAT10 to 15 (NC) EVRS / EVRST3 to 15 PKVD	\$116.97
122073	018F6857	24			EVM (NO/NC)	\$128.94
122074	018F6959	72	28		Compressor Unloading	\$143.36



Refco Solenoid Valve Operating Magnet

A solenoid valve operating magnet is a must for every tool kit. They are the quickest and easiest way to operate solenoid valves manually. Fits most solenoid valve stems.

Cat. No.	Model No.	Part No.	List Price \$ Exc. GST
123299	SVOM-18	4660507	\$113.64



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Water Regulating Valves

Penn

Pressure Actuated Water Regulating Valves



Cat. No.	Part No.	Connection Ins.	Refrig.	Max. Refrig. Pressure	Refrig.Press. Range: kPa	Pressure Element Conn.	List Price \$ Exc. GST
124030	V46AA-9600	3/8" BSP	R12, R134a R22, R502 R404A, R507	2200kPa	480 to 1170	760 mm Length with 1/4" Flare Nut	\$439.77
124031	V46AB-9600	1/2" BSP					\$475.25
124032	V46AC-9600	3/4" BSP					\$582.06
124033	V46AD-9600	1" BSP					\$1,278.94
124034	V46AE-9600	1 1/4" BSP					\$1,459.36

Cat. No.	Part No.	Connection Ins.	Refrig.	Max. Refrig. Pressure	Refrig.Press. Range: kPa	Pressure Element Conn.	List Price \$ Exc. GST
124020	V246GD1B001C	1" BSP Screw	R410A	4340kPa	1380 to 2760	1/4" MF	\$1,783.38
124022	V246GE1B001C	1 1/4" BSP Screw					\$2,043.15
124024	V246GR1B001C	1 1/2" Flange					\$2,395.32

Zone Water Valves

SIEMENS

Siemens

MVI Series

MVI is a complete valve and actuator assembly ideal for air handling unit applications. Flow of chilled/heating water is controlled by a simple on/off motion.



Cat. No.	Model No.	Description	Connection	Voltage	List Price \$ Exc. GST
124120	MVI 421.15	On/Off control valve with return spring	1/2"	230 VAC	\$272.42
124121	MVI 421.20		3/4"		\$546.59

SGS65 Series Actuator

SGS65 Actuator fits a range of Siemens Valves for modulating the flow of chilled/heating water and is ideal for air handling units. Can also be used in place of SSB61 & SSC61 actuators.



Cat. No.	Model No.	Voltage	Signal Voltage	Stroke	List Price \$ Exc. GST
124130	SQS65	24VAC	0-10V	5.5mm	\$758.99



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Reversing Valves



Ranco

Reversing Valves - 4 Way

Ranco Reversing Valves are slide-type 4-way valves which operate under full pressure of a Heat Pump system. They are hermetically constructed and operation is controlled by a Solenoid Coil on a single Pilot Valve, which is an integral part of the main valve.



Cat. No.	Part No.	Connections: ODS		R22 Capacity kW		R410A Capacity kW		M.O.P.D. kPa	Min. Operating Pressure kPa	Max Operating Pressure kPa	List Price \$ Exc. GST
		Disch.	Suct. & Coils	Min	Max	Min	Max				
126020	V2-408064-2IL	3⁄8"	1⁄2"	2.64	7.03	3.17	7.74	3030	100	4690	\$122.50
126019	V3-410084-7IL	1⁄2"	5⁄8"	3.52	9.85	4.22	10.9				\$151.11
126022	V6-412084-1IL		3⁄4"	3.52	19.34	4.22	23.56				\$261.37
126023	V6-414084-1IL		7⁄8"								15.83
126024	V10-414084-2IL			3⁄4"	15.83	34.82	19.7				
126025	V10-414124-2IL	7⁄8"	1 1⁄8"								15.83
126026	V10-418144-2IL	1 1⁄8"	1 3⁄8"	21.1	49.24	26.38	59.09				\$336.90
126021	V12-4220T4-2IL										\$653.40

Capacity Valves are based on 7.2 °C evaporating, 5.6 KTD Superheat, 54.4 °C condensing, 5.6K subcooling.

Maximum capacity at 14kPa pressure drop.

Reversing Valve Solenoid Coils

Cat. No.	Part No.	Voltage	Description	List Price \$ Exc. GST
126033	LDK-41	240V 50Hz	Suits New Series 4 V2, V3, V6, V10 and V12 Valves	\$57.66
126034	LDK-11	24V 50Hz		\$57.66

Reversing Valve Coils are designed to operate valves at 10% over and 15% under the rated coil voltage at a 27°C ambient temperature, with 0.15 m/s air movement over them.



Emerson Solenoid Coils

Cat. No.	Type	Voltage & Frequency		Description	List Price \$ Exc. GST
123286	ASC2	24VAC	50/60Hz	Suit old style reversing valves with coil retaining clip	123286
123285		240VAC			123285
123287		120VAC			123287
123288	RMF	240VAC		Suit new style reversing valves with coil retaining screw	123288
123289		24VAC			123289



Sump Pump Switches

Penn

F59 Series – Weight Operated

Switch to start electric motor on liquid level rise, stop motor on liquid level drop. Cuts in when upper weight is submerged approximately halfway. Cuts out when lower weight is approximately half-exposed. Each switch includes 1m polyethylene cable and two weights.

Electrical Ratings: 1HP at 120/240 VAC, 1/4 HP at 32 VDC.



Cat. No.	Part No.	Contact Action	Mounting	Wiring	List Price \$ Exc. GST
143310	F59A-1	DPST Close on Rise (Reversible)	Fixed Mounting Bracket	Two holes with grommets in case for Drop Cord Wiring	\$615.14
143311	F59A-2		Universal Mounting Bracket and 600mm strap for mounting on the motor, on the pedestal or on the discharge pipe		\$471.78
143312	F59H-1		Fixed Mounting Bracket	Conduit Wiring, 22mm Conduit openings in case	\$416.36
143313	WGT11A-601R		Replacement Weight Kit		\$114.41



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Liquid Flow Switches

Penn

F61 Series – Low Flow Rate

For use on liquid lines using water, ethylene glycol solutions or other liquids not injurious to the brass and phosphor bronze parts. SPDT contact switch is activated by a low flow rate; however, it has a large flow capacity with minimum pressure drop.

Ambient Temperature: 0°C to 82°C.



Cat. No.	Part No.	Connection	Enclosure	Adjustment Range l/s		Liquid Temp. Range °C	Max. Liquid Press. kPa (psig)	Electrical Rating	List Price \$ Exc. GST
				R to Y Closes Flow Increase	R to Y Opens Flow Decrease				
143291	F61KD-3	1/2" FNPT	General Purpose	Min. 0.038	Min. 0.019	0 to 120	1030 (150)	8 amp 240V AC	\$442.18
143292	F61KD-4	3/4" FNPT		Max. 0.069	Max. 0.057				\$546.50

F61 Series – Standard Flow Rate

This flow switch may be used in liquid flow lines carrying water, ethylene glycol or any liquid not harmful to brass or phosphor bronze and not classified as a hazardous fluid. Switch contacts are SPDT.

Note: The control is designed for interlock purposes or 'no flow' protection. Where critical or high value products are to be protected, a separate back-up control should be used. Adjustment Control is factory set at approx. minimum flow rate, field adjustable by means of range screw under cover.



Cat. No.	Part No.	Connection	Enclosure	Max. Liquid Press. kPa (psig)	Max. Liquid Temp. °C	Min. Liquid Temp. °C	Min. Ambient Temp. °C	Electrical Rating	List Price \$ Exc. GST
143290	F61SB-9100	1" MBSP	IP43 Splash Proof	1034 (150)	120	4	-40	8 Amp 240V AC	\$489.28
143289	F61KB-11	1" MNPT	IP30 General Purpose			-29	-34		\$228.82
143297	F61MB-1		IP66 Raintight						
143298	KIT21A602	3 Piece Set Replacement Stainless Steel Paddle and 6" Paddle							\$68.82

alre

ALRE

Liquid Flow Switch



Cat. No.	Model No.	Connection	Enclosure	Max Liquid Temp °C	Min Liquid Temp °C	FLA 240VAC	List Price \$ Exc. GST
143285	JSF-IE	1" BSP	IP65	120	-50	8	\$524.82

SIEMENS

Siemens

Liquid Flow Switch



Cat. No.	Model No.	Connection	Enclosure	Max Liquid Temp °C	Min Liquid Temp °C	FLA 240VAC	List Price \$ Exc. GST
143300	QVE1901	1/2" BSP	IP65	110	-20	8	\$518.85



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Air Flow Controls

Penn

P32 Series Air Differential Pressure Switch

Cat. No.	Part No.	Switch Action	Range Pa	Sensitivity at Min. Set Point Pa	Set Point	Scale Plate	Bracket Type	List Price \$ Exc. GST
143075	P32AC-2*	SPDT	12 to 1240	10	Adjust.	Yes	U	\$118.20
143077	P32AF-2*		12 to 1240	6			U	\$163.80

*Supplied with 1/4" compression fitting, 100mm extension tube, 2 mounting screws, 'O' gasket, angle barb fitting installed.

F62 Series Air Flow Switch

Cat. No.	Part No.	Paddle Size mm	Max. Ambient Temp. °C	Max. Air Velocity m/s	Dimensions mm (Including Paddle)	List Price \$ Exc. GST
143295	F62AA-8	54 x 175	40	10	265 High x 100 Wide x 70 Deep	\$597.57
143296	F62AA-9	79 x 175				\$624.05

CAREL

Carel

Differential Pressure Switch Kit

Cat. No.	Part No.	Switch Action	Range Pa	FLA 240VAC	Differential ΔP	Pressure Connection	List Price \$ Exc. GST
143078	DCPD011100*	SPST	20-200	1	Adjustable	1/8" Nipple	\$74.82

*Complete with installation hoses, terminals and nipples

SIEMENS

Siemens

Differential Pressure Switch

Cat. No.	Part No.	Switch Action	Range Pa	FLA 240VAC	Differential ΔP	Pressure Connection: mm	List Price \$ Exc. GST
143054	930.8022252	SPST	20-200	1	Adjustable	6	\$105.73





Anti Sweat Controls

Emerson



Features

- Works standalone and can be networked with Emerson E2
- 1 x ACC can control up to 10amps
- Fits in mullion or electrical raceway
- Zero crossing switching - Minimises electrical noise and ensures long life of triac

ACC Series - Kits

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149082	815-6102	ACC Anti-condensate Control Kit	\$645.67



ACC Series - Components

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149080	815-6101	ACC Anti-condensate Control with Temperature Sensor	\$429.83
149081	814-6115	ACC Anti-condensate Dew Point Sensor	\$273.82



Carel

ACC Anti Sweat Heater Controller

The Carel ACC is an innovative anti-sweat controller designed to control the anti-sweat heaters that prevent the formation of condensation on cold surfaces, such as the glass doors of vertical refrigerated display cabinets.



ACC Series - Din Rail Mount

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146370	ACC0082100	Anti-sweat control 230V 8A	\$521.52

ACC Series - Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146380	DPWC115000	Wall mount temperature and humidity probe	\$392.41
146381	NTC060WG00	Glass temperature probe, 6m	\$89.89

Typical Ordering Package

- Anti-sweat control
- Glass temperature probe
- Wall mount temperature and humidity probe



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Fan Speed Controls

Emerson

FSM Series - Electronic Fan Speed Control



Cat. No.	Part No.	Pressure Range kPa	Modulating Band kPa	Factory Setting @ Max. Speed kPa	Max. Proof Test kPa	Max. Cont. Current Amps	Supply Voltage	List Price \$ Exc. GST
143060	FSM-42S	1310 to 2480	379	1620	3585	3	230 Vac.	\$401.20

CAREL

Carel

Single Phase Fan Speed Control



Cat. No.	Part No.	Description	List Price \$ Exc. GST
143065	FCPM00A01K	Fan Speed Control Kit 1 PH 8 AMP	\$791.32

Kit includes (1 of each):

- FCP Control
- Pressure Sensor 0 - 3400kpa
- Connector Cable

Three Phase Fan Speed Board



Cat. No.	Part No.	Description	List Price \$ Exc. GST
143067	FCS3204000	Fan Speed Board 20Amp	\$2,913.31
143069	FCS3404010	Fan Speed Board 40Amp	\$3,840.36

Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146329	TRADR4W024	Transformer Din rail 240V - 24VAC 4VA	\$84.97
146137	SPKT0031C3	Pressure Transmitter 0-3000 kPa	\$286.27
146147	SPKC002313	Pressure Transmitter Cable IP65	\$34.53

Typical ordering package for three phase fan speed control (1 of each):

- IR33E9 controller
- Fan Speed Board
- Transformer
- Pressure Transmitter
- Transmitter Cable

Penn

P215PR Series

The P215PR series are direct mount featuring easy setpoint adjustment using the top screw.



Cat. No.	Model No.	Range kPa	Proportional Band kPa	Max. Overrun Press. kPa	Electrical Rating	Pressure Connection	Operating Ambient Temp. °C	List Price \$ Exc. GST
143070	P215PR-9200	1000 to 2500	450	4000	3A	1/4" FF	-20 to 55	\$326.63



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Features

- Ease of wiring and adjustment
- S.P.D.T. contacts standard on all P77 pressure controls
- Stable switching points
- All Model have IP-54 enclosure Case and Cover: Aluminium diecast
- Leakproof bellows
- Ambient Temperature Limits: -50°C to 55°C (70°C Max. 2 hours)
- All dual pressure controls have two alarm circuits for separate low pressure and high pressure cut-out indication (except P78ALA-9351)

P77 Series Single Pressure



Cat. No.	Part No.	Range kPa	Differential kPa	Press. Conn.	Max. Bellows Press.	List Price \$ Exc. GST
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Low Pressure Controls for Non-Corrosive Refrigerants

143081	P77AAA-9300	-50 to 700	50 to 300	1/4" M. Flare	2200 kPa	\$139.76
143082	P77BCA-9300		Manual Reset			\$147.19

Low Pressure Controls for Ammonia and Non-Corrosive Refrigerants

143083	P77AAA-9700	-50 to 700	50 to 300	1/4" FNPT	1400 kPa	\$531.61
143084	P77BCA-9700		Manual Reset			\$465.07

High Pressure Controls for Non-Corrosive Refrigerants

143087	P77AAA-9350	300 to 3000	300 to 1200	1/4" M. Flare	3300 kPa	\$122.03
143088	P77BEA-9350		Manual Reset			\$143.40

Fan Cycling Control for Air Cooled Condensers for Non-Corrosive Refrigerants

143086	P77AAA-9351	350 to 2100	210 to 550	1/4" M. Flare	3000 kPa	\$147.02
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High Pressure Controls for Ammonia and Non-Corrosive Refrigerants

143089	P77AAA-9750	300 to 3000	300 to 1200	1/4" FNPT	3300 kPa	\$433.99
143090	P77BEA-9750		Manual Reset			\$437.98

P78 Series Dual Pressure



Cat. No.	Part No.	Low Pressure		High Pressure		Press. Conn.	Max. Bellows Press. kPa	List Price \$ Exc. GST
		Range kPa	Differential kPa	Range kPa	Differential kPa			

Dual Pressure Controls for Non-Corrosive Refrigerants

143095	P78LCA-9300	-50 to 700	50 to 300	300 to 3000	300 fixed	1/4" M. Flare	2200 L 3300 H	\$217.18	
143097	P78MCA-9300		Manual Reset		Manual Reset			\$223.86	
143099	P78PGA-9300							\$222.72	

Dual Pressure Controls for Ammonia and Non-Corrosive Refrigerants

143096	P78LCA-9700	-50 to 700	50 to 300	300 to 3000	300 fixed	1/4" FNPT	1400 L 3300 H	\$786.92
143098	P78MCA-9700				Manual Reset			\$950.72

Dual Fan Cycling Control for Air Cooled Condensers for Non-Corrosive Refrigerants

143100	P78ALA-9351	350 to 2100	180 fixed	350 to 2100	180 fixed	1/4" M. Flare	3000 L 3000 H	\$227.30
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Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
147050	290-0404	Capillary Adaptor	\$31.94
147049	290-0404D	Capillary Adaptor with Depressor	\$35.34
147051	31696-1	Mounting Bracket	\$12.29



Pressure Controls

RANCO

Ranco

016 & 017 Series

Ranco 'O' Series commercial refrigeration and air conditioning controls are available for low pressure, high pressure and dual pressure applications. All controls have SPDT electrical contacts.

Variations include fixed and adjustable differential, operation on rise and fall of pressure, automatic cycling or manual reset. Accessories include mounting brackets and capillary adaptors.



Cat.No.	Part No.	Description	Adjust. Range kPa	Differential kPa	Pressure Connection	List Price \$ Exc. GST
147001	016-8706	Low Pressure Control	-30 to 700	60 to 400	1/4" Male Flare	\$126.76
147002	016-8713	Low Pressure Control			910mm Cap. 1/4" Fl. Nut	\$156.05
147003	016-8705	Low Pressure Control with Manual Reset		60 Fixed	1/4" Male Flare	\$139.45
147004	016-8750	High Pressure Control	700 to 3000	250 to 800	1/4" Male Flare	\$135.46
147005	016-8751	High Pressure Control with Manual Reset		320 Fixed	1/4" Male Flare	\$150.83



Cat. No.	Part No.	Description	Low Pressure		High Pressure		Pressure Connection	List Price \$ Exc. GST
			Adj. Range kPa	Adj. Diff. kPa	Adj. Range kPa	Fixed Diff. kPa		
147027	017-8711	Dual Pressure Control	-30 to 700	60 to 400	700 to 3000	345	910mm Cap. Fl. Nut 1/4"	\$256.08
147028	017-8701	Dual Pressure Control					1/4" Male Flare	\$198.99
147030	017-8705	Dual Pressure Control with Manual Reset on High Pressure Side					1/4" Male Flare	\$227.16
147032	017-8703	Dual Pressure Control with Manual Reset on High and Low Pressure Sides		Fixed 60			1/4" Male Flare	\$225.99

Accessories

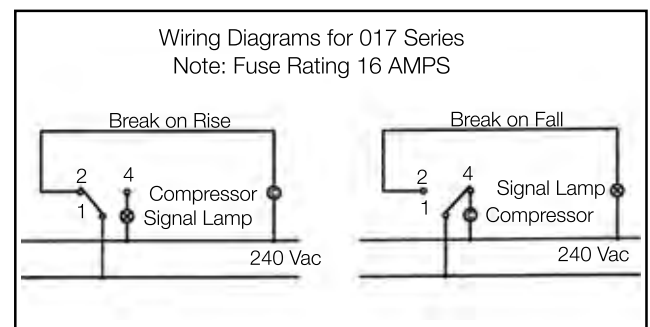
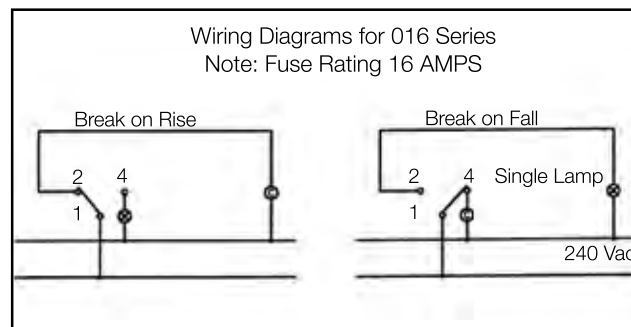


Cat. No.	Part No.	Description	List Price \$ Exc. GST
147050	290-0404	Capillary Adaptor	\$31.94
147049	290-0404D	Capillary Adaptor with Depressor	\$35.34
147051	31696-1	Pressure Control Mounting Bracket	\$12.29
147038	3600253006	Replacement Cover	016 Series Control \$9.69
147039	3600254004		017 Series Control \$9.69

Electrical Ratings:

Types: 016 – 240 Vac, 12A FLA, 72A LRA, with SPDT contacts

Types: 017 – 240 Vac, 12A FLA, 72A LRA, with SPDT contacts



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Section 1

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Pressure Controls

Emerson

PS1/PS2/PS3 Series

1

PS1 Series Single Pressure

Cat. No.	Model No.	Part No.	Description	Adjustment Range: kPa	Differential: kPa	Connection	List Price \$ Exc. GST
147060	PS1-A3A	4370700	Low Pressure Control	-50 to 700	-50 to 500	1/4" MF	\$149.23
147064	PS1-A5A	4350500	High Pressure Control	600 to 3100	200 to 1500		\$154.56
147065	PS1-R5A	4350700	High Pressure Control with Manual Reset		Fixed approx 300 under setpoint		\$154.45

PS2 Series Dual Pressure



Cat. No.	Model No.	Part No.	Description	Low Pressure		High Pressure		Connection	List Price \$ Exc. GST
				Adj. Range: kPa	Diff.: kPa	Adj. Range: kPa	Diff.: kPa		
147070	PS2-M7A	4361300	Dual Pressure Control with Convertible Auto or Manual Reset on High Pressure Side	-5 to 700	-50 to 500	600 to 3100	Convertible adjustable or fixed	1/4" MF	\$286.86
147068	PS2-B7A	4360200	Dual Pressure Control with Manual Reset on High & Low Pressure Sides		Fixed approx 100 above setpoint		Fixed approx 400 under setpoint		\$294.88

PS3 Series

The PS3 series is a pressure switch with fixed switch point settings.

The direct compressor mounting Model No. with high pressure bellows and snubber reduces the number of joints.



Cat. No.	Model No.	Part No.	Description	Fixed Setting: kPa		Reset	Connection	List Price \$ Exc. GST
				Cut Out	Cut In			
147080	PS3-W6S	0715831	High Pressure Control	1400	1000	Auto	7/16" 20UNF Female with Schrader	\$162.74



Penn

P100 Series Encapsulated Pressure Switches



Cat. No.	Part No.	Switch Action	Application	Pressure Settings: kPa		List Price \$ Exc. GST
				Opens	Closes	
143101	P100LP-3560-L	Open on Fall	Low Cutout	241	414	\$110.77
143102	P100HP-4232-S	Open on Rise	High Cutout	2854	2240	\$110.77
143103	P100AP-201D	Open on Fall	Low Cutout	(69)	220	\$110.77
143104	P100AA-3D			1034	1551	\$110.77
143106	P100CP-1D	Open on Rise	High Cutout	2758	2068	\$121.67
143107	P100HP-4100-L			2827	Manual Reset	\$186.30



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Pressure Controls

Danfoss

KP Series Pressure Controls

Single Pressure



Cat.No.	Part No.	Model No.	Description	Reset	Connection	List Price \$ Exc. GST
139001	060-110191	KP1	Low Pressure Control	Auto	1/4"	\$140.64
139002	060-110566	KP1	Low Pressure Control	Auto	1/4" Capillary	\$164.08
139003	060-110366	KP1	Low Pressure Control	Manual	1/4"	\$136.74
139005	060-117191	KP5	High Pressure Control	Auto	1/4"	\$148.47
139007	060-117391	KP5	High Pressure Control	Manual	1/4"	\$132.83
139008	060-117466	KPR5	Fan Cycling High Pressure Control	Auto	1/4"	\$187.50

Dual Pressure



Cat.No.	Part No.	Model No.	Description	Reset		Connection	List Price \$ Exc. GST
				LP	HP		
139009	060-124166	KP15	Dual Pressure Control	Auto	Auto	1/4"	\$210.97
139011	060-124366	KP15	Dual Pressure Control	Auto	Manual	1/4"	\$234.40
139012	060-119966	KP15	Dual Pressure Control	Auto	Auto	1/4" Capillary	\$265.67
139013	060-124566	KP15	Dual Pressure Control	Manual	Manual	1/4"	\$253.93
139014	060-115466	KP15	Dual Pressure Control	Convertible	Convertible	1/4"	\$253.93

Single Pressure-Ammonia

Cat.No.	Part No.	Model No.	Description	Reset	Connection	List Price \$ Exc. GST
139015	060-116066	KP1A	Low Pressure Control	Auto	M10 x 0.75 Capillary	\$626.63
139016	060-116166	KP1A	Low Pressure Control	Manual	M10 x 0.75 Capillary	\$662.26
139017	060-123066	KP5A	High Pressure Control	Auto	M10 x 0.75 Capillary	\$626.63

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
139019	060-105566	Wall bracket for KP series controls	\$11.25
139020	060-105666	Angle bracket for KP series controls	\$11.25
147050	290-0404	Capillary Adaptor	\$31.94
147049	290-0404D	Capillary Adaptor with Depressor	\$35.34

Replacement Covers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
139021	060-008666	Front Cover for KP Single Pressure Controls	\$23.48
139022	060-011366	Front Cover for KP Dual Pressure Controls	\$43.83
139023	060-109766	Top Cover for KP Single Pressure Controls	\$13.73
139024	060-109866	Top Cover for KP Dual Pressure Controls	\$13.98

KPS Series Pressure Controls



Cat. No.	Model No.	Part No.	Range: kPa	Differential: kPa	Connection	List Price \$ Exc. GST
	KPS31	060-311066	0 - 250	10	G 1/4"	P.O.A
	KPS31	060-310966	0 - 250	10	G 3/8" A	P.O.A
	KPS33	060-310466	0 - 350	20	G 1/4"	P.O.A
139033	KPS33	060-310366	0 - 350	20	G 3/8" A	\$752.59
139034	KPS35	060-310566	0 - 800	40 - 150	G 1/4"	\$752.59
139035	KPS35	060-310066	0 - 800	40 - 150	G 3/8" A	\$752.59
	KPS35	060-310866	0 - 800	40	G 1/4"	P.O.A
139037	KPS37	060-310666	600 - 1800	85 - 250	G 1/4"	\$752.59
139038	KPS37	060-310166	600 - 1800	85 - 250	G 3/8" A	\$752.59
139039	KPS39	060-310766	1000 - 3500	200 - 600	G 1/4"	\$752.59
	KPS39	060-310266	1000 - 3500	200 - 600	G 3/8" A	P.O.A
139041	KPS43	060-312066	100 - 1000	70 - 280	G 1/4"	\$987.49
139042	KPS45	060-312166	400 - 4000	220 - 1100	G 1/4"	\$987.49
139043	KPS47	060-312266	600 - 6000	350 - 1700	G 1/4"	\$987.49



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Whether you're in the refrigeration or residential/commercial air conditioning business, you know how important it is to choose the right components for the smooth running and efficiency of the system. Take advantage of our expertise and let us help you reach even the most stringent energy efficiency standards.



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Danfoss



Temperature Controls

Refco

Wide Range Thermostat

Ideal for coolroom installations and other varied controls applications.

Cat. No.	Model No.	Range °C	FLA 240VAC	Bulb and Capacity	List Price \$ Exc. GST
144195	TSC-093	-30 to 30	15	1.5 Metres	\$89.76



Penn

Series A19

Cat. No.	Part No.	Switch Action	Range °C	Differential K	Bulb and Capillary	Range Adjuster	Max. Bulb Temp. °C	List Price \$ Exc. GST
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Adjustable Differential

144070	A19ABC-66	SPDT	0 to 43	2 to 8	9.5mm x 127mm 1.8m Cap.	Knob	60	\$460.68
144064	A19ABB-7	SPST Open High	10 to 94	3 to 13	7.5mm x 64mm 3m Cap.		116	\$509.31
144004	A19ABC-5	SPDT	10 to 55	2 to 8	9.5mm x 127mm 2.4m Cap.		77	\$463.53
144094	A19ABC-41		-35 to 40	1.7 to 6.7	9.5mm x 102mm 2.4m Cap.	Convertible	60	\$137.87
144057	A19ABC-67				9.5mm x 102mm 6m Cap.			\$567.62
144093	A19ABC-26	Open High & Low (Operating and Circulator) SPDT	38 to 121	3 to 13	Well Conn. 1/2" NPT	Convertible	143	\$427.51
144092	A19ABC-27	Remote Mtd. (Operating and Circulator) SPDT			1/2" NPT 2.4m Cap.			\$482.44



Fixed Differential

144063	A19AAF-49	SPDT	-4 to 107	1.9	9.5mm x 76mm 3m Cap.	Screwdriver Slot	135	\$549.34
144041	A19AAC-13	SPDT	40 to 120	3	9.5mm x 102mm 1.8m Cap.		143	\$459.74

Manual Reset

144059	A19ACA-28	SPST Open Low	-35 to 40	Manual Reset	9.5mm x 102mm 1.8m Cap.	Screwdriver Slot	60	\$281.24
144026	A19ACA-31	SPST Open Low			9.5mm x 102mm 3m Cap.			\$410.32
144071	A19ADB-26	SPST Open High	40 to 120	Manual Reset (Locks out High)	9.5mm x 89mm 1.8m Cap.	Knob	143	\$418.35
144089	A19ADB-27	SPST Open High			1/2" NPT			\$403.31
144065	A19ADB-11	SPST Open High	100 to 290	Manual Reset	7.5mm x 38mm 1.8m Cap.		327	\$725.35



For Cooling Towers

144037	A19ARC-9105	SPDT	5 to 50	2.5 to 11	10.5mm x 110mm 2m Cap. Neoprene Coated	Concealed	100	\$762.88
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Coiled Bulb

144054	A19BAC-3	SPDT	0 to 43	1.9 Fixed	35mm x 57mm Coiled	Convertible	60	\$315.19
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Hot Water – Strap On

144072	A19DAC-9	SPDT	40 to 120	6	Clamp on Strap supplied		143	\$320.34
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Temperature Controls

Penn

A25 Series – Manual Reset Limit Control

Cat. No.	Part No.	Switch Action	Range °C	Range Adj.	Dial Stop °C	Max. Element Temp. °C	List Price \$ Exc. GST
144049	A25CN-4	SPDT	-4 to 101	Knob	Set at 52	150	\$283.91

A28 Series – 2 Stage

Cat. No.	Part No.	Switch Action	Range °C	Differential K	Bulb and Capillary	Range Adjuster	Max. Bulb Temp. °C	List Price \$ Exc. GST
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Coiled Bulb – Fixed Differential

144040	A28AA-74	2 x SPDT	0 to 43	1.9 Ea. Stage 1.7 Fixed Int. Stage	35mm x 57mm Coiled	Convertible	60	\$692.18
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Adjustable Interstage Differential

144066	A28AA-28	2 x SPDT	0 to 43	1.9 Ea. Stage 1 to 4 Int. Stage	3.6 Averg. Bulb 1.8m Cap.	Screwdriver Slot	60	\$903.99
144031	A28AA-65		-35 to 40	2.8 Ea. Stage 1 to 4 Int. Stage	9.5mm x 102mm 2.4m Cap.*	Convertible		\$605.40
144067	A28AA-70		5 to 32	1.7 Ea. Stage 1 to 4 Int. Stage	9.5mm x 152mm 1.8m Cap.*	Knob	110	\$679.39
144068	A28AA-71		15 to 60	2.8 Ea. Stage 1 to 4 Int. Stage	9.5mm x 102mm 1.8m Cap.			\$723.42

*Packing nut assembly available for direct immersion applications (P/N FTG13A-60 OR)

For Cooling Towers – Rainproof

144047	A28MA-4	2 x SPDT	5 to 50	Factory Set 2.8 Ea. Stage 4.4 Int. Stage	9.5mm x 102mm Neoprene Coated 1.8 Cap.	Screwdriver Slot	99	\$1,041.85
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Ranco

Type 016 and 018

Cat. No.	Part No.	Adjust. Range °C	Diff. (High & Low Scale Limits Adj. or Fixed) K	Capillary and Bulb	List Price \$ Exc. GST
148001	016-6950	-35 to -7	1.7 to 12	2m with 9.5mm dia. Coiled Bulb	\$156.29
148002	016-6951	-18 to 13			\$158.26
148003	016-6954	-5 to 25			\$160.65
148005	016-6980	-18 to 13		2m with 14.5mm dia. Cross Ambient Bulb	\$176.39
148006	016-6981	-5 to 25			\$163.60
148008	016-6983	10 to 40			\$167.67
148016	016-8900	-18 to 13	4 to 31	2m with 4.5mm dia. Bulb	\$138.88
148020	016-6930	-34 to 32	4 to 25	1.52m with 9.5mm Cross Amb. Bulb	\$212.80
148011	018-100-080	No Adjustment	Phase Change at 0°C	1.83m with Special Bulb	\$240.79

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
148071	48129-1	Temperature Control Mounting Bracket	\$12.29
147038	360025300	Replacement cover to suit 016 series control	\$9.69



Temperature Controls

RANCO

Ranco

Service Thermostats



Cat. No.	Part No.	Application	Cold Out °C	Cold In °C	Warm Out °C	Warm In °C	Defrost Term. °C	Signal Op. °C	Cap. Length mm	List Price \$ Exc. GST
151051	VC 1	Compressor Refrig.	-23	-14.5	-	2	-	-	1200	\$35.74
151052	VA 2	Electric Absorption Refrigerator	-18	-14.5	-	3.5	-	-	2000	\$65.24
151053	VF 3	Freezer and Ice Cream Cabinet	-34	-	-16.5	-12	-	-	2000	\$65.24
151054	VP 4	Push Button Compressor Refrig.	-25	-	-10.4	-4	5.5	-	1200	\$116.19
151055	VS 5	Freezer with Standard Signal	-34	-	-16.5	-12	-	Cut-In 5 Above Cut-In	2000	\$65.24
151056	VR 6	Freezer with Reverse Signal	-34	-	-16.5	-12	-	Cut-Out 5 Above Cut-In	2000	\$116.19
151057	VB 7	Bottle or Beverage Cooler	-3	2	-	12.5	-	-	1200	\$65.24
151058	4000-08	Window Air Conditioner	15	18	-	34	-	-	1200	\$103.72
151059	VT 9	Two Temperature Refrigerator	-26	-	-11	-	3.5 Con. Cut-In	-	1200	\$42.90
151061	VX 0	Refrigerator Forced Draft Coil	-15	-	-5	-		-	1500	\$42.90

Danfoss

Danfoss

Service Thermostats



Cat. No.	Part No.	Kit. No.	Application	Cold		Warm		Defrost Term. °C	Signal Pos. Warm °C	Cap. Length mm	List Price \$ Exc. GST
				Cut-Out °C	Cut-In °C	Cut-Out °C	Cut-In °C				
151002	77B7001	1	Refrigerators	-25	-13.5	-5.5	2	-	-	1300	
151003	77B7002	2	Refrigerators Push Button Defrost	-21	-11	-7.5	0	6	-	1300	
151004	77B7003	3	Refrigerators Automatic Defrost	-27.5	3.5	-11	3.5	-	-	1600	
151005	77B7004	4	Absorption Refrig.	-11	-5	-1	3.5	-	-	1500	
151006	77B7005	5	Ice Cream Cabinets & Freezers without Signal	-32.5	-21	-15	-7.5	-	-	2300	
151007	77B7006	6	Freezers with Active Sig.	-34.5	-24	-17	-10	-	-6	2300	
151008	77B7007	7	Freezers with Passive Sig.	-34.5	-24	-17	-10	-	-6	2300	
151009	77B7008	8	Bottle and Liquid Coolers	-8.5	-1	6	11.5	-	-	2000	



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Section 1

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Temperature Controls

RANCO



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Type K59 Thermostat

Constant cut-in control with variable cut-out. Main switch (SPST) closes on rise of temperature.

Cat. No.	Part No.	Email Part No.	Cut-out °C			Constant Cut-in °C	Cap. Length mm	List Price \$ Exc. GST
			Cold	Normal	Warm			
151080	K59-P4914	1409448	-30	-23	-16	3.4	1100	\$34.63

Danfoss



Danfoss

Type 77B Thermostats

These thermostats have a constant cut-in temperature for automatic defrost with an SPST switch closing on rising temperature.

Cat. No.	Part No.	Email Part No.	Kelv. Part No.	Cut-out: °C		Constant Cut-in °C	List Price \$ Exc. GST
				Cold	Warm		
151011	77B6138	-	-	-12	-5.2	5	\$83.77
151012	77B6043	5371269	-	-29.7	-16.4	3.5	\$58.92
151013	77B6075	PJ1042	KA59882	-28.5	-19	4	\$58.92

RANCO



Ranco

Type A22 Thermostats (A22 – 2217)

Applications

- Harvest control for ice-making machines
- Cycling control for Heat Pumps with manual selection of heating and cooling

Cat. No.	Part No.	Coldest Permissible Cut-out °C	Warmest Permissible Cut-in °C	Range °C	Diff. K	Electrical Rating 240 VAC	Length mm	List Price \$ Exc. GST
152149	A22-2217	15.6	33.3	11.1	2.2	One Side FLA 20, LRA 80 Opp. Side FLA 10, LRA 40	760	\$115.30

A22 - 1129

Ice bin level control on ice-making machines

Cat. No.	Part No.	Range: °C	Differential: K	Capillary Length mm	List Price \$ Exc. GST
152151	A22-1129	1.6 to 10.5	3.4	1200	\$85.35

Type RCR De- Ice Control

Cat. No.	Part No.	Temperature °C		Contacts	Elect. Rating 240 VAC	Capillary Length mm	List Price \$ Exc. GST
		Cut-in	Cut-out				
152080	RCR-4852-2	3.9	-6.1	2-3 Close on Temp. Rise 2-1 Close on Temp. Fall	FLA 20 LRA 80	1220	\$113.67

* Replaces Ranco Model No. K22-L5006



Stokes

Type C28 Thermostat

Cat. No.	Part No.	Switch Action	Bulb Size mm	Capillary Length mm	List Price \$ Exc. GST
152084	C28-P1316	SPDT	9.5 dia. x 135 long	508	\$72.88

Stokes

DR152 Thermostat

Cat. No.	Part No.	Kelvinator Part No.	Temperature Range °C		List Price \$ Exc. GST
			Open	Close	
152001	DR152	KA55041	10	-4	\$56.40



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Carel

ir33+ Refrigeration Controllers

The ir33+ controllers are now replacing the IR33 controllers.

ir33+ Series – Panel Mount

Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)					
					Comp.	Fan	Defrost	Aux.		
332018	IREVM0LN0U	Thermometer	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	12 Vac/dc						\$187.55
332019	IREVM0EN0U			240 Vac						\$210.87
146581	IREVS0LN0U	Thermostat Med Temp		12 - 24 Vac/dc	12 (2)					\$203.12
146582	IREVS0EA0U			240 Vac	8 (4)			8 (4)		\$203.12
146583	IREVC0LN0U	Thermostat Low Temp		12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)		\$304.35
146584	IREVC0LC0U			12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)	Y	\$339.53
146585	IREVC0HN0U			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)		\$377.77
146586	IR33COHB00			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)	Y	\$410.37

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point

IR33 Platform Refrigeration Controllers

The IR33 Platform for refrigeration is a complete range of products designed especially for the control of stand-alone refrigeration units.

IR33 Series – Panel Mount



Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)					
					Comp.	Fan	Defrost	Aux.		
332025	IR33M00N00	Thermometer	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	12 Vac/dc						\$157.05
332026	IR33M0ER00			240 Vac						\$210.87
146300	IR33SOLR00	Thermostat Med Temp		12 - 24 Vac/dc	12 (2)					\$203.12
146301	IR33SOER00			240 Vac	8 (4)					\$188.60
146310	IR33COLR00	Thermostat Low Temp		12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)		\$282.60
146311	IR33COLB00			12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)	Y	\$315.28
146312	IR33COHR00			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)		\$350.78
146314	IR33COHB00			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)	Y	\$381.06

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point



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DN33 Series – Din Rail Mount



Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)					
					Comp.	Fan	Defrost	Aux.		
146304	DN33S0EN00	Thermostat Med Temp	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	240 Vac	10 (4)					\$288.85
146305	DN33S0HA00			240 Vac	10 (4)			8 (4)		\$373.24
146306	DN33C0LR00	Thermostat Low Temp		12 - 24 Vac/dc	10 (4)	10 (4)	8 (4)	8 (4)		\$354.41
146307	DN33C0HR00			240 Vac	10 (4)	10 (4)	8 (4)	8 (4)		\$450.12
	DN33C0HB00			240 Vac	10 (4)	10 (4)	8 (4)	8 (4)	Y	P.O.A
146308	DN33H0HB00			240Vac	10 (4)	10 (4)	8 (4)	4 (2 x 8)	Y	\$532.85

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point

MasterCella2 Series – Wall Mount



Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)					
					Comp.	Fan	Defrost	Aux.		
146334	MD33A5ER00	Thermostat Med Temp	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	240 Vac	12 (10)			8 (4) 10 (10)		\$482.27
146336	MD33D5EB00	Thermostat Low Temp		240 Vac	12 (10)	8 (4)	10 (4)	8 (4) 10 (10)	Y	\$577.62
146337	MD33D5FB00			240 Vac	12 (10)	8 (4)	10 (4)	8 (4) 10 (10)	Y	\$678.18

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point

MD33D5FB00 includes isolator switch

smartCella Refrigeration Controllers

smartCella is the new CAREL compact refrigeration controller for use in small cool room applications.

smartCella Series – Wall Mount

Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)					
					Comp.	Fan	Defrost	Aux.		
146620	WE00S1EN00	Thermostat Medium Temp	-50 to +90 (standard probe) or 0 to +150 (high range NTC probe)	230Vac	10 (4)					\$395.18
146621	WE00C2HN00	Thermostat Low Temp			10 (10)	8 (4)	10 (4)	8 (4)		\$492.18



Carel

UltraCella Refrigeration Controllers

UltraCella is the new CAREL refrigeration controller for use in medium to large cool room applications. It's modular concept allows UltraCella to be easily upgraded for extra functions when required such as EEV. It features 6 relays and a 0-10V output, it can control temperature and humidity and display 2 main variables on the front screen. The USB port provided allows you to copy the controller's configuration and to download the temperature logs from the room (log 1 temperature every 5 minutes for 4 years). A commissioning tool can also be used for quick and easy configuration of the controller. It uses standard NTC (-50 to +90°C), high temp NTC (0 to +150°C) and Pt1000 (-50 to +90°C) for temperature control management.

The EEV module kits contain the box with EEV all prewired, and all sensors and cables required for the superheat control of the circuit.

UltraCella Series – Wall Mount



Cat. No.	Part No.	Description	Power Supply	Relay						RTC HACCP*	List Price \$ Exc. GST
				Amps: Res (Ind)							
				Comp.	Fan	Defrost	Light	Aux1	Aux2		
146610	WB000DG0F0	Double display controller	240Vac	30 (12)	16 (10)	30 (12)	16 (10)	8 (8)	8 (8)		\$881.40

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point

Accessories - UltraCella

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146611	WM00ENNIOK	EEV module without ultracap	\$975.48
146612	WM00EUN00K	EEV module with ultracap	\$1,529.23
146613	PGDEWB0FZK	UltraCella service pGD with 3m cable S90CONN001	\$356.64

Accessories - IR33 Platform Refrigeration Controllers

NTC Sensors – Temperature



Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.	List Price \$ Exc. GST
146270	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1	\$25.62
146271	NTC015HPAP					10	\$213.39
146272	NTC030HP03				3	1	\$34.05
146273	NTC030HPAP					10	\$297.97
146274	NTC060HP03				6	1	\$61.02
146275	NTC060HPAP					10	\$552.38
146111	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1	\$40.58
146094	NTC030WH03				3		\$54.08
146095	NTC060WH03				6		\$68.28
146325	NTC015HT00	High Temp Plastic Probe IP55	0 to +150	50 kΩ @ 25 °C	1.5		\$41.69
146280	NTC030HT00				3		\$48.53
	NTC060HT00				6		P.O.A
146281	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6		\$166.31



Sensor Pockets

Cat. No.	Part No.	Type	Size	Thread	List Price \$ Exc. GST
	NTCSOBS003	Brass	8 x 60 mm	1/4" BSP	P.O.A
146269	NTCSOSS003	Stainless Steel			\$77.11

Serial Cards

The RS485 serial option is used to connect CAREL compatible controllers to a supervisory system such as PlantWatchPRO and PlantVisorPRO via a standard RS485 serial line.



Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
146330	IROPZ48500	RS485 Serial Card	IR33	\$143.22
146322	IROPZSER30		DN33	\$87.20
146338	IROPZSEM30		MD33	\$89.22

Remote Display and Interfaces

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
146323	IR00XGD000	Remote display	IR33, DN33, MD33	\$115.36
	IROPZDSP00	Remote display interface	IR33	P.O.A
146322	IROPZSER30		DN33	\$87.20
146338	IROPZSEM30		MD33	\$89.22
	PSTCON01B0	Connector for remote display	IR33, DN33, MD33	P.O.A
	PSTCON05B0			P.O.A
146166	PSTCON0300	Connector for remote display	MD33	\$21.16
	PSTCON1000			P.O.A

Other Accessories

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
146317	IROPZKEY00	Programming key	IR33, DN33, MD33	\$229.57
146704	IROPZKEYA0	240V Programming key		\$229.57
146320	IRTRRES000	IR Remote control		\$52.29
146079	RLY2402HP	Relay 240V coil 2HP 240V switching		\$50.69
146100	TRA12VDE00	Transformer 240-12V AC 3VA		\$30.96
146350	STRSIR0012	Strobe siren 12 Vac 100Db		\$119.63
146072	IRBOX200000	Large mounting box (with precut hole)	IR33	\$46.92

"Easy" Series Refrigeration Controllers



Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay				Digital Inputs*	RTC HACCP*	List Price \$ Exc. GST
					Amps: Res (Ind)						
					Comp.	Fan	Defrost	Aux.			
332028	PJEZMNN0E0	Thermometer	-50° to +90	240 Vac							\$160.79
146470	PJEZS0H000	Thermostat Med Temp			10 (10)				1		\$170.81
146472	PJEZSOG000							8 (4)	1		\$224.54
	PJEZS002E0			12 - 24 Vac/dc	8 (4)					P.O.A	
146473	PJS1YOV000	Thermostat Milk Vat		240 Vac	16 (8)	8 (4)*		8 (4)			\$339.83
146480	PJEZSNH0E0	Thermostat Med Temp Compact			10 (10)						\$164.55
146474	PJEZC00000	Thermostat Low Temp			8 (4)	8 (4)	8 (4)		1		\$213.14

* Stirrer Relay



Cat. No.	Part No.	Type	Control Model No.	Sensor Model No.	List Price \$ Exc. GST
146420	PJEZS0H0AP	Thermostat Med Temp	10 x PJEZS0H000	10 x NTC015HP00	P.O.A
146421	PJEZ0IB045		10 x PJS2XOH000		P.O.A
146426	PJEZS002E0AP		10 x PJEZS002E00		P.O.A
146424	PJEZSNH0E0AP	Thermostat Med Temp Compact	10 x PJEZSNH0E0		P.O.A
146422	PJEZC000AP	Thermostat Low Temp	10 x PJEZC00000	20 x NTC015HP00	P.O.A

Accessories – Easy series



NTC Sensors – Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.	List Price \$ Exc. GST
146270	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1	\$25.62
146271	NTC015HPAP					10	\$213.39
146272	NTC030HP03				3	1	\$34.05
146273	NTC030HPAP					10	\$297.97
146274	NTC060HP03				6	1	\$61.02
146275	NTC060HPAP					10	\$552.38
146111	NTC015WH03	Stainless Steel Probe IP68	-50 to +90	10 kΩ @ 25 °C	1.5	1	\$40.58
146094	NTC030WH03				3		\$54.08
146095	NTC060WH03				6		\$68.28

Other Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146317	IROPZKEY00	Programming key (batteries)	\$229.57
146704	IROPZKEYA0	Programming key (240V)	\$229.57
146330	IROPZ48500	RS485 serial card	\$143.22



MPXPRO Modular Supermarket Case Controllers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146408	MX30M25H00	Master Control (EEV)	\$876.48
146409	MX30M21H00	Master Control 5 Relays (No EEV)	\$450.34

Accessories- MPXPRO Series

NTC Sensors - Temperature



Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.	List Price \$ Exc. GST
146270	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1	\$25.62
146271	NTC015HPAP					10	\$213.39
146272	NTC030HP03				3	1	\$34.05
146273	NTC030HPAP					10	\$297.97
146274	NTC060HP03				6	1	\$61.02
146275	NTC060HPAP					10	\$552.38
146111	NTC015WH03	Stainless Steel Probe IP68	-50 to +90	10 kΩ @ 25 °C	1.5	1	\$40.58
146094	NTC030WH03				3		\$54.08
146095	NTC060WH03				6		\$68.28
146281	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6		\$166.31



PTC Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	List Price \$ Exc. GST
146193	PTC0150000	Bulb sensor IP65	0 to +150	1kΩ @ 25°C	1.5	\$40.86

Sensors - Pressure Transmitters

Cat. No.	Part No.	Type	Pressure Range	List Price \$ Exc. GST
146342	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar	\$286.27
146138	SPKT0021C3		-0.5 to 7 bar	\$286.27
146137	SPKT0031C3		0 to 30 bar	\$286.27
146344	SPKT00B1C3		0 to 45 bar	\$337.88
146326	SPKT0013R3	0-5V ratiometric pressure transmitter	-1 to 9.3 bar	\$212.78
146327	SPKT0033R3		0 to 34.5 bar	\$212.78
	SPKT0053R0		-1 to 4.2 bar	P.O.A
146345	SPKT00B6R0		0 to 45 bar	\$212.78

Connection Cables

Cat. No.	Part No.	Description	Length: M	List Price \$ Exc. GST
146147	SPKC002313	Connector for SPKT transmitter, IP65	2	\$34.53
146148	SPKC005310		5	\$51.98

Other Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
	MXOPZKEYA0	Programming key for MPXPRO (240V)	P.O.A
	IRTRMPX000	Remote control for MPXPRO	P.O.A
146414	IR00UGC300	Remote terminal (green LED, keypad, buzzer, IR)	\$113.60
	IR00XGC300	Display terminal (green LED, buzzer, IR)	P.O.A
	TRADRBE240	Transformer 240/24Vac 20VA Din rail mount with fuse holder	P.O.A
146390	TRA00BE240	Transformer 240/24Vac 20VA Panel mount with fuse holder	\$133.96

IR33*7 Universal Series – Panel Mount

The IR33 Universal Series of controllers is very flexible and can be used in many applications. The controller is selected depending on the number and type of outputs required. 9 preconfigured modes are available to select from or the user can completely reconfigure the use of the outputs. The IR33*7 series is for temperature applications. It is possible to connect NTC, NTC high temp, PTC and Pt1000 sensors to its inputs. The IR33*9 is for any application and can accept any inputs from the following list: NTC, NTC high temp, PTC, Pt1000, Pt100, J/K thermocouple, 0-1V, -0.5-1.3V, 0-10V, 0-5V ratiometric, 0-20mA and 4-20mA.

Cat. No.	Part No.	Power supply	Outputs type	List Price \$ Exc. GST
146502	IR33V7HR20	230 Vac	1 x SPDT Relay	\$335.90
146506	IR33V7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT Relay	\$297.30
146508	IR33W7HR20	230 Vac	2 x SPDT Relays	\$394.60
146512	IR33W7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays	\$345.98
146514	IR33Z7HR20	230 Vac	3 x SPDT + 1 x SPST Relays	\$453.94
146516	IR33Z7HB20*	230 Vac	3 x SPDT + 1 x SPST Relays	\$518.86
146518	IR33Z7LR20	12-24 Vac / 12-30 Vdc	3 x SPDT + 1 x SPST Relays	\$405.29
146520	IR33D7LR20	12-24 Vac / 12-30 Vdc	1 x 10Vdc SSR Output	\$322.13
146522	IR33A7LR20	12-24 Vac / 12-30 Vdc	4 x 10Vdc SSR Outputs	\$439.18
146524	IR33E7HB20*	230 Vac	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs	\$524.53
146526	IR33E7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs	\$418.57

* Controller has a built-in Real Time Clock

DN33*7 Universal Series – Din Rail Mount



Cat. No.	Part No.	Power supply	Outputs type	List Price \$ Exc. GST
146532	DN33V7HR20	230 Vac	1 x SPDT Relay	\$439.18
146534	DN33V7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT Relay	\$388.45
146536	DN33W7HR20	230 Vac	2 x SPDT Relays	\$470.24
146538	DN33W7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays	\$421.60
146540	DN33Z7HR20	230 Vac	4 x SPDT Relays	\$507.60
146542	DN33Z7HB20*	230 Vac	4 x SPDT Relays	\$569.70
146544	DN33Z7LR20	12-24 Vac / 12-30 Vdc	4 x SPDT Relays	\$460.99
146546	DN33A7LR20	12-24 Vac / 12-30 Vdc	4 x 10Vdc SSR Outputs	\$521.09
146548	DN33E7HR20	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs	\$534.71
146550	DN33E7HB20*	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs	\$595.15
146552	DN33E7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays + 2 x 10Vdc Outputs	\$489.20

* Controller has a built-in Real Time Clock

IR33*9 Universal Series – Panel Mount

Cat. No.	Part No.	Power supply	Outputs type	List Price \$ Exc. GST
146553	IR33V9HR20	230 Vac	1 x SPDT Relay	\$453.91
146554	IR33V9MR20	24 Vac/dc	1 x SPDT Relay	\$405.26
146555	IR33W9HR20	230 Vac	2 x SPDT Relays	\$502.51
146556	IR33W9MR20	24 Vac/dc	2 x SPDT Relays	\$453.91
146557	IR33Z9HR20	230 Vac	3 x SPDT + 1 x SPST Relays	\$562.02
	IR33Z9HB20*	230 Vac	3 x SPDT + 1 x SPST Relays	P.O.A
146559	IR33Z9MR20	24 Vac/dc	3 x SPDT + 1 x SPST Relays	\$513.39
	IR33A9MR20	24 Vac/dc	4 x 10Vdc SSR Outputs	P.O.A
146560	IR33E9HR20	230 Vac	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs	\$565.01
146561	IR33E9MR20	24 Vac/dc	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs	\$519.51

* Controller has a built-in Real Time Clock

DN33*9 Universal Series – Din Rail Mount

Cat. No.	Part No.	Power supply	Outputs type	List Price \$ Exc. GST
146563	DN33V9HR20	230 Vac	1 x SPDT Relay	\$551.67
146564	DN33V9MR20	24 Vac/dc	1 x SPDT Relay	\$500.97
146565	DN33W9HR20	230 Vac	2 x SPDT Relays	\$578.32
146566	DN33W9MR20	24 Vac/dc	2 x SPDT Relays	\$551.67
146567	DN33Z9HR20	230 Vac	4 x SPDT Relays	\$611.14
	DN33Z9HB20*	230 Vac	4 x SPDT Relays	P.O.A
146569	DN33Z9MR20	24 Vac/dc	4 x SPDT Relays	\$564.51
	DN33A9MR20	24 Vac/dc	4 x 10Vdc SSR Outputs	P.O.A
146571	DN33E9HR20	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs	\$635.60
	DN33E9HB20*	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs	P.O.A
146573	DN33E9MR20	24 Vac/dc	2 x SPDT Relays + 2 x 10Vdc Outputs	\$590.09

* Controller has a built-in Real Time Clock



CM Retrofit Control Kit

Cat. No.	Part No.	Power supply	Outputs type	List Price \$ Exc. GST
146600	CM00000398	240V	Retrofit Kit	\$542.67





Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.	List Price \$ Exc. GST
146270	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1	\$25.62
146271	NTC015HPAP					10	\$213.39
146272	NTC030HP03				3	1	\$34.05
146273	NTC030HPAP					10	\$297.97
146274	NTC060HP03				6	1	\$61.02
146275	NTC060HPAP					10	\$552.38
146111	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1	\$40.58
146094	NTC030WH03				3		\$54.08
146095	NTC060WH03				6		\$68.28
146325	NTC015HT00	High Temp Plastic Probe IP55	0 to +150	50 kΩ @ 25 °C	1.5		\$41.69
146280	NTC030HT00				3		\$48.53
	NTC060HT00				6		P.O.A
146281	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6		\$166.31

PTC Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	List Price \$ Exc. GST
146131	PTC0150000	Bulb sensor IP65	0 to +150	1kΩ @ 25°C	1.5	\$142.21

Active DP Sensors – Temperature and humidity

Cat. No.	Part No.	Type	Temp. Range °C	Humidity range %RH	Output type	List Price \$ Exc. GST
146104	DPWC111000	Wall mount humidity and temperature sensor	-10 to +60	10 to 90	4 - 20mA + NTC	\$382.70
146380	DPWC115000				0-10V + NTC	\$392.41
146114	DPPC110000	Industrial wall mount humidity/temperature sensor	-20 to +70	10 to 90	2 x 4-20mA	\$821.91
146119	DPPC210000			0 to 100		\$1,283.18
	DPDC110000	Duct mount humidity and temperature sensor		10 to 90		P.O.A
	DPDC210000			0 to 100		P.O.A

Sensors- Pressure

Cat. No.	Part No.	Type	Pressure Range	List Price \$ Exc. GST
146342	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar	\$286.27
146138	SPKT0021C3		-0.5 to 7 bar	\$286.27
146137	SPKT0031C3		0 to 30 bar	\$286.27
146344	SPKT00B1C0		0 to 45 bar	\$337.88

Connection Cables

Cat. No.	Part No.	Description	Length: M	List Price \$ Exc. GST
146147	SPKC002313	Connector for SPKT transmitter, IP65	2	\$34.53
146148	SPKC005310		5	\$51.98

Serial Cards

The RS485 serial option is used to connect CAREL compatible controllers to a supervisory network via a standard RS485 serial line. The serial cards are used to connect these controllers to a PlantWatchPRO or a PlantVisorPRO.

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
146330	IROPZ48500	RS485 Serial Card	IR33 Universal	\$143.22
146322	IROPZSER30		DN33 Universal	\$87.20

Converters for PWM controllers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
	CONVO/10A0	PWM to 0-10 V or 4-20 mA output converter	P.O.A
	CONVONOFF0	10 Vdc to ON / OFF relay converter	P.O.A

Other Accessories

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
146702	IRTRUES000	IR Remote control	IR33 / DN33 Universal	\$75.18
146317	IROPZKEY00	Programming key (batteries)	IR33 Platform	\$229.57
146704	IROPZKEYA0	Programming key (240V)	IR33 Platform	\$229.57
146072	IRBOX20000	Large mounting box	IR33 with precut hole	\$46.92
146079	RLY2402HP	Relay 240V coil 2HP 240V switching		\$50.69

Carel

pRack Advanced Solution for Compressor Racks

The Carel pRack Controller is a family of controllers designed for the more complex and advanced systems.

pRack Controller Series – Controller kits



Cat. No.	Part No.	Size	Display	Dig. Output	An. Output	Dig. Input	An. Input	List Price \$ Exc. GST
146431	PRK100X3D0	XXS	Internal	7	2		2 + 6*	\$1,464.32
146432	PRK100X3DK	XXS	Remote	7	2		2 + 6*	\$1,952.40
146433	PRK100S3D0	Small	Internal	8	8		3 + 2*	\$2,221.06
146434	PRK100S3DK	Small	Remote	8	8		3 + 2*	\$2,582.68
146435	PRK100M3D0	Medium	Internal	13	4	12 + 2 (230V)	6 + 2*	\$2,928.63
146436	PRK100M3DK	Medium	Remote	13	4	12 + 2 (230V)	6 + 2*	\$3,308.39
146437	PRK100L3B0	Large	Internal	18	6	14 + 4 (230V)	6 + 4*	\$3,202.44
146438	PRK100L3DK	Large	Remote	18	6	14 + 4 (230V)	6 + 4*	\$3,564.11

* Can also be used as digital input

Kit includes 1 x controller with rack software, 1 x connector kit and 1 x pGD1 display (if not built-in display).

Accessories - pRack Controller Series

NTC Sensors – Temperature



Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt. Qty.	List Price \$ Exc. GST
146270	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1	\$25.62
146271	NTC015HPAP					10	\$213.39
146272	NTC030HP03				3	1	\$34.05
146273	NTC030HPAP					10	\$297.97
146274	NTC060HP03				6	1	\$61.02
146275	NTC060HPAP					10	\$552.38
146111	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1	\$40.58
146094	NTC030WH03				3		\$54.08
146095	NTC060WH03				6		\$68.28

Sensors - Pressure Transmitters



Cat. No.	Part No.	Type	Pressure Range	List Price \$ Exc. GST
146342	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar	\$286.27
146138	SPKT0021C3		-0.5 to 7 bar	\$286.27
146137	SPKT0031C3		0 to 30 bar	\$286.27
146344	SPKT00B1C3		0 to 45 bar	\$337.88
146326	SPKT0013R3	0-5V ratiometric pressure transmitter	-1 to 9.3 bar	\$212.78
146327	SPKT0033R3		0 to 34.5 bar	\$212.78
	SPKT0053R0		-1 to 4.2 bar	P.O.A
146345	SPKT00B6R0		0 to 45 bar	\$212.78

Connection Cables



Cat. No.	Part No.	Description	Length: M	List Price \$ Exc. GST
146147	SPKC002313	Connector for SPKT transmitter, IP65	2	\$34.53
146148	SPKC005310		5	\$51.98

Control Pre-configuration

This service is offered by Carel to make rack controllers even easier to install. Complete a simple form and Carel will pre-configure your controller as required. Moreover site specific wiring diagrams are also provided, thus eliminating errors, confusion and frustrations. Set point and alarm values are still set by the installer.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146156	PRECONFGRACK	Pre-configuration of rack controller	\$222.79



Cold Watch Person Trapped Alarm

The trapped personnel alarm kit is a safety system for cool rooms & freezer rooms. It allows personnel trapped inside the cold room to call for help by pressing an emergency button and thus activating the audible signal-warning light on the control panel outside.

The system consists of:

Control unit: to be installed outside of the cold room; fitted with an audible siren and flashing light to signal alarms.

Backup battery: housed inside the control unit, provides power in the event of blackouts.

Emergency button: to be installed inside the cold room, made up of a mushroom-head pushbutton with light. The LED on the mushroom-head pushbutton is on at all times, so the button can be identified even in the dark.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146355	CM00006236	Cold Watch Person Trapped Alarm	\$984.26
146356	KTCWPSENGL	Replacement Push Button Kit	\$165.41

PlantWatchPRO3 remote management system

PlantWatchPRO is a monitoring and alarms management solution for small to medium sized installations. It features a colour touch screen, can manage controllers connected to the serial line and will record variables such as temperature, pressure and status. Alarms sent to the PlantWatchPRO from the individual controllers can be managed according to the needs of the user by sending SMS (with optional GSM modem) or emails and activating relays. Information can be extracted directly from the USB ports or remotely on a computer network or even over the internet. It features as well a report function, a scheduling function (for defrosts, lights and automatic reports), the possibility to display graphs and to configure different levels of users.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146211	PW3P000TP000	PlantWatchPRO Panel Mount for 15 devices max	\$3,685.93
146212	PW3W000TSI00	PlantWatchPRO Wall Mount for 30 devices max	\$5,792.11

Accessories -PlantWatchPRO3

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146214	PW3AGSM000	GSM modem for PlantWatchPRO (to enable SMS function)	\$1,341.49
146213	PW3AREL000	I/O board with 2 relays for PWPRO3 panel mount	\$203.40
146190	8760-1000	Belden 8760, 1 pair, 18 AWG screened cable with drain wire	\$4.48
146182	IOM0023000	I/O module for RS485 line (does not require a serial card) 230V	\$515.10
	IOM0002400	I/O module for RS485 line (does not require a serial card) 24V	P.O.A



Pre-configuration

This service is offered by Carel to make PlantWatchPRO even easier to install. Complete a simple form and Carel will pre-configure your PlantWatchPRO as required.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146204	-RTPCNFPWP	Pre-configuration of PlantWatchPRO	P.O.A

PlantVisorPRO2

PlantVisorPRO2 is the new generation of monitoring and alarms management supervisory system designed for both small and large installations to manage all the field devices connected to the serial line. It features an intuitive, effective and pleasant navigation interface with advanced characteristics and is available as a complete all in one touch screen solution or as a box that can be connected to a monitor, a mouse and a keyboard. Monitoring and energy savings management functions, HACCP reports and graphs, alarms management by scheduling the actions to be performed in case of an alarm or event, local and remote connectivity, performance indicator of your installation, activity scheduling and controls for instruments or groups of instruments define and complete the features of PlantVisorPRO. It also integrates the Layout Editor function for the creation of customized floorplans of the installation directly on the supervisory system.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146206	PP2STGSXE0	PlantVisorPRO2 Embedded Box version with internal modem	\$11,144.15
146209	PP2STGSTEO	PlantVisorPRO2 Embedded Touch version with internal modem	\$14,486.93

Accessories -PlantVisorPRO

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146207	PCACCESSPK	Mouse, keyboard and 17" LCD monitor for PVPRO Embedded	\$1,427.76
146190	8760-1000	Belden 8760, 1 pair, 18 AWG screened cable with drain wire	\$4.48
146182	IOM0023000	I/O module for RS485 line (does not require a serial card) 230V	\$515.10
	IOM0002400	I/O module for RS485 line (does not require a serial card) 24V	P.O.A
	PVUPS00000	Uninterruptible power supply with surge and battery backup protection	P.O.A



CAREL

Electronic Controls

Carel

Pre-configuration and Floorplan

This service is offered by Carel to make PlantVisorPRO even easier to install. Complete a simple form and Carel will pre-configure your PlantVisorPRO as required and do your floorplan for an easier navigation of the system and management of the devices. Commissioning is also available at additional cost.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
146208	-RTPCNFPP2	Pre-configuration of PlantVisorPRO	P.O.A
	FLOORPLAN	Floorplan for PlantVisorPRO	P.O.A

Cable specifications

For the connection of the RS485 network, Carel recommends the use of the Belden 8760 cable (1 twisted pair, 18 AWG screened cable with drain wire).



Emerson

EC2 Series - Case Controllers



Cat. No.	Model No.	Part No.	Input	List Price \$ Exc. GST
147120	EC2-371	807689	Pressure	\$803.04
			Temperature	
147124	EC2-391	807691	Temperature	\$765.10
			Temperature	



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Electronic Controls

CPC

CPC by Emerson is a comprehensive control system, commonly used in supermarkets.

Controls



Cat. No.	Part No.	Description	List Price \$ Exc. GST
149020	834-0410	Control	RX400 \$8,686.72
149021	834-0310		RX300 \$7,698.07
149022	834-0100		RX100 \$4,458.94

Control Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149028	637-4871	E2 Modem	\$1,274.79
149030	832-4830	Repeater	\$1,008.07
149032	637-4890	E2 RS 485 Card	\$385.80
149034	637-4880	E2 Digital I/O Card	\$389.52

Cards



Cat. No.	Part No.	Description	List Price \$ Exc. GST
149040	810-3064	Multiflex 88 Card	\$1,410.78
149041	810-3063	Multiflex 88 AO Card	\$1,521.25
149042	810-3066	Multiflex 168 Card	\$2,246.44
149043	810-3065	Multiflex 168 AO Card	\$3,322.37
149044	810-3067	Multiflex 168 DO Card	\$3,056.66

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149045	810-3013	Multiflex 16 Card	\$1,113.32
149046	810-3199	Multiflex ESR-8 Card	\$2,178.46
149047	810-3006	8RO Card	\$1,133.12
149048	810-3030	4AO Card	\$1,130.29

Sensors / Probes

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149001	804283	Green 20ft Sensor	\$97.28
149002	501-1125	Pipe Sensor	Blue \$93.48
149003	501-1126		Red \$93.48
149004	501-1129		Green \$93.48
149005	501-1127		Orange \$93.48
149006	201-5000	High Temp. Sensor	RMCC \$141.64
149007	201-1191		E2 \$133.90
149010	203-5751	RH Sensor	Wall \$849.89
149011	203-5754		Outside \$669.30
149012	508-9101	Product Simulator	Black \$192.86

Transformers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149054	640-0080	Transformer	ESR 8 \$141.64
107034	804421		E2 \$88.94
149056	640-0048		10 Board \$320.94

Transducers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149074	800-2200	Transducer	Suction \$335.11
149075	800-2500		Discharge \$335.11
149076	800-2650		CO ² \$521.14

Case Controllers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149060	810-3161	Case Controller with Probes	CC-100 \$1,475.93
149062	335-3258	Power Lead	
149063	335-3263	Valve Lead	
149064	510-3131	2nd Valve Kit	
149065	814-3110	Hand Held Terminal	

Leak Detection

Cat. No.	Part No.	Description	List Price \$ Exc. GST
149100	809-1000	MRLDS Sensor	\$3,077.33
149103	809-1550	Leak Transducer Housing	\$561.49
149105	209-0832	HFC Element	\$106.60
149106	209-0830	HCFC Element	\$106.60



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Electronic Controls



Danfoss Controls

Danfoss supply a wide range of products for electronic control of refrigeration applications.

1

Case Controllers



Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
141010	084B8500	EKC 102A	Temperature Controller	\$222.88
141012	084B8501	EKC 102B	Temperature Controller	\$242.28
141013	084B8502	EKC 102C	Temperature Controller	\$261.64
141018	084B8523	EKC 202C	Refrigeration Controller	\$348.87
141019	084B8543	EKC 202C-MS	Refrigeration Controller	\$348.87
141020	084B4162	EKC 302A	Refrigeration Controller	\$426.39
141024	084B8528	AK-CC 250A	Refrigeration Controller	\$407.00
141025	084B8529	AK-CC 250B	Refrigeration Controller	\$407.00
141026	084B4165	AK-CC 350	Refrigeration Controller	\$484.53
141028	084B8030	AK-CC 550A	Refrigeration Controller	\$1,744.33
141029	080Z0121	AK-CC 750	Evaporator Controller	\$2,645.54

Superheat Controllers

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
141035	084B7086	EKC 315A	Superheat Controller	\$2,035.02
141037	084B7088	EKC 316A	Superheat Controller	\$2,035.02

Liquid Level Controllers

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
141042	084B7067	EKC 347	Liquid Level Controller	\$3,868.78

Capacity Controllers

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
141044	084B7105	EKC 331T	Capacity Controller	\$2,035.02
141045	084B8007	AK-PC 530	Capacity Controller	\$2,965.33



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Electronic Controls

Danfoss

Danfoss

Temperature Sensors

Cat. No.	Part No.	Model No.	Description	Signal	Temperature Range °C	List Price \$ Exc. GST
141100	084N1007	AK-HS 1000	Product Temperature Sensor	PT1000	-30 to 50	\$555.70
141101	084N1178	EKS 111	Temperature Sensor	PT1000	-55 to 100	\$42.64
141104	084B4404	EKS 211	Temperature Sensor	PT5000	-40 to 80	\$125.01
141106	084N0036	AKS 12	Temperature Sensor	PT1000	-40 to 80	\$67.83
141108	084N0003	AKS 11	Temperature Sensor	PT1000	-50 to 100	\$213.20
141109	084N0005	AKS 11	Temperature Sensor	PT1000	-50 to 100	\$230.92
141110	084N0008	AKS 11	Temperature Sensor	PT1000	-50 to 100	\$290.72
141111	084N2007	AKS 21 M	Temperature Sensor	PT1000	-70 to 180	\$285.04
141112	084N2017	AKS 21 W	Temperature Sensor	PT1000	-70 to 180	\$697.73
141113	084N2035	AKS 21 D	Temperature Sensor	PT1000	-40 to 80	\$1,228.44

Pressure Sensors

AKS pressure transmitters are designed for precise and energy optimized control. The robust design makes AKS suitable for a wide range of applications, such as:

- Air conditioning systems and refrigeration plants
- Process control applications
- Laboratory applications

Cat. No.	Part No.	Model No.	Description	Signal	Pressure Range: kPa	Maximum Working Pressure: kPa	Connection	List Price \$ Exc. GST
141115	060G0090	AKS 32R	Pressure Transmitter	10 to 90% Supply Voltage	-100 to 3400	5500	1/4" Flare	\$872.15
141116	060G1036	AKS 32R	Pressure Transmitter	10 to 90% Supply Voltage	-100 to 1200	3300		\$872.15
141120	060G1034		5M Cable With Plug For AKS32R					\$157.23
141122	060G2069	AKS 32	Pressure Transmitter	1 to 5 volts	-100 to 1200	3300		\$1,162.87
141123	060G2071	AKS 32	Pressure Transmitter	1 to 5 volts	-100 to 3400	5500		\$1,162.87
141126	060G2049	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300		\$1,589.24
141127	060G2045	AKS 33	Pressure Transmitter	4 to 20 mA	0 to 2500	3300		\$1,036.40
141128	060G2051	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 3400	5500	3/8" BSP	\$1,589.24
141129	060G2104	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 600	3300		\$1,589.24
141130	060G2105	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300		\$1,589.24
141131	060G2107	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 3400	5500	1/4" Flare	\$1,027.21
141133	060G1323	AKS 3000	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300		\$1,027.21
141134	060G1327	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 3000	5500	3/8" BSP	\$1,027.21
141136	060G1041	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 2500	4000		\$1,027.21
141137	060G1066	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 4000	10000		\$1,027.21



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PHASEFALE

Phasefale

TACm Room Controller

Cat. No.	Model No.	Description	List Price \$ Exc. GST
144211	TACMV2	Room Controller with 6m sensor	\$757.44

Joule Temperature Room Controller

Cat. No.	Model No.	Description	List Price \$ Exc. GST
144212	JOULET	Room Controller with 6m Sensor and Ethernet	\$2,314.23

VatPac Milk Vat Controller

Cat. No.	Model No.	Description	List Price \$ Exc. GST
144203	VATPAC	Milk Vat Controller with 6m Sensor	\$1,380.10

TA-1 Alarm Thermostat

Cat. No.	Model No.	Description	List Price \$ Exc. GST
144205	TA-1	Alarm Thermostat less Sensor	\$302.93

Control Accessories

Cat. No.	Model No.	Description	List Price \$ Exc. GST
144201	MProbe/6	6m Temperature Sensor	\$122.01
144202	TACM/PCB	Defrost Option Kit	\$182.61
144207	TACm - L240V	Warning Light 240Vac	\$84.17
144208	TACm - B12V	Warning Buzzer 12Vdc	\$92.57



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Penn

W42 Humidistat

The W42AA humidistat controls humidifying or dehumidifying equipment or both. The humidistat is a 3-wire device with single-pole, double-throw, snap-acting contacts. The W42 features a human hair sensing element and has a concealed dial lock screw.

Cat. No.	Part No.	Switch Action	Range % RH	Diff. % RH	Voltage	List Price \$ Exc. GST
145140	W42AA-1	SPDT	10 to 90	4	Line or Low	\$483.37

Electrical Rating: Pilot Duty only - 125 VA at 120/240 V.A.C

Maximum Operating Ambient: 38°C

HVAC Controls

Ranco

Cat. No.	Part No.	Range °C	Diff. K	Cap. Length mm	Shaft Length mm	Switching Sequence						List Price \$ Exc. GST
						Switch 'A'			Switch 'B'			
						Terms	Cut-in °C	Cut-out °C	Terms	Cut-in °C	Cut-out °C	
152085	C17-334	9.4	3.6	915	Varifix	2 & 1	18.3	20.3	4 & 5	17.5	21.1	\$361.60
152177	C17-177	16.7	2	660	16	2 & 3	19.7	17.8	4 & 5	19.7	21.7	\$274.11

Replacements: C17-334 replaces C17-308, 316, 503, 506. C17-177 replaces C17-140

Type A22 Adaptable RAC Thermostat

Cat. No.	Part No.	Switch Action	Temperature °C			Diff. K	Bulb & Capillary	Application	List Price \$ Exc. GST
			Cold Out	Cold In	Warm In				
152150	A22-2453	SPDT	15	17.8	33.3	2.2 Fixed	9.5mm x 100mm 990mm Cap. Cross Ambient	Air Conditioner	\$207.53

Type C12 Thermostat

Cat. No.	Part No.	Range °C	Diff. K	Contacts	Bulb and Capillary	Electrical Rating 240 VAC	List Price \$ Exc. GST
152081	C12-5010	15.6 to 36.7	1.7 Fixed	Close on Temp .Rise	9.5mm x 230mm 660mm Cap. Liquid Filled	FLA 20 LRA 78	\$219.10



Penn

T26 Series Thermostats

T26 Series with thermometer are universal Model for heating, cooling or heating and cooling and include horizontal mounting faceplate kit. Converts to key adjustment by removing and retaining knob for the key.

Cat. No.	Part No.	Type of Adjustment	Application	Range °C	Differential Approx. K		List Price \$ Exc. GST
					Heating	Cooling	

Heating and Cooling – Line or Low Voltage

145130	T26S-22	Knob	SPDT	5 to 30	1	1.3	\$253.40
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T25 Series

Cat. No.	Part No.	Type of Adjustment	Application	Range °C	Differential Approx. K		List Price \$ Exc. GST
					Heating	Cooling	

Two Stage – Line or Low Voltage

145125	T25B-9101	Knob	2 x SPDT 2 Stage Heat/Cool, Heat/Cool with dead band and auto changeover	5 to 32	1 per Stage 1 to 3 adjust between stages		\$674.80
145126	T25B-9102	Concealed					\$674.80



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HVAC Controls

Honeywell

Honeywell

Non Programmable Thermostats

Xe60 Series Line Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches	List Price \$ Exc. GST
					Res.	Ind.		
145220	T4360G1006	Heat (or Cool)	1H	10 - 30	16		On-Off	\$151.64
145222	T6360D1008	Cool (or Heat)	1C		10	3		\$162.41
145224	T6360E1005	Heat Pump	1H/1C		10	3	Heat-Off-Cool	\$181.82

Xe70 Series Line Voltage Fan Coil Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches	List Price \$ Exc. GST
					Res.	Ind.		
145226	T6375C1003	4 Pipe Fan Coil	1H/1C 2H or 2C	10 - 30	6	4	On-Off Fan: 1-2-3	\$380.19
145228	T6376B1004	Heat Pump Systems	1H/1C	10 - 30	6	4	Heat-Off-Cool Fan: Auto-Cont	\$362.18

DT90 Series Digital Dual Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches	List Price \$ Exc. GST
					Res.	Ind.		
145230	DT90A1008	Heat (or Cool)	1H	5 - 35	8	3	On-Off	\$199.16
145231	DT90E1012						On-Off Eco	\$215.42

TH5000 FocusPRO™ Series Low Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	List Price \$ Exc. GST
145232	TH5110D1022/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37	\$268.48
145234	TH5220D1029/U		2H/2C 2H/1C		\$376.72

Programmable Thermostats

TH6000 FocusPRO™ Series Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	List Price \$ Exc. GST
145240	TH6110D1021/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37	\$370.98
145242	TH6220D1028/U		2H/2C 2H/1C		\$561.08

TH8000 VisionPRO™ Series Touch-Screen Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	List Price \$ Exc. GST
145244	TH8110U1003/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37	\$702.47
145246	TH8320U1008/U		3H/2C 2H/2C		\$804.38

TB8000 Commercial VisionPRO™ Series Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	List Price \$ Exc. GST
145248	TB8220U1003/U	Conventional or Heat Pump	3H/2C 2H/2C	Heat: 4.5 - 32 Cool: 10 - 37	\$940.07

Low Voltage to Line Voltage Interface

Cat. No.	Part No.	Description	List Price \$ Exc. GST
145218	R4611G2010	Interface Module	\$450.32

TG Series Lockable Thermostat Guards

Cat. No.	Part No.	Dimensions mm		List Price \$ Exc. GST
		Internal	External	
145091	TG511A1000	130 H x 154 W	165 H x 191 W x 75 D	\$187.01
145092	TG512A1009	149 H x 213 W	184 H x 284 W x 86 D	\$189.38
145093	191990A	Replacement Key		\$21.12

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HVAC Controls

Honeywell

Honeywell Domestic Damper Actuators

Honeywell's range of domestic damper motors is designed to suit most domestic applications for zoned control of heating, air conditioning or ventilation systems.



Cat. No.	Part No.	Voltage Nom. Power	Control	Torque: Nm	Timing: s	Mounting	Features	List Price \$ Exc. GST
153440	M447B1005	240Vac 9.2VA	Drive Open Spring Return	0.34	27 drive / 25 return	Female 8mm shaft	-	\$249.87
153441	M447C1004			0.50	38 drive / 25 return		Gold colour casing	\$305.64
153442	M847B1014	24Vac 6VA		0.34	27 drive / 25 return		Silver colour casing	\$257.89
153443	DM2000F1024	24Vac 5VA	Drive Open Drive Closed	2	24	Male 6x6mm Shaft	RJ12 connection	\$179.50
153444	DM2000F1240	240Vac 5VA					Flying lead	\$183.94
153445	DM3000M1024	24Vac 5VA					RJ12 connection	\$190.10
153446	DM3000M1240	240Vac 5VA					Flying lead	\$190.10

Commercial Damper Actuators

Honeywell's range of commercial Direct Coupled Actuators (DCAs) are manufactured for on/off, floating or modulating control of air dampers, ventilation flaps, louvers, VAV units and mounting to ball valves.

Non Spring Return



Cat. No.	Part No.	Voltage Nom. Power	Control	Torque: Nm	Timing / Features	Damper Area	Suit Shaft Dimensions:	List Price \$ Exc. GST	
153450	CN7505A2001	24Vac 6VA	Modulating 0½ - 10Vdc Floating 2 Position	5	Runtime 90- 110s 0-10Vdc Feedback Signal	<0.75m2	Round: 8-16mm Square: 6-13mm	\$640.36	
153451	CN7510A2001			10		< 1.5m2		\$714.13	
153452	CN7220A2007			20		<4m2		\$993.72	
153453	CN6120A1002	230Vac 6VA	Floating	20	Runtime 110s	< 3m2	Round: 10- 27mm Square: 10- 18mm	\$879.89	
153454	CN4620A1001			20				\$967.13	
153455	CN4634A1001			230Vac 7VA	34	Runtime 110s		< 6m2	\$1,108.22
153456	CN7234A2008			24Vac 8VA	Modulating 0½ - 10Vdc Floating 2 Position	34			Runtime 95s 0-10Vdc Feedback Signal

Spring Return



Cat. No.	Part No.	Voltage Nom. Power	Control	Torque: Nm	Timing	Damper Area	Features	List Price \$ Exc. GST
153460	CS8110A1206	24Vac 30VA-Run 8VA-Hold	2 position	10	Drive Open 45s Spring Close 20s	< 1.5m2	2 Aux. Switches	\$1,106.03
153461	CS4110A1002	230Vac 45VA-Run 13VA- Hold			-		\$1,106.03	
153462	CS7510A2206	24Vac 14VA-Run 5VA-Hold	Modulating ½ - 10Vdc & Floating	20	Drive Open 90s Spring Close 20s	<3m2	2 Aux. Switches	\$1,261.55
153463	CS8120A1205	24Vac 40VA-Run 8VA-Hold	2 position		Drive Open 45s Spring Close 20s		2 Aux. Switches	\$1,081.37
153464	CS4120A1001	230Vac 60VA-Run 13VA- Hold			-		\$1,081.37	
153465	CS7520A2205	24Vac 16VA-Run	Modulating ½ - 10Vdc & Floating		Drive Open 90s Spring Close 20s		2 Aux. Switches Position feedback signal	\$1,293.01



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HVAC Controls

SIEMENS

Siemens

RAA Series Mechanical Room Thermostat



Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications	List Price \$ Exc. GST
145196	RAA11	Heat or Cool Only	24V or 240V	2A SPDT	Tamperproof	8 to 30	1	Heating or Cooling	\$83.06
145197	RAA22				Adj. Setpoint				\$86.49
145198	RAA31				Off/On				\$96.86
145201	RAA41				Off/H/C				\$117.60

RCC Series Electronic Room Thermostat



Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications	List Price \$ Exc. GST
145199	RCC30	T/Stat Elec. S/ Stage On/Off Switch	230V	0.7	On/Off 3 Speed Fan	8 to 30	0.5 to 4	Heating + Cooling	\$231.76

RDG Series Electronic Room Thermostat



Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications	List Price \$ Exc. GST
145200	RDG100	Digital T/Stat with Fan Control	230V	1	On/Off 3 Speed Fan	5 to 40	1 to 2	Heating + Cooling	\$258.38
145202	RDG110								\$252.52

Remote Sensors

Cat. No.	Model No.	Description	List Price \$ Exc. GST
153414	QAH11	Remote Sensor suit RCC/RDF/RDY Controller	\$74.00

RWD Series Electronic Universal Controller



Cat. No.	Model No.	Description	Voltage	Outputs	List Price \$ Exc. GST
153410	RWD34	Digital Heatpump Controller	230 Vac	4 x 24 to 240Vac 4A Max	\$396.46
153411	RWD44		24 Vac	-	\$566.99
153403	RWD82			2 x 24 to 240Vac 4A Max	\$705.73
153404	RWD62			2 x 0 to 10 Vdc 1A Max	\$753.32

Cat. No.	Model No.	Description	Range °C	List Price \$ Exc. GST
153399	QAA25/AP	Room Temperature Setpoint Adjuster	5 to 35	\$264.33
153400	QAA24	Wall mounted temp sensor		\$113.28
153401	QAM2120.040	Duct mounted temp sensor	-30 to 80	\$185.04

Cat. No.	Model No.	Description	Voltage	List Price \$ Exc. GST
153412	SEM62.2	Transformer with on/off switch and fuse	240 - 24 Vac 40 Va	\$162.39

Domestic Air Damper Actuator



Cat. No.	Model No.	Description	Drive Connection	List Price \$ Exc. GST
153422	GSD321.1A	Domestic Damper Actuator 2Nm, 2-Pos, 3 Wire	8-15mm Round 6-11mm Square	\$422.92

Air Damper Actuator



Cat. No.	Model No.	Voltage	Drive Conn: size	Torque Rating	Action	List Price \$ Exc. GST
153405	GDB131.1A	24 Vac	8 to 10mm	5Nm	3 Position	\$364.77
153406	GDB331.E	240 Vac			3 Position	\$388.54
153407	GDB161.1A	24 Vac			Modulating	\$541.86



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HVAC Controls



Dunnair

Multifunction Thermostats

Technologically advanced in design and performance, the DAT-770 is the ideal thermostat control for any installation of air conditioning systems.



Features

- Auto season change over
- Heat cool or heat pump (O/B) logic
- High and low balance points
- Keyboard and/or temperature locks
- Programmable occupancy inputs
- Smart fan logic for commercial control
- Outside air temperature display
- Voltage free (clean contact) relays
- Remote temperature sensors available
- Selectable programmable or manual mode
- 0-10v output option for heating or cooling
- Single or 3 speed fan control
- Occupancy sensor inputs
- Adaptive recovery (optimised start)
- PIN protected menus (installer PIN)
- 24v powered with memory backup
- Large backlit display
- Integrated Modbus option



Cat. No.	Model No.	Description	List Price \$ Exc. GST
146250	DAT-770	Multifunction Thermostat	\$335.13

Economy Cycle Modules

Cat. No.	Model No.	Description	List Price \$ Exc. GST
146251	EC-02	Economy Cycle Module	\$934.39



Micro Air MIG- Series



Cat. No.	Model No.	Description	Relay Output	Control Inputs	Analogue Outputs	List Price \$ Exc. GST
145050	MIG-C2	2 Stage Programmable Controller	1 X NO/NC	Resistive 0-10v, 4-20mA, 0-20mA	2 X 0-10V @ 100mA	\$889.08
145052	MIG-C4	4 Stage Programmable Controller	2 X NO/NC			\$941.41
145059	MIG-CT5	4 Stage Programmable Controller with Time Switch	2 X NO/NC & 3 NO			\$1,692.98

Cat. No.	Model No.	Description	List Price \$ Exc. GST
145086	MIG-PS	Plain faced sensor	\$106.03
145082	MIG-RO	Sensor with remote offset	\$117.90
145085	MIG-DS	Duct Sensor	\$194.05



Eberle

Room Thermostats



Cat. No.	Part No.	Appl.	Volt.: v	Range °C	Diff.	Neutral Zone	Switches	LED	List Price \$ Exc. GST
145309	RTRE6747	Cool	24 or 240	5 to 30	0.5K	-	-	-	\$144.09
145305	RTRE6722	Cool (or Heat)				-	-	-	\$146.65
145302	KLRE7203	4 Pipe Fan Coil Unit or A/C w/out R/Valve	240			2K	Mains: On-Off Fan: High-Med-Low	-	\$276.01
145303	KLRE7007		24 or 240			-	Mains: On-Off Fan: Continuous- Automatic Heat-Fan-Cool	-	\$221.94
145307	KLRE7603	Heat Pump	240			2K	-	-	\$247.60
145310	KLRE7611					2K	Mains: On-Off	-	\$270.56
145301	KLRE52552HP					0.5 to 8.5K	Mains: On-Off Fan: High-Med-Low	On-Off	\$394.09



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HVAC Controls



Hanwest HAN-L62 Series



Cat. No.	Part No.	Description		List Price \$ Exc. GST
146226	HAN-L62/PCB-132HP/10	Controller Kit	2 Stage - Heat Pump	\$530.78
146227	HAN-L62/PCB-132EH/10		2 Stage - Cool Only with 2 Stage Element Heat	\$530.78
146228	HAN-L62/WC		Wall Controller Only	\$309.15

Control Upgrade Kits



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146230	HAN-L5 TO HAN-L62	HAN-L5 to HAN-L62 Upgrade Kit	\$500.33

Zone Relay Boards



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146231	PCB-086	6 Zone Relay Board	\$115.89
146236	PCB-086E	6 Zone Relay Board with Enclosure	\$147.86

Outdoor Unit Defrost Controllers



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146232	HDC-203	Outdoor Unit Defrost Controller	\$255.11

Remote Sensors



Cat. No.	Part No.	Description		Cable Length: m	List Price \$ Exc. GST
146233	RSP10005	Remote Sensor	Wall Mount	5	\$64.42
146234	RES-05		Duct Mount		\$38.06
146238	RES-10			10	\$53.08

RSP-100 and the RES series remote sensors are also available in 15, 20, 25 & 30m cable lengths.



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HVAC Controls



Hanwest DES-201 Series

The DES-201 controller is designed for single stage air cooled heat pump reverse cycle applications and is available in two versions, with or without zone control.

Features

- 3 speed indoor fan control
- 1 - 12 hour on delay/off delay
- Temperature selection in 1/2 degree increments
- Indoor coil warm up sensor
- Power relay module mounted in an enclosure
- Optional remote sensors can be connected
- Mode selection consisting of: Fan Only - Cool - Heat - Auto



Cat. No.	Part No.	Description		List Price \$ Exc. GST
146237	DES201S/092HPS-1010E	Controller Kit	Without zone control	\$349.14
146239	DES201Z/092HPZ-1010E		With 2 zone control	\$432.82

WCS-201 Controls

The WCS-201 series is designed for single stage water cooled application such as heat pump reverse cycle or cool only/element heat systems and is available in 2 versions, with or without zones.

Controls



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146240	WCS-201HS	Wall Control Without Zone Control	\$97.87
146241	WCS-201HZ	Wall Control With 2 Zone Control	\$132.46

Relay Boards



Cat. No.	Part No.	Description	Type	Relays: A	List Price \$ Exc. GST
146242	PCB-079EH/S-3025	Relay Board	Cool Only / Element Heat	30 and 25	\$256.17
146243	PCB-079EH/S-3010	Relay Board	Cool Only / Element Heat	30 and 10	\$253.34
146244	PCB-079EH/S-1025	Relay Board	Cool Only / Element Heat	10 and 25	\$256.17
146245	PCB-079EH/S-1010	Relay Board	Cool Only / Element Heat	10 and 10	\$244.21
146246	PCB-079HP/S-3010	Relay Board	Heat Pump Reverse Cycle	30 and 10	\$289.19
146247	PCB-079HP/S-1010	Relay Board	Heat Pump Reverse Cycle	10 and 10	\$280.06

Interface Cables



Cat. No.	Part No.	Description	Length: m	List Price \$ Exc. GST
146248	IC-5/8	Interface Cable	5	\$50.14
146249	IC-10/8	Interface Cable	10	\$58.82



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HVAC Controls



Hevac Digital Series



HE-DIGITAL



SRT

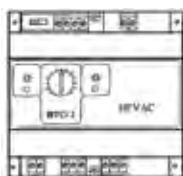
Cat. No.	Part No.	Relays	Outputs	Operating Voltage	Temperature Range °C	Time Clock	List Price \$ Exc. GST
153300	HE-DIGITAL	Five On/Off 2 Amp. (res) 240 Vac	Two Analog 0-10 Vdc Heat - Cool	24 Vac or 240 Vac	8 to 33 in 0-1 increments	-	\$688.97
153301	HE-DIGITAL-TC					2 Channel, 365 Day & Optimiser	\$775.06

Sensors

Cat. No.	Part No.	Description		List Price \$ Exc. GST
153306	HE-SRT-D	Room Sensor	Non Adjustable	\$53.84
153307	HE-SRT-DSP		Adjustable Setpoint	\$75.37
153310	HE-SRTA-D	Averaging Room Sensor	Non Adjustable	\$64.59
153312	HE-SRTA-DSP		Adjustable Setpoint	\$107.66

HTC Series

Analog Temperature Controllers



HTC-2

Cat. No.	Part No.	Stages	Relay Outputs	Operating Voltage	Temperature Range °C	List Price \$ Exc. GST
153302	HE-HTC-2	1 Heat / 1 Cool	10 Amp. (res) 240 Vac	24 Vac or 240 Vac	16 to 28	\$312.20
153303	HE-HTC-4	2 Heat / 2 Cool				\$355.25
153299	*HE-HTC-3	1 Heat/1 Cool				\$355.25
153298	*HE-HTC-5	2 Heat/2 Cool				\$398.31

Sensors



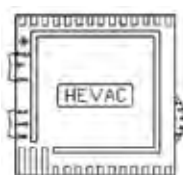
Cat. No.	Part No.	Description		List Price \$ Exc. GST
153308	HE-SRT-H	Room Sensor	Non Adjustable	\$53.84
153309	HE-SRT-HSP		Adjustable	\$75.37
153318	HE-SRTHSPSW		Adjustable with On/Off Switch	\$107.66
153311	HE-SRTA-H	Averaging Room Sensor	Non Adjustable	\$64.59
153319	HE-SDT-H	Duct Sensor		\$96.87
153320	HE-SPA	Remote Setpoint Adjuster		\$86.13

*Have Digital temperature display and fan delay

Surface Mount Enclosure

Cat. No.	Part No.	Description	List Price \$ Exc. GST
153313	LP-HTC-ENCL	Suits Digital and HTC Series Controllers	\$34.99

RTC3 Series Electronic Room Thermostats



RTC3

Cat. No.	Part No.	Outputs	Operating Voltage	Switches		Temperature Range °C	List Price \$ Exc. GST
				Fan	Mode		
153304	HE-RTC3-C	1 Heat/1 Cool with Dead	24 Vac or 240 Vac	Cycle/Off/Cont	Heat/Auto/ Cool	16 to 28	\$193.77
153305	HE-RTC3-V			On/Off/Vent			\$193.77



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HVAC Controls



Regulator TC5044 Control

The TC5044 is a compact pre-programmed stand alone universal controller for the control of temperature, humidity, pressure, flow, CO & CO2 and can replace most other stand alone controllers.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146219	TC5044	Universal Controller	\$691.79

ET46 Control

The ET46 temperature controller is a direct replacement for the ET45 and is much smaller in size. The controller is housed in a 4 DIN module 70 x 88 x 62 mm enclosure. It comes with its own DIN rail mount or can be mounted on a standard 35mm DIN mounting rail. It has a number of new unique features including a universal power supply which enables the controller to operate on 240 or 24 Vac/dc. The power supply will operate over the range of 18 – 265V AC/DC.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
146220	ET46	Temperature Controller	\$498.09

Remote Sensors - Concealed Adjustment



Cat. No.	Part No.	Description	Temperature Range °C	List Price \$ Exc. GST
146221	TR2100W	Concealed Setpoint Room Sensor		\$110.69
146223	TR2104W	Concealed Setpoint Room Sensor	18 to 28	\$138.36

Remote Sensors - Exposed Adjustment



Cat. No.	Part No.	Description	Temperature Range °C	List Price \$ Exc. GST
146224	TR2114W	Exposed Setpoint Room Sensor	18 to 28	\$166.03
146225	TR2113W	Exposed Setpoint Room Sensor	20 to 25	\$166.03

Smart Sensors

The TR3800 series smart sensors are slim attractive wall mounted temperature sensors with excellent temperature sensing due to a tiny fan that draws air in from the bottom of the housing over the sensor and discharges through the top. The fan is located at the top of the housing and draws air through an inlet plenum. The sensor is located at the bottom of the housing in the inlet plenum. The fan also draws air from the electronics section to remove heat. To average the temperature readings in a large zone up to 4 Smart sensors can be connected to the TC5044 universal controller.

The TR3840 smart sensor has a 2 x 16 character LCD display and four pushbuttons. These are located behind a door with a viewing aperture for the display. The pushbuttons are Raise and Lower for setpoint adjustment, Select pushbutton to enable functions and a System On/Off pushbutton to turn the Air Conditioning System on and off when function Menu 25 or 26 is enabled.



Cat. No.	Part No.	Description	Temperature Range °C	List Price \$ Exc. GST
146218	TR3840	Smart Sensor	10 to 40	\$304.40



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HVAC Controls



Tekelek

Evaporative Cooler Parts

1



200 Series

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
153501	16-1201	TEK285	Variable Speed Wall Switch	\$90.41
153502	502-0005-00-S	TEK287	2 Speed Wall Switch	\$81.34
153503	502-0029-00-S	TEK297	Speed Control Box 240V 9A	\$193.06

400 Series

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
153511	502-0030-00	TEK400WL	Low Voltage Wiring Loom 20m	\$60.70
153512	502-0014-00-S	TEK467	Low Voltage Speed Control Box 240V 9A	\$288.36
153513	16-1253	TEK485	Wall Control Manual Type	\$91.68

600 Series

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
153521	502-0026-00S	TEK632	Series 600 Cooler Control	\$400.31



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Section 1

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Oil Pressure Protection Controls

Emerson

Differential Pressure Control

Cat. No.	Part No.	Differential Pressure kPa			Max. Operating Press. kPa	Max. Test Pressure kPa	Pressure Connection	List Price \$ Exc. GST
		Adjustable Cut-out	Factory Setting	Fixed Cut-in Above Cut-out				
150060	FD113-ZU	30 - 450	70	20 Over Off	80 - 1200	-10 & 2300	1/4" Flare M	\$395.11



Danfoss

Type MP55 Differential Pressure Controls

Cat. No.	Type	Part No.	Time Delay Sec	Range LP Side kPa	Differential kPa	Switch Diff. kPa	Pressure Connection	List Price \$ Exc. GST
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For Fluorinated Refrigerants

150067	MP55	60B0171	60	-100 - 1200	30 - 450	20	1/4" Flare M	\$993.27
150068	MP55	60B0172	90					\$993.27

For Ammonia (R717) and Fluorinated Refrigerants

150069	MP55A	60B0175	60	-100 - 1200	30 - 450	20	6.5/10mm Weld Nipple	\$1,115.74
150070	MP55A	60B0176	90					\$1,115.74



Johnson

P28 Series

Cat. No.	Part No.	Time Delay Sec	Heater Circuit Volts	Type of Reset	Range* kPa	Refrig.	Pressure Connection	List Price \$ Exc. GST
150006	P28AA-41	90	120/240 AC	Manual	55 - 483	Non-Corrosive	900mm Cap. with 1/4" Fl. Nut	\$700.35
150004	P28AA-42	60						\$758.52
150051	P28AA-43	120						\$758.52
150055	P28AA-44	45						\$793.80
150008	P28AN-22	90				Ammonia	1/4" FNPT	\$1,174.56

P45 Series

For Copeland Application

Cat. No.	Part No.	Time Delay Seconds	Heater Circuit Volts AC	Type of Reset	Factory Setting*		Refrig.	Pressure Connection	List Price \$ Exc. GST
					kPa	(psig)			
150015	P45NCA-12	120	120/240	Manual	62	(9)	Non-Corrosive	900mm Cap. with Fl. Nut 1/4"	\$624.66



DWM Copeland

The monitoring of the force feed lubrication system with an oil pressure control is compulsory for Discus and S - Series compressors.

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
150062	3164918	OPS2 Oil Pressure Switch	All Copeland Semi-Hermetic Compressors with Oil Pumps	\$772.90
150063	3168329	OPS2 Oil Pressure Switch and Sensor Kit		\$611.38



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Replaceable Filter-Drier Cores/Blocks

Alco

Filter-Drier Blocks and Filter Cores

Alco suction filter cores (F-48) and desiccant blocks (D-48, UK-48, W-48, H-100) fit most competitive shell type filter-driers. These filter-drier blocks protect the compressor from soluble and solid contaminants. To ensure efficient clean-up results, they feature exceptional acid and wax removal capacities, plus superior moisture pickup.

Features

- Highest water capacity rating on the market today, thus keeping flow rates up together with filtration and system capacity to its optimum
- Exceptional acid capacities for normal system protection or to effectively clean-up following a compressor burnout
- Wax removal capabilities, if desired, for low temperature applications, or for complete clean-up following a compressor burnout (W Series)
- UK-48 Special Features:
 - A balance of high water/acid capacity (75% molecular sieve/25% activated alumina) to keep HFC/POE systems at optimum conditions
 - Perfect for new refrigerants, POE oils and retrofit guidelines
 - Desiccant blend protects POE additives
 - 20 micron filtration reduces sludge caused by POE oils
 - Complies with Copeland's recommendations for filter-driers on POE/HFC systems



Cat. No.	Part No.	Description	Filter Area cm ²	Suits Nominal Shell Diam: mm	List Price \$ Exc. GST
169011	D-48	Standard Block	445	115	\$75.26
169013	UK-48	High Capacity POE Block			\$109.41
169002	H-100	High Capacity Block	710	150	\$241.28
169003	W-48	Burnout Block	445	115	\$137.37
169012	F-48	Suction Filter Core	677		\$112.00

Part No.	Water Capacity: Drops					
	R134a		R22		R404A, R507	
	Liquid Temperature: °C					
	24	52	24	52	24	52
D48	415	340	363	254	457	343
UK-48	1272	1168	1181	1072	1319	1241
H-100	1112	834	962	673	1199	839
W-48	387	294	335	226	417	289

Refrigerant Recycling Filter-Drier Blocks

Refrigerant Recycling Filter-Drier Blocks offer the ultimate in contaminant control for refrigerant recovery recycling machines that utilise demountable type drier shells fitted with the conventional 95mm diameter, 48 cubic inch desiccant assembly. These blocks provide 25% more desiccant volume than the conventional Model No. by having additional desiccant in the inside of the unit, while maintaining the same outside diameter and overall length. This affords a significant increase in water capacity, while maintaining the same high acid capacity.



Cat. No.	Part No.	Description	Water Capacity: Drops						Acid Capacity: mg	List Price \$ Exc. GST
			R134a		R22		R404A, R507			
			Liquid Temperature °C							
169010	RH-48*	Recycling Block	1399	1001	877	653	962	753	35,450	\$173.49

*Caution: The recycling refrigerant filter-drier blocks should not be used in conventional air conditioning or refrigeration systems that require high refrigerant flow rates. Use in these systems will result in excessively high pressure drop through the filter-drier and possible system damage.

**Water capacities are based on an Equilibrium Point Dryness (EDP) of: 50 parts per million for R134a/R507 and R407C and 60 parts per million for R22



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Filter Driers

Alco

EK Series - Liquid Line Filter-Driers

The EK Filter-Drier is designed to handle the toughest system protection requirements. It incorporates a specially formulated and blended desiccant package to meet the needs of POE oils hygroscopic properties.

Male Flare



Cat. No.	Part No.	Model No.	Flare Connection	Liquid Flow Capacity: kW			List Price \$ Exc. GST
				R134a	R22, R410A	R404A, R507	
171002	060009	EK032	1/4"	7	7.7	5.3	\$42.65
171006	060013	EK033	3/8"	10.6	11.3	7.4	\$42.68
171008	047601	EK052	1/4"	7.4	8.1	5.3	\$53.01
171010	047603	EK053	3/8"	12.3	13.4	8.8	\$53.01
171014	047605	EK082	1/4"	8.1	8.8	6	\$68.90
171016	047607	EK083	3/8"	14	15.1	10.2	\$68.90
171018	047609	EK084	1/2"	23.5	25.7	17.2	\$68.88
171020	047611	EK162	1/4"	8.1	8.4	5.6	\$81.38
171021	047613	EK163	3/8"	13.7	15.1	10.2	\$81.38
171023	047615	EK164	1/2"	25.3	27.4	18.3	\$83.74
171025	047617	EK165	5/8"	34.1	36.9	24.6	\$95.30
171028	048210	EK303	3/8"	15.1	16.5	10.9	\$154.09
171029	048212	EK304	1/2"	28.5	30.9	20.7	\$154.00
171031	048214	EK305	5/8"	37.3	40.4	27	\$154.00
171034	048668	EK306	3/4"	51.8	56	37.5	\$175.55
171041	048219	EK413	3/8"	15.1	16.5	10.9	\$237.38
171036	048220	EK414	1/2"	36.5	39.7	26.4	\$237.44
171038	048222	EK415	5/8"	42.2	45.7	30.6	\$237.32
171035	065355	EK416	3/4"				\$237.39

Solder

Cat. No.	Part No.	Model No.	Solder Connection	Liquid Flow Capacity: kW			List Price \$ Exc. GST
				R134a	R22, R410A	R404A, R507	
171003	060012	EK032S	1/4"	9.5	10.2	6.7	\$42.68
171007	060014	EK033S	3/8"	10.6	11.6	7.7	\$42.68
171009	047602	EK052S	1/4"	11.6	12.7	8.4	\$53.08
171011	047604	EK053S	3/8"	15.5	16.9	11.3	\$53.08
171015	047606	EK082S	1/4"	10.9	12	8.1	\$68.90
171017	047608	EK083S	3/8"	15.8	17.2	11.6	\$68.81
171013	047610	EK084S	1/2"	25	27	18.3	\$68.88
171019	047612	EK162S	1/4"	10.9	12	8.1	\$81.38
171022	047614	EK163S	3/8"	15.5	16.9	11.2	\$81.38
171024	047616	EK164S	1/2"	30	32.3	21.8	\$83.74
171026	047618	EK165S	5/8"	35.5	38.3	25.7	\$95.28
171027	048211	EK303S	3/8"	22.1	23.9	15.8	\$151.00
171030	048213	EK304S	1/2"	35.2	38	25.3	\$153.94
171032	048215	EK305S	5/8"	44	47.5	31.6	\$154.00
1710321	048216	EK306S	3/4"	52	56.3	37.6	\$175.51
171033	048217	EK307S	7/8"	59	64	42.9	\$175.56
171037	048221	EK414S	1/2"	38	41.1	27.4	\$237.38
171039	048223	EK415S	5/8"	59.8	64.7	43.2	\$237.39
171040	048224	EK417S	7/8"	71	77	51.5	\$237.39
171042	048228	EK757S	7/8"	77.7	84.4	56.4	\$449.58
171044	048229	EK759S	1 1/8"	114.5	123.9	83	\$449.53



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Filter Driers

Danfoss

DML Series

The DML liquid line filter driers protect refrigeration and air conditioning systems from moisture, acids and solid particles. The 100% solid molecular sieve core assures a high drying capacity and prevents acid formation in the system.

Features

- High drying capacity avoiding the risk of acid formation in the refrigeration system
- All Danfoss filter driers have end caps designed for greater protection and easy removal
- Wide range with sizes from 3 to 75 cubic inches
- Powder paint surface for 500 hrs in salt spray (shell body)

Flare



Cat. No.	Part No.	Model No.	Flare Connection	Liquid Capacity: kW			List Price \$ Exc. GST
				R134a	R404A, R507	R22, R407C, R410A	
170020	023Z5035	DML032	1/4"	7	5	7	\$46.52
170022	023Z5036	DML033	3/8"	17	13	19	\$50.79
170024	023Z5037	DML052	1/4"	7	5	8	\$56.84
170026	023Z5038	DML053	3/8"	18	14	19	\$56.84
170028	023Z5039	DML082	1/4"	7	5	8	\$84.08
170030	023Z5040	DML083	3/8"	19	14	21	\$84.08
170032	023Z5041	DML084	1/2"	26	20	29	\$84.08
170034	023Z5042	DML162	1/4"	7	5	8	\$106.25
170036	023Z5043	DML163	3/8"	22	16	24	\$106.25
170038	023Z5044	DML164	1/2"	30	22	33	\$112.12
170040	023Z5045	DML165	5/8"	43	30	47	\$119.52
170044	023Z0049	DML303	3/8"	21	15	23	\$212.49
170046	023Z0050	DML304	1/2"	31	22	34	\$212.49
170048	023Z0051	DML305	5/8"	45	33	49	\$212.49
170050	023Z0193	DML306	3/4"	62	45	68	\$240.53
170056	023Z0108	DML413	3/8"				\$302.55
170058	023Z0109	DML414	1/2"	32	23	35	\$302.55
170060	023Z0110	DML415	5/8"	53	37	58	\$302.55

Solder

Cat. No.	Part No.	Model No.	Solder Connection	Liquid Capacity: kW			List Price \$ Exc. GST
				R134a	R404A, R507	R22, R407C, R410A	
170021	023Z5048	DML032S	1/4"	7	5	7	\$46.52
170023	023Z5050	DML033S	3/8"	17	13	19	\$50.79
170025	023Z5053	DML052S	1/4"	7	5	8	\$56.84
170027	023Z5054	DML053S	3/8"	18	14	19	\$56.84
170029	023Z5057	DML082S	1/4"	7	5	8	\$84.08
170031	023Z5058	DML083S	3/8"	19	14	21	\$84.08
170033	023Z5061	DML084S	1/2"	26	20	29	\$84.08
170035	023Z5063	DML162S	1/4"	7	5	8	\$106.25
170037	023Z5064	DML163S	3/8"	22	16	24	\$106.25
170039	023Z5067	DML164S	1/2"	30	22	33	\$112.12
170041	023Z5068	DML165S	5/8"	43	30	47	\$119.52
170047	023Z0068	DML304S	1/2"	31	22	34	\$212.49
170049	023Z0069	DML305S	5/8"	45	33	49	\$212.49
170051	023Z0070	DML306S	3/4"	62	45	68	\$240.53
170053	023Z0071	DML307S	7/8"	62	45	68	\$240.53

Liquid Capacity Conditions: ARI 710-86. -15C evaporating temperature, 30C condensing temperature and 7kPa pressure drop.



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Filter Driers

Emerson

BOK Series - Burnout Filter-Driers

The BOK Series liquid line filter-drier was designed for maximum effectiveness in the clean-up of systems following a severe burnout where maximum capacity for water and acids is essential.



Cat. No.	Part No.	Connections		Liquid Flow Capacity: kW			Nominal System Capacity: kW						List Price \$ Exc. GST	
							Refrig. Low Temp. & Commercial Installations			A/C Field Replace. & Field Install.				
		M. Flare	Solder	R134a	R22	R404A R507	R134a	R22	R404A R507	R134a	R22	R404A R507		
171060	BOK 082	1¼"		4.9	5.6	3.5	1.8	1.8	1.8	2.6	3.5	2.6	\$89.96	
171061	BOK 83	3⁄8"		13.7	14.8	9.8	4	3.5	3.5	7	7	7	\$89.96	
171062	BOK 162	1¼"		4.9	5.6	3.5	4	5.3	2.6	3.5	5.3	3.5	\$119.60	
171063	BOK 163	3⁄8"		15.1	16.5	10.9	7	7	7	10.6	10.6	7	\$118.13	
171073	BOK 163S		3⁄8"	20.4	22.2	14.8							\$118.18	
171064	BOK 164	1½"		29.9	32.7	21.8		10.6			10.6	17.6	10.6	\$127.05
171074	BOK 164S		1½"	35.9	39	26								\$127.05
171065	BOK 165	5⁄8"		45.4	48.9	32.7				17.6	14		\$135.35	
171075	BOK 165S		5⁄8"	45.4	48.9	32.7							\$135.26	
171068	BOK 305	5⁄8"		47.5	51.3	34.5	14	17.6	17.6	26.4	26.4	17.6	\$227.92	
171082	BOK 417S		7⁄8"	69.6	75.6	50.6	35	35	26.4	35	35	26.4	\$301.31	

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BFK Series Bi-Directional Liquid Line Heat Pump Filter-Drier

Emerson BFK Series Bi-Directional Heat Pump Filter-Driers are designed to protect the system refrigerant from contamination in both heating and cooling cycles. The BFK design prevents contaminants collected in one direction from being flushed back out when the flow reverses.



Cat. No.	Part No.	Connections		Liquid Flow Capacity kW			Water Capacity Drops: R22		Water Capacity Drops: R410A		Water Capacity Drops: R407C		List Price \$ Exc. GST
		Liquid Temperature											
		M. Flare	Solder	R22	R410A	R407C	24°C	52°C	24°C	52°C	24°C	52°C	
171045	BFK 052	1/4"		5.6	5.6	5.6	73	66	39	35	58	42	\$130.96
171046	BFK 053	3/8"		10.5	10.5	10.2							\$132.54
171051	BFK 083	3/8"		15.8	15.8	15.5	159	144	85	75	106	79	\$135.57
1710511	BFK 083S		3/8"	17.9	17.9	17.6							\$135.57
171052	BFK 084	1/2"		22.5	22.5	22.2							\$138.87
171049	BFK 084S		1/2"	23.6	23.6	23.2							\$138.87
171053	BFK 085	5/8"		27.4	27.4	27.1							\$143.02
171050	BFK 085S		5/8"	28.5	28.5	27.8							\$143.02
171054	BFK 163	3/8"		16.2	16.2	15.8	323	294	179	160	237	179	\$150.24
171058	BFK 163S		3/8"	18.3	18.3	17.9							\$150.24
171055	BFK 164	1/2"		27.1	27.1	26.7							\$159.72
171059	BFK 164S		1/2"	28.5	28.5	27.8							\$159.72
171056	BFK 165	5/8"		29.2	29.2	28.5							\$167.96
171057	BFK 165S		5/8"	30.6	30.6	29.9							\$167.96
1710591	BFK 167S		7/8"	37.1	37.6	36.4	585	532	415	293	452	345	\$171.36
171085	BFK 303	3/8"		20.1	20.1	19.9							\$223.01
171087	BFK 304	1/2"		26.6	26.6	26.3							\$234.56
171089	BFK 305	5/8"		36.0	36.0	35.4							\$238.10
171048	BFK 307S		7/8"	58.7	58.7	57.7							\$251.19



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Section 2

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Filter Driers

Danfoss

DMB Bi-Flow Series

Bi-flow filter driers have built-in check valves which ensure that refrigerant liquid always flows through the filter driers from the outer side of the filter core towards the center. Thus all dirt particles are retained irrespective of flow direction. DMB filter driers ensure fast and effective adsorption of moisture as well as organic and inorganic acids.

Features

- No dirt released by reversing the flow direction
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction
- When building heat pump systems, the use of bi-flow filters can save up to ten solder connections reducing the number of potential leak points

Solder



Cat. No.	Part No.	Model No.	Connections	Liquid Capacity: kW			List Price \$ Exc. GST
				R134a	R404A, R507	R22, R407C, R410A	
170082	023Z1442	DMB083S	3/8"	7.4	5.3	8.2	\$125.33
170083	023Z1441	DMB084S	1/2"	8.3	6	9.2	\$125.33
170084	023Z1446	DMB163S	3/8"	18	13	20	\$176.29
170085	023Z1445	DMB164S	1/2"	28	20	32	\$176.29
170086	023Z1444	DMB165S	5/8"	37	29	40	\$176.29
170087	023Z1449	DMB304S	1/2"	28	20	31	\$272.84
170088	023Z1448	DMB305S	5/8"	38	28	42	\$272.84

Liquid Capacity Conditions: ARI 710-86. -15C evaporating temperature, 30C condensing temperature and 7kPa pressure drop.



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Filter Driers

Emerson

CSFD Compact Suction Line Burnout Filter-Drier

The CSFD compact suction line filter-drier is used in applications where other driers won't fit. It is primarily used to remove contamination after a burnout and is designed for short lay-ins. It removes moisture, acid and contaminants and is suitable for CFC, HCFC and HFC refrigerants.

Features

- Competitive pricing with higher results
- Dual Access Valves
- High performance special desiccant blend, the CSFD range will filter contaminants down to 40 microns
- All solder connections are solid copper to ensure easy soldering and quick installation
- Maximum Operating Pressure: 1/2" to 7/8" 3447 kPa, 1 1/8" 2757 kPa



Cat. No.	Part No.	Solder Connection	Suction Line Flow Capacity: kW														List Price \$ Exc. GST
			R134a				R22				R404,R507						
			Evaporating Temperature: °C														
			4	-7	-18	-29	4	-7	-18	-29	-40	4	-7	-18	-29	-40	
172030	CSFD14S4V V	½"	4.6	3.2	1.7	1.0	7.0	4.6	3.2	2.1	1.0	4.6	2.8	1.7	1.05	0.7	\$143.21
172031	CSFD14S5V V	⅝"	8.1	5.3	3.1	1.7	12.7	8.4	5.6	3.5	1.7	9.1	5.9	3.9	2.46	1.0	\$143.19
172032	CSFD14S6V V	¾"	10.9	7.7	4.9	2.5	17.2	11.2	7.7	4.9	2.5	12.7	8.1	5.3	3.16	1.8	\$146.84
172033	CSFD14S7V V	⅞"	11.6	7.7	4.9	2.5	18.3	11.9	8.1	5.3	2.8	12.7	8.1	5.3	3.16	1.8	\$150.32
172034	CSFD14S9V V	1⅝"	15.8	10.5	6.3	3.5	24.6	16.2	10.9	7.0	3.5	17.2	10.9	7.0	4.57	32.5	\$164.09

SFD Series – Suction Line Burnout Filter-Driers

SFD suction line filter-driers incorporate a protective filter, plus a desiccant specially blended for maximum moisture and acid removal. SFD Model are specially suited for system clean-up after a burnout, or when major work has been performed on the system.

Features

- Rugged steel shells for shock resistance
- Corrosion resistant epoxy powder paint finish
- Low pressure drop - full flow fittings
- Filtration recommendation: 40 microns
- Dual access valves
- Solid copper fittings - easy to solder in
- Maximum Operating Pressure: 2760 kPa



Cat. No.	Part No.	Connections		Suction Line Flow Capacity: kW														List Price \$ Exc. GST
				R134a				R22				R404A,R507						
				Evaporating Temperature: °C														
		4	-7	-18	-23	4	-7	-18	-29	-40	4	-7	-18	-29	-40			
		M.Flare	Solder	Pressure Drop: kPa														
14	10			7	3	21	14	10	7	3	21	14	10	7	3			
172018	SFD 13F3-V V	3/8"		2.5	1.4	0.7	0.4	4.9	2.8	1.4	0.7	0.4	4.6	2.5	1.4	0.7	0.4	\$179.49
172019	SFD 13S3-V V		3/8"	4.6	2.8	1.8	0.7	7.7	4.6	2.8	1.8	0.7	6.7	3.9	2.5	1.4	0.7	\$176.92
172020	SFD 13F4-V V	1/2"		5.3	3.5	2.1	1.0	8.4	5.6	3.9	2.5	1.4	7.4	4.6	3.2	1.8	1.0	\$179.49
172021	SFD 13S4-V V		1/2"	8.1	5.3	3.5	1.8	12.3	8.1	5.6	3.5	2.1	10.6	6.7	4.6	2.8	1.4	\$179.49
172022	SFD 13F5-V V	5/8"		8.8	6.0	3.9	2.1	13.0	8.4	5.6	3.5	2.1	11.3	7.0	4.9	3.2	1.8	\$182.04
172023	SFD 13S5-V V		5/8"	10.9	7.4	4.6	2.5	17.2	11.3	7.7	4.9	2.8	14.8	9.5	6.3	3.9	2.1	\$183.99
172024	SFD 13S6-V V		3/4"	14.4	9.5	6.0	3.2	22.5	14.8	9.8	6.3	3.5	19.7	12.3	8.1	4.9	2.5	\$187.95
1720241	SFD 13S7-V V		7/8"	15.5	10.6	6.7	3.5	25.3	16.2	10.6	6.7	3.5	22.2	13.7	9.1	5.3	2.8	\$187.95
172025	SFD 27S7-V V		7/8"	16.5	10.9	6.7	3.5	26.4	16.9	11.3	7.0	3.9	22.9	14.4	9.5	5.6	2.8	\$187.95
172026	SFD 27S9-V V		1 1/8"	18.3	12.0	7.0	3.5	29.9	19	12.3	7.4	3.9	26.4	16.2	10.6	6	3.2	\$188.10
172027	SFD 54S11-V V		1 3/8"	15.8	10.2	6.0	3.2	25.7	16.2	10.6	6.3	3.5	22.5	13.7	8.8	5.3	2.5	\$427.32
172028	SFD 54S13-V V		1 5/8"	16.2	10.6	6.3	3.2	26.0	16.5	11.3	7.0	3.5	22.9	14.1	9.1	5.6	2.8	\$445.00

All ratings in accordance with ARI Standard 730-86

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Filter Driers

Emerson

AOFD Oil Filter-Drier

Cat. No.	Part No.	List Price \$ Exc. GST
172041	AOFD 553	\$404.41

ASF Oil Filter / Suction Line Filter

Cat. No.	Part No.	List Price \$ Exc. GST
172040	ASF 45F 3-VV	\$182.08

AOFD High Efficiency Take-Apart Oil Filter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
172045	AOF023S	3/8" Solder - Oil filter demountable	\$500.43
169020	FO23	AOF Oil filter cartridge	\$340.66

STDS Series - Drier Shells

Shell Only			Filter-Drier Blocks		List Price \$
Cat. No.	Part No.	Solder Connection	No. and Size of Blocks Req'd.	Desiccant Volume Cubic Inches	Exc. GST
172130	STAS487TSS	7/8"	1 x 48	48	\$446.76
172131	STAS489TSS	1 1/8"			\$446.70
172132	STAS4811TSS	1 3/8"			\$446.70
172133	STAS4813TSS	1 5/8"			\$446.70
172134	STAS4817TSS	2 1/8"			\$446.70
172135	STAS967TSS	7/8"	2 x 48	96	\$538.09
172136	STAS969TSS	1 1/8"			\$538.02
172137	STAS9611TSS	1 3/8"			\$538.04
172138	STAS9613TSS	1 5/8"			\$538.04
172139	STAS9617TSS	2 1/8"			\$538.04
172140	STAS1449TSS	1 1/8"	3 x 48	144	\$666.45
172141	STAS14411TSS	1 3/8"			\$666.45
172142	STAS14413TSS	1 5/8"			\$666.46
172143	STAS14417TSS	2 1/8"			\$666.46
172144	STAS19211TSS	1 3/8"	4 x 48	192	\$769.02
172145	STAS19213TSS	1 5/8"			\$778.49
172146	STAS19217TSS	2 1/8"			\$768.96

Note: Filter-drier blocks or filter cores are not included with above demountable drier shells. These must be ordered separately.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
172150	061715	Demountable Drier Bracket	\$56.71

Internal Assemblies

Cat. No.	Model No.	Part No.	Description	List Price \$ Exc. GST
172151	X-27548-1	060274	Replacement Internal Assembly Suits STAS Shells	1 Core \$201.03
172152	X-27548-2	060275		2 Core \$203.70
172153	X-27548-3	060276		3 Core \$204.93
172154	X-27548-4	060277		4 Core \$219.42



Refco

Copper Spun Filter-Driers

Cat. No.	Part No.	Capacity: Grams	Connections		Body Dim.: mm		Overall Length: mm	Tails	List Price \$ Exc. GST
			Inlet	Outlet	Diameter	Length			
180148	SF2-15-2.5X6.5	15	1/4"	Capillary	19	141	-	N	\$12.81
180156	SF2-30-6.5X6.5	30		1/4"	24	140			\$20.26
180160	STU-10	10		1/4-3/16"	19	105	225	Y	\$29.19
180162	STU-15	15			19	125	250		\$33.06
180166	STU-30	30			24	142	235		\$41.28

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Oil Test Kits



Alco

Acid Alert - Refrigeration Oil Acid Test Kit



Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
184042	804166	AOK-U01	Universal Acid Oil Test Kit	\$90.47



Refrigeration Technologies

Checkmate

The Checkmate method is an accurate and easy field test for a quick and accurate determination of contaminant levels in oil and refrigerant.

Kits



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184360	RT700K	Checkmate Contamination Detector Kit	\$662.60

Detector Tubes



Cat. No.	Part No.	Description	Application	Quantity per Pack	List Price \$ Exc. GST
184361	RT750A	Checkmate Detector Tubes	Acid	3	\$114.15
184362	RT751M	Checkmate Detector Tubes	Moisture	3	\$114.15
184363	RT752C	Checkmate Detector Tubes	Oil	3	\$114.15

Virginia

TKO - Refrigeration Oil Acid Test Kit For Mineral and Alkybenzene Oils

Fastest way of telling whether compressor oil is safe or acidic using one bottle. Fill with oil up to line on bottle neck and shake, purple is safe, yellow is acidic.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184039	TKO	Mineral Oil Acid Test Kit	\$44.45

ETK - Refrigeration Oil Acid Test Kit For Polyol ester Oils

One bottle test is the faster way of determining if compressor lubricant is safe or acidic. Fill bottle to line with lubricant and shake. Colour change indicates safe, marginal or unsafe.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184059	ETK	Polyester Oil Acid Test Kit	\$55.54



Wear Check

Oil Sample Kit

Wear Check is a sophisticated, rapid oil analysis, which has been developed to diagnose possible equipment problems before potentially serious damage occurs. Spectrographic analysis is used to determine lubricant contamination and equipment wear and a variety of tests are used to determine the condition of the oil and indicate mechanical faults. The results of analysis are evaluated and a detailed report is provided to the customer.

As the kits may be used for any type of lubricant, the sample details are needed to identify the type of oil and thus the set of tests which should be performed. Samples should be returned through the mail using the pre-paid, pre-addressed mailers.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184057	RCKIT	Oil Sample Kit with Stick On Labels	\$201.45

Each Kit comprises of:

- Plastic sample container (100 ml capacity)
- Plastic cylindrical mailer
- Self-adhesive pre-addressed label
- Sample submission form



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Service Aids

Watsco

Silica-Gel

Cat. No.	Part No.	Mesh	Container Size	List Price \$ Exc. GST
183010	540	8-20	680 grams	\$111.26



Highside

Thawzone Liquid Dehydrant

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
183030	17004	113 grams	\$51.65

Acid Neutralizer

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
183031	18004	118 ml	\$131.86

Trace Internal Leak Detector

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
183037	20004	113 grams	\$60.47



Refrigeration Technologies

Viper Starter Kit

Cat. No.	Part No.	Description	Kit Contents	List Price \$ Exc. GST
184395	RT300K	Viper Coil Cleaning Starter Kit	1 x Viper Foam Gun 1 x Viper Brite 3.78 Litres 1 x Viper HD 3.78 Litres 1 x Viper E+ 3.78 Litres 1 x Remote Sprayer	\$570.74

Viper Coil Cleaner

Viper is a food grade, potent degreasing aerosol that does not contain any hazardous ingredients or give off toxic fumes.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184408	RT375A	532 ml	\$64.06

Viper E+ Evaporator Cleaner

Viper E+ is a food grade, non-rinsing evaporator coil cleaner utilizing slow release enzymes in a synthetic detergent base.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184405	RT350G	3.78 Litres	\$108.87
184370	RT3505	Remote Sprayer	\$19.39

Viper Brite Coil Cleaning System

The Viper Brite system provides a concentrated foaming alkaline solution along with a range of application accessories.

Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
184401	RT300G	Viper Bite Cleaner	3.78 Litres	\$124.03
184402	RT300S	Viper Foam Gun	-	\$325.40
184403	RT301X	Viper Flex Wand	-	\$118.57
184404	RT302F	Viper Foam Funnel	-	\$151.18

Viper HD Detergent Cleaner

Viper HD is a food grade, concentrated, biodegradable cleaner.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184396	RT390G	3.78 Litres	\$105.79

Viper Eco Solv Industrial Solvent

An industrial solvent, Viper Eco Solv is both food grade and biodegradable.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184398	RT380G	3.78 Litres	\$136.31

Service Aids



Refrigeration Technologies

Clean & Clear Condensate Pan and Drain Treatment

Clean & Clear is food grade and contains enzyme detergents in a viscous silicone gel.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184392	RT800S	946 ml	\$62.24

Nylog

Nylog can be used as a sealant to prevent gas leakage and will never harden or dry.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184406	RT200R	30 ml	\$36.14
184407	RT200B	30 ml	\$40.36

Easy Rider Silicone Lubricant

Easy Rider is a food grade, silicone based lubricant that provides superior lubrication over a wide temperature range.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184380	RT630A	500 grams	\$52.40

Viper Ice Machine Cleaner

Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
184373	RT500N	Nickel Safe Ice Machine Cleaner	473 ml	\$37.96
184374	RT500G		3.78 Litres	\$236.37

Black Jack Anti-Seize

Black Jack is an extreme duty anti-seize lubricant. Treated surfaces remain free working and easy to assemble.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184382	RT900B	230 grams	\$88.02

Silicone Grease

Silicon Grease is a Food Grade lubricant which is ideal for food equipment. Use where petroleum oils are inadequate or not desirable.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184384	RT910T	85 grams	\$68.19

Full Pull Belt Dressing

Full Pull is a rubber conditioning compound that does not contain solvent and vastly improves belt traction and flexibility.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184386	RT610A	480 grams	\$67.16

Big Blu & Super Blu Gas and Air Leak Detector

Big Blu & Super Blu are strong and persistent film forming liquids that have excelled in the field identification of gas leaks.

Cat. No.	Part No.	Description	Temperature Range: °C	Leak Rate Sensitivity: g/year	Container Size	List Price \$ Exc. GST
184409	RT100S	Big Blu Spray On	+1.7 to +80	23	985 ml	\$41.76
184379	RT175B	Big Blu Brush On	-18 to +85	22	230 ml	\$36.04
184378	RT100G	Big Blu Bottle	+1.7 to +80	23	3.78 Litres	\$151.81
184377	RT150S	Super Blu Spray On	-34 to +95	23	985 ml	\$63.49

A+ Electrical contact solvent cleaner

A+ is a fast acting cleaner for improving the electrical efficiency of switches, relays, variable resistors, and open field contractors.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184375	RT620A	675 grams	\$110.60

Defender Coil Coat

Defender is tough, long lasting epoxy coating to protect coils and other metal surfaces.

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184376	RT640A	432 grams	\$135.97

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Service Aids



Clenair

Odour Neutralisers

Clenair's unique neutralising formula removes odours caused by mould, mildew, bacteria, pets, cigarette smoke, water damage, fire damage etc. quickly and permanently. Use in A/C units, rooftop units, fan coil units, mini splits, and air handlers. Simply place near the source of the odour or in the return duct of the central air system.

Gel Tubes



Cat. No.	Part No.	Description	Type	List Price \$ Exc. GST
184501	CA1500	Odour Neutraliser Gel 227gram	Neutral	\$38.68
184502	CA1300		Orange	\$38.68
184503	CA1800		Cherry	\$38.68

Odour Blocks



Cat. No.	Part No.	Description	Size	List Price \$ Exc. GST
184505	CA1502	Odour Neutraliser Block	900 g	\$105.30
184506	CA1015		2.9 kg	\$279.62

Deodourising Liquid Spray

Clenair's liquid formula is a fast acting deodourising product. It eliminates odours via an oxidation process while leaving a fresh scent. The HVAC&R applications include evaporator coils, duct work & condensate pans. It can also be used in drains, garbage disposals and in rubbish bins. Spray in restrooms, locker rooms and on fouled carpeting & upholstery. Very effective in hospitals, nursing homes etc. A perfect product for HVAC&R technicians & is available in unscented, citrus scent and cherry scents.



Cat. No.	Part No.	Description	Type	List Price \$ Exc. GST
184508	CA1600D	Deodourising Liquid Spray 473ml	Unscented	\$49.18
184509	CA1700D		Citrus	\$50.65
184510	CA1900D		Cherry	\$50.65

Cleaners

Spray Nine is a multipurpose surface cleaner & disinfectant/degreaser. It will tackle tough soils on your worst cleaning jobs and contains a US EPA registered disinfectant that kills harmful germs like HIV-1, Influenza, H1N1, Staphylococcus Aureus, Salmonella, Choleraesuis & E. Coli in just 45 seconds. Also helps prevent cross contamination.



Cat. No.	Part No.	Description	Size	List Price \$ Exc. GST
184512	CA26832	Spray Nine Cleaner & Disinfectant	900 ml	\$47.32

Pan Treatment

PurCool tablets are a powerful condensate drain pan treatment product to eliminate and prevent slime, sludge, and other build-up in air conditioning condensate drain pans. PurCool tablets will clean the drain pan and drain lines of slime and sludge and keep condensate drain pans flowing freely. PurCool tablets will also prevent condensate drain pan overflows and the costly damage to ceilings and floors caused by these overflows. Use PurCool tablets on a regular basis to prevent buildup and sludge in A/C drain pans, condensate pumps, and humidifiers. For professional use only.



Cat. No.	Part No.	Description	Size	List Price \$ Exc. GST
184514	CAPC200	PurCool Pan Treatment Tablets	400 grams	\$109.87

Condensate Drain Clog Repair Kit

Condensate drain pan overflows are a very common and costly service problem. Overflows are caused by slime and sludge that builds up and clogs the drain line. The Drain Sucker quickly removes the clog and the excess water, resolving the overflow problem.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184516	CADS1	Condensate Drain Sucker Kit	\$136.21



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Service Aids



Clenair

Clenhands Hand Cleaner

Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
184520	CA2215	Clenhands Orange Crush Hand Cleaner	425ml	\$24.08



Dyna Wipes

Hand Cleaner Towels

Cat. No.	Part No.	Description	Contents	List Price \$ Exc. GST
184524	RT600S	Dyna Wipes Hand Cleaner Towels	80 towels	\$76.48



Extol

ERG Anti Bacterial Spray

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184099	1601620	200 grams	\$43.83



Hills

Pressure Spray Bottle

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184300	FH220872	Press. sprayer 2 Litres	\$20.12



Jayair

Spray Oil

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184089	OG6012	300 ml	\$43.80



Watsco

Zoom Spout Oiler

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184168	DO 1	118 ml	\$11.50

Sterile-Air

Ice Machine Cleaner

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184178	IMC-1	1 Litre	\$25.81
184179	IMC-4	4 Litres	\$81.27
184181	IMC-200	200 Litres	\$2,600.44

Clean Air Home & Office

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184197	CA	250gm	\$75.35

Fresh Air Sponge

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184186	FAS-1	500 ml	\$43.36
184187	FAS-4	2 Litres	\$173.35

Coil and Filter Cleaner (Alkali)

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184205	AK-1	1 Litre	\$41.04
184190	AK-4	4 Litres	\$83.35

Coil Cleaner (Acid)

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184204	AB-1	1 Litre	\$38.96
184191	AB-4	4 Litres	\$81.27

Grease Away

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184198	GA-4	4 Litres	\$81.27

Easy Dose Cartridges

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184199	EDC-M	Mini	\$18.31
184200	EDC-L	Large	\$83.84



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Service Aids



Hydro-Chem

Clean-Ice - Ice Machine Cleaner

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184415	Clean-Ice	1 Litre	\$40.67



Coilkleen -

Detergent Coil Cleaner (Acidic)

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184411	Coilkleen	5 Litres	\$122.05



Fin Saver -

Air Cooled Condenser Protectant

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184413	Fin Saver	510grm Aerosol	\$67.80



Wanda Wash -

Multi Purpose Concentrated Detergent

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184422	Wanda-Wash	1 Litre	\$40.67



Coilox - Coil Cleaning Detergent

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184410	Coilox	5 Litres	\$135.58



4X - Coil Cleaner Concentrate (Alkaline)

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184412	4X	1 Litre	\$61.03



Sta-Clean -

Bacterial Control Agent

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184419	Sta-Clean	1 Litre	\$67.80



No More Grease - Degreaser

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184414	No More Grease	5 Litres	\$71.21



Virginia KMP

Blast-A-Coil

Cat. No.	Part No.	List Price \$ Exc. GST
184080	BAC- 20	\$56.01



Thermal Block Heat Paste

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184081	TB11	11 oz	\$54.88



CRC

Zinc-It

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184103	2085	350 grams	\$50.37



Freeze Spray 75

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184105	2039	300 grams	\$71.45



La-Co

Cool Gel Heat Dissipating Spray

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184079	Cool Gel	947 ml	\$95.17
184077		473 ml	\$57.81



Inox

Lubricant

Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184090	Inox	300 grams	\$31.48



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Service Aids

Errecom

Flushing Agents



Cat. No.	Part No.	Description	High Flushing Pressure	Flammable	List Price \$ Exc. GST
184601	TR1009.M0	Belnet Fast Flushing Agent. 600ml Aerosol, c/w Rubber Cone	8-9 bar	Yes	\$99.76
184602	TR1009.M1	Belnet Fast Flushing Agent. 600ml Aerosol, c/w Threaded Connection			\$96.04
184603	RP1048.01	Flushing Gun Kit for Threaded Aerosol. Comes with Hose, Gun and Adaptor	N/A	N/A	\$203.18
	TR1009.01	Belnet Flushing Fluid for Air Drawn Application. 1L can		Yes	P.O.A
	TR1055.01	Belnet Flushing Fluid for Air Drawn Application. 5L can			P.O.A
	TR1125.K	Super Flush Flushing Fluid for Electric Drawn Application (Non Flammable). 1L can		No	P.O.A
	TR1125.P	Super Flush Flushing Fluid for Electric Drawn Application (Non Flammable). 5L can			P.O.A
	RP1027.01	Flushing Bottle and Gun. 1L with 60cm Hose, Ball Valve and Gun		N/A	P.O.A

2

Extreme Leak Stop



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184604	TR1062.R.J5	Extreme Leak Stop with 42ml Cartridge. Polymer free. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	No	\$188.42
	TR1062.L6.J9	Extreme Leak Stop with 6 x 12ml Cartridges. Polymer free			P.O.A

Super Dry Dehydrator



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184605	TR1132.R.J5	Super Dry Dehydrator with 42ml Cartridge. Methanol free. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	Yes	\$88.65

No Acid Neutraliser



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184606	TR1124.R.J5	No Acid Neutraliser with 42ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	No	\$110.82

Cool Shot Performance Enhancer



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184607	TR1122.R.J5	Cool Shot Performance Enhancer with 42ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	No	\$144.09

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SAFE ✓

▶ Injectable/additives

- Leak stop
- Fluorescent dyes
- Anti moisture
- Acid neutraliser
- De-icing additive
- Performance enhancer



▶ Accurate oil & acid test kits

▶ Leak detection kits

▶ Pressurised flushing fluids



Service Aids

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Ice Free De-Icing Additive



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
	TR1123.R.J5	Ice Free De-Icing Additive with 42ml Cartridge. Methanol free. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	No	P.O.A

Leak Dyes and Foam



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184610	TR1068.E.J5	Brilliant UV Yellow Dye. 60ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE	5.5 bar	No	\$84.98
184608	TR1133.E.J5	Trace Brilliant Dye in bright red dye. 60ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE			\$81.28
184609	TR1134.E.J9	Mineral Trace Brilliant Bright Red Dye. 60ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE			\$64.66
	TR1112.01	Flourescent Foam Leak Spray and Dye. 400ml Trigger Pack Working Temperature is -50 to 95°C	N/A		P.O.A
184611	TR1108.01	Brilliant Dye Remover. 400ml Trigger Pack			\$72.04
184612	TR1109.01	Brilliant Dye Remover. 100ml Trigger Pack			\$44.32

Leak Detection Kits



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184615	RK1235.R1	Easy Leak Detection Kit c/w 250ml Self Measure Bottle, Refillable Injector, Stickers, 1/4" & 5/16" SAE Adaptors, 9 LED UV Torch & Safety Goggles	N/A	N/A	\$450.67

Oil & Acid Detection Kits



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184616	RK1349	Accurate Acid Test Kit 4 Per Unit. Works with all Lubricants and Provides Contamination Levels	N/A	N/A	\$103.43
184617	RK1055	Accurate Oil Test Kit 2 Per Unit. Quick, Easy and Accurate Identification of POE, ABZ or Mineral Oil	N/A	N/A	\$103.44

UV Torches



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
184613	RK1294	Adjustable Aluminium Focus Bright Torch with Safety Goggles 100% UV Protection	N/A	N/A	\$173.64
	RK1267	5 UV LED Aluminium Bright Torch with Flexible Head and Safety Goggles 100% UV Protection	N/A	N/A	P.O.A

Sanitising Tablets



Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable	List Price \$ Exc. GST
	AB1064.01	Sanitising Tablets for Split and Fan Coils Collection Trays.	N/A	N/A	P.O.A

Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184614	IN1028.01	Booster - Mechanical Ampifier Allows Introduction of Additive when System Pressure is Over 5.5 bar and Below 9 bar	\$125.60
	RK1228	Proflex Metal Adaptors with One Way Valve. Length is 120mm 1/4" & 5/16" SAE	P.O.A
	IN2016.R1	By Pass Valve for Gauge Connection and Same Time Injection. 1/4" SAE Shut Off Valve, 5/16" SAE Shut Off Valve for R410A	P.O.A

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Section 2

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Service Aids

Ciplight

Super Seal

The Super Seal range of sealant kits are designed to repair “micro” leaks in refrigeration and air conditioning systems quickly and easily. The kits are supplied complete as a one-time use can.

Features

- Ideal for hard to find leaks
- Compatible with most oils and refrigerants
- Seals multiple leaks
- Detailed application instructions are included with each kit

Super Seal ACR is for use in residential refrigerators / freezers and air conditioners. Includes disposable connector hose and service label. For use in systems with a minimum refrigerant charge of 54g and up to 1.82kg and containing a minimum 284ml oil charge.

Super Seal ACR

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184066	947KIT	Super Seal ACR Sealant Kit	\$198.61

Super Seal HVACR

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184067	944KIT	Super Seal HVACR Sealant Kit	\$284.56

Super Seal Commercial

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184068	948KIT	Super Seal Commercial Sealant Kit	\$284.56

Super Seal Premium, seals leaks in mobile R134a and R12

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184069	946KIT	Super Seal Premium Sealant Kit	\$202.11

Super Seal Total

The Super Seal Total range includes all the features of the Super Seal range, along with a UV tracer dye and Dry R drying agent in the one can. Includes disposable connector hose and service label.

Cat. No.	Part No.	Description	Application Guide	List Price \$ Exc. GST
184074	971KIT	Super Seal Total 1 Kit	67W to 5.3kW - one can	\$201.57
184075	972KIT	Super Seal Total 2 Kit	5.3kW to 17.6kW - one can 17.6kW & up - two cans	\$287.56

Flash UV Dye

Flash is an easy to use universal UV dye for refrigeration & air conditioning systems & is compatible with all common refrigerants & oils including R410A. Flash is injected into a system using the same method as Super Seal, using the systems refrigerant as a propellant, while holding the can upside down. Flash UV dye needs no dye injection tools and is the cleanest, “no mess” way to add UV dye to a system. Each can treats up to 1.8l of system oil.

Features

- Complete kit
- Clean “no mess” installation
- No dye injector needed

Cat. No.	Part No.	Description	Application Guide	List Price \$ Exc. GST
184073	9802KIT	Flash UV Dye Kit	67W to 17.6kW - one can	\$98.25

Kit Contents: 2 x cans of Flash UV dye, 1 x reusable hose



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Service Aids

Ciplight

Dry R

The active ingredient in Dry R reacts with water to produce stable products that are soluble in alkybenzene, mineral, polyolester oils used in refrigeration systems, in essence, eliminating moisture from the system. No particulates, gels or polymers are formed. Includes disposable connector hose and service label.



Cat. No.	Part No.	Description	Application Guide	List Price \$ Exc. GST
184076	973KIT	Dry R Kit	67W to 17.8kW - one can 17.8kW & up - two cans	\$156.43

Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
184065	20128	Super Seal R410A Adaptor	\$16.31



Propipe

System Identification Labels

The Propipe System Identification Label Kit contains 3 sizes of stickers with segments to record key system information such as the refrigerant and oil type.

The different sticker sizes have been designed to fit in key locations such as near the TX valve and on the condensing unit.

Kit Contents

- 3 sizes of stickers:
 - 10 x small - 35mm wide x 25mm high
 - 10 x medium - 75mm wide x 50mm high
 - 5 x large - 100mm wide x 75mm high
- Permanent marker



Cat. No.	Part No.	Description	List Price \$ Exc. GST
349006	RLKA	System Identification Label Kit	\$40.65

CLIGHT
CAN'T FIND
THE LEAK?
USE
SUPER SEAL™



- **SUPER SEAL TOTAL™** WITH DRY R™ & FLASH™ – FIX & FIND LEAKS & BOOSTS PERFORMANCE
- **SUPER SEAL ADVANCED™** WITH DRY R™ – FIX LEAKS & BOOSTS PERFORMANCE
- **SUPER CHANGE™** – SYSTEM RETROFIT & REJUVENATES COMPONENTS
- **DRY R™** – MOISTURE REMOVER, BOOSTS PERFORMANCE & PREVENTS WAXING & ACID
- **FLASH™** – HIGH RESOLUTION, NO MESS UNIVERSAL UV DYE

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Service Oils

Extol

Extol manufactures and blends its own range of Refrigeration Oils and other specialty lubricants for the HVAC, Industrial and Automotive Industry. They have a full range of replacement oils specifically designed to function under the most severe service conditions encountered in refrigeration and air conditioning systems.

Synthetic Refrigeration Oil

Extol Synthetic Refrigeration Oils are a full synthetic hydrocarbon refrigeration lubricant that have been designed to function under severe service conditions. Extol oils contain no paraffin and are compatible with most common refrigerants such as R22, R134a and R404A. Extol PSR is completely miscible with petroleum-based oils.



Cat. No.	Part No.	ISO Viscosity Grade	Container Size	List Price \$ Exc. GST
184170	EXTOL 32 1L	32	1 Litre	\$79.81
184171	EXTOL 32 4L		4 Litres	\$319.00
184172	EXTOL 32 20L		20 Litres	\$1,263.69
184174	EXTOL 46 1L	46	1 Litre	\$79.81
184175	EXTOL 46 4L		4 Litres	\$319.00
184176	EXTOL 46 20L	46	20 Litres	\$1,263.69
184092	EXTPSR-1	68	1 Litre	\$79.81
184093	EXTPSR-4		4 Litres	\$319.00
184094	EXTPSR-20		20 Litres	\$1,263.69
	EXTPSR-208		208 Litres	P.O.A

SRO Series

The Extol SRO Series is a 100% synthetic POE blend designed for HFC and HCFC refrigerant gas miscibility in industrial and commercial refrigeration, air conditioning and chiller applications.

Cat. No.	Part No.	Description	ISO Viscosity Grade	Container Size	List Price \$ Exc. GST
184251	SRO 32 (01)	Polyolester Oil	32	1 Litre	\$76.13
184252	SRO 32 (04)	Polyolester Oil		4 Litres	\$243.64
184253	SRO 32 (20)	Polyolester Oil		20 Litres	\$1,320.94
184254	SRO 46 (01)	Polyolester Oil	46	1 Litre	\$76.13
184255	SRO 46 (04)	Polyolester Oil		4 Litres	\$243.64
184256	SRO 46 (20)	Polyolester Oil		20 Litres	\$1,320.94
184257	SRO 68 (01)	Polyolester Oil	68	1 Litre	\$76.13
184258	SRO 68 (04)	Polyolester Oil		4 Litres	\$243.64
184259	SRO 68 (20)	Polyolester Oil		20 Litres	\$1,320.94
184260	SRO100 (20)	Polyolester Oil	100	20 Litres	\$1,614.49

HDT Series

Extol HDT Series oils are a highly refined, hydrotreated compressor lubricant, specially designed to function under the stringent requirements of close-loop ammonia and all other refrigeration systems. It is exceptionally well suited for rotary screw and reciprocating compressors in ammonia service & compatible with naphthenic and other hydrotreated paraffinic-based compressor oils.

Cat. No.	Part No.	Description	ISO Viscosity Grade	Container Size	List Price \$ Exc. GST
184261	HDT 32 (04)	Hydrotreated Mineral Oil	32	4 Litres	\$243.64
184262	HDT 68 (04)	Hydrotreated Mineral Oil	68	4 Litres	\$243.64
184263	HDT 68 (20)	Hydrotreated Mineral Oil	68	20 Litres	\$1,504.41

TB Series

Extol TB series oils are a premium quality hydrotreated compressor lubricant designed to be used with a vast range of traditional refrigerants and is able to be used in almost all applications. The TB Series oils are perfect for use in commercial and residential refrigeration and air conditioning systems using HCFC refrigerants such as R22, along with ammonia R717, R600A and R290. Extol TB Series is 100% compatible with Suniso mineral oils and is the perfect replacement for Suniso 3GS, 4GS and 5GS. This means no flushing of systems is required allowing top-offs to be made with confidence.

Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
184264	TB 3 (04)	Mineral Oil	4 Litres	\$55.06
184265	TB 3 (20)	Mineral Oil	20 Litres	\$315.55
184266	TB 4 (04)	Mineral Oil	4 Litres	\$55.06
184267	TB 4 (20)	Mineral Oil	20 Litres	\$315.55

AB Series

Extol AB series is formulated from an alkylbenzene synthetic blend and designed to function under the stringent requirements of HCHC's such as R22, R123, R408A, R409A, and ammonia (R717) in direct expansion and liquid overfeed industrial refrigeration systems.

Cat. No.	Part No.	Description	ISO Viscosity Grade	Container Size	List Price \$ Exc. GST
184268	AB 46 (04)	Hydrotreated Mineral Oil	46	4 Litres	\$128.42
184269	AB 68 (04)	Hydrotreated Mineral Oil	68	4 Litres	\$139.44



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Oils

Suniso

Mineral Refrigeration Oils For use with R22, R717 (Ammonia)

Suniso Grade	4 Litre Container		20 Litre Drum		205 Litre Drum	
	Cat. No.	List Price \$ Exc. GST	Cat. No.	List Price \$ Exc. GST	Cat. No.	List Price \$ Exc. GST
3GS	184002	\$78.43	184003	\$405.86	184004	\$3,966.27
4GS	184008	\$78.43	184009	\$405.86	184010	\$3,966.27
4SA			184019	\$327.94	184020	\$2,864.01

Polyolester Oil

Suniso Grade	1 Litre Container		4 Litre Container		20 Litre Container	
	Cat. No.	List Price \$ Exc. GST	Cat. No.	List Price \$ Exc. GST	Cat. No.	List Price \$ Exc. GST
SL32S	184230	\$83.32	184232	\$313.61	184234	\$1,421.05
SL685	184236	\$83.32	184238	\$313.61	184240	\$1,421.05

Bitzer

Refrigeration Oils

Cat. No.	Part No.	Type	Description	Container Size	List Price \$ Exc. GST
184120	I06-004	B5	B5 Reciprocating Compressor Oil	4 Litres	\$189.86
184121	I06-005			20 Litres	\$895.76
184131	I06-018	BSE 32	Polyolester Compressor Oil	1 Litre	\$125.31
184132	I06-019			2 Litres	\$242.54
184133	I06-015			5 Litres	\$503.77
184134	I06-012			20 Litres	\$1,761.80
184145	I06-027			5 Litres	\$533.89
184144	I06-028	BSE 170	Polyolester Screw Compressor Oil	20 Litres	\$1,739.93
184147	I06-033	BSE 60K	Polyolester CO ² Compressor Oil	1 Litre	\$209.39

Maneurop

Refrigeration Oils

Cat. No.	Part No.	Description	Suits	Container Size	List Price \$ Exc. GST
184140	7754001	160P Mineral Oil	MT & SM with R22	2 Litres	\$130.19
184141	7754002	160P Mineral Oil	MT & SM with R22	5 Litres	\$261.18
184143	120Z0573	160PZ Polyolester Oil	MTZ, NTZ & MPZ with R404A, R507, R134a & R407C	2.5 Litres	\$257.10
184139	120Z0571	160SZ Polyolester Oil	SZ with R407C, R134a & R404A & SH with R410A	2.5 Litres	\$205.70

Actrol

Vacuum Pump Oil

Cat. No.	Type	Container Size	List Price \$ Exc. GST
184022	Vacuum Pump Oil Standard	1 Litre	\$19.49
184023		4 Litres	\$59.27
184037	Vacuum Pump Oil Suits Shark	1 Litre	\$22.10

Appion

Vacuum Pump Oil

Appion's TEZOM Micron-Dry Oil is a premium synthetic blend vacuum pump oil for superior performance.

Cat. No.	Model No.	Description	List Price \$ Exc. GST
184466	TZMGLN	3.78 Litre Synthetic Vacuum Pump Oil	\$132.61
184467	TZM1PK	Oil Cartridge With Vacuum Pump Oil	\$51.10

Shell

Gadus Grease

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184063	S2V1002	General Purpose Grease	\$23.08

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Spill Cleaners



Emergency Spill Cleaner

The Emergency Spill Cleaner is a 500 gram pack of a super absorbent organic material. Ideally suited to absorb materials such as oil after spills, each 500 grams will absorb up to 5 litres of fluid.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184431	ESC	Oil Absorbent 500 grams	\$19.77

Cleaning Rags

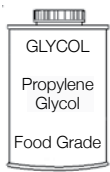
A 4.9kg pack of quality rags for use in general cleaning applications or wherever rags are required.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
184432	4.9kg	Cleaning Rags	\$29.24

Glycol

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Actrol



Propylene Glycol Food Grade

Cat. No.	Container Size	List Price \$ Exc. GST
184165	5 Litres	\$98.01
184167	20 Litres	\$284.79
184166	215 kg	\$2,590.49

Flushing Solvents

Solpower

Universal Flushing Solvent

Solpower is a fast evaporating universal cleaning solvent suitable for all refrigeration and air-conditioning systems. Suitable for internal system cleaning to remove contaminants and oil, Solpower is a non-corrosive and non-ozone depleting fluid.



Features

- Fast evaporating
- Non hygroscopic
- Removes oil and contaminants

Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
184453	SP141-5LT	Universal Flushing Solvent	5 Litres	\$182.21
184455	SP141-20LT		20 Litres	\$728.80

Extol

Extol

Universal Flushing Agent

Extol Universal Flushing Agent is a liquid flushing agent which dissolves gummy oil oxidation deposits and loosens insoluble materials in refrigeration and air conditioning systems. The principle additive is designed to increase the products ability to dissolve gummy oil oxidation products and loosen insoluble materials inside heat exchangers, pipes and housings. It has a flash point <0°C. Flammability precautions are recommended. It has a wide boiling range and is a fast evaporating solvent which evacuates from systems quickly under vacuum. Its low viscosity and solvency increases the effectiveness of the flushing procedure. It is non-corrosive and acts as an effective corrosion inhibitor to protect bare metal surfaces.



Cat. No.	Part No.	Container Size	List Price \$ Exc. GST
184135	EXTUFA-5	5 Litres	\$241.26
184136	EXTUFA-20	20 Litres	\$631.12



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Refrigerants

FlexiTrak

FlexiTrak is Actrol's complete refrigerant management solution.

FlexiTrak incorporates numerous free features such as detailed cylinder tracking & usage along with detailed refrigerant purchasing records. Cylinder tracking records all the purchasing details to every uniquely identified cylinder. Reports are available as summaries on cylinder usage or detailed usage. All refrigerant purchases using FlexiTrak include information such as tradesperson, date of transaction, invoice number, order number, job number/name, refrigerant type and volume. The detail of refrigerant purchased is also available upon request. FlexiTrak is well suited to assist with ARC compliance.

Refrigerant

HCFC

Cat. No.	Refrig.	Cyl. Contents kg	List Price \$ Exc. GST
18500210	R22	10	P.O.A
18500220		22	P.O.A
18500265		65	P.O.A
1850021H		480	P.O.A
1850021T		820	P.O.A
18501010	R408A	8	P.O.A
18501020		18	P.O.A
18501065		57	P.O.A
18500610	R409A	10	P.O.A
18500620		20	P.O.A
18500665		65	P.O.A
185019	R123	91*	P.O.A

*drum

HFC

Cat. No.	Refrig.	Cyl. Contents kg	List Price \$ Exc. GST
18500310	R134a	10	P.O.A
18500320		20	P.O.A
18500365		65	P.O.A
1850031H		480	P.O.A
1850031T		810	P.O.A
18501110	R404A	8	P.O.A
18501120		18	P.O.A
18501165		57	P.O.A
1850111H		380	P.O.A
1850111T	R407C	770	P.O.A
18501410		9	P.O.A
18501420		20	P.O.A
18501465		60	P.O.A
18507210		9	P.O.A
18507220	R407F	20	P.O.A
18507265		60	P.O.A

HFC

Cat. No.	Refrig.	Cyl. Contents kg	List Price \$ Exc. GST
18500710	R410A	8	P.O.A
18500720		16	P.O.A
18500765		52	P.O.A
1850071H		480	P.O.A
1850071T		810	P.O.A
18507110	R427A	9	P.O.A
18507120		20	P.O.A
18507165		60	P.O.A
18507310	R438A (MO99)	9	P.O.A
18507320		20	P.O.A
18507365		60	P.O.A
18501210	R507	8	P.O.A
18501220		18	P.O.A
18501265		57	P.O.A
185040	34M	12	P.O.A
185041		20	P.O.A

Ammonia

Cat. No.	Refrigerant	Cylinder Contents kg	List Price \$ Exc. GST
185021	R717	34	P.O.A
185023		385	P.O.A

Reclaim Cylinders

Reclaim cylinders are provided to enable contractors to easily collect any unwanted refrigerant for return to Actrol & RRA.

Features

- Easy to identify
- Dual inlet & outlet valves suitable for push/pull recovery
- Suitable for all common refrigerants including R410A

Cat. No.	Max Fill kg
89080420	17
89080465	52

Pumpdown Cylinders

These cylinders are designed to allow contractors to recover refrigerant from a system into a cylinder known to be clean, make any repairs that are needed, and then recharge the same refrigerant back into the same system.

Features

- Easy to identify
- Internally cleaned & valves sealed
- Dual inlet & outlet valves suitable for push/pull recovery
- Suitable for all common refrigerants including R410A

Cat. No.	Max Fill kg
89080520	17
89080565	52

Refrigerant Trading Authorisation AU06444



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HCFC PHASE OUT, IT'S CRUNCH TIME!

FORANE® 427A: **The sustainable retrofit solution.**

As R-22 imports continue to reduce in line with our obligations under the Montreal Protocol, Forane® 427A is your long-term solution. A non-toxic, non-flammable, non-ozone depleting 100% HFC blend, Forane® 427A has been specifically developed as a retrofit replacement for HCFC-22 in your existing low and medium temperature refrigeration and air-conditioning systems.

Forane® 427A has been used successfully in a variety of industries for over seven years.



2

Industrial Gas

Dry Nitrogen



Cat. No.	Part. No.	Description	Cylinder Size	Contents m ³ (101.325 kPa @ 15C)	Average Weight (Full) kg	Average Weight (Empty) kg	List Price \$ Exc. GST
186010	Nitrogen D	Dry Nitrogen	D	1.5	13.8	12	P.O.A
186013	Nitrogen E		E	3.5	27	22	P.O.A



Tesuco

Nitrogen Regulator



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352060	RI1SNI60	Nitrogen Regulator 6000kPa	\$661.01

Disposable Dry Nitrogen Cylinders

In many cases, disposable cylinders are cheaper than refilling reusable cylinders. Non-refillable cylinders often save time and do not require periodic re-certification.

The 2 litre disposable gas cylinder has a much larger capacity and is filled to a much higher pressure than conventional disposable cylinders currently available.

Nitrogen is a colourless and odourless inert gas making it ideal for use during brazing of copper tube. During brazing, temperatures of 620°C to 790°C are required. Copper will react with the oxygen in air at these temperatures to form a scale of copper oxide on the inner walls of tubing and fittings. The resulting flakes of scale dislodged in operating refrigeration systems cause system blockages and damage to components. If the air in the copper tubing being brazed is replaced with a slow steady flow of nitrogen during brazing, the formation of copper oxides can be eliminated.

Other Uses

- Purging
- Pressure Testing
- Triple Evacuation
- Calibration of Gauges and Controls



Cat. No.	Part No.	Description	Cylinder size	Contents M ³ @ 200C	Average weight (Full) kg	Average weight (Empty) kg	List Price \$ Exc. GST
186020	GTNI2C	Disposable Dry Nitrogen	2 Litres	0.2	2.15	1.72	\$111.19

Regulator for Disposable Nitrogen Cylinders

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352050	RCG1MNI15	Nitrogen Regulator 1500kPa	\$129.93



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Line Fittings - Brass

Acpar

Flare Nuts - Short Barrel



Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190060	201-0404	1/4"	5200	5	\$16.53
190013	501-0505	5/16"	4200	1	\$8.07
190061	201-0504	5/16" FF x 1/4" Tube	5200	2	\$7.87
190062	201-0606	3/8"		5	\$22.54

* Note for use with R410A Refrigerant

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190064	201-0808	1/2"	5200	2	\$10.99
190066	201-1010	5/8"			\$14.71
190068	201-1212	3/4"			\$24.35

Flare Nuts - Frost Proof



Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190070	202-0404	1/4"	5200	5	\$27.27
190023	502-0505	5/16"	4200	1	\$14.67
190072	202-0606	3/8"	5200	5	\$35.69

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190074	202-0808	1/2"	5200	2	\$18.58
190076	202-1010	5/8"			\$25.11
190078	202-1212	3/4"			\$45.94

Flare Nuts - Frost Proof Reducing

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190071	202-0604	3/8" FF x 1/4" Tube	5200	2	\$21.08
190054	502-0806	1/2" FF x 3/8" Tube	4200	5	\$21.80

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190055	502-1006	5/8" FF x 3/8" Tube	4200	2	\$29.41
190056	502-1008	5/8" FF x 1/2" Tube			\$31.82

Flare Copper Bonnets



Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190200	RCB006-410A	1/4" SAE	4500	5	\$2.45
190201	RCB010-410A	3/8" SAE			\$2.91
190204	RCB013-410A	1/2" SAE		3	\$3.31

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190206	RCB016-410A	5/8" SAE	4500	3	\$3.91
190108	1105-12	3/4" SAE		1	\$3.19

Flare Copper Washers

Use on brass to brass flare connections to prevent leaks

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190210	109-04	1/4"	10	\$5.41
190211	109-06	3/8"		\$7.06
190212	109-08	1/2"		\$12.86

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190213	109-10	5/8"	5	\$8.50
190214	109-12	3/4"		\$7.06

Flare Seal Cap Nuts



Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190122	275-04	1/4"	5200	1	\$4.73
190124	275-06	3/8"			\$11.60
190126	275-08	1/2"			\$15.56

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
190127	275-10	5/8"	5200	1	\$28.39
190128	275-12	3/4"			\$35.24

Flare Seal Plugs



Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190132	270-04	1/4"	1	\$8.18
190134	270-06	3/8"		\$10.48
190136	270-08	1/2"		\$11.40

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190137	270-10	5/8"	1	\$21.37
190138	270-12	3/4"		\$27.16



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Line Fittings - Brass

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Pipe Plugs - Male BSP



Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190141	280-02	1/8"	1	\$8.18
190142	280-04	1/4"		\$12.20
190143	280-06	3/8"		\$16.63

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
190144	280-08	1/2"	1	\$22.32
190145	280-12	3/4"		\$35.07

Unions - Male Flare to Male Flare



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	M Flare			
191003	240-0404	1/4"	1/4"	5200	1	\$8.82
191005	240-0505	5/16"	5/16"			\$17.23
191006	240-0606	3/8"	3/8"			\$15.60

Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	M Flare			
191007	240-0808	1/2"	1/2"	4200	1	\$16.71
191008	240-1010	5/8"	5/8"			\$31.62
191009	240-1212	3/4"	3/4"			\$39.36

Unions - Male Flare to Male Flare - Reducing

Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	M Flare			
191062	240-0504	5/16"	1/4"	5200	1	\$17.64
191064	240-0604	3/8"				\$18.19
191066	240-0804	1/2"				\$30.44
191068	240-0806		3/8"			\$24.78

Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	M Flare			
191069	200-1004	5/8"	1/4"	4200	1	\$37.49
191070	200-1006		3/8"			\$43.10
191071	240-1008		1/2"	5200		\$38.57
191073	200-1210	3/4"	5/8"	4200		\$59.53

Unions - Male Flare to Female Flare



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST		
		M Flare	F Flare					
191015	245-0404	1/4"	1/4"	5200	1	\$29.46		
191017	245-0406		3/8"			\$21.93		
191018	245-0408		1/2"			\$26.94		
191019	205-0410	5/16"	5/8"	4200		\$62.67		
191020	245-0504		3/8"	1/4"		5200	\$20.73	
191024	245-0604						\$15.77	
191026	245-0606						3/8"	\$16.09
191027	245-0608						1/2"	\$23.59
191028	205-0610		5/8"	4200		\$40.68		

Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$
		M Flare	F Flare			Exc. GST
191030	245-0804	1/2"	1/4"	5200	1	\$22.80
191032	245-0806		3/8"			\$22.80
191034	205-0808		1/2"	4200		\$46.59
191035	245-0810		5/8"	5200		\$33.32
191036	205-0812		3/4"	4200		\$74.27
191039	245-1008	5/8"	1/2"	5200		\$33.49
191040	245-1012		3/4"			\$54.66
191042	245-1210	3/4"	5/8"			\$47.82

Unions - Female Flare to Female Flare



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		F Flare	F Flare		
191045	226-0404	1/4"	1/4"	1	\$24.51
191048	226-0606	3/8"	3/8"		\$30.70
191050	226-0808	1/2"	1/2"		\$45.72



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Line Fittings - Brass

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Unions – Male Flare to Male BSP



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST	Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	M BSP					M Flare	M BSP		
191125	221-0402	1/4"	1/8"	1	\$9.65	191143	221-0804	1/2"	1/4"	1	\$21.58
191126	221-0402L		1/8" Long Taper		\$16.36	191144	221-0806		3/8"		\$15.77
191127	221-0404		1/4"		\$12.79	191145	221-0808		1/2"		\$18.95
191129	221-0406		3/8"		\$16.63	191146	221-0812		3/4"		\$45.41
191130	221-0408		1/2"		\$25.15	191150	221-1008	5/8"	1/2"		\$29.94
191136	221-0602	3/8"	1/8"	1	\$19.22	191151	221-1012		3/4"		\$38.32
191137	221-0604		1/4"		\$14.38	191155	221-1208	3/4"	1/2"		\$36.39
191138	221-0606		3/8"		\$17.68	191156	221-1212		3/4"		\$28.20
191139	221-0608		1/2"		\$21.96						
191140	221-0612		3/4"		\$29.64						

Unions – Male Flare to Female NPT



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	F NPT		
1910951	247-0402	1/4"	1/8"	1	\$15.37

Unions – Male Flare to Female BSP



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST	Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	F BSP					M Flare	F BSP		
191095	246-0402	1/4"	1/8"	1	\$16.41	191103	246-0604	3/8"	1/4"	1	\$24.98
191096	246-0404		1/4"		\$16.84	191104	246-0606		3/8"		\$40.23
191097	246-0406		3/8"		\$23.44	191105	246-0608		1/2"		\$49.25
191098	206-0408		1/2"		\$53.12	191108	246-0806	1/2"	3/8"		\$52.63
						191109	246-0808		1/2"		\$52.63

Unions – Male BSP to Male BSP

Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M BSP	M BSP		
191171	251-0202	1/8"	1/8"	1	\$10.28
191172	251-0404	1/4"	1/4"		\$16.33
191173	251-0606	3/8"	3/8"		\$16.41
191174	251-0808	1/2"	1/2"		\$23.95
191175	251-1212	3/4"	3/4"		\$35.74

Reducing



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M BSP	M BSP		
191181	251-0402	1/4"	1/8"	1	\$11.68
191183	251-0604	3/8"	1/4"		\$17.88
191185	251-0806	1/2"	3/8"		\$25.29



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Line Fittings - Brass

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Unions - Male BSP to Female Flare



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M BSP	F Flare		
192061	214-0204	1/8"	1/4"	1	\$31.61
192062	214-0404	1/4"	1/4"		\$31.61

Unions - Female BSP to Female BSP (Gas Couplings)



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		F BSP	F BSP		
192131	228-0202	1/8"	1/8"	1	\$17.16
192132	228-0404	1/4"	1/4"		\$21.17
192135	228-0606	3/8"	3/8"		\$38.68
192137	228-0808	1/2"	1/2"		\$51.23
192138	228-1212	3/4"	3/4"		\$61.50

Unions - Male BSP to Female BSP (Gas Bushes)



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M BSP	F BSP		
192014	216-0402	1/4"	1/8"	1	\$15.34
192016	216-0406		3/8"		\$26.53
192019	216-0604	3/8"	1/4"		\$29.00
192022	216-0804	1/2"			\$27.09
192023	216-0806		3/8"		\$30.23
192027	216-1208	3/4"	1/2"		\$41.79
192028	216-1612	1"	3/4"		\$82.17

Unions - Male Flare to Solder



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	Solder		
192031	218-0404	1/4"	1/4"	1	\$8.22
192033	218-0406		3/8"		\$11.60
192040	218-0606	3/8"	1/2"		\$10.84
192041	218-0608		3/8"		\$19.43
192044	218-0806	1/2"	3/8"		\$16.24
192045	218-0808		1/2"		\$16.24
192046	208-0810		5/8"		\$27.47
192050	218-1008	5/8"	1/2"		\$30.39
192051	218-1010		5/8"		\$20.65
192056	218-1212	3/4"	3/4"		\$32.81

Unions - Male ACME

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
192150	275-0408	1/2" F ACME x 1/4" M Flare	1	\$31.45
192151	272-0804	1/2" M ACME x 1/4" F Flare		\$23.78

Unions - Male BSP to Solder

Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M BSP	Solder		
192084	219-0808	1/2"	1/2"	1	\$21.05
192094	219-1212	3/4"	3/4"		\$38.68

Unions - Female BSP to Solder

Cat. No.	Part No.	Size		PackQty	List Price \$ Exc. GST
		M BSP	Solder		
192148	233-0808	1/2"	1/2"	1	\$46.59
192149	233-0606	3/8"	3/8"		\$43.37



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Line Fittings - Brass

Acpar

Elbows - Male Flare to Male Flare



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	M Flare			
193002	261-0404	1/4"	1/4"	5200	1	\$40.23
193004	261-0606	3/8"	3/8"	5200		\$40.23
193005	261-0808	1/2"	1/2"	5200		\$38.32
193006	261-1010	5/8"	5/8"	5200		\$39.72

Elbows - Male Flare to Female Flare



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare	F Flare			
193011	260-0404	1/4"	1/4"	5200	1	\$28.33

Elbows - Male Flare to Male BSP



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	M BSP		
193112	222-0402	1/4"	1/8"	1	\$33.73
193113	222-0404		1/4"		\$37.94
193114	222-0406		3/8"		\$39.57
193120	222-0604	3/8"	1/4"		\$38.93
193121	222-0606		3/8"		\$42.31
193122	222-0608		1/2"		\$43.69

Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare	M BSP		
193127	222-0808	1/2"	1/2"	1	\$43.89
193131	222-1008	5/8"			\$34.63
193134	222-1212	3/4"	3/4"		\$56.35

Tees - 3 Way Male Flare



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare Line	M Flare Branch			
194013	230-040404	1/4" x 1/4"	1/4"	5200	1	194013
194015	230-060606	3/8" x 3/8"	3/8"			194015
194017	230-080808	1/2" x 1/2"	1/2"			194017
194018	230-101010	5/8" x 5/8"	5/8"			194018
194019	230-121212	3/4" x 3/4"	3/4"			194019

Tees - Male Flare Line to Female Flare Branch



Cat. No.	Part No.	Size		SWP kPa	Pack Qty	List Price \$ Exc. GST
		M Flare Line	F Flare Branch			
194075	232-040404	1/4" x 1/4"	1/4"	5200	1	\$32.52

Tees - Male Flare Line to Male BSP Branch



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare Line	M BSP Branch		
194082	233-040402	1/4" x 1/4"	1/8"	1	\$44.55
194086	233-040404		1/4"		\$55.24

Tees - Male Flare Line to Female BSP Branch



Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		M Flare Line	F BSP Branch		
194106	409-040402	1/4" x 1/4"	1/8"	1	\$79.63
194108	409-040404		1/4"		\$112.65



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Hand Valves

Castel

6210 Series - 2 Way Line - Male Flare



Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa	List Price \$ Exc. GST
195121	6210/2	Flare Hand Shut Off Valve	1/4"	2800	\$51.19
195122	6210/3		3/8"		\$68.52
195123	6210/4		1/2"		\$69.84
195124	6210/5		5/8"		\$78.49
195125	6210/6		3/4"		\$120.79



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2100 Series - 2 Way Line - Male Flare

Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa	List Price \$ Exc. GST
195002	2100-0404	Flare Hand Shut Off Valve	1/4"	2800	\$167.97
195004	2100-0606		3/8"		\$184.20
195005	2100-0808		1/2"		\$251.91
195006	2100-1010		5/8"		\$239.09
	2100-1212		3/4"		P.O.A



Castel

6220 Series - 2 Way Line - Female Solder



Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa	List Price \$ Exc. GST
195126	6220/2	Solder Hand Shut Off Valve	1/4"	2800	\$51.48
195127	6220/3		3/8"		\$68.19
195128	6220/4		1/2"		\$69.84
195129	6220/5		5/8"		\$82.10
195130	6220/6		3/4"		\$120.79

Packed Cap Valves

Castel

6410 Series - 2 Way Line - Male Flare



Cat. No.	Model No.	Size: Flare	Max. Working Press. kPa	List Price \$ Exc. GST
196039	6410/2	1/4"	4500	\$83.79
196051	6410/3	3/8"		\$90.21
196052	6410/4	1/2"		\$91.14
196053	6410/5	5/8"		\$95.99
196054	6410/6	3/4"		\$181.41

6420 Series - 2 Way Line - Female Solder

Cat. No.	Model No.	Size: ODF Solder	Max. Working Press. kPa	List Price \$ Exc. GST
196056	6420/2	1/4"	4500	\$83.79
196057	6420/3	3/8"		\$90.21
196058	6420/4	1/2"		\$91.14
196059	6420/5	5/8"		\$94.07
196060	6420/6	3/4"		\$168.56
196061	6420/7	7/8"		\$182.71



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Packed Cap Valves

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6512 Series - 2 Way Line - Backseating

Female Solder with 'T' Handle



Cat. No.	Model No.	Size: ODF Solder	Max. Working Press. kPa	List Price \$ Exc. GST
196141	6512/7	7/8"	4500	\$300.03
196142	6512/9	1 1/8"		\$313.81
196143	6512/11	1 3/8"		\$452.83
196144	6512/13	1 5/8"		\$767.70
196145	6512/17	2 1/8"		\$1,367.34

6532 Series - 2 Way Angle - Backseating

Female Solder with 'T' Handle

Cat. No.	Model No.	Size: ODF Solder	Max. Working Press. kPa	List Price \$ Exc. GST
196149	6532/9	1 1/8"	4500	\$356.26
196150	6532/11	1 3/8"		\$485.98
196151	6532/13	1 5/8"		\$1,081.75

6110 Series - 2 Way Angle

Male Flare Side to Male Pipe Thread Bottom



Cat. No.	Part No.	Size		Max. Working Press. kPa	List Price \$ Exc. GST
		Flare	NPT*		
196176	6110/22	1/4"	1/4"	4500	\$46.94
196177	6110/23		3/8"		\$49.43
196183	6110/32	3/8"	1/4"		\$48.88
196178	6110/33		3/8"		\$49.93
196179	6110/43	1/2"	3/8"		\$69.25
196180	6110/44		1/2"		\$71.38
196181	6110/54	5/8"	1/2"		\$86.22
196182	6110/66	3/4"	3/4"		\$163.14



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2201 Series - 2 Way Angle

Male Flare Side to Male Pipe Thread Bottom

Cat. No.	Part No.	Size		Max. Working Press. kPa	List Price \$ Exc. GST
		Flare	NPT*		
196072	2201-0404	1/4"	1/4"	4500	\$99.20
196073	2201-0406		3/8"		\$100.39
196074	2201-0408		1/2"		\$215.88
196075	2201-0604	3/8"	1/4"		\$101.31
196076	2201-0606		3/8"		\$111.57
196077	2201-0608		1/2"		\$168.63
196079	2201-0806	1/2"	3/8"		\$163.59
196080	2201-0808		1/2"		\$124.69



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Ball Valves

Alco

BVS Series - Ball Valves with Access Port

Features

- Hermetic design
- Copper connections
- Maximum working pressure: 4500 kPa
- Full flow design
- Bi-directional flow characteristics
- Access valve mounted on valve body (BVS)
- Valve stem cap retained by strap attached to main body



Cat. No.	Model No.	Part No.	Connection	Overall Length: mm	List Price \$ Exc. GST
196250	BVS-014	806750	1/4"	120	\$77.30
196251	BVS-038	806752	3/8"	118	\$77.30
196252	BVS-012	806754	1/2"	127	\$89.56
196253	BVS-058	806756	5/8"		\$89.84
196254	BVS-034	806757	3/4"	157	\$111.98
196255	BVS-078	806758	7/8"		\$113.53
196256	BVS-118	806759	1 1/8"	169	\$161.09
196257	BVS-138	806761	1 3/8"	231	\$228.95
196258	BVS-158	806762	1 5/8"	277	\$337.46
196259	BVS-218	806764	2 1/8"	297	\$486.58
196260	BVS-258	806765	2 5/8"		\$513.50
196261	BVS-318	806766	3 1/8"		\$563.04

BVE Series - Ball Valves without Access Port

Cat. No.	Model No.	Part No.	Connection	Overall Length: mm	List Price \$ Exc. GST
196270	BVE-014	806730	1/4"	120	\$66.18
196271	BVE-038	806732	3/8"	118	\$66.01
196272	BVE-012	806734	1/2"	127	\$78.00
196273	BVE-058	806736	5/8"		\$78.61
196274	BVE-034	806737	3/4"	157	\$98.96
196275	BVE-078	806738	7/8"		\$103.92
196276	BVE-118	806739	1 1/8"	169	\$142.56
196277	BVE-138	806741	1 3/8"	231	\$213.18
196278	BVE-158	806742	1 5/8"	277	\$310.35
196279	BVE-218	806744	2 1/8"	297	\$466.58
196280	BVE-258	806745	2 5/8"		\$504.52
196281	BVE-318	806746	3 1/8"		\$540.56



Castel

6590A Series - Ball Valves with Access Port



Cat. No.	Model No.	Connection ODF	Port Size: mm	Overall Length: mm	List Price \$ Exc. GST
		1/4"	10	121	P.O.A
196101	6590/3A	3/8"	10		\$103.36
196102	6590/4A	1/2"	10		\$103.36
196103	6590/5A	5/8"	15	138	\$124.18
196104	6590/6A	3/4"	15	141	\$124.18
196105	6590/7A	7/8"	19	175	\$159.19
196106	6590/9A	1 1/8"	25	206	\$204.05
196107	6590/11A	1 3/8"	32	262	\$276.17
196108	6590/13A	1 5/8"	38		\$409.85
196109	6590/17A	2 1/8"	50	303	\$593.98
196110	6591/21A	2 5/8"	50		\$633.72



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Ball Valves



Castel

6590A Series - Ball Valves without Access Port



Cat. No.	Model No.	Connection ODF	Port Size: mm	Overall Length: mm	List Price \$ Exc. GST
196091	6590/2	1/4"	10	121	\$94.42
196062	6590/3	3/8"	10		\$95.65
196063	6590/4	1/2"	10		\$95.65
196064	6590/5	5/8"	15	138	\$117.41
196065	6590/6	3/4"	15	141	\$117.41
196071	6590/7	7/8"	19	175	\$154.11
196066	6590/9	1 1/8"	25	206	\$200.93
196067	6590/11	1 3/8"	32	262	\$276.49
196068	6590/13	1 5/8"	38		\$416.22
196069	6590/17	2 1/8"	50	303	\$608.88
196070	6591/21	2 5/8"	50		\$621.26

3



Danfoss

GBC Access Series - Ball Valves with Access Port



Cat. No.	Part No.	Model No.	Connection ODF	List Price \$ Exc. GST
196321	009G7050	GBC6S	1/4"	\$109.23
196322	009G7051	GBC10S	3/8"	\$109.23
196323	009G7052	GBC12S	1/2"	\$109.23
196324	009G7053	GBC16S	5/8"	\$109.23
196325	009G7054	GBC18S	3/4"	\$146.80
196326	009G7055	GBC22S	7/8"	\$152.15
196327	009G7056	GBC28S	1 1/8"	\$213.56
196328	009G7057	GBC35S	1 3/8"	\$324.04
196329	009G7058	GBC42S	1 5/8"	\$480.69
196330	009G7059	GBC54S	2 1/8"	\$633.26
196331	009G7066	GBC67S RP	2 5/8"	\$974.16

GBC Series - Ball Valves without Access Port

Cat. No.	Part No.	Model No.	Connection ODF	List Price \$ Exc. GST
196301	009G7020	GBC6S	1/4"	\$96.87
196302	009G7021	GBC10S	3/8"	\$96.87
196303	009G7022	GBC12S	1/2"	\$96.87
196304	009G7023	GBC16S	5/8"	\$96.87
196305	009G7024	GBC18S	3/4"	\$134.42
196306	009G7025	GBC22S	7/8"	\$139.77
196307	009G7026	GBC28S	1 1/8"	\$201.14
196308	009G7027	GBC35S	1 3/8"	\$311.75
196309	009G7028	GBC42S	1 5/8"	\$379.77
196310	009G7029	GBC54S	2 1/8"	\$620.85
196311	009G7036	GBC67S RP	2 5/8"	\$961.76



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Section 3

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Valves and Fittings



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Cylinder Adaptors – with Washer

Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
197103	203-0412	1/4" Male Flare	3/4" Female BSP	1	\$19.47
197104	203-0612	3/8" Male Flare			\$24.47
197105	20-0812	1/2" Male Flare			\$41.43
197111	203-0512	5/16" Male Flare			\$23.08
197152	21-0812	1/2" ACME			\$39.18

Cylinder Valve Seal Cap

Cat. No.	Part No.	Size	PackQty	List Price \$ Exc. GST
197098	203-0012	3/4" Female BSP Brass Cylinder Cap	1	\$25.02
197175	5612354	3/4" Female BSP Plastic Cylinder Cap		\$5.01

Washers

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
197112	20-WASH	Fibre Washer To Suit 3/4" Female BSP	2	\$4.49



Swivel Connectors

Cat. No.	Part No.	Size	SWP kPa	Pack Qty	List Price \$ Exc. GST
198001	295-04	1/4" Female Flare	4500	1	\$23.23
198002	295-06	3/8" Female Flare			\$24.55
198003	295-08	1/2" Female Flare			\$30.19
198004	295-10	5/8" Female Flare			\$34.24
198005	95-12	3/4" Female flare			\$77.92

Swivel Tail Adaptors

Cat. No.	Part No.	Size		Pack Qty	List Price \$ Exc. GST
		Female Flare	Solder		
198030	210-0404	1/4"	1/4"	1	\$13.55
198031	210-0606	3/8"	3/8"		\$14.23
198032	210-0808	1/2"	1/2"		\$17.48
198033	210-1010	5/8"	5/8"		\$19.85
198034	210-1212	3/4"	3/4"		\$43.10



Supco

Bullet Line Piercing Valve

Cat. No.	Part No.	Size: OD Tube	List Price \$ Exc. GST
198021	BPV-31	1/4", 5/16", 3/8"	\$21.59
198029	BPV-21	1/2", 5/8"	\$28.20



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Valves and Fittings

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Rotalock Valves - including seal ring



Cat. No.	Part No.	Connections		Pack Qty	List Price \$ Exc. GST	Cat. No.	Part No.	Connections		Pack Qty	List Price \$ Exc. GST
		Rotalock Ring	Tube Size: Solder					Rotalock Ring	Tube Size: Solder		
197255	401-061220	3/4"	3/8"	1	\$70.88	197267	401-142030	1 1/4"	7/8"	1	\$130.98
197256	401-081220		1/2"		\$78.34	197269	401-182030				\$147.59
197257	401-061620	1"	3/8"		\$70.88	197271	401-142830	1 3/4"	1 1/8"		\$139.99
197259	401-081620		1/2"		\$70.88	197273	401-182835				\$212.14
197261	401-101620		5/8"		\$78.34	197275	401-222835		1 3/8"		\$230.72
197263	401-102030	1 1/4"			\$80.84	197277	401-262835				\$245.33
197265	401-122030	3/4"	\$122.22			197279	401-263650	2 1/4"	1 5/8"		\$470.91

* The Rotalock Ring size is determined by the thread size within the Rotalock nut.

Teflon Seal Rings

For Rotalock Valves



Cat. No.	Part No.	Description	Suits	Pack Qty	List Price \$ Exc. GST
197281	400-12	Rotalock Seal	3/4" RL	1	\$10.26
197283	400-16	Rotalock Seal	1" RL		\$10.26
197285	400-20	Rotalock Seal	1 1/4" RL		\$10.26
197287	400-28	Rotalock Seal	1 3/4" RL		\$10.26
197289	400-36	Rotalock Seal	2 1/4" RL		\$10.26
197290	400-Multi Pack	Assorted Rotalock Seals	3/4" - 2 1/4" RL	5	\$25.31

Rotalock Valve Caps



Cat. No.	Part No.	Description	Suits	Pack Qty	List Price \$ Exc. GST
197292	411-203035	Rotalock Valve Caps	20mm, 30mm & 35mm Rotalock Valve Bodies	3	\$27.47



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Valves and Fittings

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Rotalock Straight Connector



Cat. No.	Part No.	Connections		Pack Qty	List Price \$ Exc. GST
		Rotalock Ring	Tube Size: Solder		
197301	402-0612	¾"	⅜"	1	\$36.54
197303	402-0416	1"	¼"		\$37.21
197305	402-0816		½"		\$37.21
197307	402-1016		⅝"		\$39.51
197309	402-1420	1 ¼"	⅞"		\$62.60
197311	402-1820		1 ⅝"		\$71.69
197313	402-1828	1 ¾"			\$92.07

Rotalock Elbow Connector



Cat. No.	Part No.	Connections		Pack Qty	List Price \$ Exc. GST
		Rotalock Ring	Tube Size: Solder		
197321	403-0612	3/4"	3/8"	1	\$41.13
197323	403-0816	1"	1/2"		\$46.98
197325	403-1016		5/8"		\$48.99
197327	403-1216		3/4"		\$49.06
197329	403-1416		7/8"		\$61.65
197331	403-1420	1 1/4"	1 1/8"		\$68.17
197333	403-1820				\$92.74
197335	403-1828	1 3/4"			\$110.04

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Line Fittings - Copper



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Couplings/Unions - Female to Female - Solder



Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199202	RCC006-410A	1/4"	4500	5	\$4.10
199206	RCC010-410A	3/8"			\$4.17
199208	RCC013-410A	1/2"			\$5.37
199210	RCC016-410A	5/8"			\$9.93
199212	RCC019-410A	3/4"	4500	2	\$7.07
199214	RCC022-410A	7/8"			\$8.67

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199216	RCC025-410A	1"	4300	2	\$12.05
199218	RCC029-410A	1 1/8"			\$14.37
199222	RCC035-410A	1 3/8"			\$10.99
199226	RCC041-410A	1 5/8"			\$14.44
199232	RCC054-410A	2 1/8"	4000	1	\$28.60
199238	RCC067-410A	2 5/8"	3800		\$46.07
199240	RCC076	3"	3500		\$65.74

Reducing Couplings/Unions - Female to Female - Solder



Cat. No.	Part No.	ID x ID:	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199264	RRR01310-410A	1/2" x 3/8"	4800	2	\$2.70
199266	RRR01610-410A	5/8" x 3/8"			\$4.31
199268	RRR01613-410A	5/8" x 1/2"			\$4.31
199274	RRR01910-410A	3/4" x 3/8"			\$8.07
199276	RRR01913-410A	3/4" x 1/2"	4800	2	\$8.07
199278	RRR01916-410A	3/4" x 5/8"			\$8.07
199282	RRR02213-410A	7/8" x 1/2"			\$9.08
199284	RRR02216-410A	7/8" x 5/8"			\$9.33
199286	RRR02219-410A	7/8" x 3/4"	4600	1	\$9.13
199300	RRR02916-410A	1 1/8" x 5/8"			\$8.28
199302	RRR02919-410A	1 1/8" x 3/4"			\$8.28
199304	RRR02922-410A	1 1/8" x 7/8"			\$8.28

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199310	RRR03516-410A	1 3/8" x 5/8"	4600	1	\$12.84
199312	RRR03522-410A	1 3/8" x 7/8"			\$12.84
199314	RRR03529-410A	1 3/8" x 1 1/8"			\$12.84
199320	RRR04129-410A	1 5/8" x 1 1/8"	4500	1	\$18.47
199322	RRR04135-410A	1 5/8" x 1 3/8"			\$18.47
199330	RRR05429-410A	2 1/8" x 1 1/8"	4000	1	\$33.37
199332	RRR05435-410A	2 1/8" x 1 3/8"			\$33.37
199334	RRR05441-410A	2 1/8" x 1 5/8"	3800	1	\$33.37
199340	RRR06735-410A	2 5/8" x 1 3/8"			\$40.91
199342	RRR06741-410A	2 5/8" x 1 5/8"			\$44.16
199344	RRR06754-410A	2 5/8" x 2 1/8"			\$49.25

Reducing Couplings/Unions - Outside Diameter to Inside Diameter - Solder



Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199386	RNN01310-410A	1/2" x 3/8"	4700	2	\$2.70
199390	RNN01610-410A	5/8" x 3/8"			\$4.31
199392	RNN01613-410A	5/8" x 1/2"			\$4.31
199394	RNN01913-410A	3/4" x 1/2"			\$7.28
199396	RNN01916-410A	3/4" x 5/8"	4700	2	\$7.28
199400	RNN02213-410A	7/8" x 1/2"			\$9.17
199402	RNN02216-410A	7/8" x 5/8"			\$9.17
199404	RNN02219-410A	7/8" x 3/4"			\$9.17
199408	RNN02913-410A	1 1/8" x 1/2"	4500	1	\$9.39

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
199410	RNN02916-410A	1 ¹ / ₈ " x 5 ⁵ / ₈ "	4500	1	\$9.39
199412	RNN02919-410A	1 ¹ / ₈ " x 3 ³ / ₄ "			\$9.39
199414	RNN02922-410A	1 ¹ / ₈ " x 7 ⁷ / ₈ "			\$9.39
199420	RNN03516-410A	1 ³ / ₈ " x 5 ⁵ / ₈ "			\$12.84
199422	RNN03522-410A	1 ³ / ₈ " x 7 ⁷ / ₈ "	4200	1	\$12.84
199424	RNN03529-410A	1 ³ / ₈ " x 1 ¹ / ₈ "			\$12.84
199432	RNN04129-410A	1 ⁵ / ₈ " x 1 ³ / ₈ "	4000	1	\$18.47
199442	RNN05435-410A	2 ¹ / ₈ " x 1 ³ / ₈ "	3800		\$33.37
199444	RNN05441-410A	2 ¹ / ₈ " x 1 ⁵ / ₈ "			\$33.37

* SWP= Safe working pressure @ 59°C



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90° Copper Elbows - Female to Female - Solder



Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201302	REN006-410A	1/4"	4300	5	\$9.81
201304	REN010-410A	3/8"			\$10.07
201306	REN013-410A	1/2"			\$10.19
201307	REN016-410A	5/8"		3	\$18.61
201308	REN019-410A	3/4"			\$19.99
201309	REN022-410A	7/8"			\$28.01
201310	REN025-410A	1"	4200	2	\$25.63
201311	REN029-410A	1 1/8"	4000		\$30.64

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201312	REN032-410A	1 1/4"	4000	2	\$37.74
201313	REN035-410A	1 3/8"	3800		\$49.19
201315	REN041	1 5/8"	3500		\$81.30
201316	103-2626-410A	1 5/8"	4200		\$94.38
201317	REN050	2"	3000	1	\$76.65
201318	REN054	2 1/8"	2800		\$79.31
201322	REN067	2 5/8"	2500		\$75.41
201324	REN076	3"	2100		\$122.80

45° Copper Elbows - Female to Female - Solder



Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201340	REF010-410A	3/8"	4300	3	\$6.42
201342	REF013-410A	1/2"			\$6.69
201344	REF016-410A	5/8"			\$8.21
201346	REF019-410A	3/4"			\$12.97
201348	REF022-410A	7/8"			\$19.00
201350	REF025-410A	1"	4200	2	\$21.52

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201352	REF029-410A	1 1/8"	4000	2	\$22.04
201354	REF032-410A	1 1/4"			\$22.04
201356	REF035-410A	1 3/8"	3800		\$32.04
201360	REF041	1 5/8"	3500		\$49.59
201362	105-2626-410A	1 5/8"	4200	1	\$115.20
201366	REF054	2 1/8"	2800		\$46.86
201368	REF067	2 5/8"	2500		\$64.22

90° Copper Elbows - Male to Female - Solder



Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201380	RBN010-410A	3/8" x 3/8"	4300	3	\$6.55
201382	RBN013-410A	1/2" x 1/2"			\$10.19
201384	RBN016-410A	5/8" x 5/8"			\$18.53
201386	RBN019-410A	3/4" x 3/4"	4200		\$26.08
201388	RBN022-410A	7/8" x 7/8"	4000		\$28.01

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201392	RBN029-410A	1½" x 1½"	3800	2	\$32.58
201396	RBN035	1⅜" x 1⅜"	3500		\$54.75
201400	RBN041	1⅝" x 1⅝"			\$71.76
201406	RBN054	2⅛" x 2⅛"	3000	1	\$83.14
201412	RBN067	2⅝" x 2⅝"	2800		\$75.41

Copper 'P' Traps



Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201450	RPT016-410A	5/8"	4300	1	\$32.90
201452	RPT019-410A	3/4"			\$40.91
201454	RPT022-410A	7/8"			\$50.17
201456	RPT029-410A	1 1/8"	4200		\$69.97

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
201458	RPT035-410A	1 3/8"	4200	1	\$137.96
201460	RPT041-410A	1 5/8"	4000		\$178.73
201462	RPT054-410A	2 1/8"	3800		\$359.66

* SWP= Safe working pressure @ 59°C



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Section 3

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Line Fittings - Copper



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Copper Tube End Caps (Stop Ends)



Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
202089	1120-08	1/2"		1	\$6.42
202090	1120-10	5/8"			\$4.02
202091	1120-12	3/4"			\$5.50
202158	REC022-410A	7/8"	4600	2	\$7.61
202093	1120-16	1"		1	\$12.29
202162	REC029-410A	1 1/8"	4600		\$4.57
202095	1120-20	1 1/4"			\$15.46
202166	REC035-410A	1 3/8"	4600		\$11.25

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
202097	1120-24	1 1/2"		1	\$21.22
202170	REC041-410A	1 5/8"	4600		\$14.44
202101	1120-32	2"			\$26.75
202176	REC054-410A	2 1/8"	4300		\$29.27
202182	REC067-410A	2 5/8"	4000		\$40.98
202107	1120-48	3"			\$50.01
202188	REC102	4"	3500		\$144.06
202112	1120-80	5"			\$130.59

Copper Tees



Cat. No.	Part No.	ID x ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
203200	RTE006-410A	1/4"	4500	3	\$6.96
203204	RTE010-410A	3/8"			\$8.40
203206	RTE013-410A	1/2"			\$8.81
203208	RTE016-410A	5/8"		2	\$9.08
203210	RTE019-410A	3/4"			\$14.63
203212	RTE022-410A	7/8"			\$21.05
203214	RTE025-410A	1"	4400	1	\$15.88

Cat. No.	Part No.	ID x ID x ID	SWP*: kPa	Pack Qty	List Price \$ Exc. GST
203216	RTE029-410A	1 1⁄8"	4300	1	\$18.53
203218	RTE032-410A	1 1⁄4"			\$18.53
203220	RTE035-410A	1 3⁄8"	4000		\$27.14
203224	RTE041-410A	1 5⁄8"			\$44.75
203230	RTE054-410A	2 1⁄8"	3800		\$77.13
203236	RTE067-410A	2 5⁄8"			\$99.83
203238	RTE076	3"	3500		\$196.61

* SWP= Safe working pressure @ 59°C

Copper Tube Clips



Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
202202	RTC006	1/4"	10	\$12.51
208002	1115-05	5/16"	1	\$1.27
202204	RTC010	3/8"	10	\$13.31
202206	RTC013	1/2"	5	\$6.09
202208	RTC016	5/8"		\$6.96
208006	115-12	3/4"	1	\$1.77
202212	RTC022	7/8"	5	\$8.40
208008	1115-16	1"	1	\$2.76
202216	RTC029	1 1/8"	3	\$10.87

Cat. No.	Part No.	Size	Pack Qty	List Price \$ Exc. GST
208010	1115-20	1 1/4"	1	\$8.01
202220	RTC035	1 3/8"	3	\$14.03
208012	1115-24	1 1/2"	1	\$10.00
208013	1115-26	1 5/8"		\$11.03
208014	1115-28	1 3/4"		\$12.77
208015	1115-32	2"		\$13.27
208016	1115-34	2 1/8"		\$14.99
208017	1115-40	2 1/2"		\$15.76



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Line Fittings

Schrader/Access Valves and Fittings

Half Union Type



Cat. No.	Brand	Part No.	Description	List Price \$ Exc. GST
207154	Refco	A31482	1/8" NPT	\$8.10
207153	Refco	A31484/10	1/4" NPT	\$11.47

Multi-Size Solder Union



Cat. No.	Brand	Part No.	Description	List Price \$ Exc. GST
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2-Way

207152	Refco	A31724	1/4" or 3/8" OD Solder	\$8.05
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3-Way

207156	Refco	A31720	3/16", 1/4" or 3/8" OD Solder	\$7.83
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9-Way

207155	Refco	A31729	3/16", 1/4", 5/16", 3/8" or 1/2" OD Also fits 3/16", 1/4" and 5/16" Solder or 1/8" hole may be punched in larger size tube	\$12.85
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Female Flare Coupling with Copper Gasket

Cat. No.	Brand	Part No.	Description	List Price \$ Exc. GST
207114	Robinair	40410	1/4" Female Flare Connection	\$18.76

Schrader Access Valve with Copper Tube Extension



Cat. No.	Part No.	Description	SWP kPa	Qty	List Price \$ Exc. GST
207087	A31003	3/16" OD Schrader Access Valve		1	\$12.36
207088	A31004	1/4" OD Schrader Access Valve	2000		\$10.65
207125	208-0504	5/16" OD Schrader Access Valve	4200	2	\$20.68
207174	A31006	3/8" OD Schrader Access Valve		1	\$15.88

Solder and Flare Tees



Cat. No.	Brand	Part No.	Description	List Price \$ Exc. GST
207157	Refco	A31134	1/4" OD Tube or 3/8" Solder on Run 1/4" Male Flare Access on Branch	\$19.31
207158	Refco	A31512	1/4" Male Flare and 1/4" Male Flare Access on Run 1/8" Male NPT on Branch	\$19.31

Swivel Tee - 1/4" Flare



Cat. No.	Brand	Part No.	Description	List Price \$ Exc. GST
207058	Refco	A31851	Access on Branch Female Swivel on One End of Run	\$32.94
207151		A31852	Access on One End of Run with permanent depressor on Female Swivel Branch	\$32.28

Schrader Valve Cores



Cat. No.	Part No.	Description	Qty	List Price \$ Exc. GST
207128	204-1	Schrader Valve Core R410A Rated	5	\$22.82
207161	A31999	Schrader Valve Core	1	\$3.03

Quick Seal Caps



Cat. No.	Part No.	Description	Qty	List Price \$ Exc. GST
207160	NFT5-4	Quick Seal Cap	1	\$3.03
207164	205-2	Schrader Cap And O-Ring R410A Rated		\$6.04

* Suitable for R410A refrigerants



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Line Fittings

Schrader/Access Valve Tools



Refco

Valve Core Tool



Cat. No.	Part No.	Description	List Price \$ Exc. GST
207105	A32000	Valve Core Tool, contains 6 extra Cores	\$55.42

Valve Core Remover/Installer

These handy tools remove valve cores without losing the system charge. Designed specifically for use during evacuation or recharging of any system with valve core-type access ports, valve core remover/installers can cut service time for these procedures in half.

A valve core left in place considerably restricts flow during evacuation and charging. By removing the core, the restriction is eliminated and maximum flow results, greatly reducing the time required for pulldown and recharging.



Cat. No.	Part No.	Size	Description	List Price \$ Exc. GST
207100	32515	1/4"	This tool removes the valve core and holds it out of the way, inside the tool, to eliminate restriction and provide full flow.	\$276.15
207101	32520		For removing valve cores to permit full flow while retaining the charge - can also be used to replace leaky valve cores while the system is under pressure. Just attach the tool to the access fitting and unscrew the core. When done, close off the system using the top valve and replace the valve core.	\$322.76
207102	32520-1/2"-20UNF	5/16"		\$347.80

Access Control Valve



Cat. No.	Part No.	Description	List Price \$ Exc. GST
207098	A33010	1/4" FF x 1/4" MF	Access Control Valve
207099	A-33410	5/16" FF x 1/4" MF	

Quick Coupler Adaptors



Cat. No.	Brand	Part No.	Size	Description	List Price \$ Exc. GST
207077	Robinair	10468A	1/4" Male Flare x 3/16" Female Flare	Straight Connection	\$48.06
207085		40560A	1/4" Male Flare x 1/4" Female Flare		90 degree Elbow Connection
207086	Robinair	40563A		Straight Connection Quick Seal Auto Shut Off	
207119		10234			\$93.13
207117		10296			1/4" Male Flare x 3/16" Female Flare
349039	Refco	R509/10	Packet of 10 Replacement Gaskets		\$11.29



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ACTROL

Copper Tubing

SuperPairFR.

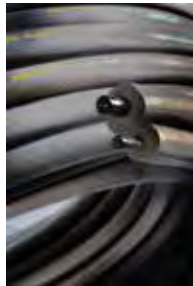
SuperPairFR

SuperPairFR is a pair of annealed refrigeration grade copper tubes, insulated with high quality fire rated closed cell rubber insulation. Available in traditional coils, SuperPairFR introduces 3 metre straight lengths of pre-insulated annealed copper to the trade for the first time. Utilising the 3 metre lengths, quoting for, and installing, common "back to back" air conditioning installations is faster and easier than ever before. Three metre lengths also mean that you can purchase only what you need.

SuperPair FR is the solution if you're installing split system air conditioners, and it's ideal for refrigeration installs as well. It's lightweight, easy to handle and simple to use. SuperPairFR is insulated with SuperlonFR which is an expanded closed cell nitrile rubber material that provides superior thermal insulation and the most efficient vapour barrier for the prevention of condensation. SuperPairFR provides you with the extra confidence of knowing you'll be using a high quality, fire rated product on every job.

Features

- 3 metre straight lengths & 18 metre coils
- High quality annealed (soft) copper
- Insulation Fire Rated to AS1530.3 – 1999
- Complies with Building Code of Australia (BCA) requirements
- Individually boxed
- R410A rated
- Low thermal conductivity (K value)



Cat. No.	Copper Tube Sizes			Insulation Wall Thickness	Coil Length	List Price \$ Exc. GST
	Outside Diameter: mm	Outside Diameter	Wall Thickness: mm			
208173	6.35	1/4"	0.8	10 mm	18 mt	P.O.A
	9.52	3/8"				P.O.A
208174	6.35	1/4"				P.O.A
	12.7	1/2"				P.O.A
208175	6.35	1/4"	1			P.O.A
	15.88	5/8"	0.8			P.O.A
208176	9.52	3/8"	1			P.O.A
	15.88	5/8"	0.8			P.O.A
208177	9.52	3/8"	1.15			P.O.A
	19.05	3/4"	0.8			P.O.A
208178	12.7	1/2"	1.15	P.O.A		
	19.05	3/4"	0.8	13 mm	P.O.A	
208194	6.35	1/4"			P.O.A	
	9.52	3/8"			P.O.A	
208195	6.35	1/4"			1	P.O.A
	12.7	1/2"			0.8	P.O.A
208196	6.35	1/4"			1	P.O.A
	15.88	5/8"	0.8	P.O.A		
208197	9.52	3/8"	1	P.O.A		
	15.88	5/8"	0.8	19 mm	P.O.A	
208203	6.35	1/4"			P.O.A	
	9.52	3/8"			P.O.A	
208204	6.35	1/4"			1	P.O.A
	12.7	1/2"	0.8	P.O.A		
208205	6.35	1/4"	1	P.O.A		
	15.88	5/8"	0.8	P.O.A		
208206	9.52	3/8"	1	P.O.A		
	15.88	5/8"	0.8	P.O.A		
208207	9.52	3/8"	1.15	P.O.A		
	19.05	3/4"				



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Copper Tubing

SuperPairFR

SuperPairFR.



Cat. No.	Copper Tube Sizes			Insulation Wall Thickness	Straight Length	No. of Lengths Per Outer Carton	List Price \$ Exc. GST
	Outside Diameter: mm	Outside Diameter	Wall Thickness: mm				
208188	6.35	1/4"	0.8	10 mm	3 mt	6	P.O.A
	9.52	3/8"	0.8				P.O.A
208189	6.35	1/4"	0.8				P.O.A
	12.7	1/2"	0.8				P.O.A
208190	6.35	1/4"	0.8				P.O.A
	15.88	5/8"	1				P.O.A
208191	9.52	3/8"	0.8				P.O.A
	15.88	5/8"	1				P.O.A
208192	9.52	3/8"	0.8				P.O.A
	19.05	3/4"	1.15				P.O.A
208193	12.7	1/2"	0.8				P.O.A
	19.05	3/4"	1.15				P.O.A

Pre-insulated Pair Coil Copper Tube R410A Rated



Cat. No.	Size		Outside Diameter	Coil Length	List Price \$ Exc. GST
	Outside Diameter: mm	Wall Thickness: mm			
208285	6.35	0.81	1/4"	20 Metre Coils	P.O.A
	9.52		3/8"		P.O.A
208286	6.35	0.81	1/4"		P.O.A
	12.7		1/2"		P.O.A
208287	6.35	0.81	1/4"		P.O.A
	15.88	1.02	5/8"		P.O.A
208288	9.52	0.81	3/8"		P.O.A
	15.88	1.02	5/8"		P.O.A
208289	9.52	0.81	3/8"		P.O.A
	19.05	1.22	3/4"		P.O.A

KEMBLA

Kembla

Soft Annealed Copper Tubing - Refrigeration Quality



Cat. No.	Size				Length	List Price \$ Exc. GST
	Outside Diameter: mm	Wall Thickness: mm	Outside Diameter	Wall Gauge		
208094	4.8	0.91*	3 ¹⁶ "	20	30 Metre Coils	P.O.A
208096	6.4	0.81*	1 ⁴ "	21		P.O.A
208095	7.9		5 ¹⁶ "			P.O.A
208097	9.5		3 ⁸ "		18 Metre Coils	P.O.A
208098	12.7		1 ² "			P.O.A
208099	15.9	0.91	5 ⁸ "	20		P.O.A
208102		1.02*		19		P.O.A
208100	19.1	0.91	3 ⁴ "	20		P.O.A
208103		1.14*				P.O.A
208089	22.2	0.91	7 ⁸ "	20		P.O.A

* Suitable for R410A refrigerants.

All Refrigeration Copper Tube is supplied in accordance with Australian Standard AS/NZS 1571

Note: The values as shown can only be considered as approximate as stocks are drawn both local and overseas sources. Price of copper tubing is constantly changing due to variations in our suppliers base price. Prices of tubing therefore can only be quoted as at date of delivery.



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Copper Tubing



Kembla

Hard Drawn Copper Tube - Refrigeration Quality



Cat. No.	Size				Tube Length	List Price \$ Exc. GST
	Outside Diameter: mm	Wall Thickness: mm	Outside Diameter	Wall Gauge		
208106	6.4	0.81*	1/4"	21	6 Metre Lengths	P.O.A
208108	9.5		3/8"			P.O.A
208110	12.7		1/2"			P.O.A
208112	15.9	0.91	5/8"	20		P.O.A
208111		1.02*		19		P.O.A
208114	19.1	0.91	3/4"	20		P.O.A
208153		1.14*		18.5		P.O.A
208116	22.2	0.91	7/8"	20		P.O.A
208115		1.22		18		P.O.A
208128		1.40*		17		P.O.A
208118	25.4	0.91	1"	20		P.O.A
208117		1.22		18		P.O.A
208150		1.63*		16		P.O.A
208120	28.6	0.91	1 1/8"	20		P.O.A
208119		1.22		18		P.O.A
208090		1.63		16		P.O.A
208129		1.83*		15		P.O.A
208122	31.8	0.91	1 1/4"	20		P.O.A
208121		1.22		18		P.O.A
208151		2.03*		14		P.O.A
208126	34.9	0.91	1 3/8"	20		P.O.A
208125		1.22		18		P.O.A
208130		2.03*		14		P.O.A
208124	38.1	0.91	1 1/2"	20		P.O.A
208123		1.22		18		P.O.A
208152	41.3	0.91	1 5/8"	20		P.O.A
208127		1.22		18		P.O.A
208132		1.63		16		P.O.A
208131		2.41*		12.5		P.O.A
208134	50.8	0.91	2"	20		P.O.A
208133		1.22		18		P.O.A
208137	54	0.91	2 1/8"	20		P.O.A
208136		1.22		18		P.O.A
208135		1.6		16		P.O.A
208139	63.5	1.22	2 1/2"	18		P.O.A
208148	66.7		2 5/8"	18		P.O.A
208147		1.6		16		P.O.A
208149		2.03		14		P.O.A
208157	76.2	1.63	3"	16	P.O.A	
208159	101.6	1.63	4"		P.O.A	

* Suitable for most R410A refrigerant applications.

All Refrigeration Copper Tube is supplied in accordance with Australian Standard AS/NZS 1571

Note: The values as shown can only be considered as approximate as stocks are drawn both local and overseas sources. Price of copper tubing is constantly changing due to variations in our suppliers base price. Prices of tubing therefore can only be quoted as at date of delivery.



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Flexible Lines

Burgaflex
the industry standard



Burgaflex

Burgaflex hose with Burgaclick fittings is the most reliable, durable and extensive refrigerant hose clip system for commercial, automotive and transport air conditioning and refrigeration.

Burgaclick hose fitting technology delivers a superior connection solution for multiple refrigerants such as: R134a, R404A, R410A, R22, Suva MP52 and HFO1234yf. Reduces leakage and permeation - Foolproof and quick assembly of hose fittings with the break-through Burgaclick technology. Manufactured to stringent industry standards by a company with years of experience and testing – nobody knows air conditioning hoses and fittings better than the people at Burgaflex.

Hoses



Cat. No.	Part No.	Description	Suits Fitting Size	Roll Length: m	List Price \$ Exc. GST
816028	ACT-002	Burgaflex Hose for 1/4" Fittings 15m Roll	1/4"	3	\$68.28
816030	3090-06	Burgaflex Hose for 3/8" Fittings 15m Roll	3/8"	15	\$270.70
816031	3090-08	Burgaflex Hose for 1/2" Fittings 15m Roll	1/2"	15	\$299.28
816032	3090-10	Burgaflex Hose for 5/8" Fittings 15m Roll	5/8"	15	\$311.38
816033	3090-12	Burgaflex Hose for 3/4" Fittings 15m Roll	3/4"	15	\$370.95

Fitting Kits

Cat. No.	Part No.	Description	Kit Contents	Suits Fitting Size	List Price \$ Exc. GST
816038	ACT-001	1/4" Female Flare Burgaclick Fitting Kit	2 x straight 2 x 90 degree angle	1/4"	\$171.92

Straight Fittings



Cat. No.	Part No.	Description	Suits Fitting Size	List Price \$ Exc. GST
816040	54701-06-06S-K	3/8" Female Flare Straight Burgaclick Fitting	3/8"	\$41.58
816041	54701-08-08S-K	1/2" Female Flare Straight Burgaclick Fitting	1/2"	\$50.88
816042	54701-10-10S-K	5/8" Female Flare Straight Burgaclick Fitting	5/8"	\$52.47
816043	54701-12-12S-K	3/4" Female Flare Straight Burgaclick Fitting	3/4"	\$52.47

Angle Fittings



Cat. No.	Part No.	Description	Suits Fitting Size	List Price \$ Exc. GST
816050	54703-06-06S-K	3/8" Female Flare 90 Degree Angle Burgaclick Fitting	3/8"	\$42.94
816051	54703-08-08S-K	1/2" Female Flare 90 Degree Angle Burgaclick Fitting	1/2"	\$52.56
816052	54703-10-10S-K	5/8" Female Flare 90 Degree Angle Burgaclick Fitting	5/8"	\$56.50
816053	54703-12-12S-K	3/4" Female Flare 90 Degree Angle Burgaclick Fitting	3/4"	\$59.24

Pliers



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354595	8766	Burgaclick Pliers	\$304.40



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INSTALL SAFETY.

FIRE RETARDANT PAIR COIL

**Kühlpair®
Copper**

NEW

**Kühlpair®
Aluminium**



Complies with
BCA Fire
Hazard Properties



Pipe chase
tested
NFPA® 274



AS/NZS 4859
compliant
insulation



AS/NZS 1677
certified
system



AS/NZS 1571
copper
tube



Armaflex®
Tuffcoat
protective skin



Reflok®
fitting
system



Dedicated web
support
kuhlpair.com.au



Automotive
grade aluminium
alloy



Australian
made
insulation

Armaflex®
Kühlpair

KEY

Capillary Tubing

Key

Capillary Tubing Service Packs



Cat. No.	Part No.	Inside Diameter		Length: mm	List Price \$ Exc. GST
		mm	Inches		
208160	SP-1	0.66	0.026	3660	\$33.32
208161	SP-2	0.8	0.0315		\$33.32
208162	SP-3	0.9	0.0335		\$33.30
208163	SP-4	1.1	0.0435	4270	\$33.30
208171	SP-4.5	1.2	0.0472		\$33.52
208164	SP-5	1.3	0.051		\$33.52

Cat. No.	Part No.	Inside Diameter		Length: mm	List Price \$ Exc. GST
		mm	Inches		
208165	SP-6	1.4	0.055	3660	\$33.52
208166	SP-7	1.62	0.064	3050	\$43.60
208167	SP-8	1.78	0.07	3660	\$43.84
208168	SP-9	1.9	0.075	2750	\$43.84
208169	SP-10	2.04	0.08	3050	\$43.84
208170	SP-11	2.24	0.088	3660	\$43.84

3

Roof Flashing



Aztec

Pipe Flashing

Standard



Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C	List Price \$ Exc. GST
208473	MFSMIDDYB	0-50mm	100 x 100	Black EPDM	-55°C to 135°C	\$20.59
208474	MFS1B	6-70mm	115 x 115			\$22.73
208475	MFS2B	50-70mm	152 x 152			\$33.86
208476	MFS3B	6-146mm	203 x 203			\$37.86

Multiport



Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C	List Price \$ Exc. GST
208477	MFMPMINIB	1 port 0-49mm	115 x 115	Black EPDM	-55°C to 135°C	\$29.60
		2 ports 20mm				
		2 ports 10mm				

Retrofit



Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C	List Price \$ Exc. GST
208478	MFRF1B	19 to 69mm	160	Black EPDM	-55 to 135	\$69.89
208479	MFRF2B	50 to 184mm	273			\$139.81

TOPHAT

Top Hat

Roof Penetration Kit

Cat. No.	Part No.	Description	List Price \$ Exc. GST
208274	RF-PN-65	65mm Roof Penetration Kit	\$78.25
208275	TTRF-PN-65	65mm Roof Penetration Kit Twin Entry	\$88.42



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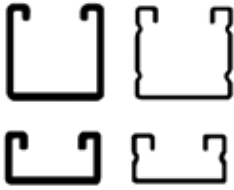
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Pipe Supports

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Channels - Slotted



Cat. No.	Part No.	Nom Section Dim: mm	Thickness: mm	Material	Length	List Price \$ Exc. GST
209250	PE1000SH2	41 x 41	2.5	HDG	2	\$74.65
209251	PE3300SH2	41 x 21				\$65.18
209252	PE2000SG2	41 x 41	1.6	GB		\$54.68
209253	PE4000SG2	41 x 21				\$48.12

*HDG = Hot Dipped Galvanised GB = Galvabond

Rod, Fittings and Accessories



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
209255	PTR10Z	M10 Threaded Rod Zinc Plated 3m	1	\$12.11
209256	PHN10Z	M10 Hex Nuts Zinc Plated	25	\$6.76
209257	PFW10Z	M10 Flat Washer Zinc Plated		\$5.06
209261	PLD10M	M10 x 40mm Masonry Anchor	4	\$8.81
209262	PEVMP10	M10 Wall Plate Hanger Vertical		\$16.58
209263	PECMP10	M10 Wall Plate Hanger Centre		\$16.58
209264	PEHMP10	M10 Wall Plate Hanger Horizontal		\$16.58
209265	PRC10Z	M10 Hex Nut Coupler		\$16.58
209258	PHS1040Z	Hex Screw M10 x 40mm Zinc Plated		\$3.93
209259	PE1008Z	Channel Nut With Spring M10 Zinc Plated		\$13.02
209260	PE2600	Isolation Strip	20m	\$158.38

Stud Clips

Stud clips have a secure and lockable fastening mechanism, allowing quick and easy fixing with the simple fit and twist action. The unique ratchet design ensures that the clip remains closed when insulated pipe is squeezed against the wall of the clip. The clips are also easy to remove and relocate for maintenance.

Features:

- Unique locking ratchet design
- Easy installation on M10 threaded rod
- Withstands temperatures from -40°C to +140°C



Cat. No.	Part No.	Description	Pipe OD	Pack Qty	List Price \$ Exc. GST	Cat. No.	Part No.	Description	Pipe OD	Pack Qty	List Price \$ Exc. GST
209220	B6814P	M10 Stud Clip	1/4"	5	\$18.02	209227	B6821P	M10 Stud Clip	1 1/8"	5	\$21.94
209221	B6816P		3/8"		\$18.02	209228	B6822P		1 1/4"	3	\$15.36
209222	B6815P		1/2"		\$18.97	209229	B6823P		1 3/8"		\$15.59
209223	B6817P		5/8"		\$18.97	209230	B6824P		1 1/2"		\$19.02
209224	B6818P		3/4"		\$19.97	209231	B6825P		1 5/8"		\$19.33
209225	B6819P		7/8"		\$19.97	209232	B6826P		2"		\$22.05
209226	B6820P		1"		\$21.94	209233	B6827P		2 1/8"		\$20.94

Channel Clips

Channel clips have a secure and lockable fastening mechanism, allowing quick and easy fixing with the simple fit and twist action. The unique ratchet design ensures that the clip remains closed when insulated pipe is squeezed against the wall of the clip. The clips are also easy to remove and relocate for maintenance.

Features:

- Unique locking ratchet design
- Easy installation in 41mm channels
- Withstands temperatures from -40°C to +140°C



Cat. No.	Part No.	Description	Pipe OD	Pack Qty	List Price \$ Exc. GST	Cat. No.	Part No.	Description	Pipe OD	Pack Qty	List Price \$ Exc. GST
209235	B6842P	Channel Clip	1/4"	5	\$20.94	209242	B6849P	Channel Clip	1 1/8"	5	\$31.95
209236	B6844P		3/8"		\$20.94	209243	B6850P		1 1/4"	3	\$21.58
209237	B6843P		1/2"		\$22.97	209244	B6851P		1 3/8"		\$22.77
209238	B6845P		5/8"		\$23.98	209245	B6852P		1 1/2"		\$25.18
209239	B6846P		3/4"		\$26.01	209246	B6853P		1 5/8"		\$27.58
209240	B6847P		7/8"		\$27.98	209247	B6854P		2"		\$31.19
209241	B6848P		1"		\$29.92	209248	B6855P		2 1/8"		\$30.01

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Pipe Supports

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ENGINEERING LTD

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Insulclamps

Insulclamps are a well known range of pipe clips, supporting individual pipes in a thermo-rubber cushion between 2 metal parts and can be used internally or externally.

Features:

- Insulates against heat loss and reduces vibration
- Plastic inserts designed to withstand temperatures from -25°C to +125°C
- Quick to install with integral lock nuts
- All metal parts are zinc plated and colour passivated to resist corrosion

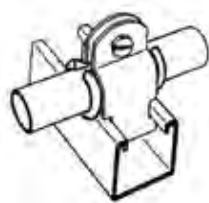


Cat. No.	Part No.	Pipe OD	Pack Qty	List Price \$ Exc. GST
209201	B6268P	1/4"	5	\$40.91
209202	B6274P	3/8"		\$41.87
209203	B6267P	1/2"	3	\$25.40
209204	B6276P	5/8"		\$26.46
209205	B6273P	3/4"		\$27.06
209206	B6277P	7/8"		\$27.61

Cat. No.	Part No.	Pipe OD	Pack Qty	List Price \$ Exc. GST
209207	B6264P	1 1/8"	2	\$20.98
209208	B6265P	1 3/8"		\$22.54
209209	B6266P	1 5/8"	1	\$27.06
209210	B6269P	2 1/8"		\$19.33
209211	B6270P	2 5/8"		\$27.61
209212	B6271P	3 1/8"		\$30.83

Pipe Clamps

PE5 Pipe Clamps suit standard 41mm channels and are used to support all types of pipework, both insulated and uninsulated. Where PE5 pipe clamps are restraining uninsulated pipework subject to vibration, the use of Isolation Strip is recommended.



Cat. No.	Part No.	Pipe OD: mm	W x T: mm	Mass: kg	Thread	Pack Qty	List Price \$ Exc. GST
209501	PE5-11P	11	32 x 2.0	0.038	M6	5	\$16.35
209502	PE5-14P	14		0.042			\$16.62
209503	PE5-17P	17		0.046			\$17.33
209504	PE5-19P	19		0.048			\$17.44
209505	PE5-21P	21		0.052			\$17.58
209506	PE5-25P	25		0.056		3	\$18.51
209507	PE5-27P	27		0.060			\$13.08
209508	PE5-29P	29		0.062			\$13.20
209509	PE5-32P	32		0.066			\$14.14
209510	PE5-34P	34		0.068			\$14.27
209511	PE5-38P	38	32 x 2.5	0.074	M6	3	\$14.60
209512	PE5-43P	43		0.080			\$15.24
209513	PE5-48P	48		0.108		2	\$11.99
209514	PE5-51P	51		0.114			\$12.38
209515	PE5-54P	54		0.118			\$13.32
209516	PE5-57P	57		0.122			\$13.44
209517	PE5-60P	60		0.128			\$13.56
209518	PE5-64P	64		0.134			\$13.68
209519	PE5-67P	67		0.140			\$13.84
209520	PE5-70P	70		0.144			\$13.96
209521	PE5-73P	73		0.148		2	\$14.39
209522	PE5-76P	76		0.154			\$14.65
209523	PE5-79P	79		0.158			\$14.77
209524	PE5-83P	83		0.164			\$15.36
209525	PE5-86P	86		0.170			\$15.49
209526	PE5-89P	89		0.174			\$15.98

Cat. No.	Part No.	Pipe OD: mm	W x T: mm	Mass: kg	Thread	Pack Qty	List Price \$ Exc. GST
209527	PE5-92P	92	32 x 2.5	0.180	M6	2	\$16.17
209528	PE5-95P	95		0.184			\$16.23
209529	PE5-98P	98		0.190			\$10.15
209530	PE5-102P	102		0.202			\$10.28
209531	PE5-105P	105		0.206	M8	1	\$10.40
209532	PE5-108P	108		0.212			\$10.52
209533	PE5-111P	111		0.216			\$11.11
209534	PE5-114P	114		0.222			\$11.24
209535	PE5-117P	117		0.226			\$11.41
209536	PE5-121P	121		0.232			\$11.60
209537	PE5-127P	127		0.242			\$11.74
209538	PE5-133P	133		0.252			\$11.99
209539	PE5-140P	140		0.264			\$12.93
209540	PE5-146P	146		0.274			\$13.56
209541	PE5-152P	152		0.282			\$13.68
209542	PE5-160P	160		0.296			\$15.59
209543	PE5-165P	165		0.304			\$15.84
209544	PE5-171P	171		0.314			\$17.06
209545	PE5-178P	178		0.324			\$17.18
209546	PE5-191P	191		0.348			\$17.74
209547	PE5-203P	203		0.366			\$18.51
209548	PE5-216P	216		0.386	\$19.60		
209549	PE5-230P	230		0.400	\$19.90		
209550	PE5-241P	241		0.428	\$20.30		
209551	PE5-254P	254		0.448	\$21.06		



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Pipe Supports



BBJ

Griplocks



Cat. No.	Part No.	Description	Size	Suits Approx. Pipe Sizes (allowing for insulation)	Pack Qty.	List Price \$ Exc. GST
209215	B6186P	Griplock Pipe Clip	1	1/4" & 1/2"	4	\$21.76
209216	B6187P		2	3/8" & 5/8"	3	\$17.62
209217	B6188P		3	1/2" & 7/8"	3	\$18.27
209218	B6189P		4	5/8" & 1 1/8"	2	\$14.47

Unit Brackets



Rodigas

Adjustable Brackets

Features

- Quick assembly and installation
- Adjustable brackets to suit all applications
- Supplied with inbuilt level
- Supplied with mounting accessories



Cat. No.	Model No.	Description	Mounting Depth: mm	Max Bracket Spacing: mm	Load Rating: kg	List Price \$ Exc. GST
209160	MT650	A/C Bracket Adjustable Sloping Roof Kit	520	800	140	\$268.59
209162	MS230	A/C Bracket Adjustable Wall Mount Kit Powder Coated	420		100	\$71.38
209164	MS253		465		140	\$86.95
209163	MS257		550			\$105.08
209166	MS213				200	\$173.24
209165	MS263	A/C Bracket Adjustable Wall Mount Kit 304 Stainless Steel	420		140	\$251.84

Galvanised Brackets

Supplied as a pair



Cat. No.	Part No.	Mounting Depth: mm	Load Rating: kg	List Price \$ Exc. GST
209167	MS102SCI	420	120	\$68.63
209168	MS110SCI	520	140	\$94.27
209169	MS107SCI	620	160	\$130.36



Propipe

Cantilever Bracket Kits - Hot Dipped Galvanised

Supplied with accessories - 4 x spring nuts, flat washers, bolts & 2 x end caps



Cat. No.	Part No.	Mounting Depth: mm	List Price \$ Exc. GST
209270	CB450	450	\$90.38
209271	CB600	600	\$103.51
209272	CB750	750	\$123.23



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Pipe Supports

Thermaloc



Insulated Pipe Supports

Thermaloc is light weight and extremely tough insulated pipe support system. Just place the two pieces over the pipe and squeeze together gently. They are quick and easy to use and provide a flat surface to butt insulation against allowing a tight and secure joint. Use with standard pipe clips and channels (sold separately)

Features

- Made from recycled material and is recyclable
- Profile ensures an airtight finish
- Decreases installation time as it locks easily together
- Made of high density PE foam
- Closed cell so that it will not absorb moisture or degrade with time
- Will not erode with pipe movement
- AS1530.3 compliant foil faced

ID		25mm Wall			List Price \$ Exc. GST	30mm Wall			List Price \$ Exc. GST	40mm Wall			List Price \$ Exc. GST	50mm Wall			List Price \$ Exc. GST
mm	Inch	Cat. No.	OD	R Value		Cat. No.	OD	R Value		Cat. No.	OD	R Value		Cat. No.	OD	R Value	
6	1/4"	209350	56	1.04	\$9.27												
10	3/8"	209351	60	0.9	\$9.82												
13	1/2"	209352	63	0.83	\$9.17	209380	73	1.05	\$10.89	209407	93	1.52	\$14.84				
16	5/8"	209353	66	0.78	\$9.95	209381	76	0.99	\$11.66	209408	96	1.43	\$14.84				
20	3/4"	209354	70	0.73	\$10.43	209382	80	0.92	\$12.04	209409	100	1.34	\$14.84	209435	120	1.79	209435
22	7/8"	209355	72	0.71	\$10.68	209383	82	0.9	\$12.28	209410	102	1.3	\$15.74	209436	122	1.74	209436
25	1"	209356	75	0.69	\$10.97	209384	85	0.87	\$13.69	209411	105	1.26	\$16.69	209437	125	1.68	209437
27	1 1/8"	209357	77	0.67	\$11.45	209385	87	0.85	\$13.88	209412	107	1.23	\$18.54	209438	127	1.64	209438
32	1 1/4"	209358	82	0.64	\$12.66	209386	92	0.81	\$14.51	209413	112	1.17	\$19.03	209439	132	1.56	209439
34	1 3/8"	209359	84	0.63	\$12.66	209387	94	0.8	\$15.01	209414	114	1.15	\$19.03	209440	134	1.53	209440
38	1 1/2"	209360	88	0.62	\$14.91	209388	98	0.77	\$15.44	209415	118	1.11	\$19.03	209441	138	1.48	209441
42	1 5/8"	209361	92	0.6	\$15.39	209389	102	0.75	\$15.82	209416	122	1.08	\$19.07	209442	142	1.44	209442
48	1 7/8"	209362	98	0.58	\$15.82	209390	108	0.73	\$16.85	209417	128	1.05	\$21.80	209443	148	1.39	209443
51	2"	209363	101	0.58	\$17.87	209391	111	0.72	\$12.04	209418	131	1.03	\$21.85	209444	151	1.37	209444
54	2 1/8"	209364	104	0.57	\$18.93	209392	114	0.71	\$17.82	209419	134	1.01	\$21.85	209445	154	1.34	209445
60	2 3/8"	209365	110	0.56	\$19.94	209393	120	0.69	\$18.98	209420	140	0.99	\$23.59	209446	160	1.31	209446
64	2 1/2"	209366	114	0.55	\$22.78	209394	124	0.68	\$20.14	209421	144	0.97	\$25.39	209447	164	1.29	209447
67	2 5/8"	209367	117	0.54	\$23.06	209395	127	0.68	\$21.46	209422	147	0.96	\$25.44	209448	167	1.27	209448
76	3"	209368	126	0.53	\$23.40	209396	136	0.66	\$22.96	209423	156	0.93	\$29.90	209449	176	1.23	209449
89	3 1/2"	209369	139	0.52	\$24.13	209397	149	0.64	\$24.75	209424	169	0.9	\$32.72	209450	189	1.19	209450
102	4"	209370	152	0.51	\$32.64	209398	162	0.62	\$28.93	209425	182	0.88	\$35.89	209451	202	1.15	209451
115	4 1/2"		165	0.5	P.O.A		175	0.61	P.O.A		195	0.86	P.O.A	209452	215	1.12	\$49.13
127	5"		177	0.49	P.O.A		187	0.6	P.O.A		207	0.84	P.O.A	209453	227	1.1	\$55.01
140	5 1/2"		190	0.48	P.O.A		200	0.59	P.O.A		220	0.83	P.O.A	209454	240	1.08	\$60.68
152	6"		202	0.48	P.O.A		212	0.59	P.O.A		232	0.82	P.O.A		252	1.06	P.O.A
168	6 1/2"		218	0.47	P.O.A		228	0.58	P.O.A		248	0.8	P.O.A		268	1.04	P.O.A
204	8"		254	0.46	P.O.A		264	0.57	P.O.A		284	0.78	P.O.A		304	1.01	P.O.A



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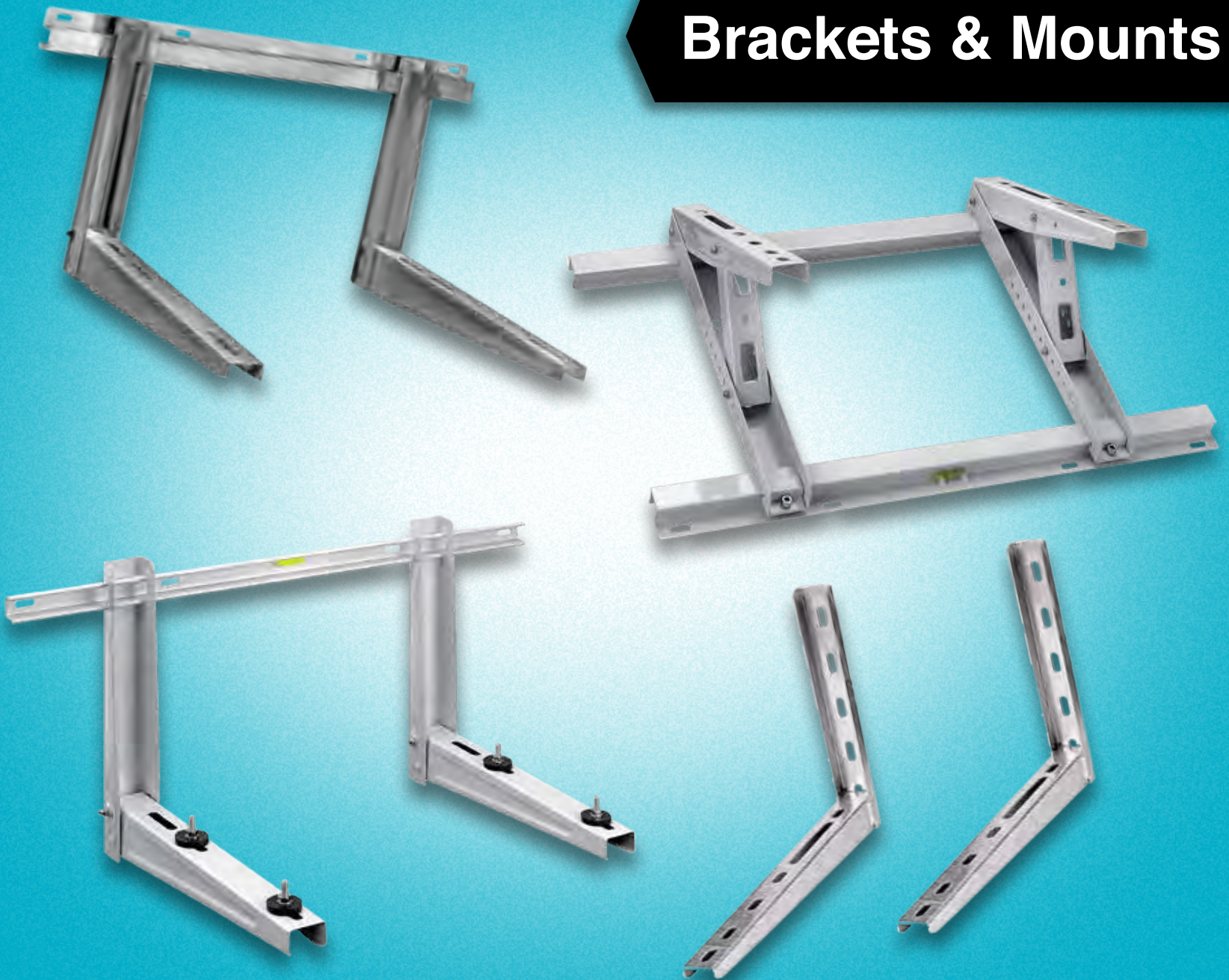
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Brackets & Mounts



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Unit Mounts

Polyslab

Polyslab is made from an extremely tough composite material with added UV protection and eliminates the need for bulky, dirty and unsightly products. Polyslab provides a lighter, safer alternative to dangerously heavy pre-cast concrete products including slabs and pavers. Rather, it offers a light, rigid and smooth-edge design.

Features

- Used for air conditioners, refrigeration units & hot water systems & more
- Quick and easy to install
- Light weight design
- Stackable – saves space
- Clean and non-abrasive (no cuts, dust or damage)
- Resists cracking or chipping



Cat. No.	Part No.	Size: mm	Max Load	Pack Size	List Price \$ Exc. GST	Cat. No.	Part No.	Size: mm	Max Load	List Price \$ Exc. GST
209080	PSAC	885 x 465	160kg	1	\$54.29	209078	PSAC-SML	639 x 339	120kg	\$48.44
209085	PSACMED-BB50			50	\$2,048.01	209082	PSAC-LGE	1130 x 650	160kg	\$84.94
209086	PSACMED-BB100			100	\$3,813.50	209084	PSHWS	650 x 650	500kg	\$44.89

Evo-Crete Mounting Blocks

Evo-Crete is Fibre Reinforced Cellular Concrete which creates a dynamic cellular structure with fibre reinforcing to provide extreme strength and durability



Cat. No.	Part No.	Block Dimensions: mm	Kit Contents	List Price \$ Exc. GST
209076	EVO-ACB	450 x 80 x 110	2 x Evo-Crete Blocks 4 x Rubber Vibration Mounts 4 x Evo-Crete Screws & Washers	\$38.73

Rubber Mounts

Supplied in sets of 4, rubber mounts are easily fixed to the mounting holes of an air conditioners out door unit using the integral stud and nut supplied.



Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST	Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
209180	VM1	1" Small	\$20.20	209184	VM3	3" Medium	\$26.98
209182	WM2	2" Small	\$23.48	209186	VM4	4" Large	\$31.48

Actrol Website Responsive Design

A new layout that
adjusts to your device.



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Pipe Duct

Pacific

Interchangeable with most types of Japanese duct and fittings

Duct



Cat. No.	Part No.	Description	Size: mm	Carton Quantity	Pallet Quantity	List Price \$ Exc. GST
208501	PSD7	2m Pipe Duct	75	5	245	\$44.27
208502	PSD10	2m Pipe Duct	100	5	180	\$70.87

Wall Inlets



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208504	PSW7	Wall Inlet	75	10	60	\$19.91
208505	PSW10	Wall Inlet	100	10	40	\$35.42

90 Degree Flat Elbows



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208510	PSK7	90 Degree Flat Elbow	75	10	60	\$20.38
208511	PSK10	90 Degree Flat Elbow	100	10	40	\$35.42

45 Degree Flat Elbows



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208515	PSKF7	45 Degree Flat Elbow	75	1	60	\$16.94
208516	PSKF10	45 Degree Flat Elbow	100	1	40	\$26.58

90 Degree Corner Elbows



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208513	PSC7	90 Degree Corner Elbow	75	10	60	\$20.38
208514	PSC10	90 Degree Corner Elbow	100	10	40	\$35.42

Ceiling Plates



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208507	PSP7	Ceiling Plate	75	10	60	\$21.24
208508	PSP10	Ceiling Plate	100	10	40	\$26.58

End Covers



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208520	PSE7	End Cover	75	10	60	\$19.39
208521	PSE10	End Cover	100	10	40	\$23.24

Joiners



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208525	PSJ7	Duct Joiner	75	10	60	\$9.95
208526	PSJ10	Duct Joiner	100	10	N/A	\$13.30

Flexible Joint



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208517	PSF75	500mm Flexible Joint	75	20	60	\$28.75
208518	PSF710	1000mm Flexible Joint	75	20	N/A	\$50.89
208522	PSF108	800mm Flexible Joint	100	20		\$66.41

Reducer



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	List Price \$ Exc. GST
208519	PSDR107	Reducer	75 to 100	10	\$19.39

Tee



Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer	List Price \$ Exc. GST
208523	PST10	Tee	100	5	20	\$88.56



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Pipe Duct

smartDUCT

Smartduct

Features

- UV Resistant
- Minimum effort for maximum impact
- Long Lasting
- Available in 2 widths - 80mm and 110mm
- Fast to install
- Cost efficient
- Suitable for temperatures from -20°C to 60°C



80mm

Cat. No.	Part No.	Description	List Price \$ Exc. GST
208702	0812-BC	Straight 2m Duct	\$45.53
208708	0812-GC	Cover Join	\$6.81
208714	0812-A1	Internal Corner	\$13.73
208715	0820-IR	Internal Corner Adj. 80° to 105°	\$20.60
208720	0806-AE	External Corner	\$16.05
208721	0821-ER	External Corner Adj. 70° to 120°	\$20.60
208726	0807-CP	Plane Curve	\$14.23
208727	0822-PR	Plane Curve Adj. 65° to 130°	\$22.46
208732	0809-CM	Corner Wall Elbow	\$16.14
208792	0814-VS	Left Vertical Angle	\$25.53
208794	0815-VD	Right Vertical Angle	\$25.53
208738	0808-TT	End Cap	\$9.91
208742	0810-PM	Wall Passage	\$12.39
208746	0811-GF	Flexible Joint	\$20.90
208748	0813-DT	"T" Shunt	\$43.57
208758	0803-ST	Fast Block	\$1.25

110mm

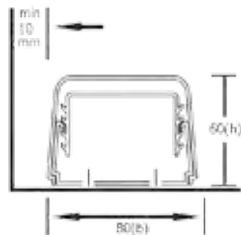
Cat. No.	Part No.	Description	List Price \$ Exc. GST
208704	1212-BC	Straight 2m Duct	\$58.65
208710	1204-GC	Cover Joint	\$7.74
208716	1205-AI	Internal Corner	\$23.04
208722	1206-AE	External Corner	\$23.04
208728	1207-CP	Plane Curve	\$24.70
208734	1209-CM	Corner Wall Elbow	\$26.75
208743	1210-PM	Wall Passage	\$16.46
208750	1213-DT	"T" Shunt	\$54.48
208754	1280-RI	Reduction 110mm to 80mm	\$10.59
208760	1203-ST	Fast Block	\$1.39

Accessories

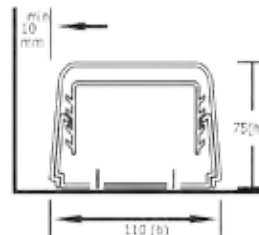
208762	0341-TS	Cap for Floor Support	\$5.14
208770	0016-TU	Drain Pipe 16mm	\$3.05
208772	1000-SP	Drain "Y" Joint	\$2.68
208764	0350-SP	Floor Support 350mm	\$13.93
208766	0450-SP	Floor Support 450mm	\$16.07
208768	1000-SP	Floor Support 1000mm	\$32.04

Technical Data: mm

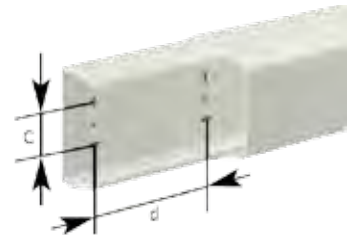
Type 08



Type 12



Fixing Holes



Type	Code	Dimensions: mm			
		b	h	c	d
08	0812 BC	80	60	50	200
12	1212 BC	110	75	80	200



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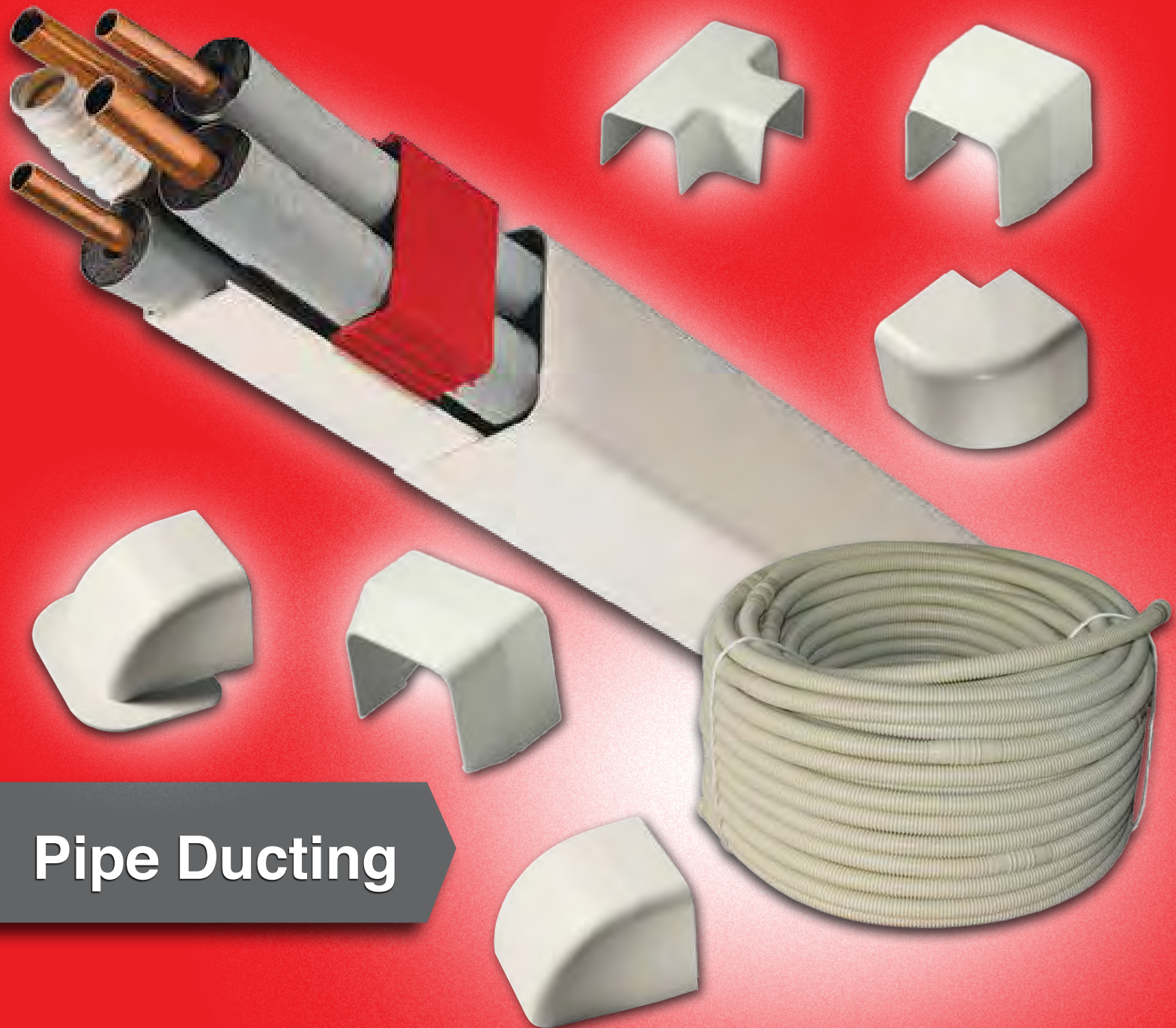
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Pipe Ducting

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PVC Plastic Pipe and Fittings



ProPipe

PVC Pipe



Cat. No.	Part No.	Diameter: mm	Length: Mtrs	Pack Qty	List Price \$ Exc. GST
208815	15XDP21	15	2.1	10	\$48.43
208816	20XDP21	20			\$76.27
208830	15XCE	15	3.9	1	\$9.73
208831	20XCE	20			\$15.58
208832	25XCE	25			\$23.31

Drain Pan Adaptor



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208872	2114015NS	15	\$4.39

Fittings

90° Elbows



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208833	2103015	15	\$1.68
208834	2103020	20	\$2.37
208835	2103025	25	\$3.71

45° Elbows



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208836	2117015	15	\$2.17
208837	2117020	20	\$4.72
208838	2117025	25	\$5.56

Tees



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208839	2106015	15	\$2.17
208840	2106020	20	\$2.78
208841	2106025	25	\$5.56

Double End Socket



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208842	2108015	15	\$0.93
208843	2108020	20	\$1.54
208844	2108025	25	\$2.93

Reducing Socket



Cat. No.	Part No.	Diameter: mm	Diameter: mm	List Price \$ Exc. GST
208845	2109020015	20	15	\$2.62
208846	2109025015	25		\$3.71
208847	2109025020		20	\$5.40

Reducing Bush



Cat. No.	Part No.	Diameter: mm	Diameter: mm	List Price \$ Exc. GST
208848	2110020015	20	15	\$1.09
208849	2110020020	25		\$2.69
208850	2110020025		20	\$2.86



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PVC Plastic Pipe and Fittings



ProPipe

Fittings

Pig Tail



Cat. No.	Part No.	Diameter: mm	Description	List Price \$ Exc. GST
208875	PIG15	15	Pig Tail Adaptor	\$9.13

PVC Solvent Cement (Clear)



Cat. No.	Part No.	Size: grams	List Price \$ Exc. GST
208818	NO70100	100	\$7.42
208819	NO70500	500	\$22.22

Male Socket



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208851	2112015	15	\$1.85
208852	2112020	20	\$2.02
208853	2112025	25	\$2.86

P/T Female Socket



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208854	2111015	15	\$1.85
208855	2111020	20	\$2.54
208856	2111025	25	\$3.18

Barrel Unions



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208865	2122015	15	\$14.81
208866	2122020	20	\$15.67
208867	2122025	25	\$16.66

Red Cap



Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208857	REDCAP	Red Cap	20	\$8.82

Pipe Fixings

Full Pipe Saddle (White)



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208827	PPS08	15	\$1.25
208828	PPS106	20	\$1.33
208829	PPS143	25	\$1.45

Single Sided Saddle (Zinc)



Cat. No.	Part No.	Pipe Diam: mm	List Price \$ Exc. GST
208858	ZPC075	15	\$0.36
208859	ZPC100	20	\$0.51

Stand Off Bracket (White)



Cat. No.	Part No.	Diameter: mm	List Price \$ Exc. GST
208860	PPSB075	15	\$9.17
208861	PPSB100	20	\$9.66
208862	PPSB125	25	\$9.73



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Condensate Traps and Accessories

PRO PIPE SUPPLIES
PTY LTD

smartDUCT

Propipe & Smartduct

Clear Flexible PVC Tubing

Ideal for use with condensate pumps.

Cat. No.	Part No.	Size: mm	Roll Size: m	List Price \$ Exc. GST
208200	4188504	6	30	\$4.19
208201	4188805	10		\$4.64

Flexible Drain Pipe

Flexible drain pipe is particularly ideal for use in domestic air conditioning condensate drain applications.

Cat. No.	Part No.	Description	Brand	List Price \$ Exc. GST
208770	0016-TU	Flexible Drain 16mm x 30m	Smartduct	\$3.05
208870	FDPI19	Insulated Flexible Drain 19mm x 20m	Propipe	\$210.42

Drain Tube Adaptors

Drain Tube Adaptors enable easy transition from clear PVC tubing to larger diameter rigid PVC or flexible drain pipe.

Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
208868	CPK6	Drain Tube Adaptor Kit	6 to 15/20	1	\$16.35
208869	CPK10	Drain Tube Adaptor Kit	10 to 15/20		\$16.75

Hose Clamps

Stainless steel hose clamps are ideal to use with flexible condensate pipe to ensure a long lasting tight fit.

Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208877	HC1016	Stainless Steel Hose Clamp	10 to 16	\$6.08
208878	HC1625		16 to 25	\$6.85
208879	HC2335		23 to 35	\$7.89

EZTrap Condensate Traps

Clear J Trap

A very versatile trap which can be used to make any angle condensate trap using 20mm ProPipe PVC fittings to suit your required needs. Due to its clear construction any blockage or obstruction can be visibly seen.

Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208826	JTRAP	Clear J Trap	20	\$21.23

Waterless Trap

A waterless condensate trap for negative or positive pressure systems up to 18.5 kPa and 10L/min. Prevents airflow in either direction while allowing unimpeded flow of condensate water.

Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208823	EZT150	Waterless Trap	20 or 25	\$95.45

Clear Trap

Cleanable condensate J trap for ducted air conditioners. With a visible construction and fitted with watertight caps, it's easy to open for cleaning if required.

Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208820	EZT113	Clear Cross Trap	20	\$45.96

Overflow Switch

An overflow switch should be used to prevent expensive water damage in case a condensate drain becomes blocked. Suitable for vertical or horizontal installation configurations, they are easily installed and are complete with NO/NC contacts to control unit shut down and signal an alarm.

Cat. No.	Part No.	Description	Size: mm	List Price \$ Exc. GST
208821	EZT225	Overflow Switch	20 or 25	\$116.67

Flexible Brush

Allows easy cleaning of condensate traps in seconds.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
208825	EZT406	Flexible Brush	\$14.13

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Vibration Eliminators



Castel

Vibration Eliminators are flexible metal connectors available in standard sizes to fit copper tube. They are designed for installation in air conditioning and refrigeration piping to minimise transmission of vibration from the compressor to other parts of the system.



Cat. No.	Part No.	Size	Max. Working Press. kPa	List Price \$ Exc. GST
209020	7690/3	3/8"	3500	\$64.32
209021	7690/4	1/2"		\$72.50
209022	7690/5	5/8"		\$78.58
209023	7690/6	3/4"		\$94.89
209024	7690/7	7/8"		\$118.64
209025	7690/9	1 1/8"	3500	\$141.90
209026	7690/11	1 3/8"		\$238.20
209027	7690/13	1 5/8"		\$332.18
209028	7690/17	2 1/8"		\$504.82
209029	7690/21	2 5/8"	2500	\$1,117.46
209031	7690/25	3 1/8"		\$1,290.03

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Flexible Insulation

SuperlonFR.

Superlon FR

Pipe & Sheet Insulation – Fire Rated

Technical Data

Material	Foamed nitrile rubber	
Manufactured by	Armacell Australia Pty. Ltd.	
Temperature range	-50°C to +105°C	
Water Vapour Permeability	u > 4,500	Tested according to ASTM E96
Water Absorption	0.2% by volume	Tested according to ASTM C209
Temperature conductivity K-value	At 0°C 0.034 W/(m.K)	Tested according to ASTM C518
	At 15°C 0.035 W/(m.K)	
	At 23°C 0.036 W/(m.K)	
Fire performance	Spread of Flame Index.....0	Tested according to AS/NZS 1530.3 1999
	Smoke Developed Index..3	
Reaction to fire	Self-extinguishing, does not drip	
Noise Reduction DIN 4109	Acoustic Level to 30db (A)	

R Values

“R” value or thermal resistance is a measure of the ability of a material to retard heat flow.

Thermal resistance is used in combination with numerals to designate thermal resistance values. The higher the R-value the higher the insulating value.

There are a number of instances where the R-value is specified for the selection of an insulation material and its thickness. R-values are specified in the Building Code of Australia, and in several Australian and New Zealand standards. In the BCA, the required Total R-values for pipe insulation is listed in Specification J5.4.

Minimum R Value Requirement for Pipe Insulation			
System Type	Nominal Pipe Size		
	15mm - 40mm	41mm - 80mm	81mm - 125mm
For refrigerant lines not more than 2°C	R 1.3	R 1.7	R 2.0
For refrigerant lines greater than 2°C	Refer to BCA 2012 or NCC 2012 Section J5.4		
All other applications			

Notes: The given Material R-values are verified by an independent professional engineer.

For insulation in the tables on the following pages, the Total R-value can be calculated by adding 0.12 for vertical pipework and 0.13 for horizontal pipework. Total R value will be approximately 0.2 higher where reflective cladding is fitted. The above calculations assume a still-air environment. In a ventilated environment, total R-value will be increased by 0.04.

Sheet Insulation



Cat. No.	Part No.	Description	Nominal Thickness		Sheet Size: m	Sheets Per Carton	R Value	List Price \$ Exc. GST
			mm	Inch				
210387	9F090007	Fire Rated Sheet Insulation	9	3/8"	1 x 1.5	20	0.25	\$70.04
210388	9F130007		13	1/2"		15	0.36	\$86.37
210389	9F190007		19	3/4"		10	0.53	\$127.31
210390	9F250007		25	1"		8	0.69	\$161.83

Sheet Insulation Rolls



Cat. No.	Part No.	Description	Nominal Thickness		Roll Size: m	R Value	List Price \$ Exc. GST
			mm	Inch			
210392	9F1300CS	Fire Rated Sheet Insulation	13	1/2"	1 x 8	0.25	\$535.52
210393	9F1900CS		19	3/4"	1 x 6	0.36	\$609.94
210394	9F2500CS		25	1"	1 x 4	0.53	\$553.00



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Flexible Insulation

SuperlonFR.

Superlon FR

Pipe & Sheet Insulation – Fire Rated

Pipe Insulation



Insulation ID		9mm Wall			List Price \$ Exc. GST	13mm Wall			List Price \$ Exc. GST	19mm Wall			List Price \$ Exc. GST
mm	Inch	Cat. No.	Lengths Per Carton	R Value		Cat. No.	Lengths Per Carton	R Value		Cat. No.	Lengths Per Carton	R Value	
6	1/4"	210200	105	0.46	\$4.59	210225	50	0.74	\$6.58	210250	54	1.22	\$13.86
10	3/8"	210201	84	0.40	\$4.67	210226		0.64	\$6.90	210251	50	1.05	\$13.40
12	1/2"	210202	60	0.38	\$5.27	210227	40	0.61	\$7.43	210252	42	0.99	\$16.55
15	5/8"	210203	50	0.36	\$5.74	210228	36	0.57	\$8.01	210253	36	0.93	\$19.17
20	3/4"	210204	44	0.34	\$6.34	210229	32	0.53	\$9.46	210254		0.86	\$19.25
22	7/8"	210205	40	0.33	\$7.72	210230	28	0.52	\$10.48	210255	30	0.84	\$23.12
25	1"	210206	35	0.32	\$8.13	210231	23	0.51	\$10.75	210256		0.81	\$24.92
28	1 1/8"	210207	28		\$8.61	210232	43	0.49	\$11.60	210257	25	0.79	\$27.13
32	1 1/4"	210208	25	0.31	\$12.47	210233	35	0.48	\$16.55	210258	20	0.76	\$31.88
35	1 3/8"	210209	45		\$12.47	210234	33	0.47	\$17.57	210259		0.75	\$33.12
40	1 1/2"	210214	40	0.30	\$13.16	210241	30	0.46	\$18.49	210266	18	0.72	\$40.03
42	1 5/8"	210210	36		\$13.33	210235	24		\$19.02	210260	16		
50	2"	210212	25	0.29	\$14.96	210237	20	0.44	\$24.90	210262			0.69
54	2 1/8"	210213			\$16.59	210238			\$26.49	210263	12	0.68	\$43.20
60	2 3/8"	210215	20	0.28	\$21.30	210239	16	0.43	\$30.58	210264	9	0.67	\$59.00
67	2 5/8"	210216			\$27.30	210240	15	0.42	\$30.76	210265			0.66
76	3"	210217	16		\$29.01	210242	14		\$49.17	210267	8	0.64	\$64.21
80	3 1/8"	210218	18		\$41.56	210243	12	0.41	\$54.06	210268	7		
89	3 1/2"				210244				\$54.63	210269			0.63
101	3 7/8"					210245	8	0.40	\$82.96	210270	6	0.62	\$90.52
114	4 1/2"					210246	6		\$92.15	210249			0.61

Insulation ID		25mm Wall			List Price \$ Exc. GST	32mm Wall			List Price \$ Exc. GST	38mm Wall			List Price \$ Exc. GST
mm	Inch	Cat. No.	Lengths Per Carton	R Value		Cat. No.	Lengths Per Carton	R Value		Cat. No.	Lengths Per Carton	R Value	
6	1/4"												
10	3/8"	210282	30	1.49	\$23.86								
12	1/2"	210283		1.41	\$25.12	210301	16	1.90	\$76.61				
15	5/8"	210284	25	1.32	\$27.30	210302		1.80	\$77.75	210325	10	2.30	\$97.23
20	3/4"	210285		1.22	\$30.09	210303	15	1.70	\$76.11	210326		2.10	\$97.23
22	7/8"	210286	20	1.19	\$35.91	210304		1.60	\$82.33	210327		2.00	\$104.21
25	1"	210271		1.14	\$38.85	210305	12	1.50	\$89.50	210328		1.90	\$104.21
28	1 1/8"	210287	16	1.11	\$41.84	210306			\$89.50	210329			\$107.14
32	1 1/4"	210273		1.07	\$46.23	210307		1.40	\$90.26	210330	8	1.80	\$109.64
35	1 3/8"	210288		1.05	\$49.86	210308			\$90.26	210331			\$117.95
40	1 1/2"	210274	15	1.01	\$53.30	210309	11	1.30	\$90.26	210332	6	1.70	\$122.23
42	1 5/8"	210289	12	1.00	\$56.63	210310			\$92.05	210333			\$171.65
50	2"	210290	9	0.96	\$72.87	210311	8	1.20	\$117.21	210334	5	1.60	\$176.23
54	2 1/8"	210291		0.95	\$72.48	210312			\$121.68	210335			\$183.21
60	2 3/8"	210275		0.93	\$81.09	210313	7	1.10	\$170.94	210336	4	1.50	\$188.03
67	2 5/8"	210292	8	0.91	\$84.43	210314			\$174.49	210337			\$199.04
76	3"	210293	5	0.88	\$110.58	210315	5	1.00	\$182.31	210338	3	1.40	\$199.04
80	3 1/8"	210294			\$116.17	210316			\$184.45	210339			\$206.30
89	3 1/2"	210295	4	0.86	\$116.41	210317	4	1.10	\$190.73	210340	3	1.30	\$215.19
101	3 7/8"	210296		0.84	\$127.12	210318			\$198.19	210341			\$228.08
114	4 1/2"	210297		0.83	\$141.37	210319	4		\$206.01	210342			

Pipe Insulation is sold in 2 metre lengths
All dimensions are nominal



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Flexible Insulation



Thermobreak



Pipe Insulation

Thermobreak is preformed tube insulation for steel and copper pipes. It is made from physically cross linked (irradiation) closed-cell, polyolefin foam, factory bonded to pure, reinforced aluminium foil. With a lower thermal conductivity than any other flexible insulation material, almost zero vapour permeability, and its all-in-one concept, Thermobreak provides superior energy saving performance, fast and simple installation, and trouble-free operation in a variety of environments.

Features

- Physically (irradiation) cross linked foam
- Fire rated - tested to AS/NZS 1530.3 - 1999
- Green Building Compliant
- Zero Global Warming Potential (GWP)
- Engineered cell size for optimum insulation performance
- Made without Ozone destroying agents such as CFCs or HCFCs
- Best insulation of any flexible insulation materials (0.032 W/mK) @ 23°C
- Better vapour permeability resistance than any other flexible insulation material
- Critical insulation performance factors such as thermal conductivity, vapour permeability, as well as fire performance, smoke density and toxicity are tested and certified by independent laboratories
- No additional vapour barriers or coatings required
- Certified to international Fire and Smoke standards
- Certified Green Star product (VOC)
- Non fibrous, will not allow bacterial growth

Minimum R Value Requirement for Pipe Insulation - Class 2 to Class 9 Buildings (Applications other than domestic houses)

System Type	Nominal Pipe Size	
	15mm – 40mm	41mm – 80mm
For refrigerant lines not more than 2°C	R 1.3	R 1.7
For refrigerant lines greater than 2°C	Refer to BCA 2010 or NCC 2011 Section J5.4	
All other applications		

Insulation ID		25mm Wall			List Price \$ Exc. GST	30mm Wall			List Price \$ Exc. GST	40mm Wall			List Price \$ Exc. GST	50mm Wall			List Price \$ Exc. GST
mm	Inch	Cat. No.	Pcs. Per Bag	R Value		Cat. No.	Pcs. Per Bag	R Value		Cat. No.	Pcs. Per Bag	R Value		Cat. No.	Pcs. Per Bag	R Value	
6	1/4"	210658	60	1.95	\$34.69												
10	3/8"	210659		1.73	\$35.43												
13	1/2"	210660		1.59	\$36.31	210690	40	2.02	\$41.56	210720	25	2.93	\$53.10				
16	5/8"	210661	50	1.49	\$37.35	210691		1.89	\$42.78	210721		2.74	\$60.15				
20	3/4"	210662		1.39	\$39.67	210692		1.76	\$49.04	210722		2.55	\$70.73	210752	20	3.41	\$102.92
22	7/8"	210663	40	1.33	\$43.34	210693	30	1.69	\$58.53	210723	20	2.44	\$76.47	210753		3.27	\$105.32
25	1"	210664		1.29	\$51.00	210694		1.63	\$60.25	210724		2.35	\$82.23	210754		3.14	\$107.72
27	1 1/8"	210665	35	1.26	\$45.24	210695	25	1.59	\$60.40	210725		2.3	\$83.94	210755	15	3.07	\$111.14
32	1 1/4"	210666		1.21	\$47.55	210696		1.52	\$66.32	210726	15	2.19	\$85.74	210756		2.92	\$114.56
34	1 3/8"	210667		1.19	\$48.50	210697		1.49	\$72.38	210727		2.16	\$92.42	210757		2.87	\$121.34
38	1 1/2"	210668	30	1.15	\$50.00	210698	20	1.45	\$75.81	210728	12	2.09	\$99.14	210758	12	2.78	\$125.61
42	1 5/8"	210669		1.13	\$55.73	210699		1.41	\$84.85	210729		2.03	\$103.57	210759		2.7	\$144.42
48	1 7/8"	210670		1.09	\$60.54	210700	15	1.37	\$87.90	210730		1.96	\$107.98				
51	2"	210671	25	1.08	\$62.61	210701		1.36	\$87.90	210731	12	1.94	\$110.39	210761	12	2.57	\$179.82
54	2 1/8"	210672		1.07	\$63.75	210702		1.33	\$91.17	210732		1.9	\$113.26	210762		2.52	\$160.05
60	2 3/8"	210673		1.04	\$65.01	210703	14	1.3	\$94.63	210733	10	1.85	\$115.16	210763	10	2.45	\$166.76
64	2 1/2"	210674	20	1.03	\$67.88	210704		1.28	\$97.70	210734		1.82	\$116.93	210764		2.41	\$198.99
67	2 5/8"	210675		1.02	\$68.53	210705		1.27	\$100.15	210735		1.8	\$123.70	210765		2.38	\$207.44
76	3"	210676	15	1	\$80.42	210706	12	1.24	\$114.76	210736	7	1.75	\$130.58	210766	7	2.31	\$216.02
89	3 1/2"	210677		0.97	\$87.06	210707		1.2	\$116.67	210737		1.69	\$140.41	210767		2.22	\$234.00
102	4"	210678		0.95	\$92.47	210708	8	1.17	\$126.57	210738	6	1.65	\$177.56	210768	6	2.16	\$289.76
115	4 1/2"	210679	10	0.93	\$99.34	210709		1.15	\$144.58	210739		1.61	\$193.68	210769		2.11	\$272.00
127	5"	210680		0.92	\$100.35	210710		1.13	\$153.42	210740	4	1.58	\$213.51	210770	4	2.06	\$292.17
140	5 1/2"	210681	6	0.91	\$108.89	210711	6	1.11	\$178.57	210741		1.55	\$221.83	210771		2.02	\$310.65
152	6"	210682		0.9	\$112.46	210712		1.1	\$188.46	210742		1.53	\$230.32	210772		1.99	\$329.22
168	6 1/2"	210683		0.89	\$161.16	210713	5	1.09	\$197.25	210743	4	1.51	\$270.24	210773	4	1.96	\$335.25
204	8"	210684		0.87	\$223.81	210714		1.06	\$236.55	210744		1.47	\$284.35	210774		1.9	\$390.56

Pipe Insulation Sold in 2 metre Lengths Note: All dimensions are nominal



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Flexible Insulation



Armaflex

520 Adhesive

Armaflex 520 is a general purpose, quick drying adhesive for the joining of Armaflex pipe and sheet insulation. When applied to clean and prepared surfaces, and fully cured, it maintains a high resistance to water vapour.



Cat. No.	Part No.	Description	Container Size	List Price \$ Exc. GST
210112	IESAA00716500	Armaflex 520 Adhesive	500ml	\$53.87
210113	IESAA00714500	Armaflex 520 Adhesive	1 litre	\$69.57
210114	IESAA00714505	Armaflex 520 Adhesive	5 litre	\$248.79



Bostik

Insulation Adhesive

An air-drying contact adhesive that is excellent for joining seams and butt joints of Superlon Pipe and Sheet Insulation. The adhesive may also be used to apply Superlon Sheet Insulation to flat or curved metal surfaces.



Cat. No.	Size	List Price \$ Exc. GST
210109	500ml Tin	\$39.48
210110	1 Litre Tin	\$51.02
210111	4 Litre Tin	\$155.94
210130	25mm Plastic Handled Brush for Adhesive Application	\$7.16



Superlon FR

Foam Insulation Tape

Prevents pipe sweat, can also be used to reduce heat loss on hot pipes below 70°C. Easily cut in pieces and moulded around fittings and valves, saving the higher cost of specially cast forms. Adheres to clean metal surfaces and to itself. Wrap tape in a spiral around pipe. Butt the edges so that no metal is showing. For quicker application, overlap by approximately 6mm is suggested. Overlap the tape half its width for a double layer application. Avoid single layer butt edge wrapping on dual temperature or heated lines. Irregular shapes can be insulated by pressing small pieces of tape around fittings.



Cat. No.	Nominal Size	List Price \$ Exc. GST
210088	3mm thick x 50mm wide 9.14m long roll	\$43.32



Insulflex

Cork Insulation Tape

Cork Insulation Tape may be used for either hot or cold temperature application, provided that its service temperature range of -29° to 70°C is not exceeded. Used on pipes or tubes, in commercial or residential building, air conditioning units, refrigerated units and in other similar applications.

The thickness of the insulation required for cold pipes depends on the pipe temperature – the colder the pipe, the thicker the insulation needed. High humidities also make necessary a thicker insulation.

Cork Insulation Tape is economical for heat and humidity loads which require up to 6 or 7 wrappings. Since it can be cut in pieces and moulded around fittings and valves, it saves the higher cost of special cast forms for these uses. Cements or supplemental binds are not required. Adheres to clean metal surfaces and to itself; joints are self sealing.



Cat. No.	Part No.	Nominal Size	List Price \$ Exc. GST
210087	VCT2	3mm thick x 50mm wide 9.14m long roll	\$53.98



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Check Valves



Castel 3112 Series – Male Flare

Vertical Mounting preferred, with Arrow Upward



Cat. No.	Part No.	Size: M. Flare	Kv Factor m3/hr	Pressure Diff kPa (2)	Fluid Temp. °C	Max Press. kPa	List Price \$ Exc. GST
214076	3112/2	1/4"	0.4	10	-40 to 120	4500	\$82.02
214077	3112/3	3/8"	1.6				\$82.67
214078	3112/4	1/2"	1.8				\$83.09
214079	3112/5	5/8"	3.3				\$127.48
214080	3112/6	3/4"	3.3				\$132.40

3132 Series – Female Solder – Extended Ends

Vertical Mounting preferred, with Arrow Upward



Cat. No.	Part No.	Size: Solder	Kv Factor m3/hr	Pressure Diff kPa (2)	Fluid Temp. °C	Max Press. kPa	List Price \$ Exc. GST
214087	3132/2	1/4"	0.5	10	-40 to 120	4500	\$107.54
214088	3132/3	3/8"	1.6				\$112.65
214089	3132/4	1/2"	1.8				\$114.64
214090	3132/5	5/8"	3.3				\$162.08

3120 Series – Female Solder

For Horizontal Mounting Only



Cat. No.	Part No.	Size: Solder	Kv Factor m3/hr	Pressure Diff kPa (2)	Fluid Temp. °C	Max Pressure kPa	List Price \$ Exc. GST
214081	3122/7	7/8"	6.6	10	-40 to 120	4500	\$298.41
214082	3122/9	1 1/8"	8.8				\$298.41
214083	3122/11	1 3/8"	15.2				\$432.14
214084	3122/13	1 5/8"	25				\$689.47
214085	3122/17	2 1/8"	40				\$1,152.52

(1) kv factor is the water flow in m3/hr at a pressure drop across the valve of 100 kPa

(2) PD = the minimum pressure difference at which the valve is completely open



Danfoss NRV Series

Male Flare

Cat. No.	Model No.	Part No.	Size: Male Flare	Version	Kv Factor: m3/hr (1)	Pressure Diff: kPa (2)	Fluid Temp.°C	Max Press: kPa	List Price \$ Exc. GST
214058	NRV6	020-1040	1¼"	Straight	0.56	7	-50 to 140	4600	\$117.18
214059	NRV10	020-1041	3⁄8"		1.43				\$128.90
214060	NRV12	020-1042	1½"		2.05	5			\$140.64
214061	NRV16	020-1043	5⁄8"		3.6				\$279.35

Female Solder



Cat. No.	Model No.	Part No.	Size: Solder	Version	Kv Factor: m3/hr (1)	Pressure Diff: kPa (2)	Fluid Temp.°C	Max Press: kPa	List Price \$ Exc. GST
214048	NRV6S	020-1010	1¼"	Straight	0.56	7	-50 to 140	4600	\$117.22
214049	NRV10S	020-1011	3⁄8"		1.43				\$128.92
214050	NRV12S	020-1012	1½"		2.05	5			\$140.62
214065	NRV16S	020-1018	5⁄8"		3.6				\$164.07
214052	NRV22S	020-1020	7⁄8"	Angle	8.5	4			\$527.37
214054	NRV28S	020-1021	1⅛"		19				\$644.60
214056	NRV35S	020-1026	1⅜"		29				\$703.23

(1) kv factor is the water flow in m3/hr at a pressure drop across the valve of 100 kPa

(2) PD = the minimum pressure difference at which the valve is completely open



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Liquid and Moisture Indicators



Castel

Male Flare



Cat. No.	Part No.	Description	Connections	List Price \$ Exc. GST
217101	3910-22	Male Flare Sight Glass	1/4"	\$36.26
217102	3910-33		3/8"	\$39.36
217103	3910-44		1/2"	\$47.11
217104	3910-55		5/8"	\$49.18
217105	3910-66		3/4"	\$69.79

Male x Female Flare

Cat. No.	Part No.	Description	Connections	List Price \$ Exc. GST
217110	3950-22	Male x Female Flare Sight Glass	1/4"	\$40.87
217111	3950-33		3/8"	\$46.71
217112	3950-44		1/2"	\$49.50
217113	3950-55		5/8"	\$69.18

Solder



Cat. No.	Part No.	Description	Connections: ODF	List Price \$ Exc. GST
217126	3940-2	Solder Sight Glass	1/4"	\$61.67
217127	3940-3		3/8"	\$66.86
217128	3940-4		1/2"	\$69.56
217129	3940-5		5/8"	\$76.66
217130	3940-6		3/4"	\$92.37
217131	3940-7		7/8"	\$131.90
217132	3940-9		1 1/8"	\$165.11



Danfoss

Male Flare



Cat. No.	Part No.	Model No.	Description	Connections	List Price \$ Exc. GST
217170	014L0161	SGPN6	Male Flare Sight Glass	1/4"	\$51.46
217171	014L0162	SGPN10		3/8"	\$55.07
217172	014L0163	SGPN12		1/2"	\$73.87
217173	014L0165	SGPN16		5/8"	\$73.87
	014L0166	SGPN19		3/4"	P.O.A

Male x Female Flare



Cat. No.	Part No.	Model No.	Description	Connections	List Price \$ Exc. GST
217175	014L0171	SGPN6	Male x Female Flare Sight Glass	1/4"	\$54.30
217176	014L0172	SGPN10		3/8"	\$57.56
217177	014L0173	SGPN12		1/2"	\$71.92
217178	014L0174	SGPN16		5/8"	\$71.48
	014L0175	SGPN19		3/4"	P.O.A

Solder



Cat. No.	Part No.	Model No.	Description	Connections: ODF	List Price \$ Exc. GST
217180	014L0181	SGPN6S	Solder Sight Glass	1/4"	\$54.30
217181	014L0182	SGPN10S		3/8"	\$57.56
217182	014L0183	SGPN12S		1/2"	\$70.96
217183	014L0184	SGPN16S		5/8"	\$73.26
217184	014L0185	SGPN19S		3/4"	\$104.48
217185	014L0186	SGPN22S		7/8"	\$108.10
	014L0187	SGPN22S		1 1/8"	P.O.A



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Liquid and Moisture Indicators



Alco

Male Flare

Cat. No.	Part No.	Model No.	Description	Connections	List Price \$ Exc. GST
217300	65391	HMI-1-MM2	Male Flare Sight Glass	1/4"	\$54.31
217301	65392	HMI-1-MM3		3/8"	\$58.56
217302	65393	HMI-1-MM4		1/2"	\$65.40
217303	65394	HMI-1-MM5		5/8"	\$66.10
217304	65395	HMI-1-MM6		3/4"	\$83.28

Male x Female Flare

Cat. No.	Part No.	Model No.	Description	Connections	List Price \$ Exc. GST
217312	65396	HMI-1-FM2	Male x Female Flare Sight Glass	1/4"	\$57.06
217313	65397	HMI-1-FM3		3/8"	\$62.97
217314	65398	HMI-1-FM4		1/2"	\$66.71

Male x Female Swivel Flare

Cat. No.	Part No.	Model No.	Description	Connections	List Price \$ Exc. GST
217315	65399	HMI-1-MU2	Male x Female Swivel Flare Sight Glass	1/4"	\$89.35
217316	65400	HMI-1-MU3		3/8"	\$94.41
217317	65401	HMI-1-MU4		1/2"	\$99.64
217318	65402	HMI-1-MU5		5/8"	\$101.33

Solder

Cat. No.	Part No.	Model No.	Description	Connections: ODF	List Price \$ Exc. GST
217305	65405	HMI-1-TT2	Solder Sight Glass	1/4"	\$60.09
217306	65406	HMI-1-TT3		3/8"	\$63.13
217307	65407	HMI-1-TT4		1/2"	\$67.20
217308	65408	HMI-1-TT5		5/8"	\$86.85
217309	65409	HMI-1-TT6		3/4"	\$83.51
217310	65410	HMI-1-TT7		7/8"	\$94.70
217311	65411	HMI-1-TT9		1 1/8"	\$118.50



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Sealants



Bostik

Silicones

Z Bond 7E is a DIY grade roof & gutter silicone.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231008	762440	DIY Grade Silicone	300g Cartridge	Translucent	\$11.16

Plumfix is a trade quality industrial grade roof & gutter silicone.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231009	306932	Industrial Grade Silicone	300g Cartridge	Translucent	\$14.12

Adhesives & Sealants

No More Nails is a general-purpose adhesive and sealant for interior or exterior general construction work.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231270	149063	No More Nails	320g Cartridge	Beige	\$7.34

Firecaulk is a fire rated general purpose product for construction joints and the sealing of service penetrations in plasterboard, concrete floors and masonry wall constructions.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231272	245410	Firecaulk	480g Cartridge	White	\$17.09

Flex-E-Duct II is an acrylic (water based) fire rated polymer sealing compound for sealing around duct work.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231273	205990	Flex-E-Duct	450g Cartridge	Grey	\$18.15

Heat Transfer Sealant is designed specifically for the refrigeration industry, as an odourless, non-staining sealing compound.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231275	042951	1128 Heat Transfer Sealant	480g Cartridge	Grey	\$17.01
231278	131504	5603 Heat Transfer Sealant	20kg Drum		\$538.19

Non Skinning Mastic 5612 is specifically formulated as a bedding or gasket style sealant.

Cat. No.	Part No.	Description	Size	Colour	List Price \$ Exc. GST
231274	170526	5612 Non Skinning Coolroom Mastic	450g Cartridge	White	\$15.15

Cleaners

Handi-Clean towels are a waterless, pre-moistened, disposable anti-bacterial cleaning towel that are tough on dirt, gentle on hands and leaves no residue so does not require to be rinsed off or dried.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
231001	257753	Handi-Clean Towels 90 pack	\$61.15

Caulking Guns

Cat. No.	Part No.	Description	List Price \$ Exc. GST
231010	174882	Trade Skeleton Gun	\$26.72



Highside

Leak Lock – Flexible Joint Sealer

Leak Lock is a soft setting, pipe joint compound. It is a resin based, brushable paste that seals by adhering to internal joint surfaces and by filling joint voids. Use it to seal threaded joints, flange joints, gasket surfaces and all mating surfaces.

Cat. No.	Part No.	Size	List Price \$ Exc. GST
231139	10001	39ml tube	\$26.20



La-Co

Heat-Seal Stik

Seals small leaks instantly. Withstands refrigerants, oil, gas, water, air, chemicals, solvents. Use on pressure and vacuum systems.

Cat. No.	Part No.	Size	List Price \$ Exc. GST
231135	11575	11g	\$76.79

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Sealants



La-Co

PTFE Pipe Thread Tape

Cat. No.	Size	List Price \$ Exc. GST
231143	13mm x 10 metre roll	\$1.97

Virginia

Permagum Sealing Compound



Cat. No.	Part No.	Size	List Price \$ Exc. GST
231146	PP22	900 gram (2 lb.)	\$58.28
231148	PP36	3/8" Cords - 6 metre (20') roll	\$59.88

Tapes



Nitto

204E Duct Tape



Cat. No.	Part No.	Description	Width: mm	Length: Metres	Colour	Qty: Sleeve	Qty: Carton	List Price \$ Exc. GST
231031	204E BLACK	Duct Tape	48	30	Black	4	64	\$9.00
231032	204E SILVER				Silver			\$9.00
231033	204E WHITE				White			\$9.00

288EFR Flame Retardant Duct Tape



Cat. No.	Part No.	Description	Width: mm	Length: Metres	Colour	Qty: Sleeve	Qty: Carton	List Price \$ Exc. GST
231021	288EFR BLACK	Flame Retardant Duct Tape	48	30	Black	4	64	\$10.28
231022	288EFR SILVER				Silver			\$10.28

Asset PVC Duct Tape



Cat. No.	Width	Length	Colour	List Price \$ Exc. GST
231047	50 mm	30 m	Black	\$9.00
231046			White	\$9.00
231048			Grey	\$9.00
231049	72 mm			\$14.13

Electrical Insulation Tape



Cat. No.	Colour	Pack Qty	List Price \$ Exc. GST
231145	Black	1	\$3.73
231155	Red	10	\$20.98
231156	Blue		\$20.98
231157	Black		\$20.98
231158	White		\$20.98
231159	Green/Yellow		\$20.98
231160	Mixed		\$20.98

Abrasive Cloth Tape



Cat. No.	Grit No.	Width	Length	List Price \$ Exc. GST
231099	100	25mm	50 meters (sold per meter)	\$2.50
231100	180			\$2.50

Precision

Aluminium Foil Tape



Cat. No.	Width	Length	List Price \$ Exc. GST
231122	24mm	45 metres	\$16.50
231123	48mm	50 metres	\$43.10
231124	72mm		\$64.70
231125	96mm		\$83.22

Reinforced Foil Tape



Cat. No.	Width	Length	List Price \$ Exc. GST
231041	48mm	50 metres	\$57.08
231039	72mm		\$83.77

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Refrigeration Hardware



CRH

Evaporator Mounting Kits



Cat. No.	Part No.	Description	Material	Suits Panel Thickness	Kit Contents	List Price \$ Exc. GST
230070	CRH-600K	Evaporator Mounting Kit	6.6 Nylon	50-100mm	4 x Mushroom Bolts 8 x Nuts 4 x Washers	\$51.63
230072	CRH-610K			50-200mm		\$64.22

Nylon M6 Bolt, Nut & Washer Set

Cat. No.	Part No.	Description	Material	Suits Panel Thickness	Kit Contents	List Price \$ Exc. GST
233266	NM6BNW	Nylon M6 Bolt, Nut & Washer	Nylon	50-180mm	1x Nylon Bolt 1x Nuts & Washer	\$5.26

Shelf Support Strip and Clips



Cat. No.	Part No.	Description	LENGTH	List Price \$ Exc. GST
230026	SS3	Adjustable Shelf Support Strip	914mm (3')	\$5.67
230027	SS4		1219mm (4')	\$11.53
230028	SS5		1524mm (5')	\$10.49
230029	SS6		1829mm (6')	\$13.43
230037	SC	Plain Clips		\$1.67
230038	SCL	Clips with Lug		\$1.67

Allthread Brass Rod, Nuts and Washers



Cat. No.	Description	Size	List Price \$ Exc. GST
230055	Threaded Brass Rod (Whitworth)	3/8" Dia. x 914 mm (3') long	\$59.82
230059	Brass Nuts (Whitworth)	3/8"	\$2.23
230064	Brass Washers		\$0.48

Mushroom Caps



Cat. No.	Description	Size	List Price \$ Exc. GST
	CSD-10	Mushroom Cap. 10mm Thread. 62mm Washer Embedded	P.O.A
233256	CSD-12	Mushroom Cap. 12mm Thread. 62mm Washer Embedded	\$7.76

Interior Light Globes



Cat. No.	Connection	Watts	Volts	Type	List Price \$ Exc. GST
231015	Bayonet	15	240	Pilot	\$9.45
231016	Screw				\$6.33
231017	Small Bayonet				\$6.33
231018	Small Screw				\$6.33



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Refrigeration Hardware



Kason

Safety Latches & Strikes

K56 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
233232	K56L05020	Safety Latch		Chrome Plated	\$712.20
233260	K56CL5020	Safety Latch with Cylinder Lock			\$1,006.68
2332311	K565002	Offset Adjustable Strike	-3.2mm to 6.4mm		\$307.88
233231	K565003		19.0mm to 38.1mm		\$326.78
233230	K565005		44.5mm to 63.5mm		\$373.83
233229	K565008		76.2mm to 101.6mm		\$510.80

K77 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
233290	K778L06020	Safety Latch		316 Stainless Steel	\$1,071.38
233289	K778CL6020	Safety Latch with Cylinder Lock			\$1,096.73
233288	K778002	Offset Adjustable Strike	-3.0mm to 19.0mm		\$407.43
	K77804		44mm to 63mm		P.O.A

K56 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
233262	K56LOT21	Safety Latch		TuffKote	\$759.40
233261	K56CLT108	Safety Latch with Cylinder Lock			\$816.50
233263	K56T002	Adjustable Strike	-3.2mm TO 6.4mm		\$258.46
233264	K56T003		19.0mm to 38.1mm		\$266.03
233265	K56T005		44.5mm to 63.5mm		\$310.40

K58 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
233235	K58L05021	Safety Latch		Chrome Plated	\$500.67
233238	K585001	Offset Adjustable Strike	-3.2mm to 6.4mm		\$228.29
233239	K585002		19.0mm to 38.1mm		\$234.63
233237	K585003		44.5mm to 63.5mm		\$261.58

K78 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233292	K78L05020	Safety Latch with Radial Tongue	Chrome Plated	\$949.63
233291	K78CL05020	Safety Latch with Radial Tongue with Cylinder Lock	Chrome Plated	\$1,006.68



CRH

Safety Latch Sets

L02 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233277	L02	Magnet Assy.	Perspex backing, aluminium spacer, pot magnet zinc plated, striker aluminium.	\$323.58

Safety Latch Sets

AH-1178 Series



Cat. No.	Part No.	Description	Contents	Finish	List Price \$ Exc. GST
233271	AH-1178-05	Safety Latch Set	Latch Strike - Flush Internal Release	Chrome Plated	\$321.06
233272	AH-1178		Latch Strike - 44mm to 60mm Adjust. Internal Release		\$321.06

AH-838 Series



Cat. No.	Part No.	Description	Contents	Finish	List Price \$ Exc. GST
233270	AH-838	Safety Latch Set	Latch Strike 16mm to 32mm Adjust. Internal Release	Chrome Plated	\$661.01



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Refrigeration Hardware



Kason

Inside Release Handles



Cat. No.	Part No.	Brand	Description	Material	Mounting Holes	Suits Latch	List Price \$ Exc. GST
233249	K481	Kason	Nylon Push Handle with Luminous Knob	Steel Rod & Flange	Drilled for 5mm screws	K56, K58, W38	\$71.33
233250	K483		Paddle Handle with Rod	Zinc Plated Steel		K56, R5612	\$126.51
233252	K486		Recessed Push Handle - max 6" Panel	Plastic Housing & Steel Rod		K56	\$182.32
233258	K481SA600		S/S Push Handle Knob Offset 85mm	Stainless Steel Rod			\$149.04
233259	K481SC600		S/S Push Handle Knob Offset 80mm				\$149.04
233253	AH-1178C	CRH	Nylon Push Handle with Luminous Knob	Nylon		AH-1178	\$62.95
233254	A320		Mushroom Bolt M16 x 200mm			-	-

PUSH



FOR EMERGENCY ONLY
FULLY UNSCREW WING NUT
COUNTER CLOCKWISE
AND PUSH OUT DOOR

Inside Release Instructions

Cat. No.	Part No.	Description	Message*	List Price \$ Exc. GST
	K1229	Luminous Sign	a	P.O.A
233180	P07-PW	Luminous Instructions For Operating Emergency Inside Release Mechanism	b	\$20.77
233182	P07-SW		c	\$20.77
233181	P07-SK		d	\$20.77
233255	Arrow Label	Non luminous Direction Lable		\$10.48
233293	Label-01	Luminous Push Sticker Black on White		\$15.75
233294	Label-05	Luminous Push Sticker on Green		\$31.50
233295	Label-06	Luminous Running Man Exit Sticker		\$23.09

*Message:

a: Push

b: For emergency only fully unscrew wing nut counter clockwise and push out door

c: For emergency only fully unscrew key ring counter clockwise and slide door open

d: For emergency only fully unscrew wing nut counter clockwise and slide door open

Kason

Hydraulic Door Closers

K1093 Series



Cat. No.	Part No.	Description	Offset	Finish	List Price \$ Exc. GST
233195	K109304	Hydraulic Door Closer	Flush	Steel with Chrome Finish - Plastic Cover	\$614.48
233196	K109308		28.6mm		\$516.83



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Refrigeration Hardware



CRH

European Latches & Strikes

Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233337	CRH-266	Cool Room Latch Set with Key Lock	Composite	\$419.48

Latches

Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
	F420			P.O.A
233036	F430CRH-115	Coolroom & Freezer Latch Set to suit Doors up to 115mm Thick	No Lock	\$441.50
233038	F430CRH-165	Coolroom & Freezer Latch Set to suit Doors up to 165mm Thick	No Lock	\$564.47
233040	F431CRH-115	Coolroom & Freezer Latch Set to suit Doors up to 115mm Thick	Lock	\$570.77
233041	F431CRH-165	Coolroom & Freezer Latch Set to suit Doors up to 165mm Thick	Lock	\$581.25
233039	F430P	Packer for F430/F431- 20mm		\$24.14
233047	F521	Cool Room Latch Set	Lock	\$598.04
233046	F520		No Lock	\$568.68
233048	F5211	Adjustable Strike to Suit F521 & F520	27mm to 43mm	\$119.20
233049	F5212		44mm to 60mm	\$128.00
233050	F5213		61mm to 77mm	\$165.79
233051	F521SHIM	Strike Packer 17mm		\$18.87

Cabinet Latches & Strikes

CRH 5710 Series

Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233082	CRH5710X	Cabinet Latch		\$264.16
233083	CRH5722X	Offset Adjustable Strike 19 to 25mm	Chrome Plated	\$92.55
233085	CRH5723X			\$102.82

DL Series

Cat. No.	Part No.	Description	Strike Adjustment	Finish	List Price \$ Exc. GST
233088	C-DLC/LHB	Cabinet Latch with Strike	40mm	Chrome Plated	\$102.82
233089	C-DLB/LHA		19 to 30mm		\$115.41
233090	C-DLA/LHC		Flush		\$102.82

1961 Series

Cat. No.	Part No.	Description	Spring Tension Adjustment	Finish	List Price \$ Exc. GST
233162	CRH1961X	Cabinet Latch with Strike	6.8 to 16.3kg	Chrome Plated	\$198.30



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Security Locks

50mm x 22mm x 25mm. Keyed alike.



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
	100SL	Security Block Lock	Chrome Plated	P.O.A
	100SLB		Black Powder Coated	P.O.A



CRH

Edge Mount Latches & Strikes

6188 Series - Mechanical



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233002	CRH6188NX	Edge Mount Latch with Strike	Chrome Plated	\$251.82
233003	CRH6188LX	Edge Mount Latch with Strike & Key Lock		\$270.70

1200 Series - Mechanical



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233005	AH-1200	Edge Mount Latch with Adjustable Strike & Key Lock	Chrome Plated	\$146.88



Kason

Edge Mount Latches & Strikes

K533 Series - Mechanical



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233304	K533D	Edge Mount Latch with Adjustable Strike	Chrome Plated	\$378.89

K174 Series - Mechanical



Cat. No.	Part No.	Description	Strike Adj.	Handle	Locking	Finish	List Price \$ Exc. GST	
233305	K17404	Edge Mount Latch with Adjustable Strike	10.3 to 18.3mm	Straight	No	Chrome Plated	\$296.02	
233306	K174B04			Offset			\$310.73	
233307	K174B014			Straight	Yes		\$339.90	
233308	K174C04						\$412.51	
233309	K174BC04			Offset			\$432.48	

K171 Series - Magnetic



Cat. No.	Part No.	Description	Handle	Locking	Finish	List Price \$ Exc. GST
233228	K17104	Edge Mount Latch with Strike	Straight	No	Chrome Plated	\$496.91
233311	K171B024		Offset			\$633.82
233312	K171BC08			Yes	Chrome Plated with Glass Reinforced Black Composite Handle	\$662.68
233313	K171B08			No	Chrome Plated	\$630.98

K172 Series - Mechanical/Magnetic



Cat. No.	Part No.	Description	Handle	Locking	Finish	List Price \$ Exc. GST
233315	K17206	Edge Mount Latch with 2 Way Adjustable Strike	Straight	No	Chrome Plated	\$459.11
233316	K172B06		Offset			\$475.92
233317	K172C06		Straight	Yes		\$532.37
233318	K172BC06		Offset			\$512.71



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Cool Room Hinges

K1377 Series – Reversible



Cat. No.	Part No.	Description	Mounting	Offset	Finish	List Price \$ Exc. GST
233325	K1377S00004	Heavy Duty Stainless Steel Self Closing Strap Hinge	Reversible	Flush	Polished 316 Stainless Steel Flange, Strap & Cam Pins	\$662.37
233326	K1377S00008			29mm		\$662.37
233327	K1377S00018			45mm		\$662.37

K1245 Series – Reversible



Cat. No.	Part No.	Description	Mounting	Offset	Finish	List Price \$ Exc. GST
233240	K1245000028	Self Closing Cam Lift Hinge	Reversible	Flush	Chrome Plated	\$359.88
233241	K1245000040			28mm		\$323.93
233243	K1245000080			48mm		\$365.01

K1245 Series - Reversible



Cat. No.	Part No.	Description	Offset	Finish	List Price \$ Exc. GST
233246	K1245T00004	Self Closing Cam Rise Hinge	Flush	Tuffkote	\$291.40
233247	K1245T00016		28.6mm		\$291.40
	K1245T00020		31.8mm		P.O.A
233248	K1245T00064		47.6mm		\$301.24

K1248 Series – Reversible



Cat. No.	Part No.	Description	Mounting	Offset	Finish	List Price \$ Exc. GST
233329	K1248000004	Self Closing Spring Assisted Hinge	Reversible	Flush	Chrome Plated	\$291.40
233330	K1248000016			28.6mm		\$291.40
	K1248000020			31.8mm		P.O.A
233331	K1248000027			47.6mm		\$459.75

K1256 Series - Pacesetter Hinges



Cat. No.	Part No.	Description	Offset	Finish	List Price \$ Exc. GST
233222	K1255V00004C	Cam Rise Hinge	Flush	Chrome plated	\$310.40
233223	K1256V00004C		Flush extended strap 184.9mm		\$316.76
233221	K1255000003	Spring Kit			\$174.40



CRH

AH-1400 Series

Mounting Holes: Drilled and countersunk for 6mm screws.



Cat. No.	Part No.	Description	Offset	Finish	List Price \$ Exc. GST
233334	AH-1450	Cool Room Hinge with Adjustable Offset	32 to 46mm	Chrome Plated	\$161.57
233335	AH-1460		42 to 60mm		\$161.57
233336	AH-1470		54 to 70mm		\$161.57

Cool Room Hinges

R1080 Series



Cat. No.	Part No.	Description	Mounting	Finish	List Price \$ Exc. GST
233204	R1080G	Rota-cam Cool Room Hinge	Left or Right	Mill Finish Die Cast Aluminium	\$136.40
233205	R1080W	Rota-cam Cool Room Hinge	Left or Right	White Powder Coat	\$136.39

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Hinges

HG01 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233203	HG01	Spring Loaded Self Rising Cool Room Hinge	Die Cast Aluminum	\$178.36



I34 Series -Adjustable Height

Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233333	I-34-I-01	Cam Rise Cool Room Hinge	Composite	\$79.52

Fermod Series

Adjustable Cam Rise



Cat. No.	Part No.	Description	Door Thickness Including Gasket	Max. Weight	Finish	List Price \$ Exc. GST
233042	F473	Cam Rise Cool Room Hinge	48mm - 80mm	40kg per pair	Composite	\$124.86
233052	F583HP		76mm - 106mm	80kg per pair		\$265.46
233044	F491HP		88mm - 140mm	120kg per pair		\$329.48

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Heavy Duty Adjustable Cam Rise



Cat. No.	Part No.	Description	Offset	Max. Weight	Finish	List Price \$ Exc. GST
233030	F1573-40	Heavy Duty Cam Rise Cool Room Hinge	40mm	F1573 Series 80kg per pair	Composite with stainless steel pin	\$192.65
233031	F1573-47		47mm			\$192.65
233032	F1573-55		55mm	F1671 Series 120kg per pair		\$192.65
233034	F1671HP					\$237.75

Hinge Packers

Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233043	F473SHIM	9mm suits F473	Composite	\$13.66
233053	F583SHIM	6mm suits F583		\$16.59
233045	F491SHIM	5mm suits F491HP		\$29.16
233035	F1671SHIM	5mm suits F1671HP		\$19.91

Packers



Cat. No.	Part No.	Description	Contents	Finish	List Price \$ Exc. GST
233169	CRH-PHP10	Packer Handy Pack 10mm	4 x 40mm x 100mm 1 x 60mm x 150mm 1 x 80mm x 200mm	White Polyethylene	\$43.02
233170	CRH-PHP25	Packer Handy Pack 25mm			\$66.52



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Cabinet Hinges

Medium Duty Series



Cat. No.	Part No.	Description	Offset	Finish	List Price \$ Exc. GST
233016	CRH40X	Medium Duty Cabinet Hinge	19 to 25mm	Chrome Plated	\$125.70
233017	C-DHE		32mm		\$58.54
233018	C-DHC		Flush		\$37.77

Self Closing Rising Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
233199	P11ZLHMSPINK	Self Closing Hinge Packet of 2 Mild Steel Pin	Left Hand	Chrome Plated	\$66.31
233200	P11ZRHMSPIK		Right Hand		\$66.31
233193	P11ZLHSSPINK	Self Closing Hinge Packet of 2 Mild Stainless Steel Pin	Left Hand		\$81.40
233194	P11ZRHSSPINK	Self Closing Hinge Packet of 2 Stainless Steel Pin	Right Hand		\$81.40
233168	HP SILVER	Packing Strip- Nylon to Suit P11 Hinges			\$1.05
233191	P-12-LHS	Spring Loaded Self Rising Hinge Left Hand		Composite Body Stainless Steel Pin	\$31.50
233192	P-12-RHS	Spring Loaded Self Rising Hinge Right Hand			\$31.50
	P-12-HP	Hinge Packer 3mm			P.O.A

Edge Mount Self Closing Rising Series



Cat. No.	Part No.	Brand	Description	Offset	Finish	List Price \$ Exc. GST
233197	AH-1132	CRH	Edge Mount Self Closing Hinge	32mm	Polished Chrome	\$78.05
233220	K1367R016	Kason	Edge Mount Self Closing Hinge with Self Zytte Cam for self closing or to stay open at 120 Degree's	41mm	Die Cast Zinc Flange, Strap & Adjustment. Brass Cover, Chrome Plate	\$155.34

Pivot Hinges



Cat. No.	Part No.	Brand	Description	Finish	List Price \$ Exc. GST
233020	R183	CRH	Pivot Hinge	Chrome Plated	\$33.57
233021	K7305-76	Kason		Stainless Steel	\$59.92

K1216 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233206	K1216	Spring Cartridge Hinge 29mm Offset	Die Cast Zinc, Stainless Steel Cover	\$62.74
233207	K1216SK	Spring Cartridge to suit K1216		\$40.92



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Non Rise Hinge



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233328	K1219	Adjustable Hinge with 22.2mm Offset. Offset Adjusts 3.2mm in-and-out to compensate for Gasket Compression	Die Cast Zinc Flange, Strap & Adjustment. Brass Cover, Chrome Plate	\$68.14

K1257 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233219	K1257008	Edgemount Spring Hinge	Die-cast zinc flange, strap & adjustment plate. Chrome plated brass cover, steel pin.	\$180.71



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K1556 Series

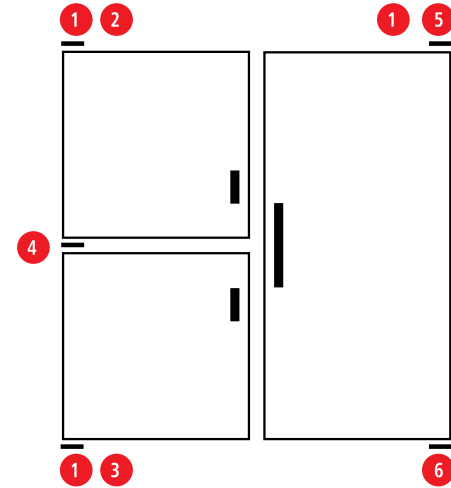
Kason Cartridge assembly. Standard clearance, 120° stop. Compression type wire spring. Closing force:

Standard cartridges for doors weighing upto 27kg. Cartridge. Die-cast Zamak case and upper arm. Nylon lower cam and pivot bearing. Chrome plated.



ASSEMBLY WITH HORIZONTAL BRACKETS:

1. Cartridge Assembly
2. Top Cartridge Bracket, LH
3. Bottom Cartridge Bracket, LH
4. Double Pivot Bracket, LH
5. Top Cartridge Bracket, RH
6. Bottom Pivot Bracket



Cat. No.	Part No.	Description	Diagram Location	List Price \$ Exc. GST
233208	K155604	Spring Cartridge Assembly	1	\$123.67

Brackets

Cat. No.	Part No.	Description	Position (Hand)		Diagram Location	Finish	List Price \$ Exc. GST
233209	K1556011	Cartridge Bracket	Top	Left	2	High Strength Steel, Chrome Plated	\$54.54
233210	K1556012			Right	5		\$54.54
233211	K1556013		Bottom	Left	3		\$54.54
233212	K1556014			Right			\$54.54
233213	K1556021	Pivot Bracket	Top	Left			\$54.54
233214	K1556022			Right			\$54.54
233215	K1556023		Bottom	Left			\$54.54
233216	K1556024			Right	6		\$54.54
233217	K1556035		Double	Left	4		\$73.56
233218	K1556036			Right			\$73.56



CRH

Door Handles

Cat. No.	Part No.	Description	Overall Length: mm	Finish	List Price \$ Exc. GST
233340	RH251	Pull Handle	251	Die Cast Chrome Plate with Black Plastic Cover	\$34.62
233341	RH260		310	Stainless Steel with Brass Base, Chrome Plated Finish	\$79.53
	K573		149.2	Die Cast Zinc, Chrome Plated Finish	P.O.A
233342	AH-1500	Pull Handle	290	Die Cast Zinc, Chrome Plated Finish	\$31.50
233347	H01	Pull Handle on S/S Backing Plate	225mm Handle on 300mm x 75mm Backing Plate	Stainless Steel	\$83.74
233358	I-147	Pull Handle	250	Composite Body with Silver Colour Insert	\$16.80
233359	I-149	Pull Handle	280	Composite Body with Aluminium Colour Insert	\$18.87



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Sliding Door Track



Cat. No.	Part No.	Description	Length: m	Roller Assemblies Series to Suit	List Price \$ Exc. GST
	D TRACK 3.25	Door Track	3.25	A120 & A130 (75mm Wheel)	P.O.A
	D TRACK 6.5		6.5		P.O.A
	J TRACK 3.25		3.25	A110 & A150 (50mm Wheel)	P.O.A
	J TRACK 6.5		6.5		P.O.A

Hanging Roller Assemblies

A120 Series - Locking

Unique locking mechanism to prevent slipping.



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237080	A120GLHLOCK-75	Large Hanging Roller Assembly with 75mm Delrin Wheel	Powder Coat Grey	\$174.17
237081	A120GRHLOCK-75			\$174.17
237082	A120WLHLOCK-75		Powder Coat Surf Mist	\$174.18
237083	A120WRHLOCK-75			\$174.18
	A120GLHLOCK-55	Large Hanging Roller Assembly with 55mm Delrin Wheel	Powder Coat Grey	P.O.A
	A120GRHLOCK-55			P.O.A
	A120WRHLOCK-55		Powder Coat Surf Mist	P.O.A
	A120WLHLOCK-55			P.O.A
	A120GLHLOCK-70	Large Hanging Roller Assembly with 70mm Delrin Wheel	Powder Coat Grey	P.O.A
237085	A120GRHLOCK-70			\$174.18
237086	A120WLHLOCK-70		Powder Coat Surf Mist	\$174.18
237087	A120WRHLOCK-70			\$174.18

A130 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237068	A130GLH	Large Hanging Double Wheel Roller Assembly with 75mm Delrin Wheel	Powder Coat Grey	\$230.85
237069	A130GRH			\$230.85
237070	A130WLH		Powder Surf Mist	\$230.85
237071	A130WRH		Powder Coat Surf Mist	\$230.85
237072	A130GLH-55	Double Wheel Hanging Roller Assembly with 55mm Delrin Wheel	Powder Coat Grey	\$230.85
237073	A130GRH-55			\$230.85
237074	A130WLH-55		Powder Coat Surf Mist	\$230.85
237075	A130WRH-55			\$230.85
237066	A134G-55	Double Wheel Bogey	Powder Coat Grey	\$182.57
237067	A134W-55		Powder Coat Surf Mist	\$182.57
237064	A134		Mill Finish	\$182.57

A150 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237092	A150GLH	Small Hanging Roller Assembly with 55mm Delrin Wheel	Powder Coat Grey	\$113.10
237093	A150GRH			\$113.10
237090	A150WLH		Powder Coat Surf Mist	\$113.09
237091	A150WRH			\$113.09



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Hanging Roller Assemblies

W18 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
237094	W18	Small Hanging Roller Assembly with 50mm Delrin Wheel	To Suit Commercial Track	Stainless Steel Hanger	\$144.79

SC4 Series



Cat. No.	Part No.	Description		Finish	List Price \$ Exc. GST
237096	SC4-050	Universal Hanging Roller Assembly suit J Track. 250kg Pair rated	Nylon 50mm Wheel	Aluminium bracket	\$110.17
237097	SC4-051	Roller complete with axle & nut			\$50.37
237112	SC4-052	Anti-lift pin			\$29.16
237095	W21	Eccentric Wheel Assembly 50mm Nylon Wheel			\$144.79

A110 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237078	A110G	Small Hanging Roller Assembly with 55mm Delrin Wheel	Powder Coat Grey	\$113.10
237079	A110W		Powder Coat Surf Mist	\$113.09



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Wheels



Cat. No.	Part No.	Description	Dia: mm	ID: mm	Material	List Price \$ Exc. GST
237102	A113X	Delrin Wheel, Bearing & Circlip	55	12	Delrin & Stainless Steel	\$50.37
237098	A114X	Delrin Wheel, Bearing & Circlip. Square Track Moulding to suit D Track or Bondor Track			White Powder Coat	\$50.37
237099	A117	A113x Delrin Wheel, Bearing & Circlip with Zinc Plated Axle Assembly & Stainless Steel Anti-jump Bracket			Delrin & Stainless Steel, Zinc Bolt	\$90.23
237101	A129	Delrin Wheel and Stainless Steel Axle Assembly	75	14.5	Delrin Wheel, Stainless Steel Axle, Nuts & Washers	\$95.49
237108	A119		55			\$90.24
237107	A118X		70			\$95.46
237100	A127X	Delrin Wheel, Bearing & Circlip	75	14.5	Delrin & Stainless Steel	\$62.74
237106	A115X		70	15		\$62.73

Track Mounted Stops

A220 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237220	A220GLH	Adjustable Offset Track Mounted Stop	Powder Coat Grey	\$70.28
237221	A220GRH			\$70.28
237222	A220WLH		Powder Coat Surf Mist	\$70.27
237223	A220WRH			\$70.27

A225 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237224	A225GLH	Inline Adjustable Track Mounted Stop	Mill Finish	\$70.28
237225	A225GRH			\$70.28
237226	A225WLH		White Powder Coat	\$70.27
237227	A225WRH			\$70.27

A230 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237228	A230GLH	Fixed Offset Track Mounted Stop	Powder Coat Grey	\$52.46
237229	A230GRH			\$52.46
237230	A230WLH		Powder Coat Surf Mist	\$52.46
237231	A230WRH			\$52.46

SO1 Series



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237215	S01RH	J Track Mounted Door Stop. 50mm x 70mm	Mill Finish	\$50.15
237214	S01LH			\$50.15



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Block Track Stops



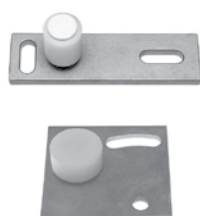
Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237216	S10-C	J Track Block Stop	Black Rubber	\$15.75
237217	S10-I	D Track Block Stop		\$25.18

Floor Mounted Stops



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237234	A240G	Large Floor Stop	Powder Coat Grey	\$51.42
237235	A240W		Powder Coat Surf Mist	\$51.42
237236	A250G	Small Floor Stop	Powder Coat Grey	\$42.81
237237	A250W		Powder Coat Surf Mist	\$42.81
237238	A242A	Replacement Rubber Stop includes S/S Bolt & Locknut 38mm x 26mm		\$9.87

Floor Guides



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237103	A280G	H Type Floor Guide	Powder Coat Grey	\$74.08
237104	A280W		Powder Coat Surf Mist	\$74.08
237105	A260	Square Floor Guide	Stainless Steel Base, Nylon Roller	\$74.50
237109	G02	S/S Silless Door Guide, 40mm Roller	Zinc Plated	\$83.09
237110	G03	Silless Door Guide, H Type		\$86.42
237111	G09	Silless Guide	304 S/S	\$77.64

Cone & Locator Sets



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237240	A210G	Cone & Locator Set	Powder Coat Grey	\$62.74
	A210W		Powder Coat Surf Mist	P.O.A

Hasp and Release Pins



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237242	A310G	Large Hasp	Powder Coat Grey	\$58.54
237243	A310W		Powder Coat Surf Mist	\$58.54
237244	A390G	Inside Release Pin and Swivel	Powder Coat Grey	\$66.94
237245	A390W		Powder Coat Surf Mist	\$73.44

Hasp & Staple



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237134	L07-75	Hasp & Staple with Mounting Block & 75mm Brass plated Rod	Chrome Plated	\$125.70
237131	L07-100	Hasp & Staple with Mounting Block & 100mm Brass plated Rod		\$125.70
237132	L07-150	Hasp & Staple with Mounting Block & 150mm Brass plated Rod		\$125.70
237133	L07-200	Hasp & Staple with Mounting Block & 200mm Brass plated Rod		\$125.70



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Sliding Door Locking Systems



Cat. No.	Part No.	Description		Material	List Price \$ Exc. GST
233278	A10W	Sliding Door Locking System	White	High pressure die cast zinc with nylon internal release	\$249.71
233279	RC01K	Roller Catch	75-150mm panel	Main body aluminium. Remainder high pressure die cast, nylon & stainless steel	\$230.62
233287	CRH-268-R-75K	Sliding Door Lock With Inside Release	75mm panel	Composite	\$409.21
233284	CRH-268-R-100K		100mm panel		\$451.18
233285	CRH268-R-150K		150mm panel		\$465.88

Sliding Door Handles

Recessed Sliding Door Handles



Cat. No.	Part No.	Description	Overall Size: mm	Finish	List Price \$ Exc. GST
233344	A07W	Recessed Sliding Door Handle	120 x 220	White Powder Coat	\$67.15
	A07G			Grey Powder Coat	P.O.A
233345	SDHI BLACK			Black Nylon	\$16.59
233346	SDHI WHITE			White Nylon	\$16.59
233362	I-SKA-28K	Recessed Sliding Door Handle & Pocket		Composite Body with S/S Fastners.	\$65.06

Sliding Door Tube Handles - Aluminium



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
233343	A370G	Tube Handle End Bracket	Grey Powder Coat	\$50.37
233344	A370W		Powder coated	\$67.15
237257	A380G	Tube Handle Centre Bracket	Aluminium	\$35.66
237258	380W			\$41.78
233360	I-SKA-11	Edge Mount Coolroom Handle	Composite Body with Aluminium Handle	\$71.13



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Refrigeration Hardware



Kason

Strip Door Curtains

Kason Thermal Flex PVC strip door curtains are now available "off the shelf" for the first time in convenient packs with everything needed. It's the complete door curtain in a box that assembles in minutes. The standard strip door curtain pack is designed to suit a 900mm wide x 2100mm high clear door opening using 2mm x 100mm clear strips. The same curtain can be used for clear opening heights up to 2240mm. The overall size allowing for overlap on the sides and a height including the 50mm headpiece is 1015mm wide x 2285mm high and is available in both cool room and freezer grades. A significant portion of the refrigeration load in walk-in cool rooms and freezer rooms is attributed to air infiltration through open doorways. Installing strip curtains across doorways is a proven, effective means to drastically limit infiltration and provides significant energy cost savings.

Over 120 stocked sizes available. All custom sizes made to order with quick turn around.

Features:

- Complete door curtain in a box
- Assembles in minutes
- Strong, light weight aluminum track installs easily
- Patented mounting system prevents tear-out
- Fastener kit included
- Available "off the shelf" - no waiting
- Easiest mounting system on the market featuring pre-cleated, slide in strips for quick mounting and removal



Cat. No.	Part No.	Description	Application	Suits Clear Door Opening Size		Overall Size		List Price \$ Exc. GST
				Width: mm	Height: mm	Width: mm	Height: mm	
240058	KSDC10152285AC	Strip Door Curtain Kit	Cool Rooms	900	2240	1015	2285	\$466.08
240059	KSDC10152285AF		Freezer Rooms					\$518.68



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Thermal Flex Strip Door Curtains for Coolroom & Freezer Rooms are now available in-store.
Featuring the "No Tools easimount system" This is the only complete door curtain in a box that assembles in minutes.
Over 120 sizes available.



Refrigeration Hardware



CRH

Cool Room Shelving

Shelf Units - 1900mm High



Cat. No.	Part No.	Description	Shelf Size: mm	List Price \$ Exc. GST
237300	AC1824PEW4	455mm Deep 4 Tier Cool Room Shelf Unit	455 x 610	\$341.63
237301	AC1830PEW4		455 x 760	\$371.85
237302	AC1836PEW4		455 x 910	\$407.10
237303	AC1842PEW4		455 x 1060	\$449.90
237304	AC1848PEW4		455 x 1220	\$505.13
237305	AC1854PEW4		455 x 1370	\$543.08
237306	AC1860PEW4		455 x 1525	\$581.69
237307	AC1872PEW4		455 x 1825	\$658.07
237310	AC2424PEW4	610mm Deep 4 Tier Cool Room Shelf Unit	610 x 610	\$407.10
237311	AC2430PEW4		610 x 760	\$439.83
237312	AC2436PEW4		610 x 910	\$485.99
237313	AC2442PEW4		610 x 1060	\$543.08
237314	AC2448PEW4		610 x 1220	\$603.52
237315	AC2454PEW4		610 x 1370	\$649.68
237316	AC2460PEW4		610 x 1525	\$704.25
237317	AC2472PEW4		610 x 1825	\$818.39

Individual Shelves

Cat. No.	Part No.	Description	Shelf Size: mm	List Price \$ Exc. GST
237330	C1824PEW	455mm Deep Individual Shelf	455 x 610	\$49.10
237331	C1830PEW		455 x 760	\$56.66
237332	C1836PEW		455 x 910	\$65.47
237333	C1842PEW		455 x 1060	\$76.22
237334	C1848PEW		455 x 1220	\$90.02
237335	C1854PEW		455 x 1370	\$99.46
237336	C1860PEW		455 x 1525	\$109.12
237337	C1872PEW		455 x 1825	\$128.22
237340	C2424PEW	610mm Deep Individual Shelf	610 x 610	\$65.47
237341	C2430PEW		610 x 760	\$73.65
237342	C2436PEW		610 x 910	\$85.20
237343	C2442PEW		610 x 1060	\$99.46
237344	C2448PEW		610 x 1220	\$114.58
237345	C2454PEW		610 x 1370	\$126.11
237346	C2460PEW		610 x 1525	\$139.77
237347	C2472PEW		610 x 1825	\$168.29



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Refrigeration Hardware



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Door Bells



Cat. No.	Part No.	Description	Finish	List Price \$ Exc. GST
237247	ANM-001	95db Warning Bell with 150mm Keyway	Mild Steel with Chrome Plate	\$62.93
237248	ANM-002		Brass with Chrome Plate	\$90.23
237249	A375G	Bell Recess	Powder Coat Grey	\$29.17
237250	A375W		Powder Coat Surf Mist	\$33.37

DorWatcher Alarm

The DorWatcher is a simple solution to stop refrigerated hinged & sliding doors being left open for long periods of time. Battery powered with a simple install and built in battery fault monitor.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
237254	DW304	DorWatcher Alarm Kit	\$431.68

Personnel Safety Alarms



Cat. No.	Part No.	Description	Kit Contents	List Price \$ Exc. GST
237251	CRH-PSA01	Personnel Safety Alarm Kit	Siren & Strobe Weatherproof Box Illuminated Emergency Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker	\$293.57
237252	CRH-PSA02		Siren & Strobe Weatherproof Box Illuminated Emergency Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker	\$377.51
237253	CRH-PSA03		Siren & Strobe Weather Proof Controller & Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker	\$534.04



Kason

Pressure Relief Valves



Cat. No.	Part No.	Description	Mounting Hole Size: mm	List Price \$ Exc. GST
233350	CRH-500	Pressure Relief Valve with Heater 70-150mm	100	\$209.63
233351	CRH-500A	Extension sleeve 150 to 250mm panel.		\$83.74
233352	CRH-1000 150-250	Freezer & Blast Freezer Heated Pressure Relief Valve Suitable for 150mm-250mm Panel		\$881.34



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Wire Cable Suspension Systems



Rize

Cable Locks and Galvanised Cable are the fast and versatile way to hang static loads . Studies have shown installation time can be reduced up to 6 times compared to traditional installs using threaded rod, chain, hanger straps or other cable systems.

The Rize Kwik-Loc system is light weight and a major safety improvement in terms of handling and installing on site and reduces OH&S problems when installing in aerial situations when compared to heavy traditional fittings.

All Rize Kwik-Loc cable lock kits incorporate a length of pre-cut cable with a swaged end for maximum speed, efficiency and safety. Kwik-Loc cable locks, galvanised wire rope and accessories are available in numerous configurations for attachment to virtually any type of building structure.



Looped Cable Kits

Cat. No.	Part No.	Description	Cable Size: mm	Safe Working Load: kg	Length: m	Kwik-Loc Included	Kits Per Packet	List Price \$ Exc. GST
234010	30128	Looped Cable Kit	2.5	68	1.5	KL150	1	\$19.72
234012	30129				4.5			\$24.73
234014	30133				6.1			\$34.84
234020	30130		3.2	120	1.5	\$17.52		
234022	30131				4.5	\$22.55		
234024	30132				7.6	\$32.67		
234030	KL200-1M-4.8		4.8	290	1	KL200		\$35.46
234031	KL200-2M-4.8				2			\$39.87
234032	KL200-3M-4.8				3			\$44.23
234033	KL200-4M-4.8				4			\$48.84
234034	KL200-5M-4.8				5			\$53.25
234035	KL200-6M-4.8				6			\$57.61
234036	KL200-7M-4.8				7			\$62.02
234037	KL200-8M-4.8				8			\$66.58
234038	KL200-9M-4.8				9			\$70.98
234039	KL200-10M-4.8				10			\$75.35

Safe Working Load @ 5:1 Safety Factor

Y Snap Hook Kits

A snap hook system can be used for clipping onto cable brackets & trays. Simply loop the end of the cable through your fixing point & secure with the KL150 Kwik-Loc.

Cat. No.	Part No.	Description	Cable Size: mm	Safe Working Load: kg	Length: m	Leg Length: mm	Kwik-Loc Included	Kits Per Packet	List Price \$ Exc. GST
234044	30186	Y Snap Cable Kit	2.5	68	1.5	450	KL150	2	\$57.19
234046	30192				3				\$60.67
234048	30266				4.5				\$65.07
234054	30020				2	700	KL200		\$57.19

Safe Working Load @ 5:1 Safety Factor



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Wire Cable Suspension Systems



Rize

Cable Rolls

Galvanized Steel Cable supplied by the roll.



Cat. No.	Part No.	Description	Cable Size		Roll Length: m	List Price \$ Exc. GST
			mm	inch		
234061	30381	Galvanised Steel Cable	2.5	3/32"	152.4	\$264.17
234062	30382		3.2	1/8"		\$390.38
234063	30383		4.8	3/16"	76.2	\$442.53

Kwik-Locs

The KL100 was introduced to work on most light hanging applications, cable trays, ducting, signs, evaporators, to name a few. The KL150 is significantly smaller in size and with a lower load limit than the KL200. The KL150 can be used to hang heavy cable baskets, lighting, signs, fencing & vine support. KL200 is the largest of the Kwik-Loc series with the highest safe working load limit. The KL200 is perfect for hanging heavy cable trays, suspended ceilings etc.



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
234064	30056	KL100 Kwik-Loc	4	\$23.90
234066	30002		10	\$63.52
234074	30055	KL150 Kwik-Loc	4	\$38.31
234076	30003		25	\$240.99
234086	30004	KL200 Kwik-Loc	10	\$159.91
	30344	KL600 Kwik-Loc	1	P.O.A

Safe Working Loads

Kwik-Loc	Suits Cable Size		Safe Working Load: kg	
	mm	inch	5:1 Safety	4:1 Safety
KL100	2.5	3/32"	68	85
KL150	2.5	3/32"	68	85
	3.2	1/8"	102	127
KL200	3.2	1/8"	113	141
	4.8	3/16"	290	362
KL600	6	1/4"	498	622



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Wire Cable Suspension Systems

Kwik-Loc cable Locks are the fast & versatile way to hang static loads. Install time can be reduced up to 6 times compared to traditional installs using rod, chain, hanger straps or other cable systems. Applications- Mechanical, Ductwork, Electrical.



Wire Cable Suspension Systems



Rize

Zip-Clips

The Zip-Clip cable lock combined with cable is an efficient method of hanging objects. The Zip-Clip fits inside strut and has a spring loaded pawl which allows entry and passage of cable through the cable lock. Zip-Clips are suitable for use with single or multi-tiered trapeze systems and in applications supporting such items as cable trays, baskets, water and gas pipes, and chilled beams.



Cat. No.	Part No.	Description	Cable Size: mm	Safe Working Load: kg	Pack Qty	List Price \$ Exc. GST
234107	30040	Zip Clip	3.2	102	4	\$64.40

Safe Working Load @ 5:1 Safety Factor

KV100 Bracket

The KV bracket enhances the Rize Kwik-Loc suspension system by the addition of an integral bracket, which fastens the cable lock to the duct with sheet metal screws. Once the KV bracket is attached to the equipment, the wire rope "drop" is passed into the entry hole at the top of the bracket, through the cable lock, and out the exit hole at the bottom. The locking teeth inside the cable lock engage the wire rope and secure the ductwork in place.



Cat. No.	Part No.	Description	Cable Size: mm	Safe Working Load: kg	Pack Qty	List Price \$ Exc. GST
234106	30298	KV100 Bracket	3.2	68	4	\$47.95

Eye Bolt & Nut

Eye Bolt & Nut with 3/8" thread. Thread length 38mm. Zinc Plated Low Carbon Steel.



Cat. No.	Part No.	Description	Safe Working Load: kg	Pack Qty	List Price \$ Exc. GST
234102	30296	3/8 Eye Bolt	65	4	\$53.25

Hanger Plates

45 Degree Hanger Plates



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
234104	HP45K	Hanger Plate	4	\$47.75

Corner Protectors

Helps stabilize cable on sharp corners

Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
234105	30086	Corner Protector	4	\$14.47

Con-Lock

Suspension systems typically use threaded rod with washers and nuts to construct a support structure. Sizing, cutting and assembling the rods to the complementary parts and fastening them to an anchor point can be very time consuming. The Con-Lock system is designed for the suspension of all static loads into all concrete types including slagged, cracked, slab and even hollow pot. The Con-Lock is designed to use a 1/4" or 6mm drill bit. Tapped into place with a standard hammer, no claw back of the anchor is needed for installation. There is no need for any other tools.

With a working load limit of 50kgs the Con-Lock can be used for most electrical installations.



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
234103	30174	Con-Lock	4	\$27.36



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Wire Cable Suspension Systems



Rize

Kwik-Twist

When preparing to suspend equipment, ductwork or mount accessories, threaded anchor points are often required. Kwik-Twists from Rize are side or vertically mounted fasteners that provide attachment points for steel threaded rods and other assemblies. There are three variations of Kwik-Twists; one for penetrating and threading into steel, one for wood and one for concrete. Each Kwik-Twist has a $\frac{9}{8}$ "-19 threaded hole in the fastener's hex shaped head. Side mounted Kwik-Twists have the threaded hole perpendicular to the fastener shaft and passing through the fastener head. Vertically mounted Kwik-Twists have the threaded hole parallel to the fastener shaft and as deep as the fastener head.

Features:

- No pilot hole is needed for wood or steel Kwik-Twists; a $\frac{1}{4}$ " pilot hole is required for concrete
- All fasteners are zinc plated for corrosion resistance



Cat. No.	Part No.	Description	Mounting	For Use In	Pilot Hole	Max. Static Load: kg	Pack Qty	List Price \$ Exc. GST
234092	30293	Kwik Twist Hanger	Horizontal	Concrete	1¼"	72	4	\$33.08
234093	30138		Vertical					\$33.08
234094	30294		Horizontal	Wood	None	90		\$32.67
234095	30139		Vertical					\$32.67
234096	30140		Horizontal	Steel				\$31.32
234097	30295		Vertical					\$31.32

Rize Tensioning Tool

As in all aspects of construction there may be times when you need to put a little more tension on the cable than is possible with just your hands.

Rize has available a tensioning tool for these applications. Made of steel and meant to last, the tensioning tool takes all sizes of Kwik-Loc and up to 3/16 inch cable. The tensioning tool is designed to apply tension of up to 600 lbs on cable that is terminated by a Kwik-Loc. It works by holding the Kwik-Loc body and pulling the cable through the Kwik-Loc using a cam and anvil. The powerful lever action will tension and re-tension the cable in seconds. For use on all sizes of Kwik-Locs.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354597	30341	Rize Tensioning Tool	\$174.17



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Compressors



Tecumseh

L'Unite Hermetique

Hermetic Reciprocating



The new AE2 compressor series is designed to replace existing AEZ, AE and CAE models. This new series offers a wider capacity range from a single platform and new valve plate designs provide coefficient of performance improvements. The internal mounting springs have been redesigned to minimize sound levels.

Features

- Improved COP
- Reduced energy consumption
- Reduced sound levels

R134a - Medium High SST

Cat. No.	Model No.	Nominal HP	Displ. cm ³ / rev	Motor Type	MOC: Amps	Cooling	Capacity: Watts							Oil Charge cm ³	Connections		List Price \$ Exc. GST
							Evaporating Temperature: °C								Suct.	Disch.	
							-15	-10	-5	0	5	10	15				
258582	AE4425YFZ1A	1 ¹ / ₆	6.69	CSIR	2.4	F	193	265	348	443	552	676	819	280	1 ¹ / ₄ "	3 ³ / ₁₆ "	\$417.08
258584	AE4430YFZ1A	1 ¹ / ₄	8.02	CSIR	3.1	F	270	352	450	566	702	861	1045	280	1 ¹ / ₄ "	3 ³ / ₁₆ "	\$419.34
258583	AE4440YFZ1A	1 ¹ / ₃	10.33	CSIR	3.7	F	369	471	591	733	899	1093	1317	280	5 ⁵ / ₁₆ "	1 ¹ / ₄ "	\$472.89
258585	AE4450YFZ1C	3 ³ / ₈	13.24	CSIR	4.6	F	482	619	779	964	1180	1429	1716	280	3 ³ / ₈ "	1 ¹ / ₄ "	\$566.73
258586	AE4456YFZ1C	1 ¹ / ₂	14.51	CSIR	8	F	534	682	854	1052	1282	1547	1853	280	3 ³ / ₈ "	1 ¹ / ₄ "	\$577.55
258587	AE4460YFZ3C	1 ¹ / ₂	15.09	CSR	4.7	F	548	707	889	1098	1338	1614	1931	280	3 ³ / ₈ "	1 ¹ / ₄ "	\$697.46

R404A - Medium High SST

Cat. No.	Model No.	Nominal HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	Cooling	Capacity: Watts							Oil Charge cm ³	Connections		List Price \$ Exc. GST
							Evaporating Temperature: °C								Suct.	Disch.	
							-15	-10	-5	0	5	10	15				
258530	AE4425Z-FZ1A	1/5	4.24	CSIR	2.8	F	228	290	362	446	545	659	792	280	1/4"	3/16"	\$459.67
258531	AE4430Z-FZ1A	1/4	5.16	CSIR	2.9	F	285	361	447	547	661	793	945	280	1/4"	3/16"	\$491.71
258532	AE4440Z-FZ1A	1/3	6.69	CSIR	3.7	F	383	486	603	737	892	1071	1275	280	3/8"	1/4"	\$532.91
258533	AE4450Z-FZ1A	3/8	8.85	CSIR	5.1	F	510	642	791	959	1151	1369	1617	280	3/8"	1/4"	\$565.29
258534	AE4460Z-FZ1C	1/2	10.33	CSIR	5.9	F	636	784	952	1144	1363	1614	1900	280	3/8"	1/4"	\$663.81
258535	AE4470Z-FZ3C	1/2	12.01	CSR	5.3	F	759	934	1129	1349	1598	1881	2203	280	3/8"	1/4"	\$774.16

R404A - Low Temperature

Cat. No.	Model No.	Nominal HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	Cooling	Capacity: Watts						Oil Charge cm ³	Connections		List Price \$ Exc. GST
							Evaporating Temperature: °C							Suct.	Disch.	
							-35	-30	-25	-20	-15	-10				
258526	AE2410Z-FZ1A	1/4	5.02	CSIR	2.5	F	89	130	177	232	297	370	280	1/4"	3/16"	RO.A
258527	AE2415Z-FZ1B	3/8	7.33	CSIR	3	F	151	207	272	348	437	539	280	1/4"	3/16"	RO.A
258528	AE2420Z-FZ1B	1/2	9.35	CSIR	4.4	F	188	260	345	445	563	699	380	3/8"	1/4"	\$633.88
258529	AE2425Z-FZ3C	5/8	12.01	CSR	4.2	F	255	351	461	588	734	902	380	3/8"	1/4"	\$912.15

Capacity Rating Basis EN12900 ASERCOM: 32°C Ambient, 20°C Return Gas, 50°C Condensing, 50°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor start, Induction run
 - CSR: Capacitor start and run
- } 1 Phase, 50 Hz, 220-240 Volt

Cooling:

F: Fan Cooled



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Compressors



Tecumseh L'Unite Hermetique

R134a – Hermetic – For Low Temperature Applications

Features

- Anti-Vibration mounts supplied
- Charged with polyolester oil and dry nitrogen

Cat. No.	Model No.	Nom. HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	Cooling	R134a Capacity: Watts						Oil Charge cm ³	Connections		List Price \$ Exc. GST
							Evaporating Temperature: °C							Suct.	Disch.	
							-35	-30	-23.3	-20	-15	-10				
258606	AEZ 1370Y	1/5	8.1	PTCSIR	2.1	N	82	115	177	215	282	361	450"	1/4" Tube	3/16"T.	\$612.84
258198	AEZ1380Y	1/4	9.4		2.7		94	144	223	267	338	417				\$469.09
258608	AEZ 1380YRH	1/4	9.4		2.7		94	144	223	267	338	417				\$480.94
258610	AE 1410Y RH	1/3	12.05	RSIR	2.8	O.C.	92	151	259	324	436	566		5/16" Tube	1/4"T.	\$605.88
258611	CAE 2410Y			CSIR	3.0											F
258612	AE 1412Y RH	3/8	14.15	RSIR	2.8	O.C.	96	174	306	383	514	663				\$608.84
258613	CAE 2412Y			CSIR	2.9											F

Capacity Rating Basis: 32°C Ambient Temperature, 32°C Evaporator Outlet, 54.5°C Condensing, 32°C Liquid entering expansion valve.

*MOC: Maximum Operating Current



R134a – Hermetic – For Medium / High Temperature Applications

Features

- Anti-Vibration mounts supplied
- Crankcase heater on FH/TFH and TAG models
- All models suit capillary tube or expansion valve operation
- Rotalock suction and discharge valves on FH/TFH and TAG models
- Charged with polyolester oil and dry nitrogen
- Oil sight glass on FH/TFH and TAG models
- Rotalock suction valve on CAJ/TAJ models

Cat. No.	Model No.	Nom. HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	Cooling	R134a Capacity: Watts						Oil Charge cm ³	Connections		List Price \$ Exc. GST
							Evaporating Temperature: °C							Suct.	Disch.	
							-15	-10	-5	0	7.2	15				
258630	CAJ 4461Y	1/2	18.3	CSIR	5.9	F	475	642	856	1115	1569	2168	887	1/2"V.	1/4"T.	\$1,093.78
258631	CAJ 4476Y	5/8	21.75		7.2		536	756	1030	1358	1926	2668			5/16"T.	\$1,122.60
258632	CAJ 4492Y	3/4	25.95		8.4		584	871	1215	1617	2295	3164			5/16"T.	\$1,291.17
258633	CAJ 4511Y	1	32.7	CSR	8.9		878	1227	1654	2160	3026	4148	1480	5/8"V.	5/16"T.	\$1,456.79
258634	TAJ 4511Y			3Ø	3.4											\$1,843.51
258635	FH 4518Y	1 1/2	53.2	CSR	11.2		1036	1650	2371	3200	4583	6333			1/2"V.	\$2,174.75
258636	TFH 4518Y			3Ø	4.15											\$2,132.12
258637	FH 4525Y	2	74.25	CSR	15.2		1667	2343	3201	4239	6053	8442				\$2,351.24
258638	TFH 4525Y			3Ø	5.6											\$2,282.81
258639	TAG 4528Y	2 1/2	90.2		9.4		1368	2166	3208	4492	6766	9799	1960	7/8"V.	5/8"V.	\$2,513.90
258640	TAG 4534Y	2 3/4	100.7		10.4		1946	2871	4061	5514	8071	11460				\$2,545.61
258641	TAG 4537Y	3	112.5		10.0		2281	3308	4634	6258	9123	12926				\$2,556.54
258642	TAG 4543Y	3 1/2	124.4		10.0		2400	3442	4848	6620	9812	14124				\$2,676.44

Capacity Rating Basis: 35°C Ambient, 11K Return Gas Superheat, 54.5°C Condensing, 46°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Cooling: N: Natural Air Flow

O.C.: Oil Cooler Fitted (3/16" tube connections)

F: Fan cooling required

Motor Types:

- 1 Phase, 50 Hz, 220-240 Volt
 - PTCSIR: Positive Temperature Coefficient Resistance Start Induction Run
 - RSIR: Resistance Start Induction Run
 - CSIR: Capacitor Start, Induction Run
 - CSR: Capacitor start and run
- 3Ø: 3 Phase, 50 Hz, 400 Volt



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Section 4

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Compressors

Tecumseh L'Unite Hermetique

R22 – Hermetic – For Medium / High Temperature Applications



Features

- Anti-Vibration mounts supplied
- Rotalock suction valve on CAJ/TAJ models
- All models suit capillary tube or expansion valve operation
- Oil sight glass on FH/TFH and TAG models
- Rotalock suction and discharge valves on FH/TFH and TAG models
- Charged with mineral oil and dry nitrogen
- Crankcase heater on FH/TFH and TAG models
- Fan cooling required on all models

Cat. No.	Model No.	Nom. HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	R22 Capacity: Watts								Oil Charge cm ³	Connections		List Price \$ Exc. GST
						Evaporating Temperature: °C									Suct.	Disch.	
						-25	-20	-15	-10	-5	0	7.2	15				
258650	AEZ 4425E	1/5	4.5	CSIR	2.5			192	256	329	413	553	728	450	1/4" T.	3/16" T.	\$508.78
258651	AEZ 4430E	1/4	5.7		3.1		255	336	430	538	718	945					\$536.50
258652	AEZ 4440E	1/3	7.55		3.6		362	464	588	733	980	1298					\$625.74
258653	AEZ 9440T			CSR	2.8	222	280	362	464	588	733	980	1298	\$739.73			
258654	CAE 4450E	3/8	9.4	CSIR	5.0			426	554	710	896	1212	1623	3/8" Tube	1/4" T.	\$713.04	
258655	CAE 9450T		9.5	CSR	3.7	256	325	426	554	710	896	1212	1623			\$829.99	
258656	CAE 9460T	1/2	11.3		5.0	324	423	553	715	909	1134	1514	2000			\$846.88	
258657	CAJ 9480T	5/8	15.2	CSR	5.5	461	603	786	1011	1278	1586	2103	2761	887	1/2" V.	5/16" T.	\$1,303.06
258658	CAJ 9510T	1	18.3		7.5	545	728	956	1229	1547	1909	2510	3266				\$1,367.45
258659	CAJ 9513T	1 1/8	24.2		8.8	526	765	1074	1451	1896	2411	3272	4366				\$1,435.96
258660	CAJ 4517E	1 1/4	25.95		10			1233	1673	2171	2727	3629	4743		5/8" V.	3/8" T.	\$1,477.56
258661	TAJ 4517T			3Ø	3.7												\$1,807.12
258662	TAJ 4519T	1 1/2	34.45		4.2			1780	2304	2911	3601	4738	6162				\$1,986.34
258665	FH 4524F	2	43.5	CSR	13.8			1841	2456	3219	4131	5706	7759	1480	7/8" V.	1/2" V.	\$2,258.05
258666	TFH 4524F			3Ø	4.91												\$2,077.56
258667	FH 4531F	2 1/2	56.65	CSR	21			2620	3504	4517	5659	7528	9854				\$2,436.55
258668	TFH4531F			3Ø	6.64												\$2,192.62
258669	TFH 4540F	3	74.25		8.4			3000	4301	5745	7330	9863	12938				\$2,269.97
258670	TAG 4546T	4	90.2		10	1328	2102	3103	4368	5934	7839	11253	15961	\$2,492.09			
258671	TAG 4553T	4 1/2	100.7		12	1528	2644	3875	5306	7022	9105	12927	18406	\$2,593.20			
258673	TAG 4561T	5	112.5		15	2059	3119	4465	6133	8164	10593	14870	20658	1960	1 7/8" V.	5/8" V.	\$2,793.53
258676	TAG 4568T	6	124.4		15.6	2493	3687	5157	6967	9180	11862	16676	23359				\$2,936.37
258678	TAG 4573T	6 1/2	134.8		18	2803	4094	5629	7501	9804	12632	17816	25204				\$3,115.80

Capacity Rating Basis: 35°C Ambient, 11K Return Gas Superheat, 54.5°C Condensing, 46°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor start, Induction run
 - CSR: Capacitor start and run
 - 3Ø: 3 Phase, 50 Hz, 400 Volt
- } 1 Phase, 50 Hz, 220-240 Volt



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Compressors



Tecumseh L'Unite Hermetique

R404A – Hermetic – For Low Temperature Applications



Features

- Rotolock suction valve on CAJ/TAJ models
- Charged with polyolester oil and dry nitrogen
- Oil sight glass on FH/TFH and TAG models
- Crankcase heater on FH/TFH and TAG models
- Equalisation Ports on TAGP model for parallel applications
- Fan cooling required on all models
- Rotolock suction and discharge valves on FH/TFH and TAG models
- Anti-Vibration mounts supplied
- All CAJ/TAJ models have been improved ('SE' range) to provide reduced noise level, plus higher efficiency

Cat. No.	Model No.	Nom. HP	Displ. cm ³ / rev	Motor Type	MOC: Amps	R404A Capacity: Watts						Oil Charge cm ³	Connections		List Price \$ Exc. GST			
						Evaporating Temperature: °C							Suct.	Disch.				
						-35	-30	-23.3	-20	-15	-10							
258691	CAE 2417Z	1/3	11.3	CSR	3.4	161	280	460	557	716	891	450	3/8" T.	1/4" T.	\$713.04			
258693	CAE 2420Z	1/2	12.54	CSIR	4.4	232	357	547	654	836	1047				\$724.91			
258694	CAE 2424Z	5/8	15	CSR	4.7	291	442	664	783	981	1199				\$937.12			
258695	CAJ 2428Z	1/2	15.2	CSIR	5.1	254	390	635	779	1024	1296	887	1/2" V.	1/4" T.	\$1,079.96			
258696	CAJ 2432Z	5/8	18.3	CSR	6.3	328	509	787	945	1224	1559		1/2" V.	5/16" T.	\$1,304.01			
258697	CAJ 2446Z	3/4	26.15		7.9	578	817	1210	1438	1832	2290				\$1,483.58			
258698	CAJ 2464Z	1 1/2	34.45	CSR	10	741	1084	1608	1902	2407	2995		5/8" V.	3/8" T.	\$1,572.77			
258699	TAJ 2464Z			3Ø	3.3										\$2,015.07			
258700	FH 2480Z	2	53.2	CSR	16	738	1319	2183	2662	3476	4419				1625	1/2" V.	\$2,404.75	
258701	TFH 2480Z			3Ø	4.8							\$2,323.47						
258702	FH 2511Z	2 1/2	74.25	CSR	24	1380	2016	3135	3796	4931	6222	1960					5/8" V.	\$2,471.27
258703	TFH 2511Z			3Ø	5													\$2,389.91
258704	TAG 2516Z	9.81	1743		2704	4356	5335	7043	9038	7/8" V.	\$2,865.97							
258705	TAG 2522Z	5 1/2	134.8		12.5	2378	3542	5522	6688	8711	11062		1 1/8" V.	\$3,109.91				
258798	TAGP 2516Z	4	112.5		9.81	1743	2704	4356	5335	7043	9038		1960	7/8" V.	\$3,073.17			
258799	TAGP 2522Z	5 1/2	134.8		12.5	2378	3542	5522	6688	8711	11062		1960	1 1/8" V.	\$3,317.14			

Capacity Rating Basis: 32°C Ambient, 32°C Evaporator Outlet, 54.5°C Condensing, 32°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Motor Types:

- RSIR: Resistance Start, Induction Run
- CSIR: Capacitor Start, Induction Run } 1 Phase, 50 Hz, 220-240 Volt
- CSR: Capacitor Start and Run
- 3Ø: 3 Phase, 50 Hz, 400 Volt

All models are also suitable for operation with R507 and R407C



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Compressors



Tecumseh L'Unite Hermetique

R404A – Hermetic – For Medium / High Temperature Applications



Features

- All models suit Capillary Tube or Expansion Valve Operation
- Equalisation Ports on TAGP models for parallel applications
- Rotalock suction and discharge valves on FH/TFH and TAG models
- Oil sight glass on FH/TFH and TAG models
- Anti-Vibration mounts supplied
- Crankcase heater on FH/TFH and TAG models
- Charged with polyolester oil and dry nitrogen
- Fan cooling required on all models

Cat. No.	Model No.	Nom. HP	Displ. cm ³ /rev	Motor Type	MOC: Amps	R404A Capacity: Watts								Oil Charge cm ³	Connections		List Price \$ Exc. GST			
						Evaporating Temperature: °C									Suct.	Disch.				
						-25	-20	-15	-10	-5	0	7.2	15							
258718	CAJ 9480Z	5/8	15.2	CSR	6.7	393	571	774	1009	1284	1607	2172	2943	887	1/2"V.	5/16"T.	\$1,344.67			
258719	TAJ 9480Z			3Ø	3												\$1,565.64			
258720	CAJ 9510Z	1	18.3	CSR	8	527	732	970	1252	1583	1972	2650	3563				5/8"V.	3/8"T.	\$1,409.18	
258721	TAJ 9510Z			3Ø	3														\$1,669.14	
258722	CAJ 9513Z	1 1/8	24.2	CSR	10.2	497	783	1114	1501	1955	2485	3406	4646		5/8"V.				3/8"T.	\$1,477.56
258723	TAJ 9513Z			3Ø	3.9															\$1,748.29
258724	CAJ 4517Z	1 1/4	25.95	CSR	12.7			1364	1776	2273	2857	3860	5173			5/8"V.		3/8"T.		\$1,520.24
258725	TAJ 4517Z			3Ø	4															\$1,920.91
258726	CAJ 4519Z	1 1/2	34.45	CSR	15.2			1769	2353	3009	3756	5030	6735		5/8"V.		3/8"T.			\$1,612.46
258727	TAJ 4519Z			3Ø	4.8															\$2,037.87
258728	FH 4522Z	1 3/4	39.95	CSR	16			1541	2240	3038	3947	5475	7459	1480		5/8"			1/2"	\$2,275.85
258729	TFH 4522Z			3Ø	5.4															\$2,115.20
258730	FH 4524Z	2	43.5	CSR	18.1			1835	2570	3407	4361	5977	8101		5/8"			1/2"		\$2,349.26
258731	TFH 4524Z			3Ø	6.3															\$2,169.81
258732	FH 4531Z	2 1/2	56.65	CSR	26.3			2382	3300	4419	5706	7782	10222			7/8"V.	1 1/2"V.		\$2,527.77	
258733	TFH 4531Z			3Ø	8.2														\$2,282.81	
258706	FH4540Z	3	74.25	CSR	27			3388	4475	5771	7276	9814	13056		7/8"V.			1 1/2"V.	\$2,635.84	
258735	TFH 4540Z	3	74.25		9.2														\$2,379.97	
258736	TAG 4546Z	4	90.2	3Ø	11.4			2806	4292	5996	7956	11297	15719	1960		1 1/8"V.	5/8"V.		\$2,580.30	
258737	TAG 4553Z	4 1/2	100.7		13.4														\$2,681.43	
258738	TAG 4561Z	5	112.5		14										\$2,881.77					
258739	TAG 4568Z	6	124.4		15.2										\$3,024.58					
258740	TAG 4573Z	6 1/2	134.8		18										7/8"V.			\$3,203.10		
258790	TAGP 4546Z	4	90.2		11.4													\$2,621.98		
258791	TAGP 4553Z	4 1/2	100.7		13.4													\$2,723.14		
258792	TAGP 4561Z	5	112.5		14													\$3,089.05		
258793	TAGP 4568Z	6	124.4		15.2										1 1/8"V.			\$3,231.88		
258794	TAGP 4573Z	6 1/2	134.8		18													\$3,410.39		

Capacity Rating Basis: 35°C Ambient, 11K Return Gas Superheat, 54.5°C Condensing, 46°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor Start, Induction Run
- CSR: Capacitor Start and Run } 1 Phase, 50 Hz, 220-240 Volt
- 3Ø: 3 Phase, 50 Hz, 400 Volt

All models are also suitable for operation with R507



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Compressors



Tecumseh L'Unite Hermetique

R22 – Hermetic – For Air Conditioning Applications



Features

- Anti-Vibration mounts supplied
- Crankcase heater on TAG models
- Fan cooling required on all models
- Charged with mineral oil and dry nitrogen

Cat. No.	Model No.	Nom. HP	Displ. cm ³ / rev	Motor Type	MOC: Amps	Exp. Device	R22 Capacity: Watts						Oil Charge cm ³	Connections			List Price \$ Exc. GST				
							Evaporating Temperature: °C							cm ³	Disch.	Proc.					
							-10	-5	0	7.2	10	15									
258750	AE 5465E	½	12.05	PSC	5.7	C	718	928	1169	1572	1747		450	¾"T.	¼"T.	⅜"T.	\$913.37				
258751	AJ 5510F	¾	18.6		7.3		922	1296	1728	2447	2759		887				¾"T.	¼"T.	\$992.62		
258752	AJ 5512E	1	21.75		8.2		1254	1662	2130	2909	3248								½"T.	⅝" T.	\$930.13
258753	AJ 5513E		24.2		8.8		1469	1894	2386	3214	3574										\$1,024.43
258754	AJ 5515E	1¼	25.95		12		1681	2169	2722	3632	4023										\$1,072.00
258755	AJ 5518E	1½	32.7		13.1		2109	2690	3372	4555	5086				\$1,060.06						
258756	AJ 5519E		34.45		13.6		2314	2894	3586	4780	5308				\$1,191.01						
258768	FH 5522E	1¾	39.95				14.5		2210	2921	3768	5228	5873		1330	⅝"T.	⅜"T.	⅝" T.	\$1,499.38		
258769	TFH 5522E		3Ø	5.8	C/V								\$1,560.06								
258770	FH 5524E	2	43.5	PSC	16.1	C	2443	3219	4140	5718	6413								\$1,504.35		
258771	TFH 5524E			3Ø	5.8	C/V								\$1,495.37							
258772	FH 5527E	2¼	49.1	PSC	19.5	C	2791	3620	4650	6487	7314								\$1,431.97		
258773	TFH 5527E			3Ø	6.5	C/V								\$1,520.24							
258774	FH 5531E	2½	56.65	PSC	23	C	3494	4507	5654	7543	8352		¾"T.	1½"V.		⅜" T.	\$1,480.55				
258775	TFH 5531E			3Ø	6.3	C/V												\$1,545.01			
258778	FH5540E	3	74.25	PSC	30.5	C							1960	⅞"T.	½"T.	⅜" T.	\$1,753.26				
258779	TFH 5540E				10		4291	5748	7336	9855	10909								\$1,607.50		
258780	TFH 5540E				10		4368	5917	7839	11262	12802	15961							\$2,114.25		
258781	TAG 5546E	3¾	90.2		5313	6984	9104	12944	14688	18406							\$2,220.33				
258782	TAG 5553E	4	100.7	3Ø	12	C/V	6131	8146	10594	14878	16786	20658					\$2,283.79				
258783	TAG 5561E	5	112.5		15		6966	9149	11860	16690	18864	23359				\$2,501.01					
258784	TAG 5568E	6	124.4		15.6		7508	9763	12632	17841	20210	25204				\$2,721.12					
258785	TAG 5573E	6½	134.8		18																

Capacity Rating Basis: 35°C Ambient, 11K Return Gas Superheat, 54.5°C Condensing, 46.2°C Liquid entering Expansion Valve.

*MOC: Maximum Operating Current.

Motor Types:

- PSC = Permanent Split Capacitor, 1 Phase, 50 Hz. 220-240 Volt
- 3Ø: 3 Phase, 50 Hz, 400 Volt

Expansion Device:

- C = Capillary Tube
- C/V = Capillary Tube or Expansion Valve



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Section 4

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Compressors

Copeland®

Copeland

CS Series



The Copeland CS welded hermetic compressors are designed for commercial refrigeration applications. They feature a “low-side” gas management system. The steel shell contains cool, low pressure suction gas that surrounds and cools the electric motor and mechanical compressor parts, resulting in lower motor and discharge gas temperatures.

All of Copeland’s newer CS products are based on the proven success of the CR6 technology. The flagship CR6 design employs enhanced gas management, better lubrication, and anti-slug suction. The result is improved energy efficiency, reduced sound and discharge pulse and excellent reliability and durability.

Service Pack Compressors with the -595 BOM are ideal for field replacement applications as they are supplied complete with internal motor protection, rubber mounting kit & electrics (single phase only).

If service valves are required these must be ordered separately.

Features

- Proven Copeland long term performance & reliability
- Optimised motors offer high energy efficiency and COP
- Charged with polyester lubricant
- High volumetric efficiency at high ambient conditions
- Designed for low noise, quiet operation

Single Phase

Cat. No.	Model No.	Elect. Supply: Volts/Ph.	Nom HP	Displ.: cm ³ / rev	Connections		Full Load Amps	Locked Rotor Amps	Capacities: Watts			Previous Model	List Price \$ Exc. GST
					Suction	Discharge			R404A		R134a		
									-25°C SST	-5°C SST	-5°C SST		
258424	CS10K6E-PFJ-595	240/1	1.75	38.1	1 1/4"	1"	10.1	55	650	3450	1755	CR18KQ	\$1,007.79
258425	CS14K6E-PFJ-595		2.25	48.6			12.5	58	1300	4650	2435	CR28KQ	\$1,161.87
258427	CS18K6E-PFJ-595		2.75	61.4			13.6	58	1495	6000	3300	CR33KQ	\$1,565.79

Three Phase

Cat. No.	Model No.	Elect. Supply: Volts/Ph.	Nom HP	Displ.: cm ³ / rev	Connections		Full Load Amps	Locked Rotor Amps	Capacities: Watts			Previous Model	List Price \$ Exc. GST
					Suction	Discharge			R404A		R134a		
									-25°C SST	-5°C SST	-5°C SST		
258426	CS14K6E-TFD-595	415 Volts 3 Phase	2.25	48.6	1 1/4"	1"	4.2	28	1300	4650	2435	CR24/28KQ	\$1,703.38
258428	CS18K6E-TFD-595		2.75	61.4			4.7	33	1495	6000	3450	CR33KQ	\$1,424.49
258429	CS20K6E-TFD-595		3	74.3			5.1	40	1705	6800	3850	CR41KQ	\$1,741.65
258430	CS27K6E-TFD-595		4	92.4			8.5	41	2365	8850	5050	CR53KQ	\$1,611.45
258431	CS33K6E-TFD-595		5	106.2			9.9	45	2950	10600	5900	CRN0500	\$1,813.45

Ratings at ARI conditions, 45°C Condensing temperature, 11k Suction superheat, 8k Subcooling

CS Series Rotalock Valve Selection

Rotalock Size	1"	1"	1 1/4"	1 1/4"
Connection ODS	3/8"	1/2"	3/4"	7/8"
Valve Cat. No.	197257	197259	197265	197267
List Price \$ Exc. GST	\$70.88	\$70.88	\$122.22	\$130.98
Seal Cat. No.	197283	197283	197285	197285
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26	\$10.26
CS10K6E-PFJ-595	D		S	
CS14K6E-PFJ-595	D		S	
CS18K6E-PFJ-595	D		S	
CS14K6E-TFD-595	D		S	
CS18K6E-TFD-595	D		S	
CS20K6E-TFD-595	D		S	
CS27K6E-TFD-595	D		S	
CS33K6E-TFD-595		D		S



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Compressors



Danfoss

Hermetic Reciprocating - R404A/R507

Low Temperature Applications



Cat. No.	Model No.	Part No.	Displ. cm ³ / rev	Motor Type	Oil Charge cm ³	R404A/R507 Refrigeration Capacities: Watts										List Price \$ Exc. GST
						Evaporating Temperature: °C										
						-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	
257040	FR6CL	103U2670	6.23	CSIR	450	77	108	145	189	243	263	307	383	473	578	\$600.48
257042	FR8.5CL	103U2890	7.95			99	126	168	222	290	317	372	468	577	-	\$668.64
257044	SC10CL	104L2523	10.29		550	-	-	168	258	365	405	489	634	800	991	\$701.17
257046	SC12CL	104L2623	12.87			58	140	237	353	490	541	650	835	1048	1292	\$810.40
257048	SC15CL	104L2853	15.28			-	151	299	452	615	673	792	988	1208	1458	\$888.19
257050	SC18CL	104L2123	17.69	CSR	600	167	271	395	452	715	781	918	1154	1425	1735	\$1,006.56
257052	SC21CL	104L2322	20.95			226	325	455	617	813	887	1042	1306	1606	-	\$1,068.09

Rating Conditions: 45°C Condensing Temp., 32°C Ambient & Suction Gas Temp., 45°C Liquid Temp.

R404A/R507

Medium & High Temperature Applications

Cat. No.	Model No.	Part No.	Displ. cm ³ / rev	Motor Type	Oil Charge cm ³	R404A/R507 Refrigeration Capacities: Watts										List Price \$ Exc. GST
						Evaporating Temperature: °C										
						-20	-15	-10	-5	0	5	7.2	10	15		
257054	TL4DL	102U2038	3.86	CSIR	280	196	229	281	349	432	527	572	631	-	\$558.68	
257056	FR6DL	103U2680	6.23		450	317	385	471	576	698	840	907	999	1177	\$668.64	
257058	SC10DL	104L2525	10.29		600	471	611	775	968	1192	1450	1576	1747	2085	\$744.16	
257060	SC12DL	104L2625	12.87			609	806	1028	1279	1565	1890	2046	2258	2674	\$813.46	
257062	SC15DL	104L2856	15.28	CSR		759	964	1207	1493	1825	2210	2397	2652	3156	\$904.95	

Rating Conditions: 45°C Condensing Temp., 32°C Ambient & Suction Gas Temp., 45°C Liquid Temp.

R134a

Low Voltage- 12VDC & 24VDC

Cat. No.	Model No.	Part No.	Description	Suits	List Price \$ Exc. GST
257146	BD35F	195B0574	Compressor with Controller Module	-	\$1,233.56
257147	BD50F	195B0576			\$1,352.99
257142	BD80F	195B0331			\$1,675.74
257148	-	101N0220	Controller Module only	BD35F BD50F	\$615.25
257149		101N0290		BD80F	\$530.77



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Compressors

Danfoss

Hermetic Reciprocating - R134a

Low & Medium Temperature Applications



Cat. No.	Model No.	Part No.	Displ. cm ³ / rev	Motor Type	Oil Charge cm ³	R134a Refrigeration Capacities: Watts									List Price \$ Exc. GST
						Evaporating Temperature: °C									
						-35	-30	-25	-23.3	-20	-15	-10	-5	0	
257112	TL3F	102G4300	3.13	RSIR	180	-	-	42	48	60	82	108	138	173	\$546.89
257116	TL5F	102G4501	5.08			43	60	82	91	110	144	183	-	-	\$466.12
257118	TLS6F	102G4620	5.70			58	77	104	115	139	183	235	-	-	\$627.16
257120	NL6F	105G6606	6.13		320	52	77	110	123	151	200	258	-	-	\$610.05
257145	NL7F	105G6706	7.27			71	99	136	151	182	238	303	-	-	\$525.89
257106	NL9F	105G6802	8.35			80	112	155	172	208	272	346	-	-	\$649.18
257128	NL11F	105G6900	11.15			102	144	200	223	271	356	455	-	-	\$549.21
257131	SC15F	104G8500	15.28		CSIR	550	100	155	230	260	325	439	573	-	-
257133	SC18F	104G8800	17.69	550		129	194	280	314	388	518	669	842	-	\$781.58
257130	SC21F	104G8100	20.95			185	245	335	375	455	610	780	990	-	\$808.69

Rating Conditions: 55°C Condensing Temp., 32°C Ambient & Suction Gas Temp., 55°C Liquid Temp.

R134a

Low, Medium & High Temperature Applications

Cat. No.	Model No.	Part No.	Displ. cm ³ /rev	Motor Type	Oil Charge cm ³	R134a Refrigeration Capacities: Watts												List Price \$ Exc. GST	
						Evaporating Temperature: °C													
						-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	
257150	PL35G	101G0250	2.00	RSIR	150	-	-	28.0	31.6	39.3	53.0	69.4	89.0	112	140	153	172	209	\$457.75
257152	TL3G	102G4350	3.13		280	-	25.3	40.9	46.7	59.1	80.5	106	136	170	211	231	258	312	\$475.14
257154	TL4G	102G4452	3.86			-	40.8	58.3	65.3	80.3	107	140	180	226	280	306	342	413	\$480.27
257156	TL5G	102G4550	5.08			-	55.6	79.0	87.9	107	139	178	224	278	341	372	414	497	\$492.08
257158	FR6G	103G6660	6.23		450	-	47.7	83.3	96.5	124	171	226	290	365	452	494	552	-	\$505.58
257160	FR7.5G	103G6680	6.93			-	61.7	99.0	113	142	193	254	325	408	505	553	618	-	\$514.24
257162	FR8.5G	103G6780	7.95			-	84.9	123	138	171	228	298	381	478	592	647	722	-	\$564.75
257164	FR10G	103G6880	9.05			-	91.9	136	152	188	250	324	412	516	638	697	779	-	\$587.18
257141	FR10G	103G6890*				-	-	-	-	-	-	-	-	-	-	-	-	-	\$805.59
257104	FR11G	103G6980	11.15			-	115	170	191	233	307	395	501	628	780	-	-	-	\$599.68
257170	SC10G	104G8000	10.29		550	23.0	60.0	113	135	183	268	369	486	618	764	833	925	1100	\$693.72
257135	SC12G	104G8240	12.87			64.6	113	175	199	252	348	464	603	768	960	1064	1182	1437	\$726.92
257132	SC15G	104G8520	15.28	CSIR	550	-	-	164	206	290	424	568	728	908	1110	1207	1340	1600	\$757.31
257134	SC18G	104G8820	17.69	CSR		-	-	283	318	394	526	684	870	1087	1337	1459	1624	1950	\$803.74
257136	SC21G	104G8140	20.95			-	-	333	370	453	606	792	1012	1268	1560	1700	1889	2256	\$977.26

Rating Conditions: 55°C Condensing Temp., 32°C Ambient & Suction Gas Temp., 55°C Liquid Temp.

* Fitted with oil cooler

R22

Low & High Temperature Applications

Cat. No.	Model No.	Part No.	Refrig.	Appl.	List Price \$ Exc. GST
257071	SC10C	104L2516	R22	LBP	\$730.11
257072	SC12C	104L2674			\$809.97
257075	SC15BM	104L2847			\$741.61
257076	SC18BM	104L2118			\$1,148.96
257077	SC21BM	104L2317			\$1,111.84

Cat. No.	Model No.	Part No.	Refrig.	Appl.	List Price \$ Exc. GST
257082	SC10D	104L2517	R22	HBP	\$719.41
257084	SC12D	104L2684			\$735.73
257085	SC15D	104L2839			\$1,033.27



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Compressors

Danfoss

Compressor Spare Parts

Model No.	Relay HST		List Price \$ Exc. GST	Relay LST		List Price \$ Exc. GST	Start Capacitor			List Price \$ Exc. GST	Electrical Cover		List Price \$ Exc. GST
	Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.	Size µf		Cat. No.	Part No.	
FR6CL	324170	117U6015	\$76.06				326082	117U5015	80	\$96.46	328030	103N2010	\$13.28
FR8.5CL	324171	117U6010	\$76.06										
SC10CL	324172	117U6003	\$76.06										
SC12CL	324191	117U6005	\$76.06		-	-	326084	117U5017		\$96.46	328032	103N2009	\$14.02
SC15CL	324173	117U6019	\$76.06										
SC18CL	324174	117-7012	\$502.28					-	-				
SC21CL													

Model No.	Relay HST		List Price \$ Exc. GST	Relay LST		List Price \$ Exc. GST	Start Capacitor			List Price \$ Exc. GST	Electrical Cover		List Price \$ Exc. GST
	Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.	Size µf		Cat. No.	Part No.	
TL4DL	324175	117U6001	\$76.06		-		326080	117U5014	60	\$96.46	328030	103N2010	\$13.28
FR6DL	324171	117U6010	\$76.06				326082	117U5015		\$96.46			
SC10DL	324191	117U6005	\$76.06				326084	117U5017	80	\$96.46	328032	103N2009	\$13.28
SC12DL	324173	117U6019	\$76.06										
SC15DL	324176	117-7028	\$502.28										

Model No.	Relay HST		List Price \$ Exc. GST	Relay LST		List Price \$ Exc. GST	Start Capacitor			List Price \$ Exc. GST	Electrical Cover		List Price \$ Exc. GST
	Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.	Size µf		Cat. No.	Part No.	
TL3F	324177	117U6007	\$76.06	324123	103N0011	\$77.01	326080	117U5014	60	\$96.46	328030	103N2010	\$13.28
TL4F	324178	117U6009	\$76.06										
TL5F	324179	117U6004	\$76.06										
TLS6F	324179	117U6004	\$76.06										
NL6F	324179	117U6004	\$76.06										
NL7F	324180	117U6000	\$76.06										
NL9F	324175	117U6001	\$76.06										
NL11F	324181	117U6002	\$76.06	324124	103N0002	\$79.64	326082	117U5015	80	\$96.46	328032	103N2009	\$14.02
SC15F	324172	117U6003	\$76.06										
SC18F	324191	117U6005	\$76.06										
SC21F	324173	117U6019	\$76.06		-		326084	117U5017		\$96.46			

Model No.	Relay HST		List Price \$ Exc. GST	Relay LST		List Price \$ Exc. GST	Start Capacitor			List Price \$ Exc. GST	Electrical Cover		List Price \$ Exc. GST
	Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.	Size µf		Cat. No.	Part No.	
PL35G	324182	117U6021	\$76.06	324123	103N0011	\$77.01	326080	117U5014	60	\$96.46		103N0491	
TL3G	324178	117U6009	\$76.06								328030	103N2010	\$13.28
TL4G	324179	117U6004	\$76.06										
TL5G	324180	117U6000	\$76.06										
FR6G													
FR7.5G	324175	117U6001	\$76.06										
FR8.5G	324170	117U6015	\$76.06										
FR10G	324171	117U6010	\$76.06										
FR10G													
FR11G													
SC10G	324181	117U6002	\$76.06	324124	103N0002	\$79.64	326084	117U5017	80	\$96.46	328032	103N2009	\$14.02
SC12G	324172	117U6003	\$76.06										
SC15G	324191	117U6005	\$76.06										
SC18G	324173	117U6019	\$76.06										
SC21G	324176	117-7028	\$502.28										



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Compressors

Maneurop

Maneurop

MTZ Series - R404A, R507, R407C, R134a, R22 - Hermetic Reciprocating

Features

- Charged with Maneurop Polyolester Oil 160PZ
- Suction and discharge solder sleeves supplied
- Rotalock service valves or angle adaptors sold separately
- Anti-Vibration mounts supplied
- Fitted with oil sight glass and oil equalisation fitting



Cat. No.	Model No.	Elect. Supply Volts / Phase	Displacement		No. of Cylinders	Conn. Type	Connections		Oil Charge Litres	Weight kg	List Price \$ Exc. GST						
			cm ³ /rev	m ³ /hr @ 2900 rpm			Suct.	Disch.									
	MTZ18-4VI	415/3	30.23	5.26	1	Rotalock	1"	1"	0.95	21	P.O.A						
258320	MTZ18-5VI	240/1									\$1,522.39						
258323	MTZ22-4VI	415/3	38.12	6.63							\$1,586.33						
258322	MTZ22-5VI	240/1									\$1,586.33						
258324	MTZ28-4VI	415/3	48.06	8.36						23	\$1,645.02						
258325	MTZ28-5VI	240/1									\$1,645.02						
258327	MTZ32-4VI	415/3	53.86	9.37			1 1/4"	1"		24	\$1,674.96						
258326	MTZ32-5VI	240/1									\$1,674.96						
258329	MTZ36-4VI	415/3	60.47	10.52						25	\$1,723.81						
258328	MTZ36-5VI	240/1									\$1,723.81						
258330	MTZ40-4VI	415/3	67.89	11.81	2		1 3/4"	1 1/4"	1.8	26	\$1,819.50						
258340	MTZ44-4VI		76.22	13.26						37	\$1,876.83						
258331	MTZ50-4VI		85.64	14.90							\$1,950.77						
258341	MTZ56-4VI		96.13	16.73						39	\$2,089.08						
258332	MTZ64-4VI		107.71	18.74							\$2,209.36						
258342	MTZ72-4VI		120.94	21.04						41	\$2,306.11						
258333	MTZ80-4VI		135.78	23.63							\$2,708.67						
258334	MTZ100-4VI		171.26	29.80	4		1 3/4"	1 1/4"	3.9	60	\$3,638.95						
258335	MTZ125-4VI		215.44	37.49						64	\$4,553.80						
258336	MTZ144-4VI		241.87	42.09						67	\$4,942.68						
258337	MTZ160-4VI		271.55	47.25						69	\$5,407.08						

MTZ Compressor Rotalock Valve Selection Guide

Rotalock Size	1"		1 1/4"			1 3/4"	
	3/8"	1/2"	5/8"	3/4"	7/8"	7/8"	1 1/8"
Connection ODS							
Valve Cat. No.	197257	197259	197263	197265	197267	197271	197273
List Price \$ Exc. GST	\$70.88	\$70.88	\$80.84	\$122.22	\$130.98	\$139.99	\$212.14
Seal Cat. No.	197283	197283	197285	197285	197285	197287	197287
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26
MTZ18	D	S					
MTZ22	D	S					
MTZ28	D	S					
MTZ32		D	S				
MTZ36		D	S				
MTZ40		D	S				
MTZ44				D		S	
MTZ50				D		S	
MTZ56				D		S	
MTZ64				D		S	
MTZ72				D		S	
MTZ80				D			S
MTZ100					D		S
MTZ125					D		S
MTZ144					D		S
MTZ160					D		S

S = Suction D = Discharge

Standard usage - other combinations are possible

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Compressors



Maneurop

NTZ Series - R404A, R507 - Hermetic Reciprocating

Features

- Charged with Maneurop Polyolester Oil 160Z
- Suction and discharge solder sleeves supplied
- Rotalock service valves or angle adaptors sold separately
- Anti-Vibration mounts supplied
- Fitted with oil sight glass and oil equalisation fitting



Cat. No.	Model No.	Part No.	Elect. Supply Volts / Phase	Displacement		No. of Cyl.	Conn. Type	Connections		Oil Charge Ltrs.	Weight kg	List Price \$ Exc. GST
				cm ³ / rev	m ³ /hr @ 2900 rpm			Suct.	Disch.			
258370	NTZ048-5LR1	120F0087	240/1	48	8.4	1	Rotalock	1 ¼"	1"	0.95	21	\$1,935.85
258372	NTZ048-4LR1	120F0001	415/3									\$1,935.85
258374	NTZ068-5LR1	120F0088	240/1	68	11.8	23					\$2,102.34	
258376	NTZ068-4LR1	120F0002	\$2,102.34									
258378	NTZ096-4LR1	120F0003	415/3	96	16.7	2		1 ¾"	1 ¼"	1.8	35	\$2,185.10
258380	NTZ108-4LR1	120F0004		108	18.7							\$2,300.62
258382	NTZ136-4LR1	120F0005		136	23.6							\$2,725.04
258384	NTZ215-4LR1	120F0006		215	37.5	4				3.9	62	\$5,110.60
258386	NTZ271-4LR1	120F0007		271	47.3							64

NTZ Compressor Selection Guide

Current Model No.	Superceded Model
NTZ048-5LR1	LT/LTZ 22-5VI
NTZ048-4LR1	LT/LTZ 22-4VI
NTZ068-5LR1	LT/LTZ 28-5VI
NTZ068-4LR1	LT/LTZ 28-4VI
NTZ096-4LR1	LT/LTZ 40-4VI
NTZ108-4LR1	LT/LTZ 44-4VI
NTZ136-4LR1	LT/LTZ 50-4VI
NTZ215-4LR1	LT/LTZ 88-4VI
NTZ271-4LR1	LT/LTZ 100-4VI

NTZ Compressor Rotalock Valve Selection Guide

Rotalock Size	1"	1 1/4"	1 3/4"
Connection ODS	1/2"	5/8"	3/4"
Valve Cat. No.	197259	197263	197265
List Price \$ Exc. GST	\$70.88	\$80.84	\$122.22
Seal Cat. No.	197283	197285	197285
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26
NTZ048	D	S	
NTZ068	D	S	
NTZ096			D S
NTZ108			D S
NTZ136			D S
NTZ215			D S
NTZ271			D S

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Rotary Compressors



SCI

Rotary - For Air Conditioning Application

Cat. No.	Model No.	Refrig.	Norm. HP	Displ. cc/rev	Nom Cap. Watts	Volts	Current Amps	Run Cap. (µF/VAC)	Connections		List Price \$ Exc. GST
									Suct.	Disch.	
257201	RH135-VHAT	R22	0.87	13.5	2279	240	3.45	25/370	3/8"	5/16"	\$893.43
257205	RH165-VHST		1.07	16.5	2814		4.2				\$923.37
257208	RH197-VHRT		1.34	19.7	3610		5.12	30/370	1/2"		\$953.30
257210	RH207-VHST		1.34	20.7	3670		5.3				\$968.21
257211	RH231-VHAT		1.47	23.1	4011		6.2	30/400			\$978.24
257212	RH247-VHAT		1.61	24.7	4407		6.0	35/400		\$993.28	
257213	RH277-VHAT		1.74	27.7	4826		7.4			\$1,009.82	
257221	PH28-VNET		1.68	28.1	4895		7.2	40/370	5/8"	\$1,452.44	
257223	PH33-VPET		2.01	33.8	5977		8.6	50/370		\$1,492.36	
257225	PH39-VPET		2.28	39	6884		10	60/400		\$1,582.20	
257239	NH56-VNHT		3.6	56.9	10209	415	16.1	60/420	3/4"	\$1,796.79	
257247	NH47-YDET		2.9	47.4	8372		5	N/A	5/8"	\$1,806.69	
257248	NH52-YDTT		3.4	52.4	9442		5.5		3/4"	\$1,826.72	

Rating Basis:

54.4°C Condensing
46.1°C Liquid Temperature

7.2°C Evaporating
35°C Ambient

35°C Suction Gas



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Scroll Compressors

Copeland®

Copeland ZR Series



The Copeland Scroll compressor is the result of large scale research and development efforts underway since 1979. These efforts have led to the production of the most advanced scroll compressor design currently available for air-conditioning, heat pump and medium temperature applications.

System manufacturers choose scroll compressors over other compressor technologies for several reasons: lower sound, superior efficiency and reliability, compatibility with heat pump applications and ease of design.

Features

- Suitable for R22 and R407C air conditioning applications
- Rotalock valves & electrical accessories to be ordered separately
- Charged with Polyolester oil
- Anti-vibration mounts supplied

Single Phase Stub Connection

Cat. No.	Model No.	Elect Supply: Volts/Ph.	Displ.: m ³ /hr	R22 Nominal Capacity: Watts @ 7.2°C	Replacement Oil Charge	Weight: kg	Type	Connections		Full Load Amps	Locked Rotor Amps	List Price \$ Exc. GST
								Suct.	Disch.			
256300	ZR22K3E-PFJ-522	240/1	5.34	5350	1.01L	25.9	Stub Tube	3/4"	1/2"	11	47	\$1,301.87
256302	ZR24K3E-PFJ-522	240/1	5.92	5900	1.01L	25				11.4	58	\$1,333.86
256304	ZR28K3E-PFJ-522	240/1	6.83	6900	1.01L	27.2				15	61	\$1,406.45
256308	ZR34K3E-PFJ-522	240/1	8.03	8250	1.12L	28.6				17	76	\$1,514.00
256309	ZR36K3E-PFJ-522	240/1	8.61	8850	1.12L	29.5				18	82	\$1,554.59
256310	ZR40K3E-PFJ-522	240/1	9.43	9760	1.12L	29.9				23	100	\$1,615.73
256313	ZR42K3E-PFJ-522	240/1	9.95	10250	1.12L	30.4				23	97	\$1,755.07
256314	ZR47K3E-PFJ-522	240/1	11.02	11500	1.12L	32.2		7/8"		23	114	\$2,063.21
256317	ZR48K3E-PFJ-522	240/1	11.4	11400	1.12L	31.1				23	114	\$2,169.20
256318	ZR61KCE-PFJ-522	240/1	14.37	14900	1.54L	41.3				30	150	\$2,209.98
256322	ZR68KCE-PFJ-522	240/1	16.18	16700	1.72L	42.6				30	150	\$2,269.47

Three Phase Stub Connection

Cat. No.	Model No.	Elect Supply: Volts/Ph.	Displ.: m ³ /hr	R22 Nominal Capacity: Watts @ 7.2°C	Replacement Oil Charge	Weight: kg	Type	Connections		Full Load Amps	Locked Rotor Amps	List Price \$ Exc. GST
								Suct.	Disch.			
256306	ZR28K3E-TFD-522	415/3	6.83	6900	1.01L	25.4	Stub Tube	¾"	½"	5	32	\$1,467.48
256312	ZR40K3E-TFD-522	415/3	9.43	10300	1.12L	27.7				7	46	\$1,676.72
256316	ZR47KCE-TFD-522	415/3	11.16	11500	1.24L	29.9				10	48	\$2,057.35
256315	ZR48KCE-TFD-522	415/3	11.4	11850	1.24L	28.1		10		50	\$2,316.03	
256319	ZR54KCE-TFD-522	415/3	12.74	13200	1.83L	35.8		10		51.8	\$2,164.94	
256321	ZR57KCE-TFD-522	415/3	13.43	13900	1.83L	36.3		11		61.8	\$2,191.02	
256320	ZR61KCE-TFD-522	415/3	14.37	14900	1.83L	37.2		11		65	\$2,260.85	
256324	ZR68KCE-TFD-522	415/3	16.18	16800	1.66L	38.6		13		74	\$2,350.89	
256326	ZR72KCE-TFD-522	415/3	17.06	17700	1.66L	38.6		13		74	\$2,414.83	
256328	ZR81KCE-TFD-522	415/3	18.75	19900	1.66L	39.9		15		101	\$2,563.03	
256330	ZR94KCE-TFD-522	415/3	22.1	23300	2.4L	57.2		1 ⅛"	⅞"	16	95	\$3,835.16
256334	ZR108KCE-TFD-522	415/3	24.9	26400	3.13L	60.3		1 ⅜"		17	114	\$4,055.06
256338	ZR125KCE-TFD-522	415/3	29.1	31100	3.13L	61.2				19	125	\$4,251.70
256344	ZR144KCE-TFD-522	415/3	33.2	35200	3.13L	61.2				22	125	\$4,704.97
256351	ZR160KCE-TFD-522	415/3	36.4	37700	3.38L	64.9				28	140	\$4,617.28
256353	ZR190KCE-TFD-522	415/3	43.3	45900	3.38L	66.2				34	174	\$5,235.87



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Scroll Compressors



Copeland ZR Series

Three Phase Rotalock Connection

Cat. No.	Model No.	Elect. Supply: Volts/Ph.	Displ.: m ³ /hr	R22 Nom.Cap.: Watts @7.2C	Repl. Oil Charge	Weight: kg	Type	Connections		Full Load: Amps	Locked Rotor: Amps	List Price \$ Exc. GST
								Suct.	Disch.			
								Rotalock Size	Rotalock Size			
256332	ZR94KCE-TFD-523	415/3	22.1	23300	2.4L	57.2	Rotalock	1 ³ / ₄ "	1 ¹ / ₄ "	16	95	\$3,888.41
256336	ZR108KCE-TFD-523	415/3	24.9	26400	3.13L	60.3				17	114	\$4,121.69
256340	ZR125KCE-TFD-523	415/3	29.1	31100	3.13L	61.2				19	125	\$4,305.04
256342	ZR144KCE-TFD-523	415/3	33.2	35200	3.13L	61.2				22	125	\$4,758.24
256352	ZR160KCE-TFD-523	415/3	36.4	37700	3.38L	64.9				28	140	\$4,617.28
256354	ZR190KCE-TFD-523	415/3	43.3	45900	3.38L	66.2				34	174	\$5,283.94
256350	ZR250KCE-TWD-523	415/3	56.6	56600	4.7L	140		2 ¹ / ₄ "	1 ³ / ₄ "	41	225	\$12,589.68

Note: Rotalock valves to be ordered separately.

Service Packs

Copeland's service pack compressors are used for replacement of both rotalock and stub tube ZR16 and ZR19 model.

These compressors will be superseded by ZR160 and ZR190 but please note that the dimensions and footprint will differ. Refer to Copeland's replacement guidelines for more detail.

Includes

- Rotalock compressor
- Kriwian 110/230V INT69SC2 module mounted on the compressor
- Extra 24V INT69SC2 module supplied loose
- Rotalock adaptor kits for field replacement of brazed version

Cat. No.	Model No.	Elect. Supply: Volts/Ph.	Displ. m ³ /hr	R22 Nom Cap: Watts 7.2C	Repl. Oil Charge	Weight: kg	Full Load: Amps	Locked Rotor: Amps	Type	Connections		List Price \$ Exc. GST
										Suct.	Disch.	
256346	ZR16M3E-TWD-961	415/3	32.55	37500	4.05L	103.1	28	167	Rotalock	1 ³ / ₄ "	1 ¹ / ₄ "	\$8,940.58
256348	ZR19M3E-TWD-961	415/3	42.07	46000	4.05L	112.1	34	198		2 ¹ / ₄ "	1 ³ / ₄ "	\$9,613.70

Note: Rotalock valves to be ordered separately.

Tandem Ready

These compressors are similar to the standard ZR compressors but include additional connection points that are required for use in tandem operation.

Cat. No.	Model No.	Electrical Supply: Volts/Ph.	Displ.: m ³ /hr	Repl. Oil Charge: litres	Weight: kg	Type	Connections		Full Load: Amps	Locked Rotor: Amps	List Price \$ Exc. GST
							Suct.	Disch.			
256292	ZR54KCE-TFD-422	415/3	12.74	1.83	35.8	Stub Tube	7/8"	1/2"	10	51.8	\$2,615.32
256294	ZR61KCE-TFD-422	415/3	14.37	1.83	37.2				11	65	\$2,584.83
256296	ZR81KCE-TFD-422	415/3	18.75	1.66	39.9				15	101	\$2,921.00

Scroll Accessories

Motor Protection Module



Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
315020	8558547	INT69 Motor Protection Module	All scroll Model where required including ZR, ZF, ZS, ZB, ZP series	\$732.61



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Scroll Compressors

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ZR Series

ZR Series Electrical Accessories Selection Chart

Compressor Model No.	Run Capacitor				List Price	Start Capacitor				List Price	Relay		List Price	Crankcase Heater			List Price
	Cat. No.	Part No.	Volt.	mFd	\$ Exc. GST	Cat. No.	Part No.	Volt.	mFd	\$ Exc. GST	Cat. No.	Part No.	\$ Exc. GST	Cat. No.	Part No.	Descr.	\$ Exc. GST
ZR22K3E-PFJ-522	256160	014-0054-12			\$36.12	256170	014-0058-31	330	88-106	\$39.76	256152	040-0166-37	\$58.34	256079	018-0095-00	240V 70W	\$61.87
ZR24K3E-PFJ-522																	
ZR28K3E-PFJ-522	256161	014-0054-36			\$38.40												
ZR28K3E-TFD-522																	
ZR34K3E-PFJ-522	256162	014-0054-40			\$41.68	256170	014-0058-31	330	88-106	\$39.76	256152	040-0166-37	\$58.34				
ZR36K3E-PFJ-522																	
ZR40K3E-PFJ-522	256163	014-0054-39	370	55	\$66.61												
ZR40K3E-TFD-522																	
ZR42K3E-PFJ-522	256164	014-0054-37	370	60	\$66.61	256170	014-0058-31	330	88-106	\$39.76	256152	040-0166-37	\$58.34				
ZR47K3E-PFJ-522																	
ZR47KCE-TFD-522																	
ZR48KCE-TFD-522																	
ZR54KCE-TFD-522																	
ZR57KCE-TFD-522																	
ZR61KCE-PFZ-522	256165	014-0054-20	440	50	\$55.08	256174	014-0006-15	330	270-324	\$84.68	256153	040-0046-24	\$178.25				
ZR61KCE-TFD-522																	
ZR68KCE-PFJ-522	256165	014-0054-20	440	50	\$55.08	256174	014-0006-15	330	270-324	\$84.68	256153	040-0046-24	\$178.25				
ZR68KCE-TFD-522																	
ZR72KCE-TFD-522																	
ZR81KCE-TFD-522																	
ZR94KCE-TFD														256097	018-0091-22	240V 90W	\$76.67
ZR108KCE-TFD																	
ZR125KCE-TFD																	
ZR144KCE-TFD																	
ZR160KCE-TFD																	
ZR190KCE-TFD																	
ZR16M3E-TWD														256150	018-0091-13	240V 70W	\$66.35
ZR19M3E-TWD																	

ZR Series Scroll Compressor Rotalock Valve Selection



Rotalock Size	1 1/4"		1 3/4"		2 1/4"
Connection ODS	3/4"	7/8"	1 1/8"	1 3/8"	1 5/8"
Valve Cat. No.	197265	197267	197273	197275	197279
List Price \$ Exc. GST	\$122.22	\$130.98	\$212.14	\$230.72	\$470.91
Seal Cat. No.	197285	197285	197287	197287	197289
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26
Model No.					
ZR94KCE-TFD-523	D		S		
ZR108KCE-TFD-523	D		S		
ZR125KCE-TFD-523	D		S		
ZR144KCE-TFD-523		D		S	
ZR160KCE-TFD-523		D		S	
ZR190KCE-TFD-523		D		S	
ZR16M3E-TWD-961		D		S	
ZR19M3E-TWD-961			D		S

D = Discharge

S = Suction

Standard usage - other combinations are possible

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Section 4

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Scroll Compressors

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ZP Series R410A For Air conditioning Applications

Features

- Charged with Polyolester oil
- Electrical accessories to be ordered separately
- Anti-vibration mounts supplied

Cat. No.	Model No.	Elect. Supply Volts / Phase	Displ. m ³ /hr	R410A Capacity Watts @ +7.2°C SST	Connection Type	Connections		Replacement Oil Charge Litres	Amps		Weight kg	List Price \$ Exc. GST
						Suct.	Disch.		Rated Load Amps	Locked Rotor Amps		
256402	ZP36KSE-PFZ-522	240/1	5.988	7920	Stub Tube	7 7/8"	1 1/2"	1.12	17.7	98.0	29.4	\$1,707.86
256403	ZP36KSE-TFM-522	415/3		8030					6.6	46.0		\$1,721.80
256404	ZP42KSE-PFZ-522	240/1	6.929	9180					21.7	128.0	33.1	\$1,876.23
256405	ZP42KSE-TFM-522	415/3		9060					6.8	43.0		\$2,108.02
256406	ZP51KSE-PFZ-522	240/1	8.383						22.5	126.0	34.4	\$2,132.37
256407	ZP51KSE-TFM-522	415/3							8.6	51.5	33.0	\$2,253.09
256412	ZP54KSE-PFZ-522	240/1	8.896	11750					22.5	115.5	34.4	\$2,246.12
256413	ZP54KSE-TFM-522	415/3		11650					8.6	51.5	33.0	\$2,259.99
256414	ZP57K3E-PFJ-522	240/1	9.438					1.54	27.3	153.0	41.7	\$2,273.34
256415	ZP57K3E-TFD-522	415/3							10.7	74.0		\$2,287.28
256416	ZP61KCE-PFZ-522	240/1	10.108			1.66	29.3	147.0	40.3	\$2,529.28		
256417	ZP61KCE-TFD-522	415/3		13250			10.9	64.0		\$2,529.28		
256422	ZP67KCE-TFD-522		10.958				11.8	74.0	40.0	\$2,531.94		
256423	ZP72KCE-TFD-522		11.679	15400			12.5	75.0		\$2,703.47		
256424	ZP83KCE-TFD-522		13.430	17950			13.6	101.0		\$2,876.82		
256425	ZP90KCE-TFD-522		14.642	19650			2.40	16.4	95.0	57.6	\$4,237.71	
256426	ZP103KCE-TFD-522		16.763	22700				3.13	18.6	111.0	61.2	\$4,479.30
256427	ZP120KCE-TFD-522		19.760	26800			20.0		118.0	\$4,701.94		
256432	ZP137KCE-TFD-522		22.121	30100		20.7	118.0		62.1	\$5,208.60		
256433	ZP154KCE-TFD-522		24.867	33700		25.0	140.0		64.9	\$5,641.29		
256434	ZP182KCE-TFD-522		29.078	40100		28.6	174.0		66.2	\$5,842.04		
256437	ZP385KCE-TWD-522		60.8			1 5/8"	1 3/8"	6.3		310.0	177.8	\$14,924.83

Note: -593 & -522 model variants are interchangeable. -593 is an OEM number and -522 is the aftermarket model.

ZP Series Electrical Accessories Selection Chart

Compressor Model No.	Run Capacitor				List Price \$ Exc. GST	Start Capacitor				List Price \$ Exc. GST	Relay		List Price \$ Exc. GST	Crankcase Heater			List Price \$ Exc. GST
	Cat. No.	Part No.	Volt	mFd		Cat. No.	Part No.	Volt	mFd		Cat. No.	Part No.		Cat. No.	Part No.	Description	
ZP36KSE-PFZ-522		014-0064-26	370	60	P.O.A	256170	014-0061-27	330	88-106	\$39.76	256152	040-0166-37	\$58.34	256079	018-0095-00	240V 70W	\$61.87
ZP36KSE-TFM-522																	
ZP42KSE-PFZ-522		014-0064-27	370	80	P.O.A	256170	014-0061-27	330	88-106	\$39.76		040-0166-21	P.O.A				
ZP42KSE-TFM-522																	
ZP51KSE-PFZ-522		014-0064-35	440	80	P.O.A	256170	014-0061-27	330	88-106	\$39.76	256152	040-0166-37	\$58.34				
ZP51KSE-TFM-522																	
ZP54KSE-PFZ-522		014-0064-35	440	80	P.O.A	256170	014-0061-27	330	88-106	\$39.76	256152	040-0166-37	\$58.34				
ZP54KSE-TFM-522																	
ZP57K3E-PFJ-522		014-0064-16	440	50	P.O.A												
ZP57K3E-TFD-522																	
ZP61KCE-PFZ-522		014-0064-35	440	80	P.O.A												
ZP61KCE-TFD-522																	
ZP67KCE-TFD-522																	
ZP72KCE-TFD-522																	
ZP83KCE-TFD-522																	
ZP90KCE-TFD-522														256097	018-0091-22	240V 90W	\$76.67
ZP103KCE-TFD-522																	
ZP120KCE-TFD-522																	
ZP137KCE-TFD-522																	
ZP154KCE-TFD-522																	
ZP182KCE-TFD-522																	



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Scroll Compressors

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ZB Series - R404A, R507 For Refrigeration Applications



Cat. No.	Model No.	Elect. Supply Volts / Phase	Displ. m ³ /hr	Connection Type	Connections		Replacement Oil Charge Litres	Amps		Weight kg	List Price \$ Exc. GST
					Suct.	Disch.		Rated Load	Locked Rotor		
256360	ZB15KQE-PFJ-524	220-240/1	5.92	Tube	¾"	½"	1.18	11.4	58.0	23.0	\$1,917.13
256366	ZB19KQE-TFD-524	380-420/3	6.80				1.45	4.3	32.0	25.0	\$2,014.47
256374	ZB26KQE-TFD-524		9.90					7.1	46.0	28.0	\$2,367.18
256378	ZB38KQE-TFD-524		14.50		7/8"		1.89	8.9	65.5	38.0	\$3,089.20
256381	ZB48KQE-TFD-524		18.75				1.66	14.0		39.0	\$3,524.22
256382	ZB50KQE-TFD-551	380-420/3	19.80	Rotalock	1 ¾"	1 ¼"	2.51	14.3	90.0	59.0	\$4,023.76
256384	ZB58KQE-TFD-551		22.10					16.4	95.0	60.0	\$4,265.31
256386	ZB66KQE-TFD-551		25.70				3.25	17.3	111.0	65.0	\$4,511.41
256388	ZB76KQE-TFD-551		28.80					19.2	118.0		\$4,533.84
256390	ZB95KQE-TFD-551		36.38					25.0	140.0		\$5,822.02
256392	ZB114KQE-TFD-551		43.35					27.9	174.0	\$6,646.57	

ZB Series Electrical Accessories Selection Chart

Compressor Model No.	Run Capacitor				List Price \$ Exc. GST	Start Capacitor				List Price \$ Exc. GST	Relay		List Price \$ Exc. GST	Crankcase Heater			List Price \$ Exc. GST
	Cat. No.	Part No.	Volt.	mFd		Cat. No.	Part No.	Volt.	mFd		Cat. No.	Part No.		Cat. No.	Part No.	Watts	
ZB15KQE-PFJ-524		014-0064-14	440	40	P.O.A	256170	014-0061-27	330	88-106	\$39.76	256152	040-0166-37	\$58.34	256079	018-0095-00	70	\$61.87
ZB15KQE-TFD-524																	
ZB19KQE-PFJ-524		014-0064-25	370	45	P.O.A												
ZB19KQE-TFD-524																	
ZB21KQE-PFJ-524		014-0064-26	370	60	P.O.A												
ZB21KQE-TFD-524																	
ZB26KQE-PFJ-524		014-0064-26	370	60	P.O.A												
ZB26KQE-TFD-524																	
ZB30KQE-TFD-524																	
ZB38KQE-TFD-524																	
ZB45KQE-TFD-524																	
ZB48KQE-TFD-524														256097	018-0091-22	90	\$61.87
ZB50KQE-TFD-551																	
ZB58KQE-TFD-551																	
ZB66KQE-TFD-551																	
ZB76KQE-TFD-551																	
ZB95KQE-TFD-551																	
ZB114KQE-TFD-551																	

ZB Series Scroll Compressor Rotalock Valve Selection

S = Suction
D = Discharge

Standard usage -
other combinations are possible

Rotalock Size	1 1/4"	1 3/4"
Connection ODS	7/8"	1 1/8"
Valve Cat. No.	197267	197273
List Price \$ Exc. GST	\$130.98	\$212.14
Seal Cat. No.	197285	197287
List Price \$ Exc. GST	\$10.26	\$10.26
ZB50KQE-TFD-551	D	S
ZB58KQE-TFD-551	D	S
ZB66KQE-TFD-551	D	S
ZB76KQE-TFD-551	D	S
ZB95KQE-TFD-551	D	S
ZB114KQE-TFD-551	D	S

ZB Series BOM Chart Bill of Materials (BOM) numbers identify specific compressor features

BOM	523	524	558	559	550	551
Stub Tube		x	x		x	
Rotalock	x			x		x
Sight Glass			x	x	x	x
Schrader Valve					x	x



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Scroll Compressors

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ZF Series - R404A For Low Temperature Applications

Features

- Charged with Polyolester oil
- Anti-vibration mounts supplied
- Suitable for R404A low temperature applications
- Rotalock valves and electrical accessories should be ordered separately

Cat. No.	Model No.	Elect. Supply Volts / Phase	Displ. m ³ /hr	R404A Capacity Watts @ -25°C SST	Connection Type	Connections		Replacement Oil Charge Litres	Amps		Winding Resist. Ohm	Weight kg	List Price \$ Exc. GST
						Suct.	Disch.		Rated Load Amps	Locked Rotor Amps			
256050	ZF09K4E-TFD-551	415/3	8.0	2950	Rotalock	1 1/4"	1"	1.1	6	40	4.83	30	\$3,966.77
256051	ZF11K4E-TFD-551		9.9	3700					7	46	4.03	31	\$4,168.72
256052	ZF13K4E-TFD-551		11.8	4300				1.4	8	51.5	3.64	41	\$4,176.17
256053	ZF15K4E-TFD-551		14.5	5250					10	64	2.75	42	\$4,577.24
256054	ZF18K4E-TFD-551		17.2	6400					12	74	2.27	44	\$5,410.38
256055	ZF24K4E-TWD-551		20.9	7900		1 3/4"	1 1/4"	4	16.1	99	1.41	100	\$6,994.45
256063	ZF33K4E-TWD-551		28.9	11000					22.3	127	1.02	100	\$7,868.74
256064	ZF40K4E-TWD-551		35.6	13500				4.1	25.1	167	0.83	110	\$8,699.30
256065	ZF48K4E-TWD-551		42.1	15600					30.6	198	0.72	119	\$9,544.49

Refrigeration Capacity based on +40°C SCT, 20°C Suction Gas Return

ZF Series Accessories Selection Chart Liquid Injection Kits required for application at less than -25°C SST

Compressor Model No.	Discharge Temp. Controller (DTC)		List Price \$ Exc. GST	Capillary Kit		List Price \$ Exc. GST	Solenoid Valve		List Price \$ Exc. GST	Solenoid Coil		List Price \$ Exc. GST	Crankcase Heater		List Price \$ Exc. GST
	Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.		Cat. No.	Part No.	
ZF09K4E-TFD-551	272006	8563054	\$277.72										256079	8561105	\$61.87
ZF11K4E-TFD-551															
ZF13K4E-TFD-551															
ZF15K4E-TFD-551															
ZF18K4E-TFD-551															
ZF24K4E-TWD-551				272010	8546437	\$230.63	123321	200RB4T3T	\$154.84	123285	ASC2	\$105.13			
ZF33K4E-TWD-551				272011	8546415	\$230.63									
ZF40K4E-TWD-551				272012	8546448	\$230.63									
ZF48K4E-TWD-551															

Discharge Gas Thermostat (120°C)

Cat. No.	Part No.	List Price \$ Exc. GST
272007	2981196	\$89.15

ZF Series Copeland Scroll Compressor Rotalock Valve Selection

Rotalock Size	1"	1 1/4"	1 3/4"	1 3/4"	2 1/4"
Connection ODS	1/2"	7/8"	1 1/8"	1 3/8"	1 5/8"
Valve Cat. No.	197259	197267	197273	197275	197279
List Price \$ Exc. GST	\$70.88	\$130.98	\$212.14	\$230.72	\$470.91
Seal Cat. No.	197283	197285	197287	197287	197289
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26
ZF09K4E-TFD-551	D	S			
ZF11K4E-TFD-551	D	S			
ZF13K4E-TFD-551	D	S			
ZF15K4E-TFD-551	D	S			
ZF18K4E-TFD-551	D	S			
ZF24K4E-TWD-551		D	S		
ZF33K4E-TWD-551		D		S	
ZF40K4E-TWD-551		D		S	
ZF48K4E-TWD-551			D		S

D = Discharge

S = Suction

Standard usage - other combinations are possible



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Scroll Compressors



Danfoss

HRP, HLP & HCP Series



Cat. No.	Model No.	Part No.	Elect. Supply Volts / Phase	Displacement		Nominal HP	Nominal Capacity: Kw	Connection Type	Weight kg	List Price \$ Exc. GST
				cm ³ /rev	m ³ /hr					
257350	HRP034T5LP6	120U2019	240/1	46.2	8.0	2.8	8.1	Stub	31	\$1,129.39
	HRP038T5LP6	120U0961				3.0	8.9			P.O.A
	HRP038T4LP6	120U1006	415/3			3.0	8.9			P.O.A
257354	HRP040T5LP6	120U1929	240/1	54.4	9.5	3.3	9.5		31	\$1,292.49
257355	HRP040T4LP6	120U1016	415/3	54.4	9.5	3.3	9.7		31	\$1,246.70
	HRP045T5LP6	120U0976	240/1			3.5	10.7			P.O.A
	HRP045T4LP6	120U1036	415/3			3.5	10.9			P.O.A
257358	HRP047T4LP6	120U1046	415/3	64.1	11.2	3.8	11.6		31	\$1,399.44
	HRP058T5LP6	120U1596	240/1			4.5	13.8			P.O.A
	HRP058T4LP6	120U1701	415/3			4.5	14.0			P.O.A
257362	HRP060T5LP6	120U1606	240/1	80.9	14.1	5.0	14.3		37	\$1,671.10
257363	HRP060T4LP6	120U1726	415/3	80.9	14.1	5.0	14.5		37	\$1,671.10
257364	HRP068T5LP6	120U1621	240/1	93.1	16.2	5.7	16.0		37	\$1,769.05
257365	HLP068T4LP6	120U2014	415/3	93.1	16.2	5.7	16.0		37	\$1,769.05
257366	HLP072T4LC6	120U1756		98.7	17.2	6.0	17.5		37	\$1,834.33
257367	HLP075T4LC6	120U1766		102.7	17.9	6.5	18.4		37	\$2,406.73
257368	HLP081T4LC6	120U1781		110.9	19.3	7.5	20.0		37	\$1,880.02
257369	HCP094T4LC6	120U0601		126.0	21.9	8.3	23.1		44	\$2,788.90
257370	HCP109T4LC6	120U0376		148.8	25.9	9.0	27.0		45	\$3,058.85
257371	HCP120T4LC6	120U0401		162.4	28.3	10.0	29.1		45	\$3,190.73

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Scroll Compressors

Maneurop

Maneurop SM Series R22

Features

- Anti-Vibration mounts supplied

- Charged with Maneurop Mineral Oil 160P

- Rotalock service valves or angle adaptors sold separately



Cat. No.	Model No.	Elect. Supply Volts / Phase	Displacement		Connection Type	Connections		Oil Charge Litres	Weight kg	List Price \$ Exc. GST
			cm ³ /rev	m ³ /hr @ 2900 rpm		Suct.	Disch.			
257302	SM084-4VI	415/3	114.5	19.92	Stub	1 1/8"	3/4"	3.25	72	\$4,117.96
257304	SM090-4VI		120.5	20.97						\$4,216.80
257306	SM100-4VI		127.2	22.13						\$4,216.80
257308	SM110-4VI		144.2	25.09						1 3/8"
257310	SM115-4RI		155.0	26.97	Rotalock	1 3/4"	1 1/4"	3.80	80	\$4,288.66
257312	SM120-4VI		166.6	28.99	Stub	1 3/8"	7/8"	3.25		\$4,420.41
257314	SM125-4RI		166.6	28.99	Rotalock	1 3/4"	1 1/4"	3.80		\$4,420.41
257316	SM148-4VAI		199.0	34.60	Stub	1 3/8"	7/8"	3.60	88	\$5,034.39
257318	SM160-4RAI		216.6	37.69	Rotalock	2 1/4"	1 3/4"	4.00	94	\$6,410.49
257320	SM161-4VAI		216.6	37.69	Stub	1 3/8"	7/8"	3.30	86	\$6,410.53
257324	SM185-4RI		249.9	43.48	Rotalock	2 1/4"	1 3/4"	6.60	103	\$7,039.39

SZ Series R134a, R407C

Features

- Charged with Maneurop Polyester Oil

- Anti-Vibration mounts supplied

- Rotalock service valves or angle adaptors sold separately



Cat. No.	Model No.	Elect. Supply Volts / Phase	Displacement		Connection Type	Connections		Oil Charge Litres	Weight kg	List Price \$ Exc. GST
			cm ³ /rev	m ³ /hr @ 2900 rpm		Suct.	Disch.			
257328	SZ084-4VI	415/3	114.5	19.92	Stub	1 1/8"	3/4"	3.30	64	\$4,496.79
257329	SZ090-4VI		120.5	20.97					65	\$4,604.56
257330	SZ100-4VI		127.2	22.13					73	\$4,604.56
257331	SZ110-4VI		144.2	25.09		1 3/8"	7/8"		73	\$4,683.22
257332	SZ115-4RI		155.0	26.97	Rotalock	1 3/4"	1 1/4"	3.80	78	\$4,683.22
257333	SZ120-4VI		166.6	28.99	Stub	1 3/8"	7/8"	3.30	73	\$4,827.11
257334	SZ125-4RI		166.6	28.99	Rotalock	1 3/4"	1 1/4"	3.80	78	\$4,929.92
257335	SZ148-4VAI		199.0	34.60	Stub	1 3/8"	7/8"	3.60	88	\$5,497.51
257336	SZ160-4RAI		216.6	37.69	Rotalock	2 1/4"	1 3/4"	4.00	90	\$7,000.30
257337	SZ161-4VAI		216.6	37.69	Stub	1 3/8"	7/8"	3.60	88	\$7,000.30
257338	SZ175-4RI		233.0	40.54	Rotalock	2 1/4"	1 3/4"	6.20	100	\$6,430.50
257339	SZ185-4RI		249.9	43.48						\$7,321.04
257341	SZ185-4CAI		249.9	43.48	Stub	1 5/8"	1 1/8"			\$7,321.04
257340	SZ240A4MBI		347.8	60.50	Rotalock	2 1/4"	1 3/4"	8.00	150	\$10,347.01

SM & SZ Compressor Rotalock Valve Selection Guide

Rotalock Size	1 1/4"	1 3/4"		2 1/4"	
Connection ODS	3/4"	7/8"	1 1/8"	1 3/8"	1 5/8"
Valve Cat. No.	197265	197271	197273	197207	197279
List Price \$ Exc. GST	\$122.22	\$139.99	\$212.14	\$117.76	\$470.91
Seal Cat. No.	197285	197287	197287	197289	197289
List Price \$ Exc. GST	\$10.26	\$10.26	\$10.26	\$10.26	\$10.26
SM115	D		S		
SM125	D		S		
SM160		D		S	
SM175		D		S	
SM185		D		S	
SZ115	D		S		
SZ125	D		S		
SZ160		D		S	
SZ175		D		S	
SZ185		D		S	
SZ240			D		S



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Semi-Hermetic Compressors



Tecumseh

SH Series

The Tecumseh SH series of semi-hermetic compressors are designed for HFC refrigerants.

Cat. No.	Model No.	No of Cyl	Volts Phase	Nom HP	Displ. m ³ /hr	Connections		Oil Charge: l	MOC: Amps	Locked Rotor: Amps	Weight: kg	Dimensions: mm			Bolt Holes	CCH: W	Rubber Mount: mm	List Price \$ Exc. GST
						Suct.	Disch.					L	W	H				
253050	SH4576Z	4	415/3	6	21.18	1 1/8"	3/4"	1.6	11.6	63.1	79	449	315	334	312 x 246	50	50 x 50	\$5,048.06
253052	SH4590Z	4		7	24.69		7/8"		12.7									\$5,408.67
253054	SH4610Z	4		8	28.02	1 3/8"	17.6		87.3	336								\$5,769.22
253056	SH4612Z	4		9	32.66		20							\$6,039.70				
253058	SH4615Z	4		12	41.32		2.9	22.4	59.1					120				550
253060	SH4620Z	4		15	51.50	1 5/8"		32.4	74.8	126	\$8,293.26							



Accessories

Cat. No.	Part No.	Description	Suits Model No.	List Price \$ Exc. GST
272204	7590200	Crankcase Heater	All SH Model	\$285.46
272231	7590100	Capacity Control Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z	\$991.03
272232	7590101	Capacity Control Kit	SH4615Z, SH4620Z	\$1,022.30
272235	7590102	Unloaded Start Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z	\$991.03
272236	7590103	Unloaded Start Kit	SH4615Z, SH4620Z	\$1,022.30
310281	7590206	Head Cooling Fan Assembly	SH4576Z, SH4591Z, SH4610Z, SH4612Z	\$1,181.27
310282	7590207	Head Cooling Fan Assembly	SH4615Z, SH4620Z	\$1,436.30



Spare Parts

Cat. No.	Part No.	Description	Suits Model No.	List Price \$ Exc. GST
272191	7380740	Gasket Kit	SH4576Z, SH4610Z	\$269.53
272192	7380741	Gasket Kit	SH4591Z, SH4612Z	\$269.53
272193	7380742	Gasket Kit	SH4615Z	\$482.07
272194	7380743	Gasket Kit	SH4620Z	\$482.07
272211	7309100	Valve Plate Kit	SH4576Z, SH4610Z	\$410.89
272212	7309101	Valve Plate Kit	SH4591Z	\$410.89
272213	7309102	Valve Plate Kit	SH4612Z	\$410.89
272214	7309103	Valve Plate Kit	SH4615Z	\$782.75
272215	7309104	Valve Plate Kit	SH4620Z	\$782.75
272221	7380710	Oil Sight Glass Kit	All SH Model	\$170.06
272222	7590204	Kriwan Motor Protection Module	All SH Model	\$428.98
594081	7309120	Compressor Mount Rubber Kit of 4	SH4576Z, SH4591Z, SH4610Z, SH4612Z	\$221.50
594082	7309121	Compressor Mount Rubber Kit of 4	SH4615Z, SH4620Z	\$314.45
272251	7590202	Electrical Connections Plate Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z	\$242.95
272252	7590203	Electrical Connections Plate Kit	SH4615Z, SH4620Z	\$641.41



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Semi-Hermetic Compressors



Bitzer

Ecoline Series 3 Phase 415V 50Hz

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valves, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP65, and crankcase heater fitted as standard. Integrated varicool option.

All cylinder models supplied with one cylinder head ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.		Maximum Operating		L	W	H		
250108	J04-336	2KES-05Y	CE1	2	415/3	0.5	4.06	5/8"	1 1/2"	1.0	2.8	43	343	220	273	N	\$2,641.61
250109	J04-337	2JES-07Y	CE1	2	415/3	0.7	5.21	5/8"	1 1/2"	1.0	3.7	43	343	220	273	N	\$2,688.39
250110	J04-338	2HES-1Y	CE1	2	415/3	1	6.51	5/8"	1 1/2"	1.0	3.8	44	343	220	273	N	\$2,802.62
250111	J04-339	2HES-2Y	CE1	2	415/3	2	6.51	5/8"	1 1/2"	1.0	4.5	45	343	220	273	N	\$2,856.89
250112	J04-340	2GES-2Y	CE1	2	415/3	2	7.58	5/8"	1 1/2"	1.0	5.0	45	343	220	273	N	\$2,967.36
250113	J04-347	2FES-2Y	CE1	2	415/3	2	9.54	5/8"	1 1/2"	1.0	5.3	45	343	220	273	N	\$2,978.38
250114	J04-348	2FES-3Y	CE1	2	415/3	3	9.54	5/8"	1 1/2"	1.0	6.1	47	343	220	273	N	\$3,232.96
250115	J04-341	2EES-2Y	CE2	2	415/3	2	11.4	7/8"	5/8"	1.5	6.0	68	398	259	307	N	\$4,028.87
250116	J04-342	2EES-3Y	CE2	2	415/3	3	11.4	7/8"	5/8"	1.5	7.5	71	398	259	307	N	\$4,498.77
250117	J04-343	2DES-2Y	CE2	2	415/3	2	13.4	7/8"	5/8"	1.5	7.5	68	398	259	307	N	\$4,341.51
250118	J04-344	2DES-3Y	CE2	2	415/3	3	13.4	7/8"	5/8"	1.5	8.6	71	398	259	307	N	\$4,554.93
250119	J04-345	2CES-3Y	CE2	2	415/3	3	16.2	7/8"	5/8"	1.5	9.1	70	398	259	307	N	\$4,670.99
250120	J04-346	2CES-4Y	CE2	2	415/3	4	16.2	7/8"	5/8"	1.5	10.0	70	398	259	307	N	\$4,854.47
250121	J04-351	4FES-3Y	CE3	4	415/3	3	18.1	7/8"	5/8"	2.0	9.5	82	432	309	347	50%	\$5,079.14
250122	J04-352	4FES-5Y	CE3	4	415/3	5	18.1	7/8"	5/8"	2.0	10.8	86	432	309	347	50%	\$5,410.52
250123	J04-353	4EES-4Y	CE3	4	415/3	4	22.7	1 1/8"	5/8"	2.0	12.2	84	432	309	352	50%	\$5,198.96
250124	J04-354	4EES-6Y	CE3	4	415/3	6	22.7	1 1/8"	5/8"	2.0	13.6	86	432	309	352	50%	\$5,938.45
250125	J04-355	4DES-5Y	CE3	4	415/3	5	26.8	1 1/8"	7/8"	2.0	14.5	86	432	309	352	50%	\$6,260.45
250126	J04-356	4DES-7Y	CE3	4	415/3	7	26.8	1 1/8"	7/8"	2.0	16.5	89	457	309	352	50%	\$6,121.93
250127	J04-357	4CES-6Y	CE3	4	415/3	6	32.5	1 1/8"	7/8"	2.0	17.7	91	457	309	352	50%	\$7,123.53
250128	J04-358	4CES-9Y	CE3	4	415/3	9	32.5	1 1/8"	7/8"	2.0	20.2	91	457	309	352	50%	\$7,696.38

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Ecoline Series Single Phase 240V 50Hz

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valves, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), 1 x start relay, start & run capacitors, terminal box enclosure Class IP65, and crankcase heater fitted as standard. Integrated varicool option.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	List Price \$ Exc. GST
250129	J04-461	2HES-2YE	CE1	2	240/1	\$3,595.98
250130	J04-462	2GES-2YE	CE1	2	240/1	\$3,595.98
250131	J04-463	2FES-2YE	CE1	2	240/1	\$3,728.56

Accessories

Cat. No.	Part No.	Description	Suits Series	List Price \$ Exc. GST
272170	347019-01	Motor Protection Device SE-B1 (Replaces INT69VS7-11)		\$480.89
272178	347023-03	Discharge Gas Temperature Control Device (sensor)		\$509.20
251212	347600-01	Capacity Control Solenoid Valve Assembly		\$536.35
272188	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz		\$233.72
310270	343021-01	Cooling Fan Assembly	CE1	\$1,065.67
310271	343021-12		CE2	\$876.87
310272	343021-19		CE3	\$876.87



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Semi-Hermetic Compressors



Bitzer

Ecoline Series 3 Phase 415V 50Hz - Motor version 1 & motor version 2

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valve, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP65, and crankcase heater fitted as standard.

All cylinder models supplied with one cylinder head ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps Maximum Operating	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.				L	W	H		
250132	J04-366	4VES-7Y	CE4	4	415/3	7	34.7	1 1/8"	7/8"	2.6	16.6	129	633	303	385	50%	\$7,868.42
250133	J04-361	4VES-10Y	CE4	4	415/3	10	34.7	1 1/8"	7/8"	2.6	19.9	139	633	303	385	50%	\$8,321.76
250134	J04-367	4TES-9Y	CE4	4	415/3	9	41.3	1 3/8"	1 1/8"	2.6	19.9	134	633	303	385	50%	\$8,727.36
250135	J04-362	4TES-12Y	CE4	4	415/3	12	41.3	1 3/8"	1 1/8"	2.6	25.1	141	633	303	385	50%	\$8,798.99
250136	J04-368	4PES-12Y	CE4	4	415/3	12	48.5	1 3/8"	1 1/8"	2.6	22.7	139	633	303	385	50%	\$9,192.70
250137	J04-364	4PES-15Y	CE4	4	415/3	15	48.5	1 5/8"	1 1/8"	2.6	28.2	147	658	303	385	50%	\$9,264.31
250138	J04-369	4NES-14Y	CE4	4	415/3	14	56.2	1 3/8"	1 1/8"	2.6	26.6	141	633	303	385	50%	\$10,206.82
250139	J04-365	4NES-20Y	CE4	4	415/3	20	56.2	1 5/8"	1 1/8"	2.6	33.2	150	658	303	385	50%	\$10,302.28

Ecoline Series 3 Phase 415V 50Hz – R134a small motor

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valves, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP65, and crankcase heater fitted as standard.

All cylinder models supplied with one cylinder head ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps Maximum Operating	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.				L	W	H		
250140	J04-322	4VES-6Y	CE4	4	415/3	6	34.7	1 1/8"	7/8"	2.6	9.4	129	633	303	385	50%	\$7,868.37
250141	J04-323	4TES-8Y	CE4	4	415/3	8	41.3	1 3/8"	1 1/8"	2.6	11.4	134	633	303	385	50%	\$8,727.36
250142	J04-324	4PES-10Y	CE4	4	415/3	10	48.5	1 3/8"	1 1/8"	2.6	12.9	139	633	303	385	50%	\$9,192.70
250143	J04-325	4NES-12Y	CE4	4	415/3	12	56.2	1 3/8"	1 1/8"	2.6	14.9	141	633	303	385	50%	\$10,206.82

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
272170	347019-01	Motor Protection Device SE-B1 (Replaces INT69VS7-11)	\$480.89
150080	347334-03	OLC-K1 Electronic Oil Monitoring Control	\$479.32
272178	347023-03	Discharge Gas Temperature Control Device (sensor)	\$509.20
251212	347600-01	Capacity Control Solenoid Valve Assembly	\$536.35
272188	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz	\$233.72
272184	302355-12	Capacity Control Head - Complete	\$1,415.74
310273	343021-13	Cooling Fan Assembly	\$876.87



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Semi-Hermetic Compressors



Bitzer

Ecoline Series 3 Phase 415V 50Hz - motor version 1 & 2

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valve, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP65, crankcase heater fitted, oil pressure switch MP54, differential pressure relief valve, part winding and oil pump as standard. All 4 and 6 cylinder models supplied with one cylinder head ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps Maximum Operating	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.				L	W	H		
250144	J04-371	4JE-15Y	BE5	4	415/3	15	63.5	1 5/8"	1 1/8"	4.0	30.8	190	688	456	452	50%	\$11,208.61
250145	J04-372	4JE-22Y	BE5	4	415/3	22	63.5	1 5/8"	1 1/8"	4.0	37.2	190	688	456	452	50%	\$11,756.27
250146	J04-373	4HE-18Y	BE5	4	415/3	18	73.7	1 5/8"	1 1/8"	4.0	36.7	190	688	456	452	50%	\$11,244.12
250147	J04-374	4HE-25Y	BE5	4	415/3	25	73.7	2 1/8"	1 1/8"	4.0	44.0	194	737	456	452	50%	\$12,093.88
250148	J04-375	4GE-23Y	BE5	4	415/3	23	84.6	2 1/8"	1 1/8"	4.5	43.9	192	706	456	452	50%	\$12,629.26
250149	J04-376	4GE-30Y	BE5	4	415/3	30	84.6	2 1/8"	1 1/8"	4.5	51.2	206	737	456	452	50%	\$13,164.75
250150	J04-377	4FE-28Y	BE5	4	415/3	28	101.8	2 1/8"	1 1/8"	4.5	52.8	207	737	456	452	50%	\$13,612.93
250151	J04-335	4FE-35Y	BE5	4	415/3	35	101.8	2 1/8"	1 1/8"	4.5	62.1	207	737	456	452	50%	\$14,081.89
250152	J04-381	6JE-25Y	BE6	6	415/3	25	95.3	2 1/8"	1 3/8"	4.75	46.4	228	766	503	447	33% or 66%	\$14,549.85
250153	J04-382	6JE-33Y	BE6	6	415/3	33	95.3	2 1/8"	1 3/8"	4.75	53.2	231	797	503	447	33% or 66%	\$15,795.31
250154	J04-383	6HE-28Y	BE6	6	415/3	28	110.5	2 1/8"	1 3/8"	4.75	53.2	228	766	503	447	33% or 66%	\$15,783.68
250155	J04-384	6HE-35Y	BE6	6	415/3	35	110.5	2 1/8"	1 3/8"	4.75	64.4	235	797	503	447	33% or 66%	\$16,039.72
250156	J04-385	6GE-34Y	BE6	6	415/3	34	126.8	2 1/8"	1 3/8"	4.75	65.5	228	766	503	447	33% or 66%	\$17,785.77
250157	J04-386	6GE-40Y	BE6	6	415/3	40	126.8	2 1/8"	1 3/8"	4.75	73.9	238	797	503	447	33% or 66%	\$18,041.83
250158	J04-387	6FE-44Y	BE6	6	415/3	44	151.6	2 1/8"	1 5/8"	4.75	83.2	241	790	503	447	33% or 66%	\$21,068.21
250159	J04-334	6FE-50Y	BE6	6	415/3	50	151.6	2 1/8"	1 5/8"	4.75	96.2	241	790	503	447	33% or 66%	\$21,929.54

Ecoline Series 3 Phase 415V 50Hz - motor version 3

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valves, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP65, crankcase heater fitted, differential pressure relief valve, part winding, oil pump and Delta PII oil pressure switch as standard.

All 4 and 6 cylinder models supplied with one cylinder head ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps Maximum Operating	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.				L	W	H		
250160	J04-326	4JE-13Y	BE5	4	415/3	13	63.5	1 5/8"	1 1/8"	4.0	18.8	179	688	456	452	50%	\$11,208.61
250161	J04-327	4HE-15Y	BE5	4	415/3	15	73.7	1 5/8"	1 1/8"	4.0	21.4	183	688	456	452	50%	\$11,244.12
250162	J04-328	4GE-20Y	BE5	4	415/3	20	84.6	2 1/8"	1 1/8"	4.5	24.6	192	706	456	452	50%	\$12,629.26
250163	J04-329	4FE-25Y	BE5	4	415/3	25	101.8	2 1/8"	1 1/8"	4.5	30.5	196	737	456	452	50%	\$13,612.93
250164	J04-330	6JE-22Y	BE6	6	415/3	22	95.3	2 1/8"	1 3/8"	4.75	26.6	213	766	503	447	33% or 66%	\$14,549.85
250165	J04-331	6HE-25Y	BE6	6	415/3	25	110.5	2 1/8"	1 3/8"	4.75	31.3	224	766	503	447	33% or 66%	\$15,783.68
250166	J04-332	6GE-30Y	BE6	6	415/3	30	126.8	2 1/8"	1 3/8"	4.75	38.0	228	766	503	447	33% or 66%	\$17,785.77
250167	J04-333	6FE-40Y	BE6	6	415/3	40	151.6	2 1/8"	1 5/8"	4.75	48.5	238	790	503	447	33% or 66%	\$21,068.21

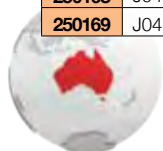
Accessories

Cat. No.	Part No.	Description	Suits Series	List Price \$ Exc. GST
272170	347019-01	Motor Protection Device SE-B1 (Replaces INT69VS7-11)		\$480.89
272175	347028-01	Motor Protection Device SE-B2 (Replaces INT69VS)		\$565.77
150082	347319-11	Delta PII Oil Pressure Switch		\$743.76
272178	347023-03	Discharge Gas Temperature Control Device (sensor)		\$509.20
251212	347600-01	Capacity Control Solenoid Valve Assembly	4VES-4NES	\$536.35
272180	347600-03	Capacity Control Solenoid Valve Assembly	4JE-6FE	\$670.43
272188	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz		\$233.72
272184	302355-12	Capacity Control Head - Complete	4VES-4NES	\$1,415.74
272185	302355-20	Capacity Control Head - Complete	4JE-6FE	\$1,357.71
310275	343021-04	Cooling Fan Assembly	4JE-4FE	\$876.87
310276	343021-05	Cooling Fan Assembly	6JE-6FE	\$876.87

Ecoline Series 3 Phase 415V 50Hz – Industrial Compressors

Inclusions: Compressor accessible hermetic (internal motor), oil charge BSE-32 ester oil, 1 x suction and 1 x discharge shut off valves, 4 x vibration dampers, built in thermistor (motor temperature sensors complete with electronic control unit), terminal box enclosure class IP54, crankcase heater fitted, differential pressure relief valve, part Winding and oil pump as standard. All 8 cylinder models supplied with two cylinder heads with built in pulsation mufflers and two cylinder heads ready for capacity control solenoid valve and coil.

Cat. No.	Part No.	Model No.	Series	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current: Amps Maximum Operating	Weight kg	Dimensions: mm			Optional Capacity Control	List Price \$ Exc. GST
								Suct.	Disch.				L	W	H		
250168	J04-391	8GE-60Y	CE8	8	415/3	60	185	3 1/8"	1 5/8"	5.0	113.0	350	886	485	538	50% or 75%	\$33,686.93
250169	J04-392	8FE-70Y	CE8	8	415/3	70	221	3 1/8"	2 1/8"	5.0	139.0	374	902	485	538	50% or 75%	\$36,413.40



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Semi-Hermetic Compressors

Copeland®

DWM Copeland Standard series



The Copeland standard K, L and S-series compressors have a range from 0.5 to 70hp for use with R404A, R507, R407C, R134a and R22 refrigerants, offering broad application flexibility. Compressors are charged with Polyolester oil and are supplied with an internal oil pump, shut off valves and mounting kits along with non-active capacity control on 4, 6 & 8 cylinder models. Separate accessories include oil switches, crankcase heaters, capacity control kits, head cooling fans and single phase electrics kits.

Cat. No.	Model No.	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current - Amps		Weight kg	Dimensions mm				Optional Capacity Control	Oil Switch Req.	List Price \$ Exc. GST		
						Suct.	Disch.		Max. Operating	Locked Rotor		L	W	H	Bolt Holes					
K Series																				
256184	DKJP-10X-CAG	2	240/1	1	5.1	5 ⁵ / ₈ "	1 ¹ / ₂ "	0.7	7.1	32.4	41	365	235	280	208 x 162	N/A	N	\$3,466.03		
256185	DKJP-10X-EWL		415/3						3.2	15.5								\$3,700.32		
256186	DKSJP-10X-CAG		240/1	1.5	6.3				6.7	32.4	42							\$3,715.74		
256187	DKSJP-15X-CAG								9.0	43.0								\$3,774.09		
256188	DKSJP-15X-EWL		415/3						3.4	20.4	\$3,774.09									
256189	DKLP-15X-CAG		240/1		7.4				8.4	43.0	41							\$3,425.75		
256190	DKLP-15X-EWL								3.4	20.4								\$3,931.55		
256191	DKSLP-20X-EWL		415/3	2	9.1				4.7	20.4	42							\$3,576.12		
L Series																				
256200	DLEP-20X-EWL	2	415/3	2	9.9	7 ⁷ / ₈ "	5 ⁵ / ₈ "	2.0	5.7	37.6	84	470	330	385	295 x 279	N/A	N	\$4,591.29		
256192	DLFP-20X-EWL				12.9				4.5		86							\$5,134.33		
256201	DLFP-30X-EWL			3	18.2	1 ¹ / ₈ "			7.2	53.0	91							\$5,182.11		
256193	DLLP-30X-EWL								7.3	91	\$5,220.50									
256202	DLLP-40X-EWL			4	22.5	1 ¹ / ₈ "			9.5	68.5	93							\$5,493.31		
256194	DLSGP-40X-EWL								8.9	82	\$5,727.21									
S Series																				
256196	D2SA-45X-EWL	2	415/3	4.5	22.4	1 ¹ / ₈ "	7 ⁷ / ₈ "	2.4	11.4	68.5	95	560	330	395	295 x 279	N/A	Y	\$5,837.24		
256203	D2SA-55X-EWL			5.5	26.8				13.1	67.3								96	\$6,572.88	
256197	D2SC-55X-EWL			6.5	26.9				85.3	97	\$6,954.67									
256204	D2SC-65X-EWL				31.2						16.2							\$7,820.40		
256198	D2SK-65X-EWL				49.9				16.4	97	\$7,913.42									
256199	D3SA-75X-AWM	3		7.5	32.2	1 ³ / ₈ "	1 ¹ / ₈ "	3.7	17.9	82.0	174	655	370	480	381 x 305	N/A	Y	\$8,076.88		
256205	D3SC-75X-AWM			10	38.0				18.7	106.0								\$8,167.80		
256206	D3SC-100X-AWM				49.9				1 ⁵ / ₈ "	21.6	109.0							178	\$8,502.51	
256207	D3SS-100X-AWM									26.0	125.0	177						\$9,173.90		
256208	D3SS-150X-AWM			15	30.2				125.0	177	\$9,683.10									
256220	D8SH-370X-AWM	8	37	151.0	2 ⁵ / ₈ "	1 ⁵ / ₈ "	7.7	70.9	365.0	335	835	475	610	457 x 305	25%	Y	\$25,092.65			
256221	D8SH-500X-AWM		50					95.2	458.0	347							590	\$27,724.59		
256222	D8SJ-450X-AWM		45	181.0	3 ¹ / ₈ "			90.8	500.0	366		625	670				25%	\$31,763.78		
256224	D8SJ-600X-AWM		60					102.0		367							25% or 50%	\$32,168.51		
256225	D8SK-700X-AWM		70					210.0		2 ¹ / ₈ "							127.0	574.0	376	904

Standard ordering package

- Compressor
- Oil Switch
- Crankcase Heater
- Electrics Kit (single phase only)

Actrol Sales & Application Engineers are able to provide selection advice for replacement applications.



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Section 4

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Semi-Hermetic Compressors

Copeland®

DWM Copeland Discus series



The Copeland Discus series of compressors incorporate the double walled Discus valve plate. The special design of the valve disk reduces clearance volume and may provide a considerable increase in performance, particularly in the low temperature range. The Discus series have a range from 0.5 to 70hp for use with R404A, R507, R407C, R134a and R22 refrigerants, offering broad application flexibility. Compressors are charged with Polyolester oil and are supplied with an internal oil pump, shut off valves and mounting kits along with non-active capacity control on 4, 6 & 8 cylinder models. Separate accessories include oil switches, crankcase heaters, capacity control kits and head cooling fans.

Cat. No.	Model No.	No of Cyls.	Elect. Supply Volts / Phase	Nom. HP	Displ. m ³ /hr	Connections		Oil Charge: l	Current - Amps		Weight kg	Dimensions mm				Opt. Capacity Cont.	Oil Switch Req.	List Price \$ Exc. GST
						Suct.	Disch.		Max. Operating	Locked Rotor		L	W	H	Bolt Holes			
256502	D2DD-050X-AWM	2	415/3	5	19.3	1 3/8"	7/8"	2.3	10.3	55.0	141	590	330	470	295 x 279	N/A	Y	\$7,620.79
256504	D2DL-040X-AWM			4	23.7		10.0		140		\$7,606.70							
256506	D2DL-075X-AWM			7.5	1 1/8"		13.0		70.0	145	\$7,774.33							
256508	D2DB-050X-AWM			5	28.0		7/8"		11.5	55.0	140							\$7,693.66
256510	D2DB-075X-AWM			7.5			1 1/8"		15.4	70.0	145							\$8,681.26
256512	D3DA5-050X-AWM	3		5	32.2		7/8"	3.7	12.0	55.0	157	655	370	480	381 x 305			\$8,809.91
256514	D3DA5-075X-AWM			7.5	1 1/8"	17.5	106.0		163	680	\$8,977.45							
256516	D3DC5-075X-AWM					38.0	14.0		70.0	161	655	\$9,849.16						
256518	D3DC5-100X-AWM						10		20.5	121.0	175	680						\$9,677.44
256520	D3DS5-100X-AWM			49.9		19.5			173		\$11,714.49							
256522	D3DS5-150X-AWM					15	1 5/8"		29.0	129.0	178	710	490	\$11,746.21				
256544	D8DL-370X-AWM			8	37	151.0	2 5/8"	1 5/8"	7.7	58.5	365.0	344	835	475	850	457 x 305	25%	\$28,957.60
256546	D8DT-450X-AWM	45			181.0	3 1/8"	69.0			458.0	356	\$37,167.09						
256548	D8DH-500X-AWM	50			151.0	2 5/8"	88.2				351	590		670	25% or 50%	\$32,486.52		
256550	D8DJ-600X-AWM	60			181.0	3 1/8"	104.0			500.0	352					\$38,315.00		

Standard ordering package

- Compressor
- Oil Switch
- Crankcase Heater
- Electrics Kit (single phase only)

Actrol Sales & Application Engineers are able to provide selection advice for replacement applications.



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Semi-Hermetic Compressors

Copeland®

DWM Copeland

Accessories - Oil Pressure Switches

The monitoring of the force feed lubrication system with an oil pressure control is compulsory for Discus and S – Series compressors.



Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
150062	3164918	OPS2 Oil Pressure Switch	All Copeland Semi-Hermetic Compressors with Oil Pumps	\$772.90
150063	3168329	OPS2 Oil Pressure Switch and Sensor Kit		\$611.38

Crankcase Heaters

In many cases it is necessary to heat the crankcase to avoid excessive refrigerant dissolving in the oil during standstill.

Cat. No.	Part No.	Description	Watts	Suits Model	List Price \$ Exc. GST
256239	2948773	Internal Crankcase Heater	27	DK	\$262.91
256240	2834369		70	DL,DLHA,D2S	\$279.98
256241	2834198			D2D, D3S, D3D	\$279.98
256242	6610169		100	D4S, D6SA, D6SF, D6SH, D6SL, D4D, D6DH, D6DL	\$287.26
256243	2832205		200	D6ST, D6SJ, D6SK, D6SU, D6DJ, D6DT, D8S, D8D	\$391.97

Single Phase Electrics Kits

It is mandatory to fit new electrics kits when installing new single phase compressors.

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
315010	2972030	Single Phase Electrics Kit	DKJ, DKSJ10X	\$710.05
315012	3165080		DKSJ15X, DKL15X	\$681.01

Capacity Control

Capacity control kits consist of a solenoid valve which is fitted to suitable cylinder heads on 4, 6 & 8 cylinder compressors which provides capacity control and “unloaded” starts.



Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
270160	2835339	Capacity Control Kit Includes 1 each of Solenoid Valve, Coil & Gasket	All Copeland Semi-Hermetic with Capacity Control Heads Fitted	\$655.64
123285	ASC2	Replacement Solenoid Coil		\$105.13

Head Cooling Fans

Head cooling fans are used to provide additional cooling.

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
310106	2998245	Head Cooling Fan Less Brackets		\$971.21
310109	3117229	Head Cooling Fan Bracket Kit	D2S	\$172.90
	2988119		D2D	P.O.A
310111	2988095		D3S, D3D	\$149.82
310113	2986260		D4S	\$172.90
	2986248		D4D	P.O.A
310115	2987616		D6SA, D6SF, D6SH, D6SL, D6ST	\$201.70
	2830710		D6SJ	P.O.A
	2987638		D6D	P.O.A
310117	2986282		D8SH	\$230.52
	2986293		D8SJ, D8SK	P.O.A
	2987649		D8D	P.O.A

Motor Protection Module

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
315002	3199825	INT69-2 Motor Protection Module	Semi-hermetic compressors, DK, DL, D2, D3, D9 series	\$497.32
315004	3133638		Semi-hermetic compressors, D4, D6, D8 series	\$759.79



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Semi-Hermetic Compressors

Copeland®

Copeland Stream Series

The Stream semi-hermetic compressor range comprises innovations such as multi refrigerant capability and CoreSense Diagnostics for advanced protection and preventive maintenance. The standard stream range is suitable for applications using inverter technology for capacity modulation. Sound shell technology makes Stream the quietest compressor on the market for sound critical applications.



Features

- Motor Temp Protection
- Oil Protection
- Missing Phase or Single Phasing Protection
- Low Voltage Protection
- Voltage Imbalance Protection
- Discharge Temperature Protection
- Locked Rotor Protection
- Compressor Power Consumption Measurement
- Modbus® Communication to system controller
- Compressor Asset & Runtime information
- Failure Alarm History
- Status LEDs to indicate the warning, trip and lockout alarms
- Crank Case Heater Control

Cat. No.	Model No.	No of Cyls	Elect. Supply: Volts / Phase	Nom. HP	Displ: m ³ /h	Nominal Capacity: kW			Weight: kg	Footprint: mm	List Price \$ Exc. GST
						Med Temp R404A	Med Temp R134a	Low Temp R404A			
256570	4MF1-13X-AWMD/D	4	415/3	13	62	33,4	18,2	11,4	177	381 x 305	\$13,077.15
256571	4MA1-22X-AWMD/D	4	415/3	22	62	33,6	19,1	10,8	178	381 x 305	\$13,855.21
256572	4ML1-15X-AWMD/D	4	415/3	15	71	38,7	22,1	13,2	180	381 x 305	\$13,108.94
256573	4MH1-25X-AWMD/D	4	415/3	25	71	38,8	21,4	12,5	187	381 x 305	\$14,148.05
256574	4MM1-20X-AWMD/D	4	415/3	20	78	42,6	24,7	14,7	182	381 x 305	\$14,507.58
256575	4MI1-30X-AWMD/D	4	415/3	30	78	42,8	23,9	13,9	188	381 x 305	\$14,658.66
256576	4MT1-22X-AWMD/D	4	415/3	22	88	47,8	27,7	16,5	183	381 x 305	\$14,774.83
256577	4MJ1-33X-AWMD/D	4	415/3	33	88	48,0	26,8	16,0	190	381 x 305	\$15,389.75
256578	4MU1-25X-AWMD/D	4	415/3	25	99	54,2	31,2	18,7	186	381 x 305	\$15,917.77
256579	4MK1-35X-AWMD/D	4	415/3	35	99	54,4	30,1	17,7	202	381 x 305	\$17,295.84
256580	6MM1-30X-AWMD/D	6	415/3	30	120	61,8	36,9	21,6	215	381 x 305	\$18,791.24
256581	6MI1-40X-AWMD/D	6	415/3	40	120	64,2	35,3	20,3	219	381 x 305	\$19,528.41
256582	6MT1-35X-AWMD/D	6	415/3	35	135	70,4	41,3	25,1	221	381 x 305	\$19,660.60
256583	6MJ1-45X-AWMD/D	6	415/3	45	135	72,4	40,4	23,6	223	381 x 305	\$20,218.83
256584	6MU1-40X-AWMD/D	6	415/3	40	153	79,8	46,3	28,4	225	381 x 305	\$23,350.09
256585	6MK1-50X-AWMD/D	6	415/3	50	153	82,1	45,3	26,6	230	381 x 305	\$24,735.24

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Open Drive Compressors



Bitzer

Belt Driven Nos. 1 to 6

Inclusions: Compressor open drive belt driven, 1 x flywheel, oil charge B5 oil, 1 x suction and 1 x discharge shut off valves.

Cat. No.	Part No.	Model No.	Flywheel Incl.	List Price \$ Exc. GST
260009	J02-003	No 1	Y	\$1,624.07
260010	J02-004	No 2	Y	\$1,877.28
260011	J02-005	No 3	Y	\$2,253.98
260012	J02-006	No 4	Y	\$3,186.48
260013	J02-007	No 5	Y	\$5,137.88
260014	J02-008	No 6	Y	\$9,065.34

Belt Driven Nos. 2T.2 to 6F.2

Inclusions: Compressor open drive belt driven, 1 x flywheel, oil charge B5 oil, 1 x suction and 1 x discharge shut off valves, crankcase heater, oil pressure switch MP54.

Note: Model No. 6F.2 is direct drive only – flywheel is not included

Cat. No.	Part No.	Model No.	Flywheel Incl.	List Price \$ Exc. GST
260015	J02-002	2T.2S	Y	\$7,169.53
260016	J02-001	2N.2S	Y	\$7,628.18
260017	J03-005	4T.2S	Y	\$9,118.87
260018	J03-004	4P.2S	Y	\$10,538.59
260019	J03-003	4N.2S	Y	\$10,636.84
260020	J03-002	4H.2S	Y	\$15,573.12
260021	J03-001	4G.2S	Y	\$15,917.09
260022	J03-008	6H.2S	Y	\$19,166.00
260023	J03-007	6G.2S	Y	\$19,777.59
260024	J03-006	6F.2	N	\$21,030.30



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Receiver Units

Copeland®

Copeland HLR Series Digital Receiver Units

Flexibility for Optimum Building Integration

HLR Digital Receiver Units combine the concepts of remote condenser and digital modulation for maximized installation flexibility:

- Remote condensers can be selected to meet environmental constraints related to space, noise and energy efficiency
- Copeland Scroll Digital™ technology offers continuous capacity modulation for precise temperature control

The Digital Receiver Unit can be combined with various condenser solutions:

- Condenser outdoor installation reducing indoor noise levels and maximizing indoor vending space
- Selection of low speed and low noise condenser fans to comply with outdoor noise regulations
- Generous condenser sizing for high system efficiency
- Use of water cooled condensers

The latest Copeland Scroll Digital™ compressor technology offers significantly higher efficiency than traditional piston compressors in the target application. Digital Scroll™ continuous capacity modulation optimises system operation under varying load conditions. The resulting precise suction pressure control raises overall system efficiency.

Simple System Design and Installation

HLR Digital Receiver Units are fully equipped for quick installation and maintenance, saving time and costs. The units include:

- Crank case heater
- HP/LP Switch
- Liquid line with filter drier and sight glass
- Oil separator on tandem compressor units
- Electrical box with overload protection, contactor and fuse
- EC2-552 controller with TCP/IP network interface, continuous suction pressure control and continuous condensing pressure control

The wide Digital Scroll™ continuous capacity modulation range, single compressor units 10%-100% and tandem compressor units 5%-100%, avoids the need for multiple condensing units, keeping overall system design simple.

Single Compressor Units

Cat. No.	Model No.	Elect. Supply Volts / Phase	Nom. HP	R404A Cap: kW		Connections				Dimensions: mm			Rec. Vol: l	Weight: kg	List Price \$ Exc. GST
				-25°C	-5°C	Suct.	Dis.	Rec. Inlet	Rec. Outlet	Height	Depth	Width			
255170	HLR-13-ZBD30KCE-TFD	380-420/3	4	3.36	8.37	7/8"	5/8"	5/8"	5/8"	710	400	690	13	72	\$11,394.19
255171	HLR-13-ZBD45KCE-TFD		6	4.49	12.45	7/8"	5/8"	5/8"	5/8"	710	400	690	13	75	\$11,539.20
255172	HLR-13-ZBD58KCE-TFD		7.5	5.37	16.25	1 1/8"	3/4"	5/8"	5/8"	710	400	725	13	84	\$12,706.22
255173	HLR-13-ZBD76KCE-TFD		10	8.05	21.04	1 3/8"	3/4"	5/8"	5/8"	710	400	725	13	90	\$14,160.50

Tandem Compressor Units

Cat. No.	Model No.	Elect. Supply Volts / Phase	Nom. HP	R404A Cap: kW		Connections				Dimensions: mm			Rec. Vol: l	Weight: kg	List Price \$ Exc. GST
				-25°C	-5°C	Suct.	Dis.	Rec. Inlet	Rec. Outlet	Height	Depth	Width			
255180	HLR-31-ZBDT60KCE-TFD	380-420/3	8	6.76	16.85	1 3/8"	7/8"	5/8"	5/8"	910	480	970	31	130	\$16,525.02
255181	HLR-31-ZBDT90KCE-TFD		12	9.22	24.05	1 3/8"	7/8"	5/8"	5/8"	910	480	970	31	138	\$17,263.90
255182	HLR-31-ZBDT116KCE-TFD		15	10.06	32.04	1 5/8"	1 1/8"	7/8"	7/8"	870	480	970	31	165	\$20,992.90
255183	HLR-31-ZBDT152KCE-TFD		20	16.15	42.09	1 5/8"	1 3/8"	7/8"	7/8"	870	480	970	31	175	\$20,026.13

Capacity data based on: -5°C Suction Gas Temperature, 45°C Saturated Condensing Temperature, 20°C Return Gas Temperature, 0K Subcooling
-25°C Suction Gas Temperature, 45°C Saturated Condensing Temperature, 10K Superheat, 0K Subcooling



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Receiver Units



Bitzer

Reciprocating Accessible Remote Units

Bitzer remote units are supplied standard with the following inclusions:

Bitzer compressor, liquid receiver, dual pressure control with flexible lines mounted on a common frame assembly which is prepared for additional vessel mounting.



Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251460	U07-045	2KES-05Y-R	CE1	\$4,533.82
251461	U07-046	2JES-07Y-R	CE1	\$4,692.44
251462	U07-037	2HES-1Y-R	CE1	\$4,772.39
251463	U07-063	2HES-2Y-R	CE1	\$4,864.44
251464	U07-038	2GES-2Y-R	CE1	\$4,917.05
251465	U07-039	2FES-2Y-R	CE1	\$5,009.06
251466	U07-064	2FES-3Y-R	CE1	\$5,179.98
251467	U07-003	2EES-2Y-R	CE2	\$6,256.63
251468	U07-041	2EES-3Y-R	CE2	\$6,770.80
251469	U07-040	2DES-2Y-R	CE2	\$6,573.58
251470	U07-002	2DES-3Y-R	CE2	\$6,954.73
251471	U07-070	2CES-3Y-R	CE2	\$7,006.41
251472	U07-071	2CES-4Y-R	CE2	\$7,151.23
251473	U07-007	4FES-3Y-R	CE3	\$7,794.99
251474	U07-008	4FES-5Y-R	CE3	\$8,169.87

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251475	U07-005	4EES-4Y-R	CE3	\$8,144.01
251476	U07-006	4EES-6Y-R	CE3	\$8,577.24
251477	U07-004	4DES-5Y-R	CE3	\$8,771.77
251478	U07-049	4DES-7Y-R	CE3	\$9,281.94
251479	U07-044	4CES-6Y-R	CE3	\$9,256.20
251480	U07-043	4CES-9Y-R	CE3	\$9,859.47
251481	U07-085	4VES-7Y-R	CE4	\$12,046.22
251482	U07-086	4VES-10Y-R	CE4	\$12,590.34
251483	U07-087	4TES-9Y-R	CE4	\$12,682.23
251484	U07-088	4TES-12Y-R	CE4	\$12,821.12
251485	U07-089	4PES-12Y-R	CE4	\$13,389.05
251486	U07-090	4PES-15Y-R	CE4	\$13,654.04
251487	U07-091	4NES-14Y-R	CE4	\$14,412.16
251488	U07-092	4NES-20Y-R	CE4	\$15,017.00

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251490	U07-013	4JE-15Y-R	BE5	\$15,445.88
251491	U07-014	4JE-22Y-R	BE5	\$16,026.39
251492	U07-011	4HE-18Y-R	BE5	\$15,660.43
251493	U07-012	4HE-25Y-R	BE5	\$16,152.57
251494	U07-009	4GE-23Y-R	BE5	\$17,288.30
251495	U07-010	4GE-30Y-R	BE5	\$17,717.34
251496	U07-035	6JE-25Y-R	BE6	\$20,014.07

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251497	U07-036	6JE-33Y-R	BE6	\$20,897.45
251498	U07-033	6HE-28Y-R	BE6	\$20,720.72
251499	U07-034	6HE-35Y-R	BE6	\$21,356.05
251500	U07-031	6GE-34Y-R	BE6	\$21,689.77
251501	U07-032	6GE-40Y-R	BE6	\$22,254.46
251502	U07-029	6FE-44Y-R	BE6	\$27,734.64
251503	U07-030	6FE-50Y-R	BE6	\$27,837.96

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251510	U07-585	4VES-6Y-R	CE4	\$12,046.22
251511	U07-587	4TES-8Y-R	CE4	\$12,821.12

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251512	U07-589	4PES-10Y-R	CE4	\$13,654.04
251513	U07-591	4NES-12Y-R	CE4	\$14,412.16

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251515	U07-513	4JE-13Y-R	BE5	\$15,445.88
251516	U07-511	4HE-15Y-R	BE5	\$15,660.43
251517	U07-509	4GE-20Y-R	BE5	\$17,288.30
251518	U07-535	6JE-22Y-R	BE6	\$20,014.07

Cat. No.	Part No.	Model No.	Compressor Series	List Price \$ Exc. GST
251519	U07-533	6HE-25Y-R	BE6	\$20,720.72
251520	U07-531	6GE-30Y-R	BE6	\$21,689.77
251521	U07-529	6FE-40Y-R	BE6	\$27,734.64

Actrol Sales & Application Engineers are available to provide selection advice.



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Receiver Units



Bitzer

Reciprocating Accessible Remote Units

Accessories



Cat. No.	Part No.	Description	List Price \$ Exc. GST
251222	B43-304	Suction Accumulator	5/8"
251223	B43-300		7/8"
251224	B43-301		1 1/8"
302147	B43-305		1 3/8"
302148	B43-302		1 5/8"
251205	U51-009	Suction Accumulator Fitting Charge	
173100	U40-001	Liquid Line Assembly Fitted	3/8"
173101	U40-002		1/2"
173102	U40-003		5/8"
173103	U40-004		7/8"
173104	U40-005		7/8"
173105	U40-006		1 1/8"
196193	U40-021	Liquid Line Ball Valve Fitted	3/8"
196195	U40-023		5/8"
196196	U40-024		7/8"
196197	U40-025		1 1/8"
196198	U40-026		1 3/8"
251206	U40-040	Liquid Line Solenoid Valve Fitted	3/8"
251207	U40-041		1/2"
251208	U40-042		5/8"
121010	U40-043		7/8"
121011	U40-044		1 1/8"
143140	U40-092	LP Control Auto Reset Fitted	
143141	U40-093	HP Control Auto Reset Fitted	
143142	U40-094	HP Control Manual Reset Fitted	
143143	U40-090	HP Fan Cycling Control Fitted	
143146	U40-091	Dual HP/LP Control Fan Cycling	
	S06-014	Unloader LP Control	
251221	B37-007	Oil Separator Internal Float	5/8"
251225	B37-008		7/8"
301156	B37-009		1 1/8"
301157	B37-010		1 3/8"
301160	B37-011	Oil Separator with Reservoir	7/8" & 1 1/8"
	B36-052	COS1 Centrifugal Oil Separator with Reservoir	
	B36-053	COS2 Centrifugal Oil Separator with Reservoir	
301149	U51-008	Oil Separator Fitting Charge	
251211	U40-097	Traxon Oil Level Control Fitted (Octagon Compressor)	
301170	U40-097E	Traxon Oil Level Control Fitted with Transformer & Wiring	
251214	U40-099	Traxon Oil Level Control Fitted (C4 & B5 Compressors)	
301168	U40-099E	Traxon Oil Level Control Fitted with Transformer & Wiring	
301165	U40-098	Traxon Oil Level Monitoring Digital c/w Transformer Fitted	
301166	U40-098E	Traxon Oil Level Monitoring c/w Transformer & Wiring Fitted	
150080	347334-03	OLC-K1 Oil Level Control	
	U40-111	Gauge Panel 1 x Suction, 1 x Discharge, 2 x Oil with Post Valves	



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Section 4

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Receiver Units



Bitzer

ComMECH Series - Screw Compressor Packages



The Bitzer ComMECH series screw compressor packages are designed to offer the best possible quality refrigeration plant for commercial air conditioning and high temperature product storage.

The heart of the package is the Bitzer CSH compact screw compressor with all pipe work & line components individually engineered to match each compressor selection, which provides optimum system efficiency & performance. Many options are available, such as a fully integrated electrical system that includes all component wiring along with a micro processor controller for compressor control management.

Standard A/C units - without economiser

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251302	U18-001	CSH 6553-35	\$44,476.17
251303	U18-002	CSH 6553-50	\$45,211.52
251304	U18-003	CSH 6563-40	\$45,946.93
251305	U18-004	CSH 6563-60	\$46,938.63
251306	U18-005	CSH 7553-50	\$52,778.56
251307	U18-006	CSH 7553-70	\$58,094.76
251308	U18-007	CSH 7563-60	\$54,076.88
251309	U18-008	CSH 7563-80	\$56,104.72
251310	U18-009	CSH 7573-70	\$60,715.46
251311	U18-010	CSH 7573-90	\$60,715.46
251312	U18-011	CSH 7583-80	\$60,090.18
251313	U18-012	CSH 7593-90	\$61,793.36

R134a A/C units - Optimized packages with economiser fitted

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251322	U18-201	CSH 6553-35	\$47,012.08
251323	U18-203	CSH 6563-40	\$48,482.83
251324	U18-205	CSH 7553-50	\$56,383.92
251325	U18-207	CSH 7563-60	\$57,682.27
251326	U18-209	CSH 7573-70	\$61,946.32
251327	U18-211	CSH 7583-80	\$63,699.90
251328	U18-212	CSH 7593-90	\$65,398.77

R407C A/C units - Optimized packages with economiser fitted

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251342	U18-202	CSH 6553-50	\$47,747.46
251343	U18-204	CSH 6563-60	\$49,474.55
251344	U18-206	CSH 7553-70	\$58,094.76
251345	U18-208	CSH 7563-80	\$59,710.05
251346	U18-210	CSH 7573-90	\$64,320.82

Unit Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251370	U40-112	R134a Dual Gauge Panel Assembly	\$1,994.72
251371	U40-113	R407C Dual Gauge Panel Assembly	\$1,994.72

Liquid Line Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251373	U40-051	1 3/8" Liquid Bypass Valve Assembly	\$1,010.81
251374	U40-052	1 5/8" Liquid Bypass Valve Assembly	\$1,183.68

Electrical Panel & Components

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251381	U10-300	CSH Microprocessor Controller (supplied loose)	\$3,750.84
251383	U10-283	65 Series Electrical Panel (includes controller)	\$17,799.83
251384	U10-282	75 Series Electrical Panel (includes controller)	\$17,799.83

Exterior Weather Protection Canopy Set

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251391	U50-121	Exterior Panel Set for 65 Series Units	\$6,736.29
251392	U50-101	Exterior Panel Set for 75 Series Units	\$6,761.55

Suction Line Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251378	U40-073	2 1/8" Suction Line Ball Valve (CSH 65)	\$662.77
251379	U40-076	3 1/8" Suction Line Ball Valve (CSH 75)	\$1,855.51

Inclusion of Condensor Fan Motor Starters

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251387	N41-803	Suits 4 x 500 / 630mm Fans	\$2,530.93
251388	N41-804	Suits 5 x 500 / 630mm Fans	\$3,051.97
251389	N41-805	Suits 6 x 500 / 630mm Fans	\$3,573.04

EXV Driver Kits

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251382	U10-305	CSH7 Series EXV Driver Kit	\$1,202.61

Actrol Sales & Application Engineers are available to provide assistance with technical information such as capacities and information on all the available unit options.



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Condensing Units



Tecumseh HTA EVO



The **HTA EVO** range is an evolution of the proven HTA range. HTA EVO is a fully fitted range of condensing units to provide easier and faster installation.



The HTA EVO range includes all features and benefits of the HTA condensing unit range plus the following additional features:

- Automatic reset HP/LP control
- Oil separator
- Liquid line with filter drier and moisture indicator
- Fully wired including circuit breaker/s and compressor contactor
- Suction accumulator on low temperature models

R134a - Hermetic Reciprocating

Medium / High Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R134a Capacity : Watts Evaporating Temperature : °C								Connections Suct: Liquid	Cond. Fan(s) 240V No./Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom. HP	Motor Type		-15	-10	-5	0	5	7.2	10	15				
259676	EPCH4518Y-1PH	1½	CSR	32	1909	2420	3050	3800	4674	5098	5674	6804	5/8"	2/350	15.4	\$4,990.78
259677	EPCH4518Y-3PH		3Ø	43	1661	2117	2682	3358	4151	4538	5065	6104			5.01	\$4,987.04
259678	EPCH4525Y-1PH	2	CSR	32	2306	3138	4000	4940	6006	6526	7245	8710	3/8"		16.9	\$5,733.69
259679	EPCH4525Y-3PH		3Ø	43	2007	2745	3517	4365	5335	5809	6467	7814			6.46	\$5,735.05
259680	EPCH4528Y-3PH	2½	3Ø	32	2267	3103	4073	5179	6426	7020	7818	9359	7/8"	2/400	11.1	\$5,843.02
259682	EPCH4537Y-3PH	3	3Ø	43	1973	2715	3581	4577	5708	6249	6978	8396			11.1	\$6,791.49
259683	EPCH4543Y-3PH	3½	3Ø	32	3167	4294	5586	7042	8662	9427	10447	12396	3/8"		11.1	\$7,117.79
				43	2756	3757	4911	6223	7694	8391	9325	11121				
				46	2470	3634	4761	6045	7488	8175	9095	10868				
				32	3547	4856	6249	7834	9615	10462	11597	13791				
				43	3174	4248	5494	6923	8540	9312	10351	12372				
				46	3063	4109	5326	6725	8312	9073	10096	-				

Capacity Rating Basis: 11K Return gas superheat, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit. *MOC: Maximum Operating Current.

R404A - Hermetic Reciprocating

Low Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C							Connections Suct: Liquid	Cond. Fan(s) 240V No./Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom HP	Motor Type		-40	-35	-30	-23.3	-20	-15	-10				
259630	EPCL2480Z-1PH	2	CSR	32	872	1334	1800	2432	2746	3225	3709	5/8"	1/350	20.1	\$5,144.22
				43	687	1073	1478	2051	2347	2811	3295	3/8"			
259632	EPCL2511Z-1PH	2 ½	CSR	32	1194	1744	2356	3274	3767	4566	5427	5/8"	2/350	25.5	\$6,791.04
259633	EPCL2511Z-3PH		3Ø	43	940	1402	1934	2762	3219	3979	4821	3/8"			
				46	877	1317	1828	2632	3080	3830	4666			5.86	\$6,800.97
259634	EPCL2516Z-3PH	4	3Ø	32	1671	2429	3268	4519	5188	6269	7430	7/8"	2/350	10.7	\$7,432.33
				43	1316	1954	2683	3812	4434	5463	6600	3/8"			
				46	1226	1834	2536	3633	4243	5258	6388				
259635	EPCL2522Z-3PH	5 ½	3Ø	32	2024	3077	4202	5826	6674	8019	9438	1 1/8"	2/400	15.1	\$9,014.60
				43	1594	2474	3450	4915	5704	6989	8383	3/8"			
				46	1486	2323	3261	4684	5458	6726	8114				

Capacity Rating Basis: Return gas at ambient temperature, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit. *MOC: Maximum Operating Current.

Motor Types: • CSIR: Capacitor Start, Induction Run } 1 Phase, 50 Hz, 220-240 Volt • 3Ø: 3 Phase, 50 Hz, 400 Volt
• CSR: Capacitor Start and Run

All models are also suitable for operation with R507



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Condensing Units



Tecumseh HTA EVO



The **HTA EVO** range is an evolution of the proven HTA range. HTA EVO is a fully fitted range of condensing units to provide easier and faster installation.



The HTA EVO range includes all features and benefits of the HTA condensing unit range plus the following additional features:

- Automatic reset HP/LP control
- Oil separator
- Liquid line with filter drier and moisture indicator
- Fully wired including circuit breaker/s and compressor contactor
- Suction accumulator on low temperature models

R404A - Hermetic Reciprocating

Medium Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C								Connections Suct: Liquid	Cond. Fan(s) 240V No./ Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom HP	Motor Type		-25	-20	-15	-10	-5	0	5	10				
259645	EPCH9510Z-1PH	1	CSR	32 43 46	736 634 609	960 831 801	1211 1054 1017	1484 1298 1256	1781 1566 1518	2098 1854 1801	2587 2303 2243	2786 2487 -	5/8" 3/8"	1/320	8.6	\$2,972.73
259646	EPCH9513Z-1PH	1 1/8	CSR	32 43 46	961 828 796	1265 1095 1055	1592 1386 1337	1947 1703 1648	2336 2054 1991	2762 2441 2371	3456 3076 2997	3753 3350 3267		1/350	10.9	\$3,290.25
259647	EPCH4517Z-1PH	1 1/4	CSR	32 43 46			1850 1610 1554	2251 1969 1905	2719 2391 2317	3229 2853 2772	3979 3542 3451	4259 3802 -			11.3	\$3,607.01
259649	EPCH4519Z-1PH	1 1/2	CSR	32 43 46			2154 1875 1809	2856 2498 2417	3532 3105 3010	4202 3713 3607	5197 4626 4507	5606 5004 4881		1/400	16	\$4,035.25
259651	EPCH4524Z-1PH	2	CSR	32 43 46			2654 2310 2229	3315 2900 2805	4012 3527 3419	4750 4198 4077	5905 5256 5121	6387 5701 -		1/400	204	\$4,240.39
259653	EPCH4531Z-1PH	2 1/2	CSR	32 43 46			3594 3128 3019	4508 3944 3815	5462 4802 4655	6464 5712 5549	8009 7129 6945	8646 7717 7527	7/8" 1 1/2"	2/350	27.2	\$5,206.93
259654	EPCH4531Z-3PH		3Ø	32 43 46												8.75
259656	EPCH4540Z-3PH	3	3Ø	32 43 46			4419 3846 3712	5465 4781 4624	6571 5777 5600	7759 6857 6660	9655 8594 8373	10464 9340 9110	7/8" 5/8" 1 1/8" 5/8"	2/400	10.4	\$5,781.28
259657	EPCH4546Z-3PH	4	3Ø	32 43 46			3942 3431 3311	4922 4306 4165	6352 5585 5414	8110 7167 6962	10957 9753 9502	12091 10792 10526			12.5	\$5,832.80
259658	EPCH4553Z-3PH	4 1/2	3Ø	32 43 46			5359 4664 4502	6769 5922 5728	8359 7349 7124	10101 8926 8671	12834 11424 11130	13953 12454 -			13.1	\$6,796.12
259659	EPCH4561Z-3PH	5	3Ø	32 43 46			5509 4794 4628	6954 6083 5884	8691 7641 7407	10639 9402 9133	13649 - -	14838 - -			15.1	\$6,895.58
259660	EPCH4568Z-3PH	6	3Ø	32 43 46			6765 5888 5863	8820 7716 7463	10928 9608 9314	13102 11578 11247	16346 14550 14175	17647 15752 15363			16.3	\$7,644.82
259661	EPCH4573Z-3PH	6 1/2	3Ø	32 43 46			7410 6449 6224	9224 8069 7805	11205 9851 9550	13354 11801 11463	16346 14932 14548	17647 16257 15856	19.1		\$7,752.70	

Capacity Rating Basis:

11K Return gas superheat, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit. Current FLA are given at nominal voltage, 32°C ambient, 32°C return gas and 7.2°C evaporating.

Motor Types:

- CSIR: Capacitor Start, Induction Run } 1 Phase, 50 Hz, 220-240 Volt
- CSR: Capacitor Start and Run } 3Ø: 3 Phase, 50 Hz, 400 Volt

All models are also suitable for operation with R507



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Condensing Units

Copeland®

Copeland
EVO Scroll

R134a - Scroll - Medium Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R134a Capacity : Watts						Connections Suct: Liquid	Cond. Fans 240V No./ Dia. mm	Nom. Current Comp. + Fans FLA	List Price \$ Exc. GST
		Nom. HP	Motor Type		Evaporating Temperature : °C									
					-15	-10	-5	0	5	10				
259684	EPCHZB48 3PH	6.5	3Ø	32	5705	7230	8923	10790	12856	15158	7/8"	2/500	21.6	\$10,602.73
				35	5496	6935	8644	10441	12460	14684				
				38	5285	6628	8341	10061	12012	14207	1/2"			
				43		6182	7730	9382	11300	13313				
259685	EPCHZB58 3PH	8	3Ø	32	6903	8579	10504	12712	15151	17850	1 1/8"		27.6	\$12,871.29
				35	6674	8302	10168	12292	14691	17324				
				38	6446	8014	9843	11901	14181	16806	5/8"			
				43		7542	9257	11206	13376	15756				
259686	EPCHZB76 3PH	10	3Ø	32	8942	11080	13545	16305	19407	22794	1 1/8"		31.5	\$15,233.81
				35	8651	10690	13065	15804	18788	22014				
				38	8357	10321	12611	15234	18173	21234	5/8"			
				43			11837	14292	17108	20114				
259687	EPCHZB95 3PH	13	3Ø	32	11213	14068	17202	20699	24611	28991	1 1/8"		32.4	\$16,117.23
				35	10728	13498	16572	20031	23821	27971				
				38	10218	12942	15963	19281	22977	27060	5/8"			
				43			14833	17981	21226	25328				
259688	EPCHZB114 3PH	15	3Ø	32	12968	16317	20048	24304	28863	33724	1 1/8"		36	\$18,184.50
				35	12398	15657	19351	23404	27951	32643				
				38		15009	18541	22569	26811	31588	5/8"			
				43			17208	20971	25021	29288				

Capacities based on 18°C return vapour and 3K sub-cooling

R404A - Scroll - Medium Temperature Applications

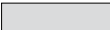
Cat. No.	Model No.	Compressor		Amb. Temp °C	R404a Capacity : Watts						Connections Suct: Liquid	Cond. Fans 240V No./ Dia. mm	Nom. Current Comp. + Fans FLA	List Price \$ Exc. GST
		Nom. HP	Motor Type		Evaporating Temperature : °C									
					-15	-10	-5	0	5	10				
259684	EPCHZB48 3PH	6.5	3Ø	32	10025	11851	13855	16138	18472		7/8"	2/500	21.6	\$10,602.73
				35	9545	11292	13208	15238	17685					
				38	9029	10662	12555	14509	16605		1/2"			
				43	8159	9668	11350	13145	15057					
259685	EPCHZB58 3PH	8	3Ø	32	11828	14148	16741	19387	22131	25472	1 1/8"		27.6	\$12,871.29
				35	11228	13505	15871	18397	21226	24092				
				38	10560	12755	15127	17533	19996	23157	5/8"			
				43	9364	11432	13719	15934	18218	20557				
259686	EPCHZB76 3PH	10	3Ø	32	15358	18258	21210	24333	27896	31145	1 1/8"		31.5	\$15,233.81
				35	14628	17298	20270	23252	26276	30018				
				38	13818	16433	19070	21812	25150	28038	5/8"			
				43	12379	14794	17254	19777						

Capacities based on 18°C return vapour and 3K sub-cooling

R404A - Scroll - Low Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404a Capacity : Watts							Connections Suct: Liquid	Cond. Fans 240V No./ Dia. mm	Nom. Current Comp. + Fans FLA	List Price \$ Exc. GST
		Nom. HP	Motor Type		Evaporating Temperature : °C										
					-40	-35	-30	-25	-20	-15	-10				
259636	EPCLZF24 3PH	7.5	3Ø	32	4306	6013	6744	8193	9879	11676	13681	7/8" 1/2"	2/500	18.5	\$16,788.32
				35	4126	5274	6509	7893	9459	11196	13104				
				38	3946	5034	6269	7592	9033	10707	12444				
				43	3595	4634	5786	7006	8268	9807	11416				
259637	EPCLZF33 3PH	10	3Ø	32	6013	7531	9285	11332	13533	16058	18844	7/8" 1/2"		22.7	\$18,579.59
				35	5713	7229	8909	10819	12933	15400	18031				
				38	5474	6899	8549	10313	12367	14620	17071				
				43	5017	6351	7863	9526	11372	13398	15609				
259638	EPCLZF40 3PH	13	3Ø	32	7201	9112	11263	13595	16182	18998	22168	7/8" 1/2"		26.1	\$19,807.84
				35	6897	8752	10783	12995	15498	18141	21028				
				38	6597	8384	10286	12421	14718	17291	20034				
				43	6092	7690	9401	11346	13391	15591	18200				

Capacities based on 18°C return vapour and 3K sub-cooling

 Requires liquid injection for compressor cooling



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Condensing Units

Tecumseh L'Unite Hermetique



Hermetic Reciprocating – For Medium / High Temperature Applications

The new AE² condensing unit series is designed for indoor self contained applications where the ambient temperature is maintained below 38°C. The smaller overall dimensions and reduced sound levels of the AE2 condensing units allow greater flexibility in self contained cabinets while the wider capacity range will suit more applications.

Features

- Tecumseh Europe Hermetique AE² compressor
- Improved compressor COP
- Reduced unit dimensions
- Improved sound performance
- Factory wired single phase fan motor

R134a

Cat. No.	Model No.	Compressor		Amb. Temp °C	Capacity: Watts							Connections Suct: Liquid	Cond. Fans: No./Dia mm	MOC: Amps	List Price \$ Exc. GST
					Evaporating Temperature: °C										
		Nom HP	Motor Type		-20	-15	-10	-5	0	5	10				
259491	AE4425YHR-FZ1A	1 [⁄] 5	CSIR	32	168	230	299	374	452	533	614	3 [⁄] 8" 1 [⁄] 4"	1/200	2.6	\$677.53
				43			188	250	314	380	447				
259492	AE4430YHR-FZ1A	1 [⁄] 4	CSIR	32	250	324	410	506	612	727	849	3 [⁄] 8" 1 [⁄] 4"	1/200	2.8	\$709.17
				43			276	349	431	521	617				
259493	AE4440YHR-FZ1A	3 [⁄] 8	CSIR	32	335	421	517	624	739	861	989	3 [⁄] 8" 1 [⁄] 4"	1/200	3.4	\$789.24
				43			362	446	537	634	736				
259494	AE4450YHR-FZ1C	1 [⁄] 3	CSIR	32	442	560	689	831	984	1147	1317	3 [⁄] 8" 1 [⁄] 4"	1/250	5.2	\$811.10
				43			474	589	712	843	982				
259495	AE4456YHR-FZ1C	1 [⁄] 2	CSIR	32	489	618	762	918	1087	1266	1454	3 [⁄] 8" 1 [⁄] 4"	1/250	8.6	\$824.45
				43			528	654	789	932	1083				
259496	AE4460YHR-FZ3C	1 [⁄] 2	CSR	32	501	638	789	953	1130	1317	1512	3 [⁄] 8" 1 [⁄] 4"	1/250	5.3	\$950.25
				43			538	674	818	970	1129				

R404A

Cat. No.	Model No.	Compressor		Amb. Temp °C	Capacity: Watts							Connections Suct: Liquid	Cond. Fans: No./Dia mm	MOC: Amps	List Price \$ Exc. GST
		Nom HP	Motor Type		Evaporating Temperature: °C										
					-20	-15	-10	-5	0	5	10				
259461	AE4430ZHR-FZ1A	1/4	CSIR	32	288	358	435	519	608	700	795	3/8" 1/4"	1/200	3.1	\$715.54
				43		291	355	422	491	562	633				
259462	AE4440ZHR-FZ1A	1/3	CSIR	32	396	490	594	708	829	956	1089	3/8" 1/4"	1/250	4.3	\$784.88
				43		395	482	574	670	771	875				
259463	AE4450ZHR-FZ1A	3/8	CSIR	32	508	622	743	870	1000	1131	1260	3/8" 1/4"	1/250	5.7	\$807.04
				43		497	598	701	804	905	1004				
259464	AE4460ZHR-FZ1C	1/2	CSIR	32	589	694	803	915	1028	1141	1256	3/8" 1/4"	1/250	6.5	\$887.15
				43			651	743	835						
259465	AE4470ZHR-FZ3C	1/2	CSR	32	763	937	1113	1315	1518	1745	1698	3/8" 1/4"	1/300	5.9	\$1,094.02
				43	628	763	917	1078	1244	1412	1560				

Capacity Rating Basis: EN13215: 20°C Return gas, 3K Subcooling

Motor Types:

- CSIR: Capacitor Start, Induction Run
- CSR: Capacitor Start and Run } 1 Phase, 50 Hz, 220-240 Volt



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Condensing Units



Tecumseh

L'Unite Hermetique - HTA Condensing Unit

R134a - Hermetic - For Medium / High Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C						Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST	
		Nom HP	Motor Type		-20	-15	-10	-5	0	5					10
259440	AET4425YHR-FZ	1 ⁵ / ₈	CSIR	32 43 46	176 - -	243 200 187	319 267 252	402 339 322	493 417 395	591 498 472	693 582 552	3 ⁸ / ₈ " 1 ⁴ / ₄ "	1/200	2.6	\$685.62
259441	AET4430YHR-FZ	1 ⁴ / ₄	CSIR	32 43 46	249 - -	324 276 264	411 352 336	510 438 418	622 533 509	744 637 608	876 750 715		1/250	3.7	\$693.17
259442	AET4440YHR-FZ	3 ⁸ / ₈	CSIR	32 43 46	344 - -	435 370 353	539 460 439	656 561 535	786 672 641	929 794 757	1084 925		1/250	4.54	\$772.84
259443	AET4450YHR-FZ	1 ³ / ₃	CSIR	32 43 46	440 - -	566 481 458	709 603 574	870 738 701	1049 886 841	1245 1048 994	1459 1223 1158		1/300	5.2	\$856.09
259444	AET4456YHR-FZ	1 ² / ₂	CSIR	32 43 46	508 - -	649 553 528	807 693 661	985 846 808	1182 1014 968	1398 1197 1142	1634 1395 1330		1/300	5.8	\$879.84
259445	AET4460YHR-FZ	1 ² / ₂	CSR	32 43 46	523 - -	670 567 538	836 714 680	1023 875 834	1231 1053 1003	1463 1248 1188	1720 1461 1389		1/300	5.3	\$989.64

R404A - Hermetic - For Medium / High Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C						Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST	
		Nom HP	Motor Type		-20	-15	-10	-5	0	5					10
259420	AET4425ZHR-FZ	1/5	CSIR	32 43 46	234 - -	293 236 221	359 289 271	432 347 324	511 409 381	597 474 441	687 542 503	3/8" 1/4"	1/200	3	\$694.10
259421	AET4430ZHR-FZ	1/4	CSIR	32 43 46	290 - -	361 292 272	440 356 332	525 424 395	616 494 460	711 566 525	809 639 592		1/250	3.3	\$699.56
259422	AET4440ZHR-FZ	1/3	CSIR	32 43 46	390 - -	483 387 360	584 471 440	693 559 523	808 651 608	929 746 696	1053 843 786		1/250	4.3	\$777.07
259423	AET4450ZHR-FZ	3/8	CSIR	32 43 46	542 - -	674 544 508	820 666 623	981 796 745	1154 934 873	1340 1078 1006	1535 1227 1144		1/300	5.7	\$866.96
259424	AET4460ZHR-FZ	1/2	CSIR	32 43 46	675 - -	816 660 616	972 790 739	1142 929 870	1325 1076 1008	1520 1232 1153	1724 1394 1304		1/300	6.5	\$946.59
259425	AET4470ZHR-FZ	1/2	CSR	32 43 46	779 - -	946 781 736	1125 934 881	1316 1092 1031	1519 1258 1185	1733 1429 1345	1956 1607 1511		1/300	5.9	\$1,074.63

R404A - Hermetic - For Low Temperature Applications

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C						Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST	
		Nom HP	Motor Type		-40	-35	-30	-25	-20	-15					-10
259426	AET2410ZBR-FZ	1/3	CSIR	32 43 46	98 - -	140 108 184	188 149 207	244 196 231	309 249 258	380 307 285	459 371 313	3/8"	1/200	2.7	\$790.82
259428	AET2415ZBR-FZ	3/8	CSIR	32 43 46	158 - -	211 164 151	271 215 200	339 272 253	414 334 312	495 400 375	581 471 441		1/200	3.2	\$751.20
259427	AET2420ZBR-FZ	1/2	CSIR	32 43 46	204 - -	271 202 183	349 267 245	437 340 314	534 420 389	639 208 472	750 602 562		1/250	5	\$728.32
259429	AET2425ZBR-FZ	5/8	CSR	32 43 46	272 - -	369 294 274	481 391 366	609 500 470	752 620 583	911 752 708	1085 895 843		1/300	4.8	\$1,118.92



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Condensing Units

Tecumseh
L'Unite Hermetique

R404A - Hermetic Reciprocating - For Low Temperature Applications



HTA - the High Temperature Answer.

The HTA range has been developed to meet Australia's specific requirements:

- For situations where air circulation to the condensing unit is restricted
- High ambient temperature capability up to 46°C
- Ideal for product pull down where high evaporating temperatures occur
- Where greater efficiency is required to lower energy consumption

Features

- All models fitted with liquid receiver
- Compressor charged with Polyolester oil and dry nitrogen
- Rotalock suction and liquid valves on CAJ/TAJ, FH/TFH and TAG models
- Crankcase heater, oil sight glass and automatic reset HP/LP control on FH/TFH and TAG models

Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C							Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom HP	Motor Type		-40	-35	-30	-23.3	-20	-15	-10				
259570	CAET2417ZBR	1/3	CSR	32 43 46	155 126 121	236 192 182	319 263 251	435 368 352	494 423 406	586 512 493	682 606 586	3/8" 1/4"	1/202	3.6	259570
259571	CAET2420ZBR	1/2	CSIR	32 43 46	226 178 166	328 264 248	437 359 339	594 501 478	676 578 553	806 703 676	944 838 811		1/250	5	259571
259572	CAET2424ZBR	5/8	CSR	32 43 46	318 251 234	431 347 326	559 459 434	753 635 605	858 734 702	1030 897 864	1216 1080 1045		1/300	5.3	259572
259573	CAJ2428ZBR	1/2	CSIR	32 43 46	271 213 199	395 318 298	529 434 410	722 609 581	823 704 673	984 858 826	1154 1025 993			5.7	259573
259574	CAJT2432ZBR	5/8	CSR	32 43 46	250 197 184	414 333 312	588 483 456	840 708 675	971 830 794	1179 1027 989	1398 1242 1202			6.8	259574
259575	CAJT2446ZBR	3/4	CSR	32 43 46	371 292 272	571 460 431	792 650 615	1119 944 900	1293 1105 1058	1573 1371 1320	1874 1664 1611	5/8" 3/8"	1/350	8.1	259575
259576	CAJT2464ZBR-2	1 1/2	CSR 3Ø	32 43 46	337 265 247	714 574 539	1094 898 849	1609 1357 1294	1825 1594 1525	2256 1966 1892	2650 2354 2279			10.5 3.8	259576
259577	TAJT2464ZBR-2			32 43 46	872 687 640	1334 1073 1007	1800 1478 1397	2432 2051 1955	2746 2347 2245	3225 2811 2705	3709 3295 3189			20.1 4.33	259577
259578	FHT2480ZBR-2	2	CSR 3Ø	32 43 46	872 687 640	1334 1073 1007	1800 1478 1397	2432 2051 1955	2746 2347 2245	3225 2811 2705	3709 3295 3189		2/350	25.5 5.86	259578
259579	TFHT2480ZBR-2			32 43 46	1194 940 877	1744 1402 1317	2356 1934 1828	3274 2762 2632	3767 3219 3080	4566 3979 3830	5427 4821 4666				259579
259585	FHT2511ZBR-2	2 1/2	CSR 3Ø	32 43 46	1194 940 877	1744 1402 1317	2356 1934 1828	3274 2762 2632	3767 3219 3080	4566 3979 3830	5427 4821 4666				259585
259580	TFHT2511ZBR-2			32 43 46	1671 1316 1226	2429 1954 1834	3268 2683 2536	4519 3812 3633	5188 4434 4243	6269 5463 5258	7430 6600 6388	7/8" 3/8"	2/400	10.7	259580
259581	TAGT2516ZBR-2	4	3Ø	32 43 46	1671 1316 1226	2429 1954 1834	3268 2683 2536	4519 3812 3633	5188 4434 4243	6269 5463 5258	7430 6600 6388				259581
259582	TAGT2522ZBR-2	5 1/2	3Ø	32 43 46	2024 1594 1486	3077 2474 2323	4202 3450 3261	5826 4915 4684	6674 5704 5458	8019 6989 6726	9438 8383 8114	1 1/8" 3/8"	2/400	15.1	259582

Capacity Rating Basis:

Return gas at ambient temperature, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit. *MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor Start, Induction Run } 1 Phase, 50 Hz, 220-240 Volt
- CSR: Capacitor Start and Run } 3Ø: 3 Phase, 50 Hz, 400 Volt

All models are also suitable for operation with R507.



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Section 4

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Condensing Units



Tecumseh

L'Unite Hermetique

R404A – Hermetic – For Medium / High Temperature Applications

HTA - the High Temperature Answer.

The HTA range has been developed to meet Australia's specific requirements:

- High ambient temperature capability up to 46°C
- For situations where air circulation to the condensing unit is restricted
- Ideal for product pull down where high evaporating temperatures occur
- Where greater efficiency is required to lower energy consumption

Features

- Compressor charged with Polyolester oil and dry nitrogen
- All models fitted with liquid receiver
- Rotalock suction and liquid valves on all models



Cat. No.	Model No.	Compressor		Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C								Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom HP	Motor Type		-25	-20	-15	-10	-5	0	5	10				
259597	CAJT9480ZMHR	5/8	CSR	32 43 46	651 561 539	844 731 704	1052 916 884	1278 1118 1081	1523 1339 1298	1786 1578 1533	2206 1964 1913	2382 2126 -	1/2" 3/8"	1/300	7.24	\$1,322.44
259599	CAJT9510ZMHR-2	1	CSR	32 43 46	736 634 609	960 831 801	1211 1054 1017	1484 1298 1256	1781 1566 1518	2098 1854 1801	2587 2303 2243	2786 2487 -	5/8" 3/8"	1/320	8.6	\$1,453.07
259600	CAJT9513ZMHR-2	1 1/8	CSR	32 43 46	961 828 796	1265 1095 1055	1592 1386 1337	1947 1703 1648	2336 2054 1991	2762 2441 2371	3456 3076 2997	3753 3350 3267	5/8" 3/8"	1/350	10.9	\$1,643.22
259602	CAJT4517ZHR-2	1 1/4	CSR 3Ø	32 43 46			1850 1610 1554	2251 1969 1905	2719 2391 2317	3229 2853 2772	3979 3542 3451	4259 3802 -	5/8" 3/8"	1/350	11.3 4.7	\$1,740.94
259603	TAJT4517ZHR-2															\$2,325.35
259604	CAJT4519ZHR-2	1 1/2	CSR 3Ø	32 43 46			2154 1875 1809	2856 2498 2417	3532 3105 3010	4202 3713 3607	5197 4626 4507	5606 5004 4881	5/8" 3/8"	1/400	16 5.4	\$2,023.04
259605	TAJT4519ZHR-2															\$3,078.17
259608	FHT4524ZHR-2	2	CSR 3Ø	32 43 46			2654 2310 2229	3315 2900 2805	4012 3527 3419	4750 4198 4077	5905 5256 5121	6387 5701 -	5/8" 3/8"	1/400	20.4 6.9	\$3,256.95
259609	TFHT4524ZHR-2															\$3,296.51
259610	FHT4531ZHR-2	2 1/2	CSR 3Ø	32 43 46			3594 3128 3019	4508 3944 3815	5462 4802 4655	6464 5712 5549	8009 7129 6945	8646 7717 7527	5/8" 7/8"	2/350	27.2 8.75	\$3,319.63
259611	TFHT4531ZHR-2															\$3,313.32
259586	FHT4540ZHR-2	3	CSR 3Ø	32 43 46			4419 3846 3712	5465 4781 4624	6571 5777 5600	7759 6857 6660	9655 8594 8373	10464 9340 9110	1/2" 3/8"	2/400	28.8 10.4	\$4,867.63
259612	TFHT4540ZHR-2															\$4,185.18
259613	TAGT4546ZHR-2	4	3Ø	32 43 46			3942 3431 3311	4922 4306 4165	6352 5585 5414	8110 7167 6962	10957 9753 9502	12091 10792 10526	7/8" 5/8"	2/400	12.5	\$4,734.37
259614	TAGT4553ZHR-2	4 1/2	3Ø	32 43 46			5359 4664 4502	6769 5922 5728	8359 7349 7124	10101 8926 8671	12834 11424 11130	13953 12454 -	5/8"		13.1	\$5,100.31
259615	TAGT4561ZHR-2	5	3Ø	32 43 46			5509 4794 4628	6954 6083 5884	8691 7641 7407	10639 9402 9133	13649 - -	14838 - -	1 1/8" 5/8"	2/400	15.1	\$5,453.44
259616	TAGT4568ZHR-2	6	3Ø	32 43 46			6765 5888 5863	8820 7716 7463	10928 9608 9314	13102 11578 11247	16346 14550 14175	17647 15752 15363	5/8"		16.3	\$6,312.07
259617	TAGT4573ZHR-2	6 1/2	3Ø	32 43 46			7410 6449 6224	9224 8069 7805	11205 9851 9550	13354 11801 11463	16346 14932 14548	17647 16257 15856			19.1	\$6,443.23

Capacity Rating Basis: 11K Return gas superheat, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit.

*MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor Start, Induction Run } 1 Phase, 50 Hz, 220-240 Volt • 3Ø: 3 Phase, 50 Hz, 400 Volt
- CSR: Capacitor Start and Run

All models are also suitable for operation with R507



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The Home of Tecumseh



Compressors



Condensing Units

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Condensing Units



Tecumseh
L'Unite Hermetique



R134a – Hermetic – For Medium / High Temperature Applications



HTA - the High Temperature Answer.

The HTA range has been developed to meet Australia's specific requirements:

- High ambient temperature capability up to 46°C
- For situations where air circulation to the condensing unit is restricted
- Ideal for product pull down where high evaporating temperatures occur
- Where greater efficiency is required to lower energy consumption

Features

- Compressor charged with Polyolester oil and dry nitrogen
- All models fitted with liquid receiver
- Rotalock suction and liquid valves on CAJ/TAJ models
- Crankcase heater, oil sight glass and automatic reset HP/LP control on FH/TFH and TAG models

Cat. No.	Model No.	Compressor		Amb. Temp °C	R134a Capacity : Watts								Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps	List Price \$ Exc. GST
		Nom. HP	Motor Type		Evaporating Temperature : °C											
					-15	-10	-5	0	5	7.2	10	15				
259510	CAJT4476YHR	5/8	CSIR	32 43 46	762 664 641	1006 880 851	1267 1114 1080	1549 1369 1330	1851 1644 1600	1991 1772 1727	2175 1941 -	2524 - -	1/2"	1/300	7.8	\$1,265.42
259511	CAJT4492YHR-2	3/4	CSIR	32 43 46	953 829 801	1235 1080 1045	1555 1367 1325	1916 1693 1645	2316 2057 2002	2505 2230 2172	2757 2461 2400	3240 2907 2841		3/8"	1/350	9.1
259512	CAJT4511YHR-2	1	CSR 3Ø	32 43 46	1276 1111 1072	1646 1440 1393	2061 1812 1757	2525 2231 2167	3036 2697 2625	3277 2917 2842	3598 3212 3132	4212 3779 -	5/8" 3/8"	1/350	9.6 3.8	\$1,936.39
259513	TAJT4511YHR-2															
259514	FHT4518YHR-2	1 1/2	CSR 3Ø	32 43 46	1909 1661 1604	2420 2117 2048	3050 2682 2600	3800 3358 3262	4674 4151 4041	5098 4538 4421	5674 5065 4940	6804 6104 5965	5/8" 3/8"	2/350	15.4 5.01	\$3,462.04
259515	TFHT4518YHR-2															
259516	FHT4525YHR-2	2	CSR 3Ø	32 43 46	2306 2007 1937	3138 2745 2655	4000 3517 3409	4940 4365 4240	6006 5335 5192	6526 5809 5659	7245 6467 6307	8710 7814 7636	5/8" 3/8"	2/350	16.9 6.46	\$3,874.23
259517	TFHT4525YHR-2															
259518	TAGT4528YHR-2	2 1/2	3Ø	32 43 46	2267 1973 1904	3103 2715 2626	4073 3581 3471	5179 4577 4446	6426 5708 5555	7020 6249 6088	7818 6978 6806	9359 8396 -	7/8" 3/8"	2/400	11.1	\$4,907.42
259519	TAGT4534YHR-2	2 3/4	3Ø	32 43 46	2940 2559 2470	3954 3459 3346	5115 4497 4360	6426 5679 5516	7893 7011 6823	8588 7644 7448	9519 8497 8287	11308 10144 9914			7.57	\$5,208.70
259520	TAGT4537YHR-2	3	3Ø	32 43 46	3167 2756 2470	4294 3757 3634	5586 4911 4761	7042 6223 6045	8662 7694 7488	9427 8391 8175	10447 9325 9095	12396 11121 10868			11.1	\$5,558.20
259521	TAGT4543YHR-2	3 1/2	3Ø	32 43 46	3547 3174 3063	4856 4248 4109	6249 5494 5326	7834 6923 6725	9615 8540 8312	10462 9312 9073	11597 10351 10096	13791 12372 -			11.1	\$5,659.60

Capacity Rating Basis:

11K Return gas superheat, temperature of refrigerant at condenser outlet is subcooled within the condensing limits of the unit.

*MOC: Maximum Operating Current.

Motor Types:

- CSIR: Capacitor Start, Induction Run
 - CSR: Capacitor Start and Run
- } 1 Phase, 50 Hz, 220-240 Volt • 3Ø: 3 Phase, 50 Hz, 400 Volt



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Condensing Units



Tecumseh
L'Unite Hermetique



HTA and HTA EVO Unit Covers

For use indoors & out, Hermetique's condensing unit covers are aesthetically pleasing whilst providing increased protection from weather & accidental or intentional damage. Supplied flat packed, the covers are both galvanised and powder coated to provide long life and include fixings. The covers attach directly to the unit base utilising the preformed mounting points on HTA and HTA EVO condensing units.

Features

- Galvanised & powder coated panels
- Flat packed for easy onsite assembly
- Designed specifically to fit HTA and HTA EVO units
- Includes fixings

Cat. No.	Part No.	Description	Suits Condensing Unit Model					List Price \$ Exc. GST
			R404A		R134a		R22	
262142	1000004	Small HTA Condensing Unit Cover	CAJT9510ZMHR	EPCH9510Z-1PH	CAJT4492YHR		CAJT9510TMHR	\$603.92
			CAJT9513ZMHR	EPCH9513Z-1PH	CAJT4511YHR		CAJT9513TMHR	
			CAJT4517ZHR	EPCH4517Z-1PH	TAJT4511YHR		CAJT4517EHR	
			TAJT4517ZHR				TAJT4517THR	
			CAJT2464ZBR					
			TAJT2464ZBR					
			FHT2480ZBR					
262144	1000005	Medium HTA Condensing Unit Cover	CAJT4519ZHR	EPCH4519Z-1PH			TAJT4519THR	\$576.11
			TAJT4519ZHR				FHT4524FHR	
			FHT4524ZHR	EPCH4524Z-1PH			TFHT4524FHR	
			TFHT4524ZHR				FHST4531FHR	
262146	1000006	Large HTA Condensing Unit Cover	FHT4531ZHR	EPCH4531Z-1PH	FHT4518YHR	EPCH4518Y-1PH	FHT4531FHR	\$844.89
			TFHT4531ZHR	EPCH4531Z-3PH	TFHT4518YHR	EPCH4518Y-3PH	TFHT4531FHR	
			TFHT4540ZHR	EPCH4540Z-3PH	FHT4525YHR	EPCH4525Y-1PH	TFHT4540FHR	
			TAGT4546ZHR	EPCH4546Z-3PH	TFHT4525YHR	EPCH4525Y-3PH	TAGT4546THR	
			TAGT4553ZHR	EPCH4553Z-3PH	TAGT4528YHR	EPCH4528Y-3PH	TAGT4553THR	
			TAGT4561ZHR	EPCH4561Z-3PH	TAGT4534YHR		TAGT4561THR	
			TAGT4568ZHR	EPCH4568Z-3PH	TAGT4537YHR	EPCH4537Y-3PH	TAGT4568THR	
			TAGT4573ZHR	EPCH4573Z-3PH	TAGT4543YHR	EPCH4543Y-3PH	TAGT4573THR	
			FHT2511ZBR	EPCL2511Z-1PH				
			TFHT2511ZBR	EPCL2511Z-3PH				
			TAGT2516ZBR	EPCL2516Z-3PH				
			TAGT2522ZBR	EPCL2522Z-3PH				



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Condensing Units

Danfoss

Danfoss

Maneurop Optyma Series

The Danfoss Optyma range of condensing units are fitted with Maneurop reciprocating compressors and can be used on a wide range of refrigerants including R404A & R134a.

- Maneurop reciprocating compressors
- All models fitted with liquid receiver
- Rotalock suction and liquid valves on compressor
- Crankcase heater, oil sight glass and convertible reset HP/LP control
- High ambient temperature capability
- Compressor charged with Polyolester oil and dry nitrogen
- Liquid line drier and sight glass fitted



Medium Temperature

Cat. No.	Model No.	Nom. HP	Compressor				Fan				Liquid Receiver Capacity: l	Connections		Nett Weight: kg	Dimensions: mm			List Price \$ Exc. GST
			Model No.	MOC Amps	LRC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct	Liq		L	W	H	
259363	OP-MGZE136	6 1/2	MTZ080-4	18	80	415/3	2 x 450	2 x 1.7	8600	240/1	10	1 1/8"	1/2"	130	1210	800	725	\$7,502.11
259364	OP-MGZE171	7 1/2	MTZ100-4	22	90		2 x 600	2 x 3.0	14000		14		5/8"	220	1510	875	1005	\$12,105.68
259365	OP-MGZE215	10	MTZ125-4	27	105									225				\$12,745.09
259366	OP-MGZE242	12	MTZ144-4	30	115									230				\$13,725.47
259367	OP-MGZE271	13 1/2	MTZ160-4	36	140				12500					245				\$14,335.02

Low Temperature

Cat. No.	Model No.	Nom. HP	Compressor				Fan				Liquid Receiver Capacity: l	Connections		Nett Weight: kg	Dimensions: mm			List Price \$ Exc. GST
			Model No.	MOC Amps	LRC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct	Liq		L	W	H	
259376	OP-LGZE136	4	NTZ136-4	14.3	51	415/3	2 x 350	2 x 1.2	3600	240/1	8	7/8"	1/2"	100	1000	725	565	\$6,815.84
259377	OP-LGZE215	7 1/2	NTZ215-4	22.3	74		2 x 450	2 x 1.7	9000		10	1 1/8"		145	1210	800	725	\$11,722.08
259378	OP-LGZE271	8 1/2	NTZ271-4	27	96									150				\$12,301.78

Medium Temperature Nominal Capacities

Model No.	Ambient Temperature: °C	R404A Capacity: Watts							R134a Capacity: Watts						
		Evaporating Temperature: °C							Evaporating Temperature: °C						
		-20	-15	-10	-5	0	5	10	-20	-15	-10	-5	0	5	10
OP-MGZE136	32	7471	9430	11642	14102	16799	19717	22838	3694	5049	6697	8666	10975	13632	16651
	38	6541	8307	10300	12518	14954	17599	20438	3239	4523	6068	7909	10065	12551	15368
	43	5783	7386	9194	11209	13428	15844	18449	2860	4080	5540	7273	9300	11638	14295
OP-MGZE171	32	8755	11334	14284	17597	21258	25246	29535	4313	5975	8012	10467	13366	16734	20582
	38	7659	9983	12629	15596	18876	22456	26317	3669	5244	7159	9457	12166	15309	18900
	43	6726	8841	11239	13922	16890	20134	23643	3219	4701	6501	8650	11185	14126	17490
OP-MGZE215	32	11095	14114	17554	21405	25646	30251	35186	5493	7520	9964	12866	16248	20125	24496
	38	9627	12327	15413	18878	22710	26886	31381	4629	6558	8865	11592	14759	18384	22473
	43	8462	10892	13678	16819	20306	24124	28254	3981	5809	7986	10549	13522	16923	20758
OP-MGZE242	32	12918	16217	19914	23986	28405	33135	38136	7091	9483	12337	15681	19530	23883	28745
	38	11265	14222	17533	21183	25150	29408	33924	6193	8461	11149	14281	17877	21940	26468
	43	9910	12576	15559	18853	22443	26308		5500	7647	10178	13118	16486	20289	24525
OP-MGZE271	32	14175	17793	21846	26311	31153	36329	41789	7870	10469	13588	17259	21498	26297	31658
	38	12388	15640	19278	23288	27645	32313	37253	6948	9400	12322	15742	19676	24127	29085
	43	10923	13860	17146	20772	24721	28967		6261	8566	11296	14481	18137	22271	26874

Ratings at 10K Superheat and 3K Sub-cooling

Low Temperature Nominal Capacities

Model No.	Ambient Temperature: °C	R404A Capacity: Watts						
		Evaporating Temperature: °C						
		-40	-35	-30	-25	-20	-15	-10
OP-LGZE136	32	2250	3102	4117	5300	6652	8171	9850
	38	1864	2630	3541	4602	5815	7180	8693
	43	1551	2244	3067	4025	5121	6358	7732
OP-LGZE215	32	3192	4420	5825	7394	9108	10945	12881
	38	2543	3653	4913	6312	7834	9464	11180
	43	2002	3010	4147	5404	6769	8228	
OP-LGZE271	32	4584	6248	8161	10304	12652	15175	17839
	38	3830	5321	7023	8922	10997	13226	15581
	43	3202	4544	6066	7759	9607	11592	

Ratings at 10K Superheat and 3K Sub-cooling

Accessories

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
262170	5312010L10	Weather Canopy	OP-LGZE136	\$768.12
262171	5312007L07		OP-MGZE136 OP-LGZE215 OP-LGZE271	\$1,143.95
262172	5312008L08		OP-MGZE171 OP-MGZE215 OP-MGZE242 OP-MGZE271	\$1,841.91



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Semi-Hermetic Condensing Units



Tecumseh

L'Unite Hermetique - SHT Series

The new range of Tecumseh semi-hermetic condensing units is fully fitted and fully wired to make installation fast and efficient. SHT has been designed to operate efficiently in both the hot and cold extremes of the Australian environment. This range is designed for R134a, R404A, R407F and R507 and can be applied in both low and medium temperature applications.

Features

- High ambient temperature capability up to 46°C
- Carel fan speed control
- Liquid line with filter drier and moisture indicator
- Ebm condenser fans
- Fully Wired D.O.L including circuit breakers, contactor, electronic overload and spare DIN rail in an enclosure
- Tecumseh semi-hermetic compressor with electronic protection module
- Suction accumulator
- Automatic reset HP/LP control
- Oil separator
- Weathershield covers are optional



Cat. No.	Model No.	Nom HP	Compressor				Fan				Liquid Receiver Capacity kg @ 80%	Connections		Net Weight kg	Dimensions			List Price \$ Exc. GST			
			Model No.	MOC Amps	LRC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct	Liq		L mm	W mm	H mm				
254050	SHT4576ZHR	6	SH4576Z	11.6	63.1	415/3	2 x 500	2 x 3.0	2165	240/1	9.8	1 1/8"	5/8"	177	1600	890	936	\$11,253.74			
254052	SHT4590ZHR	7	SH4590Z	12.7														182	\$11,591.96		
254054	SHT4610ZHR	8	SH4610Z	17.6	87.3				5000			1 3/8"		186				\$12,416.65			
254056	SHT4612ZHR	9	SH4612Z	20										232	1880	1100	840	\$15,569.79			
254058	SHT4615ZHR	12	SH4615Z	22.4	59.1		3 x 500				14	1 5/8"	7/8"	232				1880	1100	840	\$15,569.79
254060	SHT4620ZHR	15	SH4620Z	32.4	74.8																

Accessories

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
262136	1000012	Weather Shield Unit Cover	SHT4576ZHR, SHT4590ZHR, SHT4610ZHR & SHT4612ZHR	\$2,526.20
262138	1000013		SHT4615ZHR, SHT4620ZHR	\$2,722.46

Refer to SH series Compressors for an extended list of accessories & spare parts.

Nominal Capacities

Model No.	Ambient Temperature: °C	R404A Capacity: Watts											R134a Capacity: Watts										
		Evaporating Temperature: °C											Evaporating Temperature: °C										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	7.5	-30	-25	-20	-15	-10	-5	0	5	10	12.5	
SHT4576ZHR	32			3979	5407	7026	8869	10932	13219	15898	18676	20136			3819	5090	6632	8469	10629	13108	15977	17514	
	35			3673	5011	6540	8347	10318	12504	14908	17530	19186			3592	4808	6296	8079	10209	12621	15359	16018	
	38			3369	4648	6101	7753	9610	11794	14102	16623	17956			3365	4543	5985	7717	9747	12081	14803	16262	
	43			2855	4023	5345	6845	8527	10394	12641	14960	16193			2996	4101	5459	7091	9010	11224	13824	15219	
	46			2537	3600	4865	6333	7920	9692	11651					2768	3831	5135	6726	8583	10733	13194	13611	
SHT4590ZHR	32	2648	3683	4966	6462	8217	10238	12538	15256	18138	21275		3078	4129	5386	6876	8623	10667	13034	15788	18857	19900	
	35	2417	3419	4618	6030	7741	9662	11853	14302	17235	20258		2867	3905	5128	6576	8269	10274	12570	15194	18161	19816	
	38	2171	3154	4295	5640	7207	9008	11173	13510	16095	18926		2645	3683	4882	6291	7935	9854	12066	14654	17533	18304	
	43	1786	2600	3744	4967	6379	7999	9843	12080	14434	17020		2295	3312	4465	5807	7366	9183	11275	13718	16443	17230	
	46	1200	2100	3200	4500	5907	7429	9166	11114				2089	3078	4207	5507	7034	8789	10812	13118	15747	17152	
SHT4610ZHR	32			5898	7672	9732	12101	14786	17964	21344	25035				5327	6970	8944	11293	14035	17192	20836	22406	
	35			5496	7180	9120	11439	14004	16884	20072	23871				5063	6640	8542	10813	13505	16571	20038	20678	
	38			5123	6725	8570	10695	13104	15974	19031	22383				4800	6327	8168	10366	12929	15887	19323	20589	
	43			4487	5940	7611	9531	11715	14338	17135	20221				4354	5795	7528	9594	12016	14802	18071	19347	
	46			4085	5442	7057	8864	10923	13246	15845					4084	5465	7126	9145	11486	14180	17261	17607	
SHT4612ZHR	32			6832	8793	11082	13701	16823	20177	23858	27853				6352	8265	10556	13234	16322	19897	23828	25005	
	35			6358	8217	10457	12955	15779	18929	22702	26552				6040	7893	10112	12741	15731	19129	22928	24917	
	38			5921	7699	9755	12097	14900	17910	21220	24812				5745	7546	9691	12201	15083	18436	22122	22949	
	43			5173	6796	8662	10780	13325	16053	19058	22351				5251	6956	8977	11336	14053	17220	20706	21543	
	46			4711	6273	8034	10027	12275	14793						4951	6590	8564	10838	13461	16434	19903	21485	
SHT4615ZHR	32			8044	10541	13459	16819	20621	25161	29942	35166		4464	6138	8233	10733	13691	17128	21063	25637	30644	32258	
	35			7420	9767	12627	15845	19491	23583	28505	33575		4127	5747	7747	10157	13019	16421	20259	24611	29486	32172	
	38			6858	9085	11697	14717	18367	22307	26675	31481		3779	5359	7297	9634	12407	15647	19365	23706	28475	29712	
	43			5909	7915	10277	13014	16147	19992	24038	28523		3236	4723	6542	8749	11363	14437	17969	22126	26695	28008	
	46			5327	6900	9480	12072	15049	18426				2938	4345	6080	8197	10766	13745	17180	21106	25537	27936	
SHT4620ZHR	32	5689	8293	11103	14230	17730	21839	26266	31166	37045	42986	46121	5979	8113	10619	13590	17072	21126	25886	31200	37169	37802	
	35	5084	7585	10311	13409	16768	20525	24694	29666	34813	40376	44163	5550	7633	10085	12972	16405	20344	24872	30006	35959	39098	
	38	4479	6939	9588	12479	15670	19401	23383	27776	33129	38499	41343	5124	7182	9585	12396	15679	19486	23958	28945	34549	37817	
	43	3250	5700	8332	11025	13960	17393	21014	25005				4412	6415	8731	11416	14528	18125	22361	27086	32403	32624	
	46	2500	4800	7617	10200	12986	16043	19406					3968	5941	8197	10849	13862	17343	21335	26035	31193	32573	

Nominal Ratings at 10K Superheat and 3K Sub-Cooling



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Semi-Hermetic Condensing Units



Bitzer IS Series

The proven series of IS air cooled condensing units with Ecoline compressors are now available in a streamlined fully fitted standard range.

Features

- Robust construction with compact dimensions
- Comprehensive application range
- R134a and R404A refrigerants suitable for high, medium and low temperature applications

Inclusions

Bitzer semi-hermetic compressor, crankcase heater, vibration eliminator, condenser with sub-cooling circuit, liquid receiver, drier, sight glass, dual pressure control with flexible lines, electronic motor protection monitoring (SE-B1), condenser fan speed controller, a white IP rated electrical enclosure, electrical contactors, overloads, and isolation switch all pre-wired, internal float oil separator with flexible oil return line, suction accumulator and galvanized base plate. Standard power requirement is 415V/3ph/50Hz.

Cat. No.	Part No.	Model No.	Compressor Model No.	Condens. Model No.	Compressor		Fan/s		Condens. Air Flow: l/s	Receiver Capacity: kg		Connections		Overall Dimensions: mm			Weight: kg	List Price \$ Exc. GST
					Elect. Supply: Volts/Ph./Hz	Max.Op. Current: Amps	Current: Amps	Input Power: kW		R134a	R404A	Suct.	Liqu.	Length	Width	Height		
251141	U16-238A	2FES-3Y-IS3-4P	2FES-3Y	IS3-4P	380-420/3/50	6.1	1.1	0.25	1750	7.8	7	5/8"	1 1/2"	1210	819	836	150	\$9,209.20
251143	U16-270A	2DES-3Y-IS3-4P	2DES-3Y			8.6						\$10,821.06						
251145	U16-286A	2CES-4Y-IS3-4P	2CES-4Y			10						\$11,090.18						
251147	U16-324A	4EES-6Y-IS5-4P	4EES-6Y	IS5-4P		13.6	2.2	0.49	3444			1 1/8"	5/8"	1700	900	833	167	\$12,616.80
251149	U16-338A	4DES-7Y-IS5-4P	4DES-7Y			16.5												\$13,289.47
251151	U16-353A	4CES-9Y-IS5-4P	4CES-9Y			20.2												\$14,453.49

Nominal Capacities

Model No.	Ambient Temperature: °C	R404A Capacity: Watts								R134a Capacity: Watts								
		Evaporating Temperature: °C								Evaporating Temperature: °C								
		-30	-25	-20	-15	-10	-5	0	5	-30	-25	-20	-15	-10	-5	0	5	10
2FES-3Y-IS3-4P	35	2086	2695	3395	4196	5104	6125	7265	8526	982	1389	1870	2439	3105	3879	4769	5783	6928
	38	1955	2534	3198	3958	4819	5788	6871	8071	911	1308	1774	2323	2966	3711	4570	5548	6654
	40	1868	2428	3069	3801	4631	5566	6611	7771	865	1255	1712	2248	2875	3602	4439	5394	6474
	43	1741	2272	2878	3569	4353	5237	6226	7325	798	1178	1621	2138	2741	3441	4247	5166	6207
2DES-3Y-IS3-4P	35	3210	4103	5117	6262	7545	8970	10540	12255	1409	1993	2690	3515	4483	5604	6890	8346	9979
	38	3020	3871	4835	5922	7140	8493	9986	11619	1322	1892	2567	3365	4298	5380	6619	8024	9600
	40	2892	3715	4645	5693	6867	8173	9614	11193	1265	1825	2486	3265	4176	5231	6440	7810	9349
	43	2698	3478	4358	5347	6456	7690	9054	10550	1180	1726	2366	3118	3994	5009	6172	7491	8974
2CES-4Y-IS3-4P	35	3982	5037	6225	7554	9030	10656	12431	14354	1790	2495	3332	4318	5467	6792	8300	9998	11888
	38	3758	4762	5890	7150	8549	10091	11776	13604	1692	2380	3191	4144	5243	6530	7984	9621	11445
	40	3606	4576	5664	6878	8226	9711	11336	13101	1626	2303	3098	4029	5111	6356	7774	9371	11151
	43	3376	4295	5322	6466	7737	9138	10674	12343	1529	2189	2960	3858	4899	6097	7460	8997	10711
4EES-6Y-IS5-4P	35	5412	6889	8605	10580	12829	15364	18194	21322	2686	3628	4761	6113	7711	9575	11726	14178	16943
	38	5121	6527	8156	10028	12161	14568	17258	20237	2527	3448	4548	5856	7398	9196	11271	13637	16307
	40	4926	6284	7853	9657	11713	14034	16631	19510	2421	3328	4406	5685	7190	8945	10968	13277	15884
	43	4630	5915	7397	9098	11038	13231	15688	18418	2262	3148	4194	5430	6880	8569	10516	12739	15251
4DES-7Y-IS5-4P	35	6544	8272	10267	12549	15135	18036	21260	24809	2944	4022	5339	6931	8826	11051	13626	16565	19876
	38	6202	7848	9743	11911	14370	17132	20204	23592	2765	3819	5096	6633	8459	10601	13080	15910	19102
	40	5973	7563	9392	11484	13858	16526	19498	22780	2644	3682	4934	6434	8214	10301	12716	15475	18588
	43	5628	7134	8863	10841	13087	15615	18436	21557	2460	3476	4688	6135	7847	9851	12171	14823	17818
4CES-9Y-IS5-4P	35	7692	9734	12077	14744	17752	21111	24828	28901	3736	5040	6623	8523	10772	13396	16411	19829	23652
	38	7269	9215	11446	13986	16855	20062	23617	27519	3530	4805	6341	8176	10343	12686	15769	19060	22744
	40	6988	8870	11026	13482	16257	19363	22810	26598	3390	4647	6152	7944	10056	12516	15342	18548	22140
	43	6569	8353	10397	12726	15360	18315	21599	25216	3179	4408	5867	7594	9626	11988	14702	17783	21237

Capacities based on 20°C return vapour and 5K sub-cooling. Actrol Sales & Application Engineers are available to provide selection advice.



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MAXIMISES EFFICIENCY,
REDUCES COSTS.



EVOLUTION SERIES

In 2014, BITZER Australia launched the 'EVOLUTION' Series Outdoor Air Cooled Condensing Unit. The EVOLUTION is available in two models; Standard and Premium. The Premium model comes with the Ecoline VariSpeed compressor and Unit Controller; Standard model is fitted with the Ecoline Series compressor and optional CRII infinite capacity control. Both models are fitted with Ziehl ZAPlus fan technology exclusive to BITZER Australia. The combination of compressor and fan technology makes the EVOLUTION a market leader for efficiency, low sound emissions and energy saving.

You can learn more about the EVOLUTION Series Outdoor Condensing Unit or any of our BITZER Australia products by contacting your local BITZER branch.



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BITZER Australia Pty Limited

SYDNEY

T +61 (2) 8801 9300
F +61 (2) 9673 4698

VICTORIA

T +61 (3) 8326 8200
F +61 (3) 9310 2520

QUEENSLAND

T +61 (7) 3725 1360
F +61 (7) 3274 3621

SOUTH AUSTRALIA

T +61 (8) 8345 6110
F +61 (8) 8268 4555

WESTERN AUSTRALIA

T +61 (8) 6350 6297
F +61 (8) 9359 2077

NEW ZEALAND

T +64 9 415 2030

www.bitzeravp.com.au

www.bitzer.com.au

info@bitzer.com.au

Semi-Hermetic Condensing Units



Bitzer IS Series

The Bitzer IS series indoor condensing units feature the latest Octagon semi-hermetic compressors. Standard power requirement is 415V/3ph/50Hz.

Cat. No.	Part No.	Model No.	Compressor					Condenser				Connections		Weight: kg	Receiver Pump Down: R404A kg	List Price \$ Exc. GST									
			Series	Nom. HP	Max Current: Amps	Max Power Consumption: kW	Heater: Watts 240/1/50	Number of Fans: 240/1/50	Fan Total Amps	Fan Total kW	Air flow: l/s	Suct.	Liq.												
251071	U16-201	2KC-05.2Y-IS1-4P	C1	0.5	2.7	1.5	60	1x350mm	0.60	0.14	760	5/8"	3/8"	104	3.8	\$7,616.50									
251072	U16-200	2JC-07.2Y-IS1-4P		0.7	3.5	1.9										\$7,730.62									
251053	U16-202	2HC-1.2Y-IS1-4P		1		2.0										\$7,186.57									
251054	U16-210	2HC-2.2Y-IS1-4P		2	4.3	2.4										\$6,965.56									
251055	U16-218	2GC-2.2Y-IS1-4P			4.7	2.7								127		\$6,994.47									
251073	U16-220	2GC-2.2Y-IS2-4P				1x450mm		1.10	0.25	1170	7/8"					\$8,747.12									
251074	U16-219	2GC-2.2Y-IS2-6P						0.79	0.16	870						\$8,590.25									
251056	U16-226	2FC-2.2Y-IS1-4P		3	4.9	2.8		1x350mm	0.60	0.14	760	5/8"	7/8"	104		\$7,676.95									
251057	U16-235	2FC-3.2Y-IS2-6P						1x450mm	0.79	0.16	870	7/8"		127		\$8,200.83									
251075	U16-237	2FC-3.2Y-IS3-6P									1000	1 1/8"	1/2"	160	7.0	\$9,455.35									
251076	U16-242	2EC-2.2Y-IS1-4P	C2	2	5.7	3.3	120	1x350mm	0.60	0.14	760	5/8"	3/8"	104	3.8	\$8,164.25									
251058	U16-243	2EC-2.2Y-IS2-6P							0.79	0.16	870	7/8"		127		\$8,831.44									
251059	U16-251	2EC-3.2Y-IS2-6P		3	6.9	4.0			1.10	0.25	1330	1 1/8"	1/2"	160	7.0	\$10,921.15									
251077	U16-254	2EC-3.2Y-IS3-4P							0.79	0.16	870	7/8"	3/8"	127	3.8	\$9,208.00									
251060	U16-259	2DC-2.2Y-IS2-6P		2	7.8	4.5		1x450mm	1.10	0.25	1170	1 1/8"	1/2"	160	7.0	\$10,034.26									
251061	U16-268	2DC-3.2Y-IS2-4P		3							1330					\$10,712.94									
251078	U16-270	2DC-3.2Y-IS3-4P										7/8"	3/8"	127	3.8	\$10,047.68									
251079	U16-275	2CC-3.2Y-IS2-6P		8.5	5.0						870					\$10,228.47									
251062	U16-276	2CC-3.2Y-IS2-4P									1170	1 1/8"	1/2"	160	7.0	\$10,380.19									
251091	U16-277	2CC-3.2Y-IS3-6P									1000					\$10,450.06									
251092	U16-278	2CC-3.2Y-IS3-4P		4	9.4	5.6			1.10	0.25	1330	5/8"	1/2"	178	7.0	\$10,686.81									
251063	U16-286	2CC-4.2Y-IS3-4P						2x450mm	2.20	0.49	3100					\$12,372.44									
251093	U16-290	2CC-4.2Y-IS4.3-4P														\$10,277.32									
251064	U16-293	4FC-3.2Y-IS3-6P	C3	3	9.2	5.4		1x450mm	0.79	0.16	1000	1/2"	160	7.0	\$10,277.32										
251083	U16-294	4FC-3.2Y-IS3-4P													\$10,422.66										
251084	U16-301	4FC-5.2Y-IS3-6P		5	10.8	6.2										\$10,698.72									
251065	U16-302	4FC-5.2Y-IS3-4P				1330					\$10,812.88														
251085	U16-305	4FC-5.2Y-IS4.3-6P				2x450mm		1.58	0.32	2350	5/8"	1/2"	178		\$12,065.81										
251086	U16-306	4FC-5.2Y-IS4.3-4P						2.20	0.49	3100					\$12,390.26										
251094	U16-308	4EC-4.2Y-IS3-6P		4	10.7	6.4		1x450mm	0.79	0.16	1000	1 1/8"	1/2"	160	7.0	\$12,611.98									
251066	U16-309	4EC-4.2Y-IS3-4P									1330					\$12,688.67									
251067	U16-322	4EC-6.2Y-IS4.3-4P		6	13.2	7.9		2x450mm	2.20	0.49	3100			178		\$13,631.21									
251095	U16-324	4EC-6.2Y-IS5-4P									2900			182		\$14,082.84									
251096	U16-326	4DC-5.2Y-IS3-4P		5	13.5	8.0		1x450mm	1.10	0.25	1330	5/8"	1/2"	160		\$12,931.62									
251068	U16-331	4DC-5.2Y-IS5-6P						2x450mm	1.58	0.32	2100					\$14,455.90									
251087	U16-332	4DC-5.2Y-IS5-4P						2x450mm	2.20	0.49	2900			182		\$14,779.41									
251069	U16-338	4DC-7.2Y-IS5-4P		7	15.9	9.1										\$15,237.90									
251097	U16-347	4CC-6.2Y-IS5-6P				3100					\$15,465.74														
251098	U16-346	4CC-6.2Y-IS4.3-4P		6							2900			178		\$14,955.75									
251088	U16-348	4CC-6.2Y-IS5-4P												182		\$15,842.00									
251089	U16-353	4CC-9.2Y-IS5-4P		9	20.0	10.5											\$16,452.22								

Actrol Sales & Application engineers are available to provide selection advice.



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Semi-Hermetic Condensing Units



Bitzer IS Series



Bitzer IS series condensing units are supplied standard with the following inclusions:

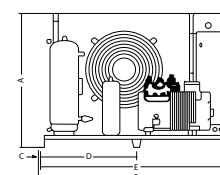
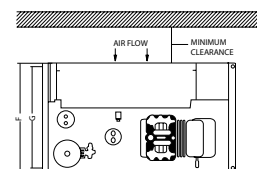
Bitzer Octagon semi-hermetic compressor, powder coated base plate & panels and condenser fitted with dedicated sub-cooling circuit. Also fitted are an internal float oil separator, liquid receiver, drier, sight glass, receiver valves, discharge line vibration eliminator, dual pressure control with flexible lines, crankcase heater, electronic motor protection monitoring (SE-B1) & BSE32 oil charge.

Accessories

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
251200	U10-265	Electrical Wiring & Panel Set Fitted	IS1	\$1,213.91
251201	U10-266		IS2	\$1,315.26
251202	U10-267		IS3	\$1,309.94
251203	U10-268		IS4.3/IS5	\$1,480.36
328084	U10-269		IS4.3/IS5 (4CC-9.2Y)	\$1,451.34
328100	U10-870	Electrical Panel Set Only Fitted	IS1/IS2	\$450.46
328101	U10-871		IS3/IS4.3/IS5	\$477.72
301160	B37-011	Oil Separator with Reservoir	IS3 to IS5	\$902.54
251204	U51-008A	Oil Separator Fitting Charge		\$364.80
217342	U40-096	Oil Return Sight Glass Fitted		\$194.11
251211	U40-097	Traxon Oil Level Control Fitted	Octagon Compressors	\$934.53
301165	U40-098	Traxon Oil Level Monitoring Digital c/w Transformer Fitted		\$673.83
301166	U40-098E	Traxon Oil Level Monitoring c/w Transformer & Wiring Fitted		\$858.53
251222	B43-304	Suction Accumulator	5/8"	\$206.38
251223	B43-300		7/8"	\$270.47
251224	B43-301		1 1/8"	\$329.92
251205	U51-009	Suction Accumulator Fitting Charge		\$417.70
143140	U40-092	LP Control Auto Reset Fitted		\$293.00
143141	U40-093	HP Control Auto Reset Fitted		\$293.00
143142	U40-094	HP Control Manual Reset Fitted		\$325.42
143143	U40-090	HP Fan Cycling Control Fitted		\$496.84
143145	U40-104	Fan Speed Control Fitted		\$513.96
251217	K01-150	Three Phase Protection Monitoring Module Fitted when ordered with unit with Electrical Wiring Fitted		\$526.18
251206	U40-040	Liquid Line Solenoid Valve Fitted	3/8"	\$327.15
251207	U40-041		1/2"	\$411.14
251208	U40-042		5/8"	\$433.78
196193	U40-021	Liquid Line Ball Valve Fitted	3/8"	\$209.47
196194	U40-022		1/2"	\$212.85
196195	U40-023		5/8"	\$218.83
251212	347600-01	Capacity Control Solenoid Valve Assembly Fitted	C3 Compressors	\$536.35
272188	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz		\$233.72

Dimensions

Model No.	Dimensions: mm							Sound Data dB(A)		
	A	B	C	D	E	F	G	Min. Clearance	Speed Controlled	High Speed
IS1-4P	705	1073	15	N/A	1040	680	630	150	53.0	57.3
IS2-4P									53.7	55.4
IS2-6P								200	57.0	60.0
IS3-4P	860	1178	15	570	1148	680	630	150	53.7	55.4
IS3-6P									57.0	60.0
IS4.3-6P		1578		780	1548			200	51.5	55.2
IS4.3-4P								250	60.3	63.3
IS5-4P								200	51.5	55.2
IS5-6P							250	60.3	63.3	



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Section 4

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Packaged Condensing Units

Acpac

Hermetic Reciprocating - R404A & R507

The Acpac Series of Packaged Condensing Units provide a high quality professional solution for all commercial refrigeration applications. Acpac has been designed in Australia to operate efficiently in both the hot and cold temperature extremes of the Australian environment. Acpac will appeal aesthetically whether installed in the rugged Australian outback or the most architecturally designed buildings.

Features

- Easy and cost effective installation
- Robust powder coated enclosure
- Tecumseh L'Unite Hermetique compressors
- Low operating cost
- Condenser coil protection
- Oil Separator on all models
- Fully wired
- Designed for R404A and R507 refrigerants
- Suitable for ambient temperatures up to 46°C
- Condenser fan control for stable operation
- Easy access to all serviceable components
- Suction Accumulator on low temperature models



Cat. No.	Model No.	Compressor			Fan				Liquid Receiver Capacity kg @ 80%	Connections		Nett Weight kg	Sound Power* Level dBA	List Price \$ Exc. GST
		Model No.	MOC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct.	Liq.			

Medium Temperature

259003	AP1.7M1-4	CAJ9480Z	4.1	240/1	1 x 350	0.65	399	240/1	2.3	1½"	3⁄8"	68	62	\$5,475.90
259004	AP2.1M1-4	CAJ9510Z	5.2							70		63	\$5,538.08	
259005	AP2.5M1-4	CAJ9513Z	6.4									64	\$5,767.33	
259006	AP2.8M1-4	CAJ4517Z	7.1				71		65	\$5,984.44				
259007	AP3.9M1-4	CAJ4519Z	9.9						68	\$6,663.34				
259008	AP4.1M1-4	FH4524Z	10.3						81	70		\$7,139.80		
259013	AP5.7M2-4	TFH4531Z	6.5	415/3	2 x 350	2 x 0.65	856	6.0	7⁄8"	1½"	105	69	\$7,579.52	
259015	AP7.8M2-4	TFH4540Z	8.9				118				75	\$8,625.35		
259017	AP8.8M2-4	TAG4553Z	9.8				1459				9.5	146	78	\$9,159.38
259019	AP10.7M2-4	TAG4561Z	11.4					148				\$9,894.14		
259021	AP13.1M2-4	TAG4573Z	14.3					1402				150	77	\$10,157.16

Low Temperature

259036	AP1.9L1-4	CAJ2464Z	7.8	240/1	1 x 350	0.65	399	240/1	2.3	5 ⁵ / ₈ "	3 ³ / ₈ "	73	67	\$5,718.02
259038	AP2.9L1-4	FH2480Z	11.5				778		3.9			90	69	\$7,592.51
259043	AP3.3L2-4	TFH2511Z	5.1	415/3	2 x 350	2 x 0.65	856		6.0			130	72	\$10,175.81
259045	AP4.8L2-4	TAG2516Z	7.3				1459			7 ⁷ / ₈ "	1 ¹ / ₂ "	155	71	\$12,261.43
259047	AP6.2L2-4	TAG2522Z	9.4				1402		9.5			175	76	\$12,222.88

* Subtract 17dBA to convert to sound pressure at 3m distance.



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Packaged Condensing Units

Acpac

Semi Hermetic Reciprocating - R134a, R404A & R507

The Acpac Semi Hermetic Series of Packaged Condensing Units provide a high quality professional solution for all commercial refrigeration applications. Acpac has been designed in Australia to operate efficiently in both the hot and cold temperature extremes of the Australian environment. Acpac will appeal aesthetically whether installed in the rugged Australian outback or the most architecturally designed buildings.



Features

- Easy and cost effective installation
- Robust powder coated galvanized enclosure
- Bitzer Octagon Semi Hermetic compressors
- Low operating cost
- Oil Separator on all models
- Epoxy coated coil protection
- Fully wired
- Designed for R404A and R507 refrigerants
- Suitable for ambient temperatures up to 46°C
- Condenser fan control for stable operation
- Easy access to all serviceable components
- Suction Accumulator on low temperature models 2000 hour salt spray tested

Cat. No	Model No.	Compressor			Fans			Liquid Receiver Capacity kg @ 80%	Connections		Nett Weight kg	Sound Power* Level dBA	List Price \$ Exc. GST
		Model No.	MOC Amps	Volts/ Ph.	No. Dia: mm	MOC Amps	Volts/ Ph.		Suct.	Liq.			
259130	APB4.9ML2-4	2GC-2.2Y	4.5	415/3	2 x 350	2 x 0.37	240/1	6.0	5/8"	3/8"	170	68	\$12,198.92
259131	APB6.0ML2-4	2FC-3.2Y	8.9								175	68	\$12,729.15
259132	APB8.5ML2-4	2DC-3.2Y	7.6								200	69	\$13,474.34
259133	APB11.5ML3-4	4FC-5.2Y	10.3		3 x 350	3 x 0.37		9.5	7/8"	1/2"	230	71	\$17,238.36
259134	APB15.8ML3-4	4DC-7.2Y	15.1								250	72	\$20,261.66
259135	APB20.8ML2-4	4CC-9.2Y	18.0		2 x 500	2 x 3.3		12	1 1/8"	5/8"	290	79	\$21,747.35
259136	APB25.8ML2-4	4TCS-12.2Y	21.5						350		79	\$24,397.46	
259137	APB29.6ML2-4	4PCS-15.2Y	24.7						360		79	\$24,822.56	
259138	APB36.7ML2-4	4NCS-20.2Y	29.0						390		80	\$28,647.78	

* Subtract 17dBA to convert to sound pressure at 3m distance.



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Condensing Units



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Packaged Condensing Units

Acpac Scroll - R404A & R507

The Acpac Scroll Series of Packaged Condensing Units provide a high quality professional solution for all commercial refrigeration applications. Acpac Scroll has been designed in Australia to operate efficiently in both the hot and cold temperature extremes of the Australian environment. Acpac Scroll will appeal aesthetically whether installed in the rugged Australian outback or the most architecturally designed buildings.

Features

- Easy and cost effective installation
- Robust powder coated enclosure
- Copeland scroll compressors
- Low operating cost
- Condenser coil protection
- Oil Separator on all models
- Anti short cycle timer
- Fully wired
- Designed for R404A and R507 refrigerants
- Suitable for ambient temperatures up to 46°C
- Condenser fan speed control for stable operation
- Easy access to all serviceable components
- Suction Accumulator on all models

Electronic Overload protects for

- Over current
- Locked Rotor
- Phase Reversal
- Phase Loss
- Phase Unbalance

Cat. No.	Model No.	Compressor			Fan(s)			Liquid Receiver Capacity kg @80%	Connections		Nett Weight kg	Sound Power* Level dBA	List Price \$ Exc. GST
		Model No.	MOC Amps	Volts/ Phase	No. Diam. mm	MOC Amps	Volts/ Phase		Suct	Liq			

Medium Temperature

259060	APC4.6M1-4	ZB15KQE	16	240/1	1 x 350	1 x 0.65		3.9			70	66	\$7,830.37
259062	APC5.7M2-4	ZB19KQE	6		2 x 350	2 x 0.65		6.0	5/8"	3/8"	131	68	\$10,475.07
259064	APC7.9M2-4	ZB26KQE	10								133	69	\$11,321.46
259066	APC11.5M3-4	ZB38KQE	12.5		3 x 350	3 x 0.65		9.5	7/8"	1/2"	163	70	\$13,767.80
259068	APC14.4M3-4	ZB48KQE	17								167	73	\$14,554.07
259070	APC18.3M2-4	ZB58KQE	23	415/3			240/1				241	77	\$18,984.70
259072	APC20.3M2-4	ZB66KQE	24.2								242	77	\$19,123.12
259074	APC24.7M2-4	ZB76KQE	26.9		2 x 500	2 x 3.3		12	1 1/8"	5/8"	245	78	\$21,947.96
259076	APC29.7M2-4	ZB95KQE	27.8								305	82	\$23,112.45
259078	APC34.9M2-4	ZB114KQE	31.4								314	83	\$24,343.44

Low Temperature

259082	APC3.4L2-4	ZF09K4E-TFD	6					6.0	5/8"	3/8"	131	70	\$10,946.79
259086	APC4.9L2-4	ZF13K4E-TFD	8		2 x 350	2 x 0.65					138	73	\$11,832.19
259088	APC5.9L2-4	ZF15K4E-TFD	10								142	73	\$11,829.00
259090	APC7.3L3-4	ZF18K4E-TFD	12.5		3 x 350	3 x 0.65		9.5	7/8"	1/2"	163	74	\$14,385.33
259092	APC9.2L2-4	ZF24K4E-TFD	16.1	415/3			240/1				242	82	\$15,207.17
259094	APC12.5L2-4	ZF33K4E-TFD	22.3								245	82	\$19,985.11
259096	APC15.0L2-4	ZF40K4E-TFD	25.1		2 x 500	2 x 3.3		12	1 1/8"	5/8"	300	82	\$22,933.32
259098	APC18.7L2-4	ZF48K4E-TFD	28.7								314	82	\$24,147.92

* Subtract 17dBA to convert to sound pressure at 3m distance.



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Packaged Condensing Units

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Refrigeration Capacities: Watts - R404A & R507

Hermetic Reciprocating - Medium Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C						
		-15	-10	-5	0	5	10	15
AP1.7M1-4	32	1229	1521	1785	2118	2452	2796	3141
	35	1162	1417	1696	1995	2309	2666	2997
	38	1087	1329	1591	1931	2194	2502	2808
	43	973	1195	1436	1848	1985	2264	2539
AP2.1M1-4	32	1482	1796	2156	2517	2882	3235	3633
	35	1406	1706	2031	2370	2747	3087	3402
	38	1318	1617	1927	2250	2573	2885	3241
	43	1183	1441	1739	2032	2322	2601	2924
AP2.5M1-4	32	1680	2107	2536	2978	3500	3960	4392
	35	1589	1970	2412	2843	3278	3792	4217
	38	1476	1865	2254	2655	3125	3537	3920
	43	1319	1675	2032	2398	2823	3196	3540
AP2.8M1-4	32	2019	2428	2870	3383	3843	4272	4797
	35	1896	2280	2735	3168	3591	4092	4457
	38	1796	2161	2555	3015	3422	3797	4271
	43	1613	1942	2297	2719	3084	3417	3697
AP3.9M1-4	32	2527	3103	3761	4444	5168	5926	6831
	35	2392	2944	3541	4180	4923	5646	6390
	38	2236	2759	3355	3963	4603	5371	6086
	43	1994	2473	3017	3565	4139	4734	5485
AP4.1M1-4	32	2767	3506	4266	5077	6038	6936	7840
	35	2598	3269	3987	4827	5639	6470	7515
	38	2394	3075	3763	4489	5361	6163	6964
	43	2085	2720	3351	4010	4688	5544	6274
AP5.7M2-4	32	3957	4836	5741	6782	7669	8479	9458
	35	3647	4483	5454	6324	7298	8122	8796
	38	3412	4222	5051	6012	6777	7534	8424
	43	2969	3725	4652	5393	6091	6778	-
AP7.8M2-4	32	5766	6720	7796	8946	10305	11484	12573
	35	5324	6244	7401	8516	9650	10746	12042
	38	4982	5876	6876	7933	9184	10243	11204
	43	4240	5189	6127	7110	8087	9243	10103
AP8.8M2-4	32	5873	7243	8786	10634	12284	14228	15622
	35	5420	6719	8349	9915	11762	13241	14478
	38	5073	6328	7736	9432	10916	12691	13907
	43	4313	5585	6886	8467	9823	11029	-
AP10.7M2-4	32	7260	8852	10575	12696	14663	16539	18783
	35	6823	8220	10046	11860	13692	15858	17466
	38	6387	7740	9322	11276	13053	14723	16758
	43	5437	6835	8306	9876	11762	13272	-
AP13.1M2-4	32	9210	10757	12848	14784	17189	19017	20502
	35	8455	10194	11923	14131	15978	17623	19790
	38	7930	9367	11314	13075	14767	16902	-
	43	6897	8246	9765	11712	13252	-	-

Capacities based on 18°C return vapour and 3 K sub-cooling.



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Packaged Condensing Units

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Refrigeration Capacities: Watts - R404A & R507

Hermetic Reciprocating- Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C						
		-40	-35	-30	-23.3	-20	-15	-10
AP1.9L1-4	32	912	1200	1531	1963	2078	2252	2675
	35	851	1125	1448	1861	1972	2139	2545
	38	795	1057	1355	1757	1855	2003	2381
	43	692	939	1213	1567	1660	1802	2146
AP2.9L1-4	32	857	1271	1741	2467	2852	3518	4209
	35	755	1158	1613	2327	2697	3307	4007
	38	593	1056	1496	2174	2543	3128	3754
	43	-	875	1289	1911	2236	2804	3378
AP3.3L2-4	32	1730	2032	2503	3390	3910	4743	5617
	35	1556	1892	2346	3178	3642	4497	5338
	38	1413	1708	2146	2986	3431	4177	4952
	43	1148	1437	1853	2606	3046	3728	4432
AP4.8L2-4	32	2100	2634	3406	4792	5590	6865	8212
	35	1900	2418	3194	4494	5211	6404	7792
	38	1726	2224	2929	4184	4907	6050	7241
	43	1403	1875	2532	3689	4355	5399	6482
AP6.2L2-4	32	2970	3567	4455	6088	7037	8563	10179
	35	2678	3267	4177	5710	6562	7992	9667
	38	2430	3004	3828	5316	6180	7549	8987
	43	1973	2529	3307	4687	5485	6739	8046

Capacities based on 18°C return vapour and 3 K sub-cooling.



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Packaged Condensing Units

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Refrigeration Capacities: Watts - R404A

Semi Hermetic Reciprocating - Medium & Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C									
		-40	-35	-30	-25	-20	-15	-10	-5	0	5
APB4.9ML2-4	32	931	1288	1707	2200	2758	3394	4111	4913	5802	6840
	35	858	1201	1601	2065	2596	3199	3902	4670	5521	6458
	38	783	1114	1496	1939	2447	3024	3673	4398	5241	6135
	43	666	965	1321	1728	2194	2723	3317	3980	4710	5563
	46	601	885	1216	1599	2037	2550	3113	3742	4432	5185
APB6.0ML2-4	32	1191	1625	2142	2732	3407	4172	5028	5979	7085	8241
	35	1096	1514	2002	2564	3206	3956	4777	5686	6685	7855
	38	997	1404	1872	2409	3023	3717	4493	5394	6347	7379
	43	845	1220	1650	2145	2709	3343	4051	4876	5740	6671
	46	760	1109	1514	1981	2419	3130	3800	4537	5335	6671
APB8.5ML2-4	32	1684	2315	3037	3870	4818	5888	7082	8468	9931	11513
	35	1556	2150	2840	3633	4562	5587	6732	7994	9370	10984
	38	1428	1997	2658	3417	4279	5251	6381	7590	8905	10318
	43	1204	1738	2347	3046	3838	4728	5715	6871	8066	9342
	46	1087	1582	2156	2814	3580	4435	5372	6397	7535	8842
APB11.5ML3-4	32	2312	3150	4143	5268	6551	7997	9612	11488	13469	15616
	35	2141	2944	3877	4949	6204	7590	9136	10844	12706	14899
	38	1970	2739	3632	4657	5823	7134	8663	10296	12078	13995
	43	1675	2396	3218	4160	5229	6429	7763	9323	10941	12675
	46	1522	2191	2964	3850	4890	6034	7298	8683	10241	12075
APB15.8ML3-4	32	3233	4453	5856	7448	9229	11311	13495	15837	18615	21261
	35	2960	4123	5502	7030	8739	10623	12835	15085	17453	20330
	38	2718	3835	5111	6554	8250	10055	12017	14108	16611	18947
	43	2319	3348	4521	5843	7400	9046	12017	14108	16611	18947
	46	2087	3051	4190	5350	6850	8385	10831	12721	15241	17947
APB20.8ML2-4	32	4360	5887	7641	9660	11960	14550	17436	20782	24315	28129
	35	4056	5505	7186	9113	11361	13846	16615	19664	22980	26862
	38	3752	5146	6762	8612	10712	13067	15792	18708	21876	25277
	43	3227	4530	6034	7748	9684	11849	14240	17003	19873	22933
	46	2888	4139	5574	7263	9080	11139	13405	15875	18441	21533
APB25.8ML2-4	32	5020	7013	9285	11881	14807	18231	21865	25797	29974	34966
	35	4640	6510	8670	11221	14026	17146	20560	24573	28578	32730
	38	4264	6056	8125	10481	13129	16235	19498	23007	26704	31177
	43	3632	5283	7186	9346	11766	14609	17572	20740	24052	28177
	46	3246	4802	6592	8710	11020	13534	16268	19140	22142	26177
APB29.6ML2-4	32	5773	8117	10806	13848	17243	21190	25287	29647	34826	39565
	35	5317	7546	10182	13084	16322	19880	24074	28238	32554	37869
	38	4896	7016	9444	12184	15416	18808	22465	26323	30988	35112
	43	4144	6080	8294	10787	13552	16841	20146	23607	27445	31612
	46	3662	5473	7630	9990	12630	15480	18480	21607	25047	28812
APB36.7ML2-4	32	6817	9645	12867	16549	20718	25393	30874	36655	42928	50393
	35	6304	8945	11999	15493	19612	24101	29081	34541	40988	47425
	38	5794	8305	11219	14558	18345	22589	27591	32819	38464	45257
	43	4882	7205	9864	12920	16388	20273	24884	29648	34764	41257
	46	4368	6503	8995	11836	15280	18956	23022	27445	32142	37257

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.



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Packaged Condensing Units

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Refrigeration Capacities - Watts R134a

Semi Hermetic Reciprocating - Medium & Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C									
		-30	-25	-20	-15	-10	-5	0	5	10	12.5
APB4.9ML2-4	32	801	1122	1504	1952	2475	3081	3779	4577	5483	5981
	35	753		1435	1870	2377	2964	3639	4432	5317	5804
	38	705	1065	1371	1794	2287	2859	3516	4269	5124	5593
	43	630	1008	1260	1660	2127	2668	3289	3999	4802	5243
	46	584	919	1193	1580	2031	2554	3167	3856	4638	5066
APB6.0ML2-4	32	1006	1407	1884	2442	3092	3840	4694	5660	6816	7421
	35	936		1781	2318	2942	3660	4518	5464	6529	7107
	38	865	1322	1689	2211	2818	3517	4318	5224	6241	6794
	43	766	1244	1534	2022	2588	3240	3984	4824	5830	6354
	46	704	1117	1441	1908	2450	3098	3821	4641	5561	6060
APB8.5ML2-4	32	1419	1958	2599	3352	4226	5236	6387	7690	9248	10063
	35	1330		2470	3196	4039	5041	6168	7448	8888	9669
	38	1241	1851	2354	3061	3883	4832	5916	7147	8527	9276
	43	1115	1753	2158	2822	3594	4483	5497	6644	8015	8730
	46	1036	1592	2040	2679	3421	4304	5292	6413	7672	8355
APB11.5ML3-4	32	1828	2568	3449	4486	5695	7090	8686	10492	12648	13778
	35	1704		3273	4275	5441	6827	8389	10162	12158	13242
	38	1580	2421	3116	4094	5232	6546	8050	9754	11668	12706
	43	1410	2285	2855	3776	4846	6079	7485	9074	10968	11957
	46	1305	2071	2699	3586	4615	5837	7207	8758	10499	11443
APB15.8ML3-4	32	2927	4031	5331	6846	8589	10572	12956	15514	18338	19845
	35	2739		5061	6569	8277	10227	12427	14880	17581	19018
	38	2575	3805	4841	6268	7912	9786	11897	14246	17088	18521
	43	2298	3615	4427	5765	7303	9141	11154	13403	15880	17200
	46	2132	3276	4178	5511	7013	8724	10651	12798	15156	16408
APB20.8ML2-4	32	3661	5020	6634	8530	10738	13280	16184	19468	23385	25430
	35	3440		6312	8142	10270	12796	15631	18844	22452	24410
	38	3219	4754	6024	7804	9874	12258	14982	18064	21519	23391
	43	2902	4508	5526	7195	9133	11361	13900	16766	20195	21971
	46	2704	4102	5226	6829	8739	10902	13370	16161	19285	20975
APB25.8ML2-4	32	4146	5920	8011	10453	13278	16509	20379	24559	29208	31709
	35	3832		7563	9918	12755	15905	19478	23485	27931	30318
	38	3519	5544	7186	9477	12125	15151	18577	22411	26655	28926
	43	3062	5222	6461	8604	11075	13894	17296	20929	24948	27100
	46	2765	4622	6026	8080	10569	13311	16407	19864	23675	25710
APB29.6ML2-4	32	4913	6932	9332	12149	15412	19141	23647	28438	33712	36519
	35	4506		8785	11631	14821	18468	22586	27174	32206	34877
	38	4168	6463	8345	11001	14073	17578	21526	25910	31301	33944
	43	3521	6078	7459	9953	12827	16324	20081	24251	28810	31221
	46	3132	5324	6928	9457	12263	15456	19038	23002	27316	29588
APB36.7ML2-4	32	5513	8022	10974	14420	18408	22983	28188	34394	41040	44633
	35	5055		10339	13671	17525	22132	27204	32919	39295	42736
	38	4597	7483	9797	13040	16789	21084	25960	31444	37550	40839
	43	3939	7016	8768	11809	15321	19336	23885	29369	35154	38266
	46	3512	6158	8150	11071	14599	18506	22931	27894	33398	36353

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.



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Packaged Condensing Units

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Refrigeration Capacities - Watts R404A

Scroll - Medium Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C					
		-15	-10	-5	0	5	10
APC4.6M1-4	32	3285	3890	4604	5356	6178	7120
	35	3143	3710	4394	5129	5933	6760
	38	3001	3544	4186	4859	5633	6476
	43	2711	3251	3829	4444	5148	5952
APC5.7M2-4	32	4008	4827	5722	6677	7867	9069
	35	3833	4616	5478	6413	7477	8649
	38	3653	4376	5208	6136	7154	8303
	43	3359	4030	4780	5621	6600	7670
APC7.9M2-4	32	5615	6665	7915	9338	10861	12548
	35	5375	6384	7587	8888	10351	12070
	38	5105	6084	7250	8490	9912	11470
	43	4662	5554	6630	7791	9111	10542
APC11.5M3-4	32	8138	9712	11536	13542	15723	18074
	35	7800	9291	10996	12912	15073	17369
	38	7410	8841	10498	12332	14323	16529
	43	6738	8075	9600	11316	13182	15243
APC14.4M3-4	32	10310	12260	14418	16763	19478	-
	35	9830	11660	13776	16015	18458	-
	38	9346	11082	13026	15115	17622	-
	43	8471	10078	11827	13755	16030	-
APC18.3M2-4	32	12744	15379	18285	21580	25132	28976
	35	12195	14745	17548	20620	23992	27842
	38	11595	14055	16738	19751	22968	25022
	43	10493	12865	15358	18189	21113	23200
APC20.3M2-4	32	14394	17181	20254	23802	27558	31606
	35	13783	16466	19408	22662	26238	30344
	38	13123	15686	18552	21674	25077	28784
	43	12012	14340	16993	19889	23003	26448
APC24.7M2-4	32	17303	20776	24694	29007	33925	39168
	35	16583	19926	23721	27880	32425	37428
	38	15836	19056	22641	26620	31093	35877
	43	14537	17554	20843	24544	28675	33062
APC29.7M2-4	32	21011	25192	29740	34892	40437	46524
	35	20038	24098	28492	33302	38553	44692
	38	18904	22880	27229	31846	36890	42406
	43	16862	20711	24871	29179	33856	36393
APC34.9M2-4	32	24320	29295	34863	40805	47265	49995
	35	23086	27909	33159	38855	45380	48022
	38	21724	26503	31577	37083	43040	45556
	43	19325	23912	28686	33856	39430	41787

Capacities based on 18°C return vapour and 3 K sub-cooling.

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Packaged Condensing Units

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Refrigeration Capacities: Watts - R134a

Scroll - Medium Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C					
		-15	-10	-5	0	5	10
APC4.6M1-4	32	1857	2324	2860	3488	4195	5004
	35	1797	2252	2778	3383	4071	4848
	38	1737	2175	2688	3269	3946	4701
	43		2046	2533	3094	3724	4441
	46			2439	2980	3586	4273
APC5.7M2-4	32	2172	2718	3364	4108	4963	5929
	35	2100	2634	3262	3988	4823	5760
	38	2030	2551	3158	3866	4667	5574
	43		2409	2980	3655	4414	5275
	46			2872	3526	4262	5095
APC7.9M2-4	32	3150	3942	4869	5942	7168	8553
	35	3048	3816	4719	5768	6964	8306
	38	2947	3696	4573	5582	6742	8055
	43		3490	4321	5279	6375	7624
	46			4168	5094	6151	7342
APC11.5M3-4	32	4539	5726	7075	8622	10381	12397
	35	4395	5552	6859	8376	10082	12036
	38	4252	5381	6655	8118	9776	11678
	43		5089	6299	7683	9259	11056
	46			6081	7419	8940	10666
APC14.4M3-4	32	5776	7354	9061	10965	13132	15554
	35	5565	7057	8780	10633	12702	15075
	38	5355	6749	8489	10289	12292	14539
	43		6287	7885	9606	11574	13694
	46			7523	9181	11126	13201
APC18.3M2-4	32	7119	8886	10954	13292	15995	18972
	35	6885	8604	10594	12902	15530	18437
	38	6654	8324	10259	12497	15020	17867
	43		7848	9691	11812	14196	16908
	46			9338	11398	13709	16328
AP20.3M2-4	32	8122	10091	12416	15122	18138	21543
	35	7858	9779	12026	14661	17616	20935
	38	7597	9460	11648	14181	17046	20319
	43		8915	10982	13401	16126	19217
	46			10576	12928	15569	18497
APC24.7M2-4	32	9383	11696	14461	17578	21161	25125
	35	9083	11336	14011	17038	20501	24430
	38	8786	10970	13556	16512	19901	23650
	43		10331	12765	15610	18821	22392
	46			12285	15057	18159	21612
APC29.7M2-4	32	11812	14765	18205	22078	26534	31582
	35	11332	14285	17635	21439	25772	30648
	38	10847	13761	17030	20719	24932	29703
	43		12805	15978	19517	23502	28003
	46			15326	18766	22503	27002
APC34.9M2-4	32	13750	17381	21511	26228	31518	37524
	35	13210	16781	20815	25433	30622	36324
	38	12661	16147	20095	24593	29717	35228
	43		15040	18827	23148	27996	33285
	46			18033	22216	26856	31965

Capacities based on 18°C return vapour and 3 K sub cooling.

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Packaged Condensing Units

Acpac

Refrigeration Capacities: Watts - R404A

Scroll - Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C							
		-40	-35	-30	-25	-23.3	-20	-15	-10
APC3.4L2-4	32	1697	2089	2577	3228	3438	3846	4594	5441
	35	1637	2029	2517	3108	3304	3685	4426	5224
	38	1575	1967	2415	2932	3147	3565	4246	4984
	43	1473	1830	2215	2696	2900	3298	3876	4607
	46	1413	1710	2097	2576	2762	3123	3689	4383
APC4.9L2-4	32	2392	2983	3738	4610	4927	5543	6673	7888
	35	2332	2923	3618	4387	4702	5316	6396	7528
	38	2241	2823	3447	4207	4502	5076	6096	7195
	43	2070	2620	3201	3911	4175	4688	5619	6620
	46	2010	2500	3067	3708	3949	4417	5281	6200
APC5.9L2-4	32	2956	3689	4544	5519	5901	6643	7924	9369
	35	2836	3509	4364	5285	5650	6358	7564	8889
	38	2713	3389	4184	5045	5395	6073	7232	8523
	43	2513	3129	3888	4651	4967	5581	6650	7818
	46	2390	2966	3672	4417	4711	5281	6290	7387
APC7.3L3-4	32	3578	4532	5590	6793	7265	8181	9760	11604
	35	3458	4352	5410	6547	6987	7840	9370	11064
	38	3336	4172	5178	6247	6666	7480	8978	10582
	43	3101	3869	4778	5758	6144	6893	8178	9711
	46	2921	3685	4542	5463	5833	6552	7791	9111
APC9.2L2-4	32	4418	5599	6959	8569	9178	10361	12309	14638
	35	4245	5419	6719	8209	8798	9941	11848	14053
	38	4065	5219	6482	7900	8456	9534	11368	13393
	43	3753	4819	6052	7360	7847	8791	10524	12340
	46	3513	4579	5752	7000	7453	8331	9985	11721
AP12.5L22-4	32	6152	7694	9552	11689	12477	14008	16718	19862
	35	5852	7394	9132	11214	11970	13438	16042	18962
	38	5584	7077	8775	10674	11410	12838	15364	18121
	43	5155	6528	8125	9858	10540	11863	14064	16619
	46	4855	6200	7714	9367	10006	11246	13340	15659
APC15.0L2-4	32	7372	9354	11630	14078	15020	16848	20086	23536
	35	7072	8994	11160	13540	14450	16217	19186	22565
	38	6769	8634	10680	12940	13817	15520	18314	21425
	43	6266	7969	9808	11958	12734	14241	16761	19598
	46	5944	7554	9279	11265	11991	13401	15741	18526
APC18.7L2-4	32	9136	11522	14281	17443	18665	21039	25090	29721
	35	8776	11042	13741	16772	17937	20200	24029	28341
	38	8413	10604	13145	15992	17117	19300	22958	27080
	43	7813	9812	12094	14707	15740	17746	21119	24863
	46	7664	9275	11457	13943	14906	16775	19919	23423

Requires liquid injection for compressor cooling.

Capacities based on 18°C return vapour and 3 K sub cooling.



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Packaged Condensing Units

Acpac

Dimensions: mm

Hermetic Reciprocating

Model No.	Overall Dimensions			Case		Mounting Holes	
	Length	Width	Height	Width	Height	Length	Width
AP1.7M1-4	1070	480	750	480	650	1030	440
AP2.1M1-4							
AP2.5M1-4							
AP2.8M1-4							
AP3.9M1-4							
AP4.1M1-4							
AP5.7M2-4	1285	628	820	585	660	895	610
AP7.8M2-4							
AP8.8M2-4							
AP10.7M2-4							
AP13.1M2-4							
AP1.9L1-4	1070	480	750	480	650	1030	440
AP2.9L1-4							
AP3.3L2-4	1285	628	820	585	660	895	610
AP4.8L2-4							
AP6.2L2-4							

Semi Hermetic Reciprocating High Ambient Series

Model No.	Overall Dimensions			Case		Mounting Holes	
	Length	Width	Height	Width	Height	Length	Width
APB4.9ML2-4	1420	630	820	585	660	780	610
APB6.0ML2-4						740 + 740	
APB8.5ML2-4							
APB11.5ML3-4	1880	630	820	585	660	740 + 740	610
APB15.8ML3-4							
APB20.8ML2-4	1770	870	1015	810	885	1230 + 225	840
APB25.8ML2-4							
APB29.6ML2-4							
APB36.7ML2-4							

Scroll High Ambient Series

Model No.	Overall Dimensions			Case		Mounting Holes							
	Length	Width	Height	Width	Height	Length	Width						
APC4.6M1-4	1070	480	750	480	650	1030	440						
APC5.7M2-4	1285	628	820	585	660	895	610						
APC7.9M2-4						665+665							
APC11.5M3-4	1745												
APC14.4M3-4						1660	790	1015	735	885	1074+356	750	
APC18.3M2-4													
APC20.3M2-4													
APC24.7M2-4													
APC29.7M2-4													
APC34.9M2-4													
APC3.4L2-4	1285	628	820	585	660	895	610						
APC4.9L2-4						665+665							
APC5.9L2-4													
APC7.3L3-4	1745					790	1015	735	885	1074+356	750		
APC9.2L2-4	1660												
APC12.5L2-4													
APC15.0L2-4													
APC18.7L2-4													



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Packaged Condensing Units

Copeland®

Copeland ZXD Scroll Series



Emerson's highly successful Copeland brand scroll compressors drive the high efficiency of the ZX platform of packaged condensing units.

The ZXD range of Digital modulated medium temperature units benefit from patented Digital scroll technology. This allows a simple and very reliable variable capacity system.

The Digital modulated variable capacity ZXD medium temperature unit comes with Emerson Climate Technologies proven "EC2-552" controller. The EC2 controller provides real time load estimation and controls the delivered capacity by changing the Digital modulation rate. The controller also provides the basic protection including the high discharge temperature trip. The controller also displays the suction pressure, saturated evaporating temperature based on the suction pressure, modulation rate and discharge line temperature.

Medium Temperature

Cat. No.	Model No.	Compressor			Fans No. Diam. mm	Connections		Dimensions: L x W x H mm	Weight: kg	List Price \$ Exc. GST
		Model No.	Rated Load Current: A	Locked Rotor Current: A		Suction	Liquid			
255200	ZXD040E-TFD-461	ZBD29KQE-TFD-558	7.7	48	2 x 450	7/8"	1 1/2"	1029 x 424 x 1242	104	\$12,347.56
255201	ZXD050E-TFD-461	ZBD38KQE-TFD-558	10.4	64					112	\$12,817.70
255202	ZXD060E-TFD-461	ZBD45KQE-TFD-558	9.6	74					114	\$13,741.51
255204	ZXD075E-TFD-461	ZBD48KQE-TFD-558	12.4	100					119	\$14,570.16
255203	ZXD076E-TFD-461	ZBD48KQE-TFD-558	12.4	100					122	\$15,291.75

ZXD Refrigeration Capacities: kW – R404A

Model No.	Amb Temp °C	Evaporating Temperature °C					
		-20	-15	-10	-5	0	5
ZXD040E-TFD-461	27	5.92	7.11	8.35	9.64	11.01	12.46
	32	5.53	6.69	7.87	9.11	10.4	11.75
	38	4.9	6	7.12	8.27	9.45	10.68
	43	4.23	5.28	6.33	7.4	8.48	9.59
	48	3.56	4.56	5.54	6.53	7.51	
ZXD050E-TFD-461	27	7.49	9.05	10.67	12.31	13.93	15.51
	32	6.56	8.12	9.76	11.43	13.1	14.74
	38	5.56	7.07	8.67	10.32	11.98	13.63
	43	4.88	6.28	7.79	9.37	10.98	12.58
	48	4.2	5.49	6.91	8.42	9.98	
ZXD060E-TFD-461	27	8.24	9.72	11.47	13.3	15.69	18.48
	32	7.53	9.06	10.72	12.58	14.72	17.2
	38	6.74	8.25	9.83	11.55	13.48	15.69
	43	5.9	7.48	9.07	10.74	12.57	14.63
	48	5.06	6.71	8.31	9.93	11.66	
ZXD075E-TFD-461	27	9.04	10.86	12.75	15.07	17.76	20.13
	32	8.33	10.01	11.82	13.86	16.2	18.92
	38	7.3	8.74	10.62	12.47	14.54	16.92
	43	6.26	7.93	9.61	11.38	13.32	15.5
ZXD076E-TFD-461	27	9.22	11.07	13	15.37	18.12	20.53
	32	8.5	10.21	12.06	14.14	16.53	19.3
	38	7.45	8.91	10.83	12.72	14.83	17.26
	43	6.39	8.09	9.8	11.61	13.59	15.81
	48	5.32	7.26	8.77	10.5	12.34	

Return gas temperature 18.3°C

at suction superheat of 10K



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Packaged Condensing Units

Copeland®

Copeland ZXL Scroll Series



Emerson's highly successful Copeland brand scroll compressors drive the high efficiency of the ZX platform of packaged condensing units. The fixed capacity ZXL low temperature units come with Emerson Climate Technologies' highly successful "E2 Controller". The E2 controller provides real-time monitoring of compressor operating conditions and initiates actions to keep the compressor within the safe zone. When fault conditions are detected, the controller initiates temporary shutdowns and sends specific warning signals to facilitate service. In the event of continued errors, the controller will shutdown the unit thereby preventing costly equipment failure and send alarm signals. ZX low temperature units applies vapour injection technology. This allows an economizer cycle on scroll compressors. Vapour injection significantly improves the low temperature operational efficiency and extends the low temperature envelope.

Low Temperature

Cat. No.	Model No.	Compressor			Fans No. Diam. mm	Connections		Dimensions: L x W x H mm	Weight: kg	List Price \$ Exc. GST
		Model No.	Rated Load Current: A	Locked Rotor Current: A		Suction	Liquid			
255210	ZXL020E-TFD-461	ZXI06KCE-TFD	5.6	39.2	1 x 450	3/4"	1/2"	1029 x 424 x 840	79	\$9,847.00
255211	ZXL025E-TFD-461	ZXI08KCE-TFD	6.2	39.2					81	\$10,302.01
255212	ZXL030E-TFD-461	ZXI09KCE-TFD	6.0	39.2					81	\$10,617.30
255213	ZXL035E-TFD-461	ZXI11KCE-TFD	8.3	51.5					93	\$11,174.81
255214	ZXL040E-TFD-461	ZXI14KCE-TFD	8.6	51.5					93	\$11,538.54
255215	ZXL050E-TFD-461	ZXI15KCE-TFD	10.0	51.5	2 x 450	7/8"	1/2"	1029 x 424 x 1242	106	\$12,717.19
255216	ZXL060E-TFD-461	ZXI18KCE-TFD	11.1	74.0					-116	\$14,303.19
255217	ZXL075E-TFD-461	ZXI21KCE-TFD	14.6	101.0					121	\$15,146.56

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ZXL Refrigeration Capacities: kW - R404A

Model No.	Amb Temp °C	Evaporating Temperature °C								
		-40	-35	-30	-25	-20	-15	-10	-5	0
ZXL020E-TFD-461	32	1.45	1.82	2.24	2.7	3.19	3.73	4.31	4.92	5.58
	38	1.25	1.49	1.93	2.4	2.92	3.47	4.07	4.7	5.38
	43	1.1	1.23	1.58	2.07	2.6	3.18	3.79	4.44	5.13
	48	0.99	1.12	1.16	1.67	2.21	2.8			
ZXL025E-TFD-461	32	1.8	2.26	2.74	3.3	3.94	4.65	5.44	6.31	7.25
	38	1.63	2.03	2.5	3.05	3.68	4.38	5.15	6.01	6.94
	43	1.31	1.7	2.16	2.7	3.31	4.01	4.77	5.62	6.54
	48	1.2	1.24	1.69	2.22	2.82	3.51			
ZXL030E-TFD-461	32	2.08	2.49	3	3.6	4.27	5	5.77	7.35	8.38
	38	2	2.33	2.77	3.31	3.92	4.59	5.31	6.95	7.95
	43	1.73	2.03	2.44	2.95	3.54	4.19	4.89	6.55	7.52
	48	1.5	1.7	2	2.38	2.96	3.61			
ZXL035E-TFD-461	32	2.47	3.2	3.94	4.68	5.48	6.35	7.31	8.4	9.63
	38	2.37	3.08	3.75	4.45	5.17	5.97	6.85	7.84	8.98
	43	2.28	2.94	3.57	4.2	4.86	5.59	6.38	7.29	8.33
	48	2.17	2.76	3.33	3.89	4.48	5.12			
ZXL040E-TFD-461	32	3.02	3.77	4.63	5.58	6.63	7.75	8.93	10.1	11.4
	38	2.85	3.56	4.37	5.27	6.25	7.28	8.36	9.48	10.63
	43	2.67	3.34	4.1	4.93	5.83	6.77	7.75	8.76	9.78
	48	2.38	2.99	3.68	4.43	5.23	6.06			
ZXL050E-TFD-461	32	3.52	4.31	5.29	6.43	7.69	9.04	10.4	11.8	13.1
	38	3.25	4.03	4.98	6.06	7.22	8.43	9.65	10.84	12.17
	43	2.99	3.77	4.69	5.71	6.78	7.87	8.95	9.97	10.89
	48	2.63	3.4	4.28	5.23	6.21	7.19			
ZXL060E-TFD-461	32	4.3	5.32	6.48	7.77	9.17	10.6	12.2	13.9	15.6
	38	4.07	5.02	6.12	7.34	8.66	10.08	11.57	13.11	14.7
	43	3.81	4.67	5.67	6.79	8	9.3	10.67	12.09	13.54
	48	3.42	4.16	5.03	6	7.07	8.22			
ZXL075E-TFD-461	32	4.75	5.9	7.14	8.5	9.99	11.6	13.3	15.3	17.4
	38	4.49	5.61	6.8	8.08	9.46	10.94	12.55	14.3	16.19
	43	4.21	5.3	6.43	7.63	8.9	10.25	11.71	13.28	14.97
	48	3.81	4.85	5.91	7.01	8.16	9.38			

Return gas temperature 5°C



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Packaged Condensing Units

Bitzer

Platinum & Platinum Plus Series

The Bitzer Platinum units are fully featured packaged air cooled condensing units that utilise the latest Bitzer semi-hermetic compressors along with micro-channel condensers and revolutionary cabinet material which is fully recyclable. The Platinum Plus series also features a suction cooled inverter compressor, the 'Octogon VariSpeed', managed by an intelligent micro-processor control module.

Platinum Series Units

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251404	U26-016	2EES-2Y-PT1-6P	\$13,845.55
251405	U26-018	2EES-3Y-PT1-6P	\$14,109.83
251406	U26-020	2DES-2Y-PT1-6P	\$14,390.74
251407	U26-021	2DES-3Y-PT1-4P	\$14,540.60
251409	U26-023	2CES-3Y-PT1-4P	\$14,610.77
251410	U26-024	2CES-3Y-PT1-6P	\$14,610.77
251412	U26-025	2CES-4Y-PT1-4P	\$14,861.33
251420	U26-031	4EES-4Y-PT1-4P	\$16,466.46

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251422	U26-027	4FES-3Y-PT1-4P	\$15,742.85
251424	U26-029	4FES-5Y-PT2-4P	\$16,332.57
251425	U26-035	4DES-5Y-PT1-4P	\$18,060.40
251428	U26-075	4EES-6Y-PT2-4P	\$18,540.77
251430	U26-079	4DES-7Y-PT2-4P	\$21,970.82
251432	U26-081	4CES-6Y-PT2-4P	\$22,595.81
251433	U26-083	4CES-9Y-PT2-4P	\$22,853.14

Platinum Plus Series Units

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
251448	U26-513	2DES-3.F1-PT1-4P	\$18,268.71
251449	U26-514	4FES-5.F1-PT2-4P	\$21,199.32
251450	U26-515	4EES-6.F1-PT2-4P	\$23,731.12
251455	U26-519	4CES-6.F1-PT2-4P	\$23,376.67

Unit Accessories

Cat. No.	Part No.	Description	Notes	List Price \$ Exc. GST
301160	B37-011	Oil Separator with Reservoir	Trax Oil Control Required	\$902.54
251204	U51-008A	Oil Separator Fitting Charge		\$364.80
217342	U40-096	Oil Return Sight Glass Fitted		\$194.11
301170	U40-097E	Traxon Oil Level Control c/w Transformer & Wiring Fitted	Use with Reservoir Oil Sep	\$1,133.25
301166	U40-098E	Traxon Oil Level Monitoring c/w Transformer & Wiring Fitted		\$858.53
150080	347334-03	OLC-K1 Oil Monitoring		\$479.32
251223	B43-300	Suction Accumulator	7/8"	\$270.47
251224	B43-301		1 1/8"	\$329.92
251205	U51-009	Suction Accumulator Fitting Charge		\$417.70
143142	U40-094	HP Control Manual Reset Fitted		\$325.42
251217	K01-150	Three Phase Protection Monitoring Module Fitted		\$526.18
251212	347600-01	Capacity Control Solenoid Valve Assembly Fitted	4 Cyl Model Standard	\$536.35
251207	U40-041	Liquid Line Solenoid Valve	1/2"	\$411.14
251208	U40-042		5/8"	\$433.78
143150	U40-143	Ethernet Module Fitted		\$863.84
143151	N32-712	LMT (LODAM) Software	Supply Only	\$233.03
143152	N32-704	Remote Temperature Sensor	Supply Only	\$53.49

Actrol Sales & Application Engineers are available to provide assistance with technical information such as capacities, along information of all the available unit options.



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Packaged Condensing Units



Bitzer CS Series

The Bitzer CS series outdoor condensing units feature the latest Octagon semi-hermetic compressors. Standard power requirement is 415V/3ph/50Hz.

Cat. No.	Part No.	Model No.	Compressor					Condenser				Connections		Weight: kg	Receiver Pump Down: R404A kg	List Price \$ Exc. GST														
			Series	Nom. HP	Max Current: Amps	Max Power Consumption: kW	Heater: Watts 240/1/50	No. of Fans: 240/1/50	Fan Total Amps	Fan Total kW	Air flow: l/s	Suct.	Liq.																	
251170	U16-161	2KC-05.2Y-CS1-4P	C1	0.5	2.7	1.5	60	1 x 350mm	0.60	0.14	760	5/8"	3/8"	104	3.8	\$9,129.96														
251171	U16-160	2JC-07.2Y-CS1-4P		0.7	2.5	1.9										\$9,240.54														
251035	U16-002	2HC-1.2Y-CS1-4P		1	3.5	2.0										\$9,306.90														
251036	U16-010	2HC-2.2Y-CS1-4P		2	4.3	2.4										\$9,306.90														
251037	U16-018	2GC-2.2Y-CS1-4P			4.7	2.7										\$9,400.32														
251172	U16-019	2GC2.2Y-CS2-6P			4.9	2.8		1 x 450mm	0.79	0.16	870	7/8"		127		\$9,534.94														
251038	U16-026	2FC-2.2Y-CS1-4P			1 x 350mm	0.60		0.14	760	5/8"	104	\$9,505.95																		
251039	U16-035	2FC-3.2Y-CS2-6P		3	5.8	3.4		1 x 450mm	0.79	0.16	870	7/8"		127		\$10,104.01														
251173	U16-037	2FC-3.2Y-CS3-6P									1000	1 1/8"	1/2"	160	7.0	\$10,129.70														
251174	U16-042	2EC-2.2Y-CS1-4P	C2	2	5.7	3.3	120	1 x 350mm	0.60	0.14	760	5/8"	3/8"	104	3.8	\$10,677.96														
251040	U16-043	2EC-2.2Y-CS2-6P		3	6.9	4.0		1 x 450mm	0.79	0.16	870	7/8"	3/8"	127		\$11,513.51														
251041	U16-051	2EC-3.2Y-CS2-6P							1.10	0.25	1330	1 1/8"	1/2"	160		7.0	\$11,958.94													
251175	U16-054	2EC-3.2Y-CS3-4P							0.79	0.16	870	7/8"	3/8"	127	3.8	\$12,221.32														
251042	U16-059	2DC-2.2Y-CS2-6P		2	3.9	7.8			4.5	1.10	0.25	1170	1 1/8"	1/2"	160	7.0	\$12,537.08													
251043	U16-068	2DC-3.2Y-CS2-4P		3	8.5					5.0	1.10	0.25					1330	\$12,639.10												
251176	U16-070	2DC-3.2Y-CS3-4P									0.79	0.16	870	7/8"	3/8"	127	3.8	\$12,583.20												
251177	U16-075	2CC-3.2Y-CS2-6P		4	9.4	5.6			2 x 450mm	2.20	0.49	3100	1 1/8"	1/2"	160	7.0	\$13,219.86													
251044	U16-076	2CC-3.2Y-CS2-4P															1.10	0.25	1170	3/8"	127	\$13,246.24								
251045	U16-086	2CC-4.2Y-CS3-4P												1330	1/2"		160	\$16,927.10												
251178	U16-088	2CC-4.2Y-CS4.3-4P		3	9.2	5.4		1 x 450mm		0.79	0.16	1000		5/8"	178		5/8"	\$15,316.03												
251046	U16-093	4FC-3.2Y-CS3-6P																5	10.8	6.2	2 x 450mm	1.58	0.32	2350	1/2"	160	\$14,556.61			
251047	U16-102	4FC-5.2Y-CS3-4P	1.10											0.25	1330												\$15,391.34			
251080	U16-105	4FC-5.2Y-CS4.3-6P	4	10.7	6.4	1 x 450mm		0.79		0.16	1000	5/8"		178	\$17,090.79															
251090	U16-106	4FC-5.2Y-CS4.3-4P													2.20			0.49	3100	\$17,162.93										
251179	U16-108	4EC-4.2Y-CS3-6P										6		13.2	7.9			2 x 450mm	2.20	0.49	3100	1/2"	160	\$16,276.04						
251048	U16-109	4EC-4.2Y-CS3-4P	1.10	0.25	1330	\$16,297.96																								
251049	U16-122	4EC-6.2Y-CS4.3-4P	C3	5	13.5	8.0		2 x 450mm	1.58	0.32	2100											5/8"	182	\$17,169.29						
251180	U16-124	4EC-6.2Y-CS5-4P										7		15.9	9.1			2 x 450mm	1.58	0.32	2100			1/2"	160	\$18,268.67				
251181	U16-126	4DC-5.2Y-CS3-4P																								2900	5/8"	182	\$17,214.81	
251050	U16-131	4DC-5.2Y-CS5-6P		6	15.9	9.1																2 x 450mm	2.20	0.49	3100	5/8"	178	\$19,534.34		
251081	U16-132	4DC-5.2Y-CS5-4P										9		20.0	10.5			2 x 450mm	2.20	0.49	2900							5/8"	182	\$19,606.48
251051	U16-138	4DC-7.2Y-CS5-4P																												6
251182	U16-147	4CC-6.2Y-CS5-6P		9	20.0	10.5																2 x 450mm	2.20	0.49	2900	5/8"	182			
251183	U16-146	4CC-6.2Y-CS4.3-4P										9	20.0	10.5	2 x 450mm	2.20		0.49	2900	5/8"	182							\$21,321.67		
251052	U16-148	4CC-6.2Y-CS5-4P																										9	20.0	10.5
251082	U16-153	4CC-9.2Y-CS5-4P	9	20.0	10.5	2 x 450mm		2.20	0.49	2900	5/8"											182	\$22,745.60							

Actrol Sales & Application Engineers are available to provide selection advice.



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Packaged Condensing Units

Bitzer CS Series

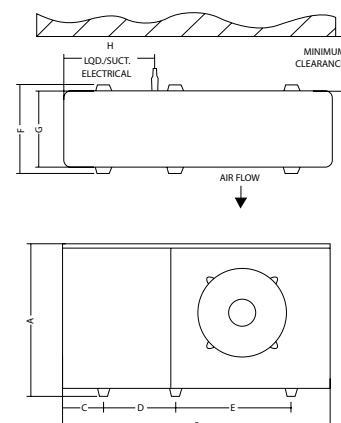
Bitzer CS series packaged condensing units are supplied standard with the following inclusions:
Bitzer Octagon semi-hermetic compressor, condenser fitted with dedicated sub-cooling circuit and powder coated panels.
Also fitted is a fully wired electrical panel, three phase isolator, internal float oil separator, liquid receiver, drier, sight glass, line valve, discharge line vibration eliminator, dual pressure control with flexible lines, crankcase heater & BSE32 oil charge.

Accessories

Cat. No.	Part No.	Description		Suits Model	List Price \$ Exc. GST
301160	B37-011	Oil Separator with Reservoir		CS3 to CS5	\$902.54
251204	U51-008A	Oil Separator Fitting Charge			\$364.80
217342	U40-096	Oil Return Sight Glass Fitted			\$194.11
251211	U40-097	Traxon Oil Level Control Fitted		Octagon Compressors	\$934.53
301165	U40-098	Traxon Oil Level Monitoring Digital c/w Transformer Fitted			\$673.83
301166	U40-098E	Traxon Oil Level Monitoring c/w Transformer & Wiring Fitted			\$858.53
251222	B43-304	Suction Accumulator	5/8"		\$206.38
251223	B43-300		7/8"		\$270.47
251224	B43-301		1 1/8"		\$329.92
251205	U51-009	Suction Accumulator Fitting Charge			\$417.70
143140	U40-092	LP Control Auto Reset Fitted			\$293.00
143141	U40-093	HP Control Auto Reset Fitted			\$293.00
143142	U40-094	HP Control Manual Reset Fitted			\$325.42
143143	U40-090	HP Fan Cycling Control Fitted			\$496.84
143145	U40-104	Fan Speed Control Fitted			\$513.96
251217	K01-150	Three Phase Protection Monitoring Module Fitted			\$526.18
251206	U40-040	Liquid Line Solenoid Valve Fitted	3/8"		\$327.15
251207	U40-041		1/2"		251207
251208	U40-042		5/8"		251208
196193	U40-021	Liquid Line Ball Valve Fitted	3/8"		196193
196194	U40-022		1/2"		196194
196195	U40-023		5/8"		196195
251212	347600-01	Capacity Control Solenoid Valve Assembly Fitted		C3 Compressors	251212
272188	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz			272188

Dimensions

Model No.	Dimensions: mm							Sound Data dB(A)		
	A	B	C	D	E	F	G	Minimum Clearance	Speed Controlled	High Speed
CS1-4P	700	1335	180	470	470	482	442	150	50.8	56.2
CS2-6P									52.7	53.7
CS2-4P								200	55.6	58.6
CS3-6P	850	1490	220	400	650			150	52.7	53.7
CS3-4P		1890			1040			200	55.6	58.6
CS4.3-6P								50.0	54.2	
CS4.3-4P								250	59.2	62.2
CS5-6P	860	200		50.0				54.2		
CS5-4P		250		59.2	62.2					



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Packaged Condensing Units



Bitzer

LCS Series – R04A / R507 – Air Cooled – Accessible Hermetic

For Outdoor Application

The extensive range of LCS Condensing Units incorporates the latest C4 series octagon compressors.

Features

- Fully wired electrical panel with 3 phase isolator
- Dedicated condenser sub-cooling circuit
- Dual pressure control
- Sight glass
- New C4 semi-hermetic compressor technology
- BSE 32 oil
- Liquid receiver
- Drier
- Electronic motor protection monitoring
- Line valve
- Sump heater
- Powder coated panels



Cat. No.	Model No.	Motor Nom. HP/ kW	R404A/R507 Refrigeration Capacity : Watts										List Price \$ Exc. GST
			Evaporating Temperature : °C										
			5	0	-5	-10	-15	-20	-25	-30	-35	-40	
251100	3VC-6.2Y-LCS1-LS	6/4.5				18140	15110	12370	9910	7750	5860	4230	\$26,017.76
251101	4VC-10.2Y-LCS1-LS	10/7.5	29400	25500	22300	18250	15120	12320	9810	7600	5660	3980	\$26,311.79
251102	4TC-8.2Y-LCS1-LS	8/6				21480	17870	14680	11810	9260	7040	5110	\$28,145.23
251103	4TC-12.2Y-LCS-HS	12/9	35000	30300	25900	21800	18130	14810	11820	9180	6890	4900	\$28,177.93
251104	4PC-10.2Y-LCS1-LS	10/7.5				24100	20200	16630	13390	10530	7990	5770	\$28,502.41
251106	4PC-15.2Y-LCS2-HS	15/11	42700	36900	31500	26500	21900	17830	14160	10940	8120	5690	\$30,193.04
251107	4NC-12.2Y-LCS2-LS	12/9				27900	23400	19250	15320	12160	9270	6720	\$33,630.38
251108	4NC-20.2Y-LCS2-HS	20/15	47600	41200	35300	29800	24700	20100	16030	12400	9220	6470	\$34,270.57

Capacity data basis: 35°C ambient temperature, 20°C suction gas temperature, 3K liquid subcooling, 50 Hz.

For 32°C ambient multiply above figures by correction factor 1.03. For 38°C ambient multiply above figures by correction factor 0.97.

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
251120	U40-500	LCS Part Wind/Elec Option-LCS1	\$477.54
251121	U40-501	LCS Part Wind/Elec Option LCS2	\$727.69
251122	U40-510	LCS LED Fault Panel Indic/Panel	\$718.56
251123	U40-105	LCS Fans Speed Control 3PH	\$1,919.94



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Packaged Refrigeration Units

Eidis

Features

- R404A Refrigerant
- Units provided with electrical cable and 3 pin plug
- Baseplate powder coated
- Evaporator casing, white powder coated aluminium
- Easily installed
- Standard power requirement 220/240 volt 50/Hz
- Moulded white A.B.S. insulated inner panel
- Bench tested before packaging



Drop In Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A	List Price \$ Exc. GST
				Diam.	Watts		
261001	66/4	1300	1/2	300mm	73	3.8	\$6,569.02
261002	68/4	1940	7/8			4.1	\$7,701.38
261003	88v4	2280	1 1/4			6.0	\$8,439.86
261004	1212/4	3220	1 1/2	350mm	130	10.2	\$11,042.16



Slide In Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A	List Price \$ Exc. GST
				Diam.	Watts		
261005	66/4SI	1300	1/2	300mm	73	3.8	\$7,507.94
261006	68/4SI	1940	7/8			4.1	\$8,475.02
261007	88/4SI	2280	1 1/4			6.0	\$9,206.48
	1212/4SI	3220	1 1/2	350mm	130	10.2	P.O.A



Push In Global Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A	List Price \$ Exc. GST
				Diam.	Watts		
	66/4PI Global	1300	1/2	300mm	73	3.8	P.O.A
	68/4PI Global	1940	7/8			4.1	P.O.A
	88/4PI Global	2280	1 1/4			6.0	P.O.A



Low Profile Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A	List Price \$ Exc. GST
				Diam.	Watts		
	64/4LP	975	3/8	2x175mm	60	4.65	P.O.A
	66/4LP	1200	1/2	3x175mm	90	4.88	P.O.A
	68/4LP	1930	7/8			7.02	P.O.A
	88/4LP	2250	1 1/4			8.42	P.O.A

Packaged Dimensions & Weights: Drop In Units

Model No.	Dimensions: mm	Weight
66/4	720 x 460 x 870	47kg
68/4	720 x 460 x 940	56kg
88/4		62kg
1212/4	920 x 680 x 1010	105kg

Slide In Units

Model No.	Dimensions: mm	Weight
66/4SI	1070 x 700 x 510	58kg
68/4SI		67kg
88/4SI		71kg
1212/4SI	1320 x 900 x 600	120kg

Push In Global Units

Model No.	Dimensions: mm	Weight
66/4PI	930 x 810 x 700	56kg
68/4PI		58kg
88/4PI		60kg

Low Profile Units

Model No.	Dimensions: mm	Weight
64/4LP	900 x 500 x 650	40 kg
66/4LP		46 kg
68/4LP		47 kg
88/4LP		49 kg



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Packaged Refrigeration Units

Zanotti

Drop-in and slide-in cool room and freezer room refrigeration systems.

Features

- Three pin plug fitted to all units
- Defrost heat contained external to room
- Low profile evaporator giving minimal room intrusion
- No drainage required - unit incorporates condensate vapourisation system
- Prewired for door sensor (and door heater on low temperature models)
- Coldroom bulkhead light and prewired connection supplied with each unit
- Digital controller incorporating anti short cycle timer and defrost termination
- Reduced electrical supply required due to hot gas defrost on all models

Specifications

- Refrigerant: R404A
- Defrost type: Hot gas
- Temperature display: Digital
- Max ambient temp 45°C
- Type of control: Electronic
- Interior light: Yes



Drop in units - Medium temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg	List Price \$ Exc. GST
					Run	FLA		
261101	MSB125T	1450	-5 to +10	45	5.0	8.4	59	\$7,051.25
261102	MSB225N	2080			6.3	12.0	74	\$8,426.14
261103	MSB225T	2450			7.0	12.5	75	\$9,604.63
261118	MSB135N	3270			10.0	19.7	92	\$10,979.52
261104	MSB135T	4400			12.3	23.9	98	\$11,765.19

Drop in units - Low temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg	List Price \$ Exc. GST
					Run	FLA		
261105	BSB125T	1190	-25 to -5	45	5.6	9.1	68	\$7,836.90
261106	BSB225T	1690			7.7	21.1	87	\$9,801.02
261107	BSB135T	2480			7.5	22.0	102	\$11,765.17



Slide in units - Medium temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg	List Price \$ Exc. GST
					Run	FLA		
261108	MGM106	1100	-5 to +10	45	5.0	8.3	56	\$5,479.94
261109	MGM110	1500			5.6	11.2	64	\$5,872.77
261110	MGM211	1960			6.9	12.4	80	\$7,836.90
261111	MGM213	2600			9.3	18.0	80	\$9,015.39
261112	MGM315	3440			8.5	16.1	98	\$10,586.68
261113	MGM320	3850			11.5	17.1	100	\$10,979.52

Slide in units - Low temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg	List Price \$ Exc. GST
					Run	FLA		
261115	BGM218	1210	-25 to -5	45	5.9	11.7	80	\$7,247.67
261116	BGM220	1660			7.5	20.9	80	\$8,936.81
	BGM320	2190			9.9	25.1	105	P.O.A
261117	BGM330	2650			9.9	25.1	105	\$11,568.76



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Cabinet Coolers

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Actrol P Series

Features

- Suitable for all the common HFC and HCFC refrigerants including R22, R134a & R404A/R507
- Easily cleaned and hygienic white 4.5mm 'Refrigeration Grade' ABS cover with rounded corners
- Reinforced white colourbond base and white powder-coated inlet grille
- Efficient inner grooved copper tubing with corrosion protected lacquer coating on return bends
- Balanced acrylic fans with ball bearing race motors
- Cover removed by two captive stainless steel screws
- Internal components secured by captive nuts
- Suitable for capillary or TX valve operation
- Epoxy coated fins



PC Series – Medium Temperature

Cat. No.	Model No.	Cap. Watts @ 6 KTD			No. of Fans	Motor Input Watts	Connections mm		Overall Dimensions mm			List Price \$ Exc. GST
		R404A	R134a	R22			Suct.	Liq.	Length	Width	Height	
292001	PC30	313	295	310	1	30	9.5	9.5	440	395	135	\$524.38
292004	PC41	414	390	410								\$574.16
292006	PC53	535	504	530								\$633.91
292008	PC64	646	608	640								\$726.82
292014	PC76	768	722	760	2	60	9.5	9.5	705	395	135	\$902.73
292015	PC100	1030	969	1020								\$1,088.60
292016	PC135	1364	1283	1350	3	90	12.7	12.7	840	395	190	\$1,257.86
292017	PC160*	1616	1520	1600								\$1,380.65
292018	PC200*	2020	1900	2000								\$1,553.23
292019	PC230*	2323	2185	2300								\$1,652.80

*Fitted with 6.35mm External Equaliser

PCL Series – Low Temperature

Cat. No.	Model No.	Cap. Watts @ 6 KTD		No. of Fans	Motor Input Watts	Connections mm		Overall Dimensions mm			Defrost Heat Watts	List Price \$ Exc. GST
		R404A	R22			Suct.	Liq.	Length	Width	Height		
292010	PCL40	400	396	1	30	9.5	9.5	440	395	135	400	\$989.03
292040	PCL50	500	495									\$1,062.05
292041	PCL60	600	594	2	60			705			600	\$1,284.40
292042	PCL80	800	792									\$1,490.16
292043	PCL100	1000	990	3	90	12.7	12.7	840	190	1500	800	\$1,722.50
292084	PCL120*	1200	1188									\$1,954.82
292086	PCL150*	1500	1485									\$2,130.71
292088	PCL170*	1700	1683									\$2,230.27

*Fitted with 6.35mm External Equaliser

PDC Series – Dual Coil – Medium Temperature

Cat. No.	Model No.	Cap. Watts @ 6 KTD			No. of Fans	Motor Input Watts	Connections mm		Overall Dimensions mm			List Price \$ Exc. GST
		R404A	R134a	R22			Suction	Liquid	Length	Width	Height	
292025	PDC45	455	428	450	1	35	9.5	9.5	565	335	160	\$899.42
292026	PDC60	606	570	600								\$949.20
292027	PDC80	808	760	800								\$1,012.25
292028	PDC100	1010	950	1000								\$1,062.05
292023	PDC120*	1212	1140	1200			12.7	12.7	610	430	200	\$1,161.61
292094	PDC160*	1616	1520	1600								\$1,330.88
292096	PDC185*	1869	1757	1850								\$1,427.12

*Fitted with 6.35mm External Equaliser

Ratings based on -4°C SST for medium temperature models and -24°C SST on low temperature models.



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Forced Draught Evaporators

Cabero

LPC Series - Medium Temperature



Features

- Low profile suits small rooms and reach in cabinets
- Forced draught provides even air distribution
- Powder coated smooth aluminium case
- Venturi distributor for multiple refrigerants
- ½" smooth bore copper tubing
- Fan/s pre-wired to IP54 junction box
- Fins protected with Blue-Fin coating
- Professional in-line tube configuration
- Low energy fan/s
- Separate fan compartments
- Stainless steel fixings
- Flush mount ceiling brackets
- Fold down drip tray with central drain connection.
- Air bypass sheet with special drainage system

Cat. No.	Part No.	Capacity @ -4°C SST & 6 KTD : Watts			Air Flow l/s	Air Throw m	No. & Dia. of Fans	Fan Motors 230V/50Hz			Connections		Overall Dim: mm			Weight kg	List Price \$ Exc. GST
		R404A R507	R134a	R22				Total Watts	Total Amps	Heat/24 Hrs Total Watts	Liq.	Suct.	Length	Depth	Height		

300mm Diameter Fan Model

	LPC4A1/30.1*	1155	1051	1097	375	7	1 x 300	85	0.38	2040	1/2"		815	670	380	13	P.O.A
291212	LPC4B1/30.1*	1617	1471	1536	336						14	\$1,116.80					
291214	LPC4C1/30.1*	1991	1812	1891	311	6					3/4"	15				\$1,200.96	
	LPC4D1/30.1	2178	1982	2069	294							16				P.O.A	
291218	LPC4E1/30.1	2442	2222	2320	278	5	2 x 300	170	0.76	4080	5/8"	7/8"	1365	670		17	\$1,368.02
291220	LPC4B2/30.1	3289	2993	3125	672	7										26	\$1,818.98
291222	LPC4C2/30.1	4048	3684	3846	622	6									30	P.O.A	
	LPC4D2/30.1	4510	4104	4285	589												32
291226	LPC4E2/30.1	4961	4515	4713	556	5	3 x 300	255	1.14	6120	1 1/8"	1915	670	41	\$2,892.81		
291228	LPC4C3/30.1	6061	5516	5758	933	6								45	P.O.A		
	LPC4D3/30.1	6930	6306	6584	883											48	P.O.A
	LPC4E3/30.1	7469	6797	7096	833	5								4 x 300	340	1.52	8160
	LPC4C4/30.1	8140	7407	7733	1244	6	59	\$3,993.27									
291238	LPC4D4/30.1	9262	8428	8799	1178				64	P.O.A							
	LPC4E4/30.1	10032	9129	9530	1111	5											

Capacity Correction Factors

Suction Temp. °C		-10	-8	-6	-4	-2	0	2	4	6	9	12	15
Capacity Multiplier	R404A, R507	0.99	1	0.99	1	1	1.02	1.02	1.03	1.05	1.06	1.12	1.14
	R407C	0.99	1	0.98	1	0.99	1.01	1.01	1.02	1.04	1.07	1.12	1.14
	R22	0.95	0.96	0.94	0.95	0.94	0.96	0.99	0.99	1.02	1.02	1.03	1.07

Capacity for suction temperatures other than -4°C can be calculated from the correction table.

* Internally equalised TX Valve. All other models require externally equalised TX Valves



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Forced Draught Evaporators

Cabero

LPC E Series - Low Temperature



Features

- Low profile suits small rooms & reach in cabinets
- Forced draught provides even air distribution
- Powder coated smooth aluminium case
- Venturi distributor for multiple refrigerants
- ½" smooth bore copper tubing
- Fan/s pre-wired to IP54 junction box
- Fins protected with Blue-Fin coating
- Defrost heaters pre-wired to IP54 junction box
- Heater safety thermostat fitted
- Defrost termination sensor location provided
- Professional in-line tube configuration
- Low energy fan/s
- Separate fan compartments
- Stainless steel fixings
- Flush mount ceiling brackets
- Air bypass sheet with special drainage system
- Fold down drip tray with central drain connection.

Cat. No.	Part No.	Capacity @ -24°C SST & 6 KTD : Watts		Air Flow l/s	Air Throw m	No. & Dia. of Fans	Fan Motors			Defrost Heaters 240 Volts		Connections		Overall Dim: mm			Weight kg	List Price \$ Exc. GST
		R404A R507	R22				Total Watts	Total Amps	Heat/ 24 Hrs Total Watts	Coil No. & Watts	Drip Tray No. & Watts	Liq.	Suct.	Length	Depth	Height		

300mm Diameter Fan Model

	LPC4A1/30E.1*	880	836	375	7	1 x 300	85	0.38	2040	2 x 600	1 x 600	1/2"		815	670	380	13	P.O.A
291312	LPC4B1/30E.1*	1190	1131	336								6	3 x 600				3/4"	14
291314	LPC4C1/30E.1*	1370	1302	311	5					7/8"								1365
	LPC4D1/30E.1	1580	1501	294								6	2 x 1100				1 x 1100	
291318	LPC4E1/30E.1	1730	1644	278	6	3 x 1100	1 x 1600	1 1/8"	1915	670	17			\$1,874.96				
291320	LPC4B2/30E.1	2350	2233	672							6	2 x 1600	1 x 1600	1 1/8"	1915		670	26
291322	LPC4C2/30E.1	2800	2660	622	5	3 x 1600	1 x 2100	1 1/8"	2465	670								28
	LPC4D2/30E.1	3160	3002	589							6	2 x 2100	3 x 2100	1 1/8"	2465		670	30
291326	LPC4E2/30E.1	3470	3297	556	6	3 x 2100	1 x 2100	1 1/8"	2465	670								32
291328	LPC4C3/30E.1	4280	4066	933							6	3 x 300	255	1.14	6120		1 x 1600	1 1/8"
	LPC4D3/30E.1	4870	4627	883	5	4 x 300	340	1.52	8160	1 x 2100								
291332	LPC4E3/30E.1	5230	4969	833							6	4 x 300	340	1.52	8160		1 x 2100	1 1/8"
	LPC4C4/30E.1	5650	5368	1244	5	4 x 300	340	1.52	8160	1 x 2100								
	LPC4D4/30E.1	6290	5976	1178							5	4 x 300	340	1.52	8160		1 x 2100	1 1/8"
291338	LPC4E4/30E.1	6980	6631	1111	5	4 x 300	340	1.52	8160	1 x 2100								

Capacity Correction Factors

Suction Temp. °C		-36	-33	-30	-27	-24	-21	-18	-15	-12
Capacity Multiplier	R404A, R507	0.77	0.83	0.89	0.94	1	1.06	1.12	1.19	1.25
	R22	0.81	0.86	0.91	0.95	1	1.05	1.1	1.17	1.23

Capacity for suction temperatures other than -24°C can be calculated from the correction table.

* Internally equalised TX Valve. All other models require externally equalised TX Valves



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Induced Draught Evaporators



Buffalo Trident PS Series – Medium Temperature



Features

- Crisp, white powder coated evaporator panels
- Electrical components pre- wired to common connection box
- Standard coils circuited for multiple refrigerants. (No orifice change required)
- Performance optimised circuitry and distributor system with Venturi- Effect Technology
- Hinged access door both ends- easily removeable, where coil is installed close to adjacent walls
- Stainless steel fastenings
- Hinged and fully reversible drip tray
- Absolute flush mounting

Cat. No.	Part No.	Capacity @ -4°C SST & 6 KTD :Watts			Air Flow l/s	Air Throw m	No. of Fans	Fan Motors			Connections mm			Overall Dimensions mm			List Price \$ Exc. GST
		R404A	R134a	R22				Total Watts	Total Amps	Heat/ 24 Hrs Total Watts	Suct.	Dist.	Ext. Eq.	Length	Depth	Height	

300mm Diameter Fan Model - Fin Series 6 236 Fins/m

290310	PS1M019	1130	977	1066	427	8.6	1	73	0.3	1752	12.7	15.9	6.4	676	425	425	\$1,072.28
290312	PS1M030	1816	1571	1714	354	7.9								845			\$1,217.12
290314	PS1M036	2170	1877	2047	406	8.4								1057			\$1,315.83
290316	PS1M042	2497	2160	2356	854	10.5	2	146	0.6	3504	15.9	22.2	6.4	1438	425	425	\$1,404.69
290318	PS1M050	3029	2620	2858	804	10.3											\$1,595.37
290320	PS1M061	3659	3165	3452	708	9.8											\$1,661.97
290322	PS1M063	3806	3292	3591	1281	12.5	3	219	1.0	5256	15.9	22.2	6.4	1819	425	425	\$1,920.44
290324	PS1M077	4623	3999	4362	1206	12.3											\$1,994.65
290326	PS1M084	5070	4385	4784	1125	12.0											\$2,175.09
290328	PS1M095	5705	4935	5383	1062	11.7	4	292	1.3	7008	15.9	22.2	6.4	1819	425	425	\$2,390.85
290330	PS1M102	6095	5272	5751	1608	14.0											\$2,461.51
290336	PS1M128	7681	6644	7247	1416	13.4											\$2,672.72

350mm Diameter Fan Model - Fin Series 6

290332	PS2M108	6469	5596	6104	1458	16.9	2	260	1.2	6240	15.9	28.5	6.4	1544	425	425	\$2,567.39
290334	PS2M117	6997	6052	6602	1422	16.5								2154			\$2,649.38
290338	PS2M141	8475	7331	7997	2331	18.7								2764			\$3,152.54
290340	PS2M162	9693	8384	9146	2187	18.4	3	390	1.7	9360	15.9	22.2	6.4	3373	425	425	\$3,286.96
290342	PS2M177	10612	9179	10013	2133	17.9											\$3,489.11
290344	PS2M187	11238	9721	10603	3108	21.0											\$3,763.18
290346	PS2M217	13029	11270	12294	2916	20.8	4	520	2.3	12480	15.9	22.2	6.4	3373	425	425	\$4,313.96
290348	PS2M246	14749	12758	13916	2844	20.2											\$4,665.09
290350	PS2M276	16549	14315	15615	3645	21.7											\$5,204.33
290352	PS2M309	18519	16019	17474	3555	20.6	5	650	2.9	15600	15.9	22.2	6.4	3373	425	425	\$5,517.86

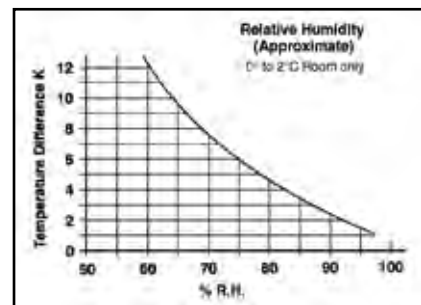
Capacity Correction Factors

Suction Temp. °C	-10	-8	-6	-4	-2	0	+2	+4	+6
Cap. Multiplier	0.870	0.900	0.950	1.000	1.045	1.170	1.230	1.280	1.350

Fin Series	4	5	6	7	8
Capacity Multiplier	0.82	0.91	1.00	1.06	1.12

Capacities in accordance with European Conditions, and based on -4 °C saturated suction temperature

Selection of expansion valves for models fitted with refrigerant distributors should be sized for a pressure drop of 400 kPa for R134a and 700 kPa for R22. All models require externally equalised T.X.valves.



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Induced Draught Evaporators

Buffalo Trident

PSLE Series – Low Temperature



Features

- Crisp, white powder coated evaporator panels
- Stainless steel fastenings
- Heater safety thermostat
- Electrical components pre-wired to common connection box
- Performance optimised circuitry and distributor system with Venturi- Effect Technology
- Standard coils circuited for multiple refrigerants. (No orifice change required)
- Hinged access door both ends- easily removeable, where coil is installed close to adjacent walls
- Absolute Flush Mounting
- Hinged and fully reversible drip tray

Cat. No.	Part No.	Capacity @ -24°C SST & 6 KTD :Watts			Air Flow l/s	Air Throw m	No. of Fans	Fan Motors			Defrost Heaters 240 Volt		Connections mm			Overall Dimensions mm			List Price \$ Exc. GST
		R404A	R507A	R22				Total Watts	Total Amps	Heat/24 Hrs Total Watts	Total Watts	Total Amps	Suct.	Dist.	Ext. Eq	Length	Depth	Height	

300mm Diameter Fan Model – Fin Series 6 236 Fins/m

290360	PS1LE016	981	999	926	418	8.6	1	73	0.3	1752	1060	4.4	12.7	15.9	6.4	676	425	425	\$1,487.12				
290362	PS1LE025	1486	1513	1402	347	7.9													\$1,634.36				
290364	PS1LE033	1991	2027	1879	836	10.5										2			146	0.6	3504	1960	8.2
290366	PS1LE041	2441	2485	2303	788	10.3	\$2,078.89																
290368	PS1LE051	3047	3102	2875	694	9.8	\$2,344.61																
290370	PS1LE056	3358	3419	3169	1182	12.5	3	219	1.0	5256	2700	11.3	15.9	6.4	1438	425			425	\$2,634.04			
290372	PS1LE069	4130	4204	3897	1101	12.3														\$2,813.73			
290374	PS1LE075	4482	4562	4229	1041	12.0														\$3,018.23			
290376	PS1LE083	4984	5074	4703	1576	11.7	4	292	1.3	7008	3580	14.9			22.2					1819	425	425	\$3,263.93
290380	PS1LE099	5952	6060	5617	1388	14.0																	\$3,751.44

350mm Diameter Fan Model – Fin Series 6 236 Fins/m

290378	PS2LE086	5151	5244	4860	1428	16.9	2	260	1.2	6240	2880	12.0	15.9	15.9	6.4	1544	425	492	\$3,389.95		
290382	PS2LE100	6003	6111	5664	1393	16.5													\$3,561.52		
290384	PS2LE105	6300	6413	5944	2283	18.7	3	390	1.7	9360	4300	17.9	28.5						22.2	2154	\$4,199.36
290386	PS2LE123	7410	7543	6992	2142	18.4															\$4,701.05
290388	PS2LE136	8138	8284	7678	2090	17.9															\$4,762.30
290390	PS2LE158	9462	9632	8928	3044	21.0	4	520	2.3	12480	5720	23.8		2764	\$5,299.35						
290392	PS2LE168	10079	10260	9510	2856	20.8									\$5,646.71						
290394	PS2LE191	11469	11676	10822	2786	20.2							\$6,007.00								
290396	PS2LE203	12187	12406	11499	3570	21.7	5	650	2.9	15600	7160	29.8	3373	\$6,321.20							
290398	PS2LE233	13963	14214	13175	3483	20.6								\$6,922.41							

Capacity Correction Factors

Suction Temp. °C	-40	-35	-30	-25	-24	-20	-15	-10	-5
Cap. Multiplier	0.500	0.710	0.850	0.980	1.000	1.060	1.140	1.230	1.350

Fin Series	4	5	6
Capacity Multiplier	0.82	0.91	1.00

Capacities in accordance with European Conditions, and based on -4°C saturated suction temperature

Selection of expansion valves for models fitted with refrigerant distributors should be sized for a pressure drop of 400 kPa for R134a and 700 kPa for R22. All models require externally equalised T.X.valves.



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Induced Draught Evaporators

Buffalo Trident



Features

- Optimised for HFC refrigerants
- Hinged fully reversible drip tray
- Internal ripple finned tube for higher heat
- Sickle blade fans statically and dynamically transfer performance and better oil return balanced, aerodynamically
- Constructed for economical and quiet operation
- Stucco embossed aluminium case
- Hinged access door both ends – easily removable where coil installed close to adjacent wall
- Dual speed 3 phase motors - 1300/1000 RPM

BBM/EBBL Series – Medium Temperature

Cat. No.	Model No.	High Speed Watts @ -4°C SST & 6KTD			Air Flow l/s	Air Throw metres	No. of 500mm Fans	Total Motor Watts on High	Total Motor Amps on High	Suction Connection mm	TX Valve Connection mm	Overall Dimensions mm			List Price \$ Exc. GST
		R22	404A	134a	High	High						Length	Depth	Height	
290080	BBM 81	8124	8612	7572	2388	21	1	780	1.35	28.5	12.7	1260	646	903	\$3,987.87
290081	BBM 106	10554	11187	9836	2180							\$4,469.42			
290082	BBM 139	13908	14742	12962	2454	22	2	1560	2.7	34.9	15.9	1610	903	1030	\$6,496.84
290083	BBM 162	16249	17224	15144	4776	23						2210		\$6,952.78	
290084	BBM 184	18361	19462	17112	4628					41.2	22.2			\$7,715.86	
290085	BBM 211	21108	22374	19672	4360	25						3		2340	4.05
290086	BBM 244	24373	25836	22716	7164		3310	\$10,342.92							
290087	BBM 275	27541	29194	25668	6942			\$11,037.52							
290088	BBM 317	31661	33561	29508	6540	26	4	3120	5.4	54	28.5	3310	1030	\$12,192.76	
290089	BBM 359	35856	38007	33418	9044									\$14,193.76	
290090	BBM 412	41208	43681	38406	8456									\$15,509.71	

BBM/EBBL Series – Low Temperature

Cat. No.	Model No.	High Speed Watts @ -24°C SST & 6KTD			Air Flow l/s	Air Throw m	No. of 500 mm Fans	Total Motor Watts on High	Total Motor Amps on High	Suct. Connection mm	TX Valve Connection mm	Defrost Heaters		Overall Dimensions mm			List Price \$ Exc. GST
		R22	R404A	R507	High	High						Watts	Amps	Length	Depth	Height	
290091	EBBL 66	6552	6945	7076	2409	19	1	780	1.35	28.5	12.7	6000	25	1260	646	903	\$4,949.41
290092	EBBL 85	8502	9012	9182	2213					34.9	15.9					1030	\$5,379.37
290093	EBBL 110	11106	11772	11994	2471	20	2	1560	2.7	41.2	22.2	8200	34.2	1610	903	1030	\$7,456.01
290094	EBBL 131	13103	13889	14151	4818	21					54					28.5	12000
290095	EBBL 148	14795	15683	15979	4680					23		3	2340	4.05			
290096	EBBL 170	17000	18024	18364	4426	24					4					3120	5.4
290097	EBBL 197	19655	20834	21227	7227		23	3	2340	4.05		54	28.5	18000			
290098	EBBL 222	22193	23524	23968	7020	24					4					3120	5.4
290099	EBBL 255	25506	27036	27546	6639		24	4	3120	5.4		34.9	19000	79.17			
290100	EBBL 281	28104	29790	30352	8872	24					4				3120	5.4	34.9
290101	EBBL 323	32280	34216	34862	8600		\$16,898.55										



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Induced Draught Evaporators

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CH Series - Medium Temperature



Features

- Powder coated smooth aluminium case
- Venturi distributor for multiple refrigerants
- 1/2" smooth bore copper tubing
- Fins protected with Blue-Fin coating
- Fan/s pre-wired to IP54 junction box
- Professional in-line tube configuration
- Low energy fan/s
- Separate fan compartments
- Stainless steel fixings
- Flush mount ceiling brackets
- Air bypass sheet with special drainage system
- Fold down drip tray with central drain conn.

Cat. No.	Part No.	Capacity @ -4°C SST & 6 KTD : Watts			Air Flow l/s	Air Throw m	No. & Dia. of Fans	Fan Motors			Connections		Overall Dim: mm			Weight kg	List Price \$ Exc. GST
		R404A R507	R134a	R22				Total Watts	Total Amps	Heat/24 Hrs Total Watts	Liq.	Suct.	Length	Depth	Height		

300mm and 350mm Diameter Fan Model

291410	CH4B1/30-1	2120	1929	2014	439	6	1 x 300	85	0.38	2040	1/2"	1/2"	850	560	470	19	\$1,316.09									
291412	CH4C1/30-1	2590	2357	2461	428											22	\$1,411.03									
291414	CH4B1/35-1	3060	2785	2907	689	7	1 x 350	140	0.60	3360		5/8"	1050			26	\$1,587.44									
291416	CH4C1/35-1	3980	3622	3781	664											28	\$1,832.96									
291418	CH4B2/30-1	4240	3858	4028	878	6	2 x 300	170	0.76	4080		3/4"	1300			34	\$1,909.49									
291420	CH4D1/35-1	4530	4122	4304	622								1050			30	\$1,963.75									
	CH4E1/35-1	4850	4414	4608	586	7	2 x 300	170	0.76	4080			1300			32	P.O.A									
291424	CH4C2/30-1	5170	4705	4912	856											38	\$2,186.77									
291426	CH4B2/35-1	6480	5897	6156	1383	9	2 x 350	280	1.20	6720		7/8"	1700			43	\$2,562.14									
291428	CH4C2/35-1	7970	7253	7572	1322											47	\$2,897.90									
291430	CH4D2/35-1	9000	8190	8550	1230	8	3 x 350	420	1.80	10080		5/8"	1 1/8"			2350			53	\$3,070.35						
291432	CH4E2/35-1	9890	9000	9396	1183														58	\$3,302.19						
291434	CH4C3/35-1	11910	10838	11315	1936	10	4 x 350	560	2.40	13440			7/8"	1 3/8"		3000			69	\$3,932.56						
291436	CH4D3/35-1	13850	12604	13158	1839											75	\$4,642.35									
291438	CH4E3/35-1	14940	13595	14193	1761	9										82	\$4,966.72									
291440	CH4D4/35-1	18470	16808	17547	2439											98	\$6,102.44									
291442	CH4E4/35-1	20800	18928	19760	2358											107	\$6,587.46									

500mm Diameter Fan Model

	CH4C1/50-1	11460	10429	10887	2033	26	1 x 500	750	1.30	18000	5/8"	1 1/8"	1420	670	750	73	P.O.A
291452	CH4D1/50-1	13740	12503	13053	1975	25										82	\$4,371.12
	CH4E1/50-1	15190	13823	14431	1922	24					90	P.O.A					
291456	CH4G1/50-1	17450	15880	16578	1808	22					98	\$5,444.63					
291458	CH4C2/50-1	23220	21130	22059	4067	27	2 x 500	1500	2.60	36000	7/8"	1 3/8"	2500			134	\$7,401.50
291460	CH4D2/50-1	27690	25198	26306	3950	26										152	\$9,361.97
291462	CH4E2/50-1	30720	27955	29184	3844	25					168	\$8,918.15					
291464	CH4G2/50-1	35400	32214	33630	3617	23					185	\$9,751.83					
291466	CH4D3/50-1	41490	37756	39416	5925	26	3 x 500	2250	3.90	54000	7/8"	1 5/8"	2500			214	\$11,250.76
291468	CH4E3/50-1	46640	42442	44308	5767	25										238	\$13,881.32
291470	CH4G3/50-1	51680	47029	49096	5425	23					273	\$16,109.83					

Capacity Correction Factors

Suction Temp. °C		-10	-8	-6	-4	-2	0	2	4	6	9	12	15
Capacity Multiplier	R404A, R507	0.99	1	0.99	1	1	1.02	1.02	1.03	1.05	1.06	1.12	1.14
	R407C	0.99	1	0.98	1	0.99	1.01	1.01	1.02	1.04	1.07	1.12	1.14
	R22	0.95	0.96	0.94	0.95	0.94	0.96	0.99	0.99	1.02	1.01	1.03	1.07

Capacity for suction temperatures other than -4°C can be calculated from the correction table.

* Internally equalised TX Valve. All other models require externally equalised TX Valves



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Induced Draught Evaporators

Cabero

CH E Series - Low Temperature



Features

- Powder coated smooth aluminium case
- Venturi distributor for multiple refrigerants
- ½" smooth bore copper tubing
- Fins protected with Blue-Fin coating
- Fan/s pre-wired to IP54 junction box
- Professional in-line tube configuration
- Defrost heaters pre-wired to IP54 junction box
- Defrost termination sensor location provided
- Heater safety thermostat fitted
- Low energy fan/s
- Separate fan compartments
- Stainless steel fixings
- Flush mount ceiling brackets
- Air bypass sheet with special drainage system
- Fold down drip tray with central drain conn.

Cat. No.	Part No.	Capacity @ -24°C SST & 6 KTD : Watts		Air Flow l/s	Air Throw m	No. & Diam. of Fans	Fan Motors			Defrost Heaters 240 Volt		Connections		Overall Dim: mm			Weight kg	List Price \$ Exc. GST
		R404A R507	R22				Total Watts	Total Amps	Heat/ 24 Hrs Total Watts	Coil No. & Watts	Drip Tray No. & Watts	Liq.	Suct.	Length	Depth	Height		

300mm and 350mm Diameter Fan Model

291510	CH4B1/30E-1	1590	1511	439	6	1 x 300	85	0.38	2040	2 x 450	1 x 450	1/2"	1 1/2"	850	560	470	19	\$1,733.22					
291512	CH4C1/30E-1	1820	1729	428									22	\$1,893.01									
291514	CH4B1/35E-1	2310	2195	689	7	1 x 350	140	0.60	3360	2 x 650	1 x 650		5/8"	1050			26	\$2,011.52					
291516	CH4C1/35E-1	2950	2803	664									28	\$2,463.64									
291418	CH4B2/30E-1	3180	3021	878	6	2 x 300	170	0.76	4080	2 x 850	1 x 850		3/4"	1300			34	\$1,909.49					
	CH4D1/35E-1	3310	3145	622										30			P.O.A						
291422	CH4E1/35E-1	3450	3278	586	1 x 350	140	0.60	3360	4 x 650	1 x 650	1050			32									
291524	CH4C2/30E-1	3650	3468	856							7			2 x 350			170	0.76	4080	2 x 850	1 x 850	1300	38
291526	CH4B2/35E-1	5040	4788	1383	9	280	1.20	6720	2 x 1200		7/8"		1700									43	\$3,269.31
291428	CH4C2/35E-1	6100	5795	1322																		8	4 x 1200
291530	CH4D2/35E-1	6890	6546	1230	10				2 x 1750	1 x 1750		5/8"			1 1/8"	2350							
291532	CH4E2/35E-1	7210	6850	1183										3 x 350			420	1.80	10080	4 x 1750	58	\$4,469.87	
291534	CH4C3/35E-1	9080	8626	1936	9	4 x 350	560	2.40	13440	4 x 2300	1 x 2300		69								\$5,460.64		
	CH4D3/35E-1	10290	9775	1839									75	P.O.A									
291538	CH4E3/35E-1	10790	10251	1761	9	4 x 350	560	2.40	13440	4 x 2300	1 x 2300	7/8"	1 3/8"	3000	82	\$6,666.47							
291540	CH4D4/35E-1	13760	13072	2439											98	\$8,205.93							
291442	CH4E4/35E-1	14900	14155	2358											107	\$6,587.46							

500mm Diameter Fan Model

291550	CH4C1/50E-1	8310	7895	2033	26	1 x 500	750	1.30	18000	3 x 850	2 x 850	5⁄8"	1 1⁄8"	1420	670	750	73	\$5,587.12
	CH4D1/50E-1	10300	9785	1975	25					5 x 850							82	P.O.A
291454	CH4E1/50E-1	10990	10441	1922	24					6 x 850							90	
	CH4G1/50E-1	12570	11942	1808	22												98	P.O.A
291558	CH4C2/50E-1	17000	16150	4067	27	2 x 500	1500	2.60	36000	3 x 1650	2 x 1650	7⁄8"	1 3⁄8"	2500	670	750	134	\$10,303.84
	CH4D2/50E-1	20950	19903	3950	26					5 x 1650							152	P.O.A
291562	CH4E2/50E-1	22420	21299	3844	25					6 x 1650							168	\$12,635.63
291464	CH4G2/50E-1	26120	24814	3617	23												185	\$9,751.83
291566	CH4D3/50E-1	30770	29232	5925	26	3 x 500	2250	3.90	54000	5 x 2450	2 x 2450	1 1⁄8"	2 1⁄8"	3580			214	\$15,405.07
	CH4E3/50E-1	34820	33079	5767	25					6 x 2450							238	P.O.A
291470	CH4G3/50E-1	36800	34960	5425	23												273	\$16,109.83

Capacity Correction Factors

Suction Temp. °C		-36	-33	-30	-27	-24	-21	-18	-15	-12
Capacity Multiplier	R404A, R507	0.77	0.83	0.89	0.94	1	1.06	1.12	1.19	1.25
	R22	0.81	0.86	0.91	0.95	1	1.05	1.1	1.17	1.23

Capacity for suction temperatures other than -24°C can be calculated from the correction table.

* Internally equalised TX Valve. All other models require externally equalised TX Valves



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Condensers



Buffalo Trident RC Remote Air Cooled Series



Features

- Epoxy finned
- 4 Pole motor/s
- Vertical or horizontal airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed			
290120	T91-201 RC-1PH-STD	RC009C	6362				350	1	\$2,169.88
290121	T91-202 RC-1PH-STD	RC012C	8159		7459				\$2,348.30
290122	T91-203 RC-1PH-STD	RC013C	9251		8458				\$2,526.74
290123	T91-204 RC-1PH-STD	RC018C	12216		11169				\$2,975.38
290124	T91-205 RC-1PH-STD	RC023C	15545		14213				\$3,689.06
290125	T91-206 RC-1PH-STD	RC025C	17684		16168				\$4,106.17
290126	T91-207 RC-3PH-STD	RC019C	12823	10234	11724	9357	500	3	\$3,087.94
290127	T91-208 RC-3PH-STD	RC024C	16582	12672	15160	11586			\$3,914.96
290128	T91-209 RC-3PH-STD	RC028C	18997	13897	17368	12706			\$4,463.91
290129	T91-210 RC-3PH-STD	RC030C	21058	15964	19253	14596			\$4,617.11
290130	T91-211 RC-3PH-STD	RC034C	24012	17053	21954	15591			\$4,771.33
290131	T91-212 RC-3PH-STD	RC037C	26278	18981	24026	17354			\$5,343.40
290132	T91-213 RC-3PH-STD	RC047C	33163	25345	30321	23172			\$5,968.39
290133	T91-214 RC-3PH-STD	RC054C	38080	29231	34816	26725			\$6,912.08
290134	T91-215 RC-3PH-STD	RC062C	43659	32399	39917	29622			\$8,611.67
290135	T91-216 RC-3PH-STD	RC074C	51575	37250	47154	34057			\$9,451.60
290136	T91-217 RC-3PH-STD	RC082C	56989	41693	52104	38120			\$10,761.35
290137	T91-218 RC-3PH-STD	RC093C	65489	48598	59875	44433			\$12,840.92
290138	T91-219 RC-3PH-STD	RC100C	70251	49973	64230	45689			\$13,601.80
290139	T91-220 RC-3PH-STD	RC109C	75984	55591	9471	50826			\$14,501.01
290140	T91-221 RC-3PH-STD	RC115C	80350	57126	73463	52230			\$15,370.54

RC-EC Remote Air Cooled Series

Features

- Epoxy finned
- Pre-wired 4 pole EC fan motor/s
- 0-10V pressure linked controller
- Vertical or horizontal airflow
- Single phase switch
- Isolation valve to the control line.

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed			
290730	T91-207 RC1EC	RC019C-EC	12823	10234	11724	9357	500	3	\$6,692.51
290731	T91-208 RC1EC	RC024C-EC	16582	12672	15160	11586			\$7,215.40
290732	T91-209 RC1EC	RC028C-EC	18997	13897	17368	12706			\$7,575.30
290733	T91-210 RC1EC	RC030C-EC	21058	15964	19253	14596			\$7,790.04
290734	T91-211 RC1EC	RC034C-EC	24012	17053	21954	15591			\$7,980.92
290735	T91-212 RC1EC	RC037C-EC	26278	18981	24026	17354			\$8,378.56
290736	T91-213 RC1EC	RC047C-EC	33163	25345	30321	23172			\$10,669.04
290737	T91-214 RC1EC	RC054C-EC	38080	29231	34816	26725			\$11,599.55
290738	T91-215 RC1EC	RC062C-EC	43659	32399	39917	29622			\$12,196.02
290739	T91-216 RC1EC	RC074C-EC	51575	37250	47154	34057			\$13,327.35
290740	T91-217 RC1EC	RC082C-EC	56989	41693	52104	38120			\$15,574.09
290741	T91-218 RC1EC	RC093C-EC	65489	48598	59875	44433			\$15,975.71
290742	T91-219 RC1EC	RC100C-EC	70251	49973	64230	45689			\$16,735.24
290743	T91-220 RC1EC	RC109C-EC	75984	55591	9471	50826			\$18,433.22
290744	T91-221 RC1EC	RC115C-EC	80350	57126	73463	52230			\$19,385.60

Note: This is at full speed (1100RPM).

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24



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Buffalo Trident RC-Q Remote Air Cooled Series



Features

- Epoxy finned
- 6 Pole motor/s
- Vertical or horizontal airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
290745	T91-207 RC-3PH-Q	RC019C-Q	10002	9144	9525	500	3	\$3,308.71
290746	T91-208 RC-3PH-Q	RC024C-Q	12436	11370	11844			\$4,194.86
290747	T91-209 RC-3PH-Q	RC028C-Q	13678	12505	13026			\$4,783.06
290748	T91-210 RC-3PH-Q	RC030C-Q	15793	14440	15041			\$4,947.22
290749	T91-211 RC-3PH-Q	RC034C-Q	17289	15807	16466			\$5,112.46
290750	T91-212 RC-3PH-Q	RC037C-Q	18395	16818	17519			\$5,725.42
290751	T91-213 RC-3PH-Q	RC047C-Q	24872	22740	23688			\$6,395.12
290752	T91-214 RC-3PH-Q	RC054C-Q	28560	26112	27200			\$7,406.27
290753	T91-215 RC-3PH-Q	RC062C-Q	31434	28740	29938			\$9,227.36
290754	T91-216 RC-3PH-Q	RC074C-Q	36102	33008	34383			\$10,127.34
290755	T91-217 RC-3PH-Q	RC082C-Q	41032	37515	39078			\$11,530.74
290756	T91-218 RC-3PH-Q	RC093C-Q	47152	43110	44906			\$13,758.99
290757	T91-219 RC-3PH-Q	RC100C-Q	49176	44961	46834			\$14,574.26
290758	T91-220 RC-3PH-Q	RC109C-Q	54709	50019	52104			\$15,536.59
290759	T91-221 RC-3PH-Q	RC115C-Q	56245	51424	53567			\$16,469.47

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24

DV Remote Air Cooled Series

Features

- Epoxy finned
- Vertical airflow



Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed			
290170	T53-101 DV-E-4P	DV110B	95.6	68.1	87.4	62.3	500	3	\$17,597.53
290171	T53-102 DV-E-4P	DV121B	105.6	77.7	96.6	71			\$18,890.10
290172	T53-103 DV-E-4P	DV137B	119.5	85.1	109.3	77.8			\$20,270.10
290173	T53-104 DV-E-4P	DV165B	143.4	102.1	131.1	93.4			\$23,695.81
290174	T53-105 DV-E-4P	DV192B	167.3	119.1	153	109.9			\$28,467.54
290175	T53-106 DV-E-4P	DV220B	191.2	136.2	174.8	124.5			\$31,988.01

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24
290563	R72000045	Crate DV/DH 110	\$480.68
290564	R72000046	Crate DV/DH 121-137	\$584.15
290565	R72000047	Crate DV/DH 165	\$640.17
290566	R72000048	Crate DV/DH 192	\$752.26
290567	R72000049	Crate DV/DH 220	\$808.30



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Condensers



Buffalo Trident DH Remote Air Cooled Series

Features

- Epoxy finned
- Horizontal airflow
- 4 Pole motors

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed			
290180	T51-101 DH-E-4P	DH110B	95.6	68.1	87.4	62.3	500 500 500 500 500 500	3 3 3 3 3 3	\$17,706.84
290181	T51-102 DH-E-4P	DH121B	105.6	77.7	96.6	71			\$19,254.53
290182	T51-103 DH-E-4P	DH137B	119.5	85.1	109.3	77.8			\$20,634.54
290183	T51-104 DH-E-4P	DH165B	143.4	102.1	131.1	93.4			\$24,227.88
290184	T51-105 DH-E-4P	DH192B	167.3	119.1	153	109.9			\$29,038.50
290185	T51-106 DH-E-4P	DH220B	191.2	136.2	174.8	124.5			\$32,558.96

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24
290563	R72000045	Crate DV/DH 110	\$480.68
290564	R72000046	Crate DV/DH 121-137	\$584.15
290565	R72000047	Crate DV/DH 165	\$640.17
290566	R72000048	Crate DV/DH 192	\$752.26
290567	R72000049	Crate DV/DH 220	\$808.30

DV-Q Remote Air Cooled Series

Features

- Epoxy finned
- Vertical airflow
- 6 Pole motors

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:	List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed			
290162	T53-101 DV-E-Q	DV110B-Q	70.12	52.889	64.11	48.355	500 500 500 500 500 500	3 3 3 3 3 3	\$16,423.33
290163	T53-102 DV-E-Q	DV121B-Q	82.376	60.354	75.315	55.18			\$18,890.10
290164	T53-103 DV-E-Q	DV137B-Q	87.651	66.11	80.138	60.444			\$20,270.10
290165	T53-104 DV-E-Q	DV165B-Q	105.181	79.332	96.165	72.532			\$23,695.81
290166	T53-105 DV-E-Q	DV192B-Q	112.711	92.554	112.193	84.621			\$28,467.54
290167	T53-106 DV-E-Q	DV220B-Q	140.241	105.773	128.22	96.707			\$31,988.01

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24
290563	R72000045	Crate DV/DH 110	\$480.68
290564	R72000046	Crate DV/DH 121-137	\$584.15
290565	R72000047	Crate DV/DH 165	\$640.17
290566	R72000048	Crate DV/DH 192	\$752.26
290567	R72000049	Crate DV/DH 220	\$808.30



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Condensers



Buffalo Trident FMC Remote Air Cooled Series

Features

- Epoxy finned
- Vertical airflow



Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	Motor Type	List Price \$ Exc. GST	
			R404A: kW	R134a: kW	R22					
			High Fan Speed							
290400	T52-101 EP-4P	FMC 1-3R-4P	71	64.9	67.6	630		4 Pole	\$10,491.15	
290401	T52-102 EP-4P	FMC 1-4R-4P	85.2	77.9	81.1				\$11,914.08	
290402	T52-103 EP-4P	FMC 1-5R-4P	94.8	86.6	90.2				\$13,200.23	
290403	T52-104 EP-4P	FMC 2-3R-4P	142	129.8	135.2				\$20,143.02	
290404	T52-105 EP-4P	FMC 2-4R-4P	170.4	155.7	162.2				\$22,875.03	
290405	T52-106 EP-4P	FMC 2-5R-4P	189.6	173.3	180.5				\$25,344.42	
290406	T52-107 EP-4P	FMC 3-3R-4P	213	194.7	202.8				\$29,585.12	
290407	T52-108 EP-4P	FMC 3-4R-4P	255.6	233.6	243.3				\$33,597.73	
290408	T52-109 EP-4P	FMC 3-5R-4P	284.4	259.9	270.7				\$37,224.62	
290410	T52-101 EP-Q	FMC 1-3R-Q	72.9	66.6	69.4	800		6 Pole	\$11,861.99	
290411	T52-102 EP-Q	FMC 1-4R-Q	85.4	78.1	81.3				\$13,431.00	
290412	T52-103 EP-Q	FMC 1-5R-Q	93.2	52.2	88.7				\$14,658.14	
290413	T52-104 EP-Q	FMC 2-3R-Q	145.8	133.3	138.8				\$22,775.01	
290414	T52-105 EP-Q	FMC 2-4R-Q	170.8	145.1	162.6				\$25,787.53	
290415	T52-106 EP-Q	FMC 2-5R-Q	186.4	170.4	177.5				\$28,143.67	
290416	T52-107 EP-Q	FMC 3-3R-Q	218.7	199.9	208.2				\$33,450.81	
290417	T52-108 EP-Q	FMC 3-4R-Q	256.2	234.2	243.9				\$37,875.34	
290418	T52-109 EP-Q	FMC 3-5R-Q	279.6	255.6	266.2				\$41,336.01	
290420	T52-101 EP-NQ	FMC 1-3R-NQ	290420	61.8	56.5	58.8	3		8 Pole	\$10,812.36
290421	T52-102 EP-NQ	FMC 1-4R-NQ	290421	70.8	64.7	67.4				\$11,867.89
290422	T52-103 EP-NQ	FMC 1-5R-NQ	290422	75.7	69.2	72.1				\$12,969.12
290423	T52-104 EP-NQ	FMC 2-3R-NQ	290423	123.6	113	117.7				\$20,759.73
290424	T52-105 EP-NQ	FMC 2-4R-NQ	290424	141.6	129.4	134.8				\$22,786.37
290425	T52-106 EP-NQ	FMC 2-5R-NQ	290425	151.4	138.4	144.1				\$24,900.71
290426	T52-107 EP-NQ	FMC 3-3R-NQ	290426	185.4	169.5	176.5				\$30,490.90
290427	T52-108 EP-NQ	FMC 3-4R-NQ	290427	212.4	194.1	202.2				\$33,467.44
290428	T52-109 EP-NQ	FMC 3-5R-NQ	290428	227.1	207.6	216.2				\$36,572.94
290430	T52-101 EP-SQ	FMC 1-3R-SQ	290430	59	53.9	56.2				
290431	T52-102 EP-SQ	FMC 1-4R-SQ	290431	67.3	61.5	64.1	\$12,342.58			
290432	T52-103 EP-SQ	FMC 1-5R-SQ	290432	71.6	65.4	68.2	\$13,487.91			
290433	T52-104 EP-SQ	FMC 2-3R-SQ	290433	118	107.9	112.3	\$21,590.14			
290434	T52-105 EP-SQ	FMC 2-4R-SQ	290434	134.6	123	128.1	\$23,697.77			
290435	T52-106 EP-SQ	FMC 2-5R-SQ	290435	143.2	130.9	136.3	\$25,896.74			
290436	T52-107 EP-SQ	FMC 3-3R-SQ	290436	177	161.8	168.5	\$31,710.50			
290437	T52-108 EP-SQ	FMC 3-4R-SQ	290437	201.9	174.5	192.2	\$34,806.14			
290438	T52-109 EP-SQ	FMC 3-5R-SQ	290438	214.8	196.3	204.5	\$38,035.87			
290440	T52-101 EP-EC	FMC 1-3R-EC	290440	71	64.9	67.6			EC	
290441	T52-102 EP-EC	FMC 1-4R-EC	290441	85.2	77.9	81.1				\$16,998.70
290442	T52-103 EP-EC	FMC 1-5R-EC	290442	94.8	86.6	90.2				\$18,284.80
290443	T52-104 EP-EC	FMC 2-3R-EC	290443	142	129.8	135.2				\$30,312.24
290444	T52-105 EP-EC	FMC 2-4R-EC	290444	170.4	155.7	162.2				\$33,044.23
290445	T52-106 EP-EC	FMC 2-5R-EC	290445	189.6	173.3	180.5				\$35,513.62
290446	T52-107 EP-EC	FMC 3-3R-EC	290446	213	194.7	202.8				\$44,838.88
290447	T52-108 EP-EC	FMC 3-4R-EC	290447	255.6	233.6	243.3				\$48,851.50
290448	T52-109 EP-EC	FMC 3-5R-EC	290448	284.4	259.9	270.7				\$52,478.39

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290576	1ST FMC RC DV/DH	1st Additional Condenser Circuit	\$286.00
290577	2ND FMC RC DV/DH	2nd Additional Condenser Circuit	\$197.24
290560	R72000349	Crate FMC 1 Module	\$390.84
290561	R72000350	Crate FMC 2 Module	\$645.47
290562	R72000351	Crate FMC 3 Module	\$875.44



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Condensers



Buffalo Trident LDV Remote Air Cooled Series



Features

- Epoxy finned
- Vertical airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	Motor Type	List Price \$ Exc. GST
			R404A: kW	R134a: kW	R22				
			High Fan Speed						
290150	T45-101 EP-4P	LDV227B	171.5	156.8	163.3	630	3	4 Pole	\$28,936.17
290151	T45-102 EP-4P	LDV252B	189.1	172.9	180.1				\$31,469.51
290152	T45-103 EP-4P	LDV273B	201.6	184.3	192				\$33,916.23
290169	T45-113 EP-4P	LDV302B	224.2	205	213.5				\$38,619.51
290153	T45-104 EP-4P	LDV340B	257.2	235.2	245				\$38,978.02
290154	T45-105 EP-4P	LDV378B	283.1	258.9	269				\$42,371.10
290155	T45-106 EP-4P	LDV409B	301.6	275.7	287.2				\$45,710.06
290156	T45-107 EP-4P	LDV454B	323	313.6	326.6				\$47,993.77
290157	T45-108 EP-4P	LDV505B	378.3	345.9	360.3				\$52,062.02
290158	T45-109 EP-4P	LDV547B	403.2	368.6	384				\$56,167.64
290159	T45-110 EP-4P	LDV568B	428.8	392	408.3				\$57,561.73
290160	T45-111 EP-4P	LDV631B	472.9	432.3	450.4				\$64,185.45
290161	T45-112 EP-4P	LDV684B	504	460.8	480	\$73,118.16			
290670	T45-101 EP-Q	LDV227B-Q	170.2	155.6	162.1	800	3	6 Pole	\$31,004.99
290671	T45-102 EP-Q	LDV252B-Q	184.7	168.9	175.9				\$33,719.44
290672	T45-103 EP-Q	LDV273B-Q	193.5	177	184.3				\$36,341.09
290673	T45-113 EP-Q	LDV302B-Q	235.9	215.7	224.6				\$41,380.64
290674	T45-104 EP-Q	LDV340B-Q	255.3	233.4	243.2				\$41,764.78
290675	T45-105 EP-Q	LDV378B-Q	276.5	252.8	163.3				\$45,400.46
290676	T45-106 EP-Q	LDV409B-Q	289.5	264.7	275.7				\$48,978.13
290677	T45-107 EP-Q	LDV454B-Q	340.4	311.2	324.2				\$51,425.13
290678	T45-108 EP-Q	LDV505B-Q	369.4	337.8	351.9				\$55,786.09
290679	T45-109 EP-Q	LDV547B-Q	387.1	353.9	368.7				\$60,183.39
290680	T45-110 EP-Q	LDV568B-Q	425.6	389.1	405.3				\$61,677.16
290681	T45-111 EP-Q	LDV631B-Q	461.8	422.2	439.8				\$68,774.42
290682	T45-112 EP-Q	LDV684B-Q	483.9	442.4	460.9			\$78,345.84	
290685	T45-101 EP-NQ	LDV227B-NQ	142.7	130.4	135.9			8 Pole	\$28,936.17
290686	T45-102 EP-NQ	LDV252B-NQ	151	138.1	143.8				\$31,469.51
290687	T45-103 EP-NQ	LDV273B-NQ	159.4	145.8	151.8				\$33,916.23
290688	T45-113 EP-NQ	LDV302B-NQ	192.5	176	183.3				\$38,619.51
290689	T45-104 EP-NQ	LDV340B-NQ	214	195.6	203.8				\$38,978.02
290690	T45-105 EP-NQ	LDV378B-NQ	226.1	206.7	215.3	\$42,371.10			
290691	T45-106 EP-NQ	LDV409B-NQ	238.5	218.1	227.2	\$45,710.06			

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290579	1ST LDV/LDH VB	1st Additional Condenser Circuit	\$378.02
290580	2ND LDV/LDH VB	2nd Additional Condenser Circuit	\$262.96
290568	R72000187	Crate LDV/H-B 227-252-273	\$665.52
290569	R72000188	Crate LDV/H-B 302-340-378-409	\$864.14
290570	R72000189	Crate LDV/H-B 454-505-547	\$989.06
290571	R72000190	Crate LDV/H-B 568-631-684	\$1,136.47



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Condensers



Buffalo Trident

LDV Remote Air Cooled Series



Features

- Epoxy finned
- Vertical airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	Motor Type	List Price \$ Exc. GST
			R404A: kW	R134a: kW	R22				
			High Fan Speed						
290692	T45-107 EP-NQ	LDV454B-NQ	285.3	260.8	291.9	800	3	8 Pole	\$47,993.77
290693	T45-108 EP-NQ	LDV505B-NQ	302.1	276.2	289.8				\$52,063.75
290694	T45-109 EP-NQ	LDV547B-NQ	318.9	291.6	303.7				\$56,167.64
290695	T45-110 EP-NQ	LDV568B-NQ	356.7	326.1	339.7				\$57,561.73
290696	T45-111 EP-NQ	LDV631B-NQ	377.7	345.3	359.7				\$64,185.45
290697	T45-112 EP-NQ	LDV684B-NQ	398.7	364.5	379.7				\$73,118.16
290700	T45-101 EP-SQ	LDV227B-SQ	135.2	123.6	128.8				\$28,936.17
290701	T45-102 EP-SQ	LDV252B-SQ	143.2	130.9	136.4				\$31,469.51
290702	T45-103 EP-SQ	LDV273B-SQ	150.4	137.5	143.3				\$33,916.23
290703	T45-113 EP-SQ	LDV302B-SQ	182.3	166.7	173.6				\$38,619.51
290704	T45-104 EP-SQ	LDV340B-SQ	202.8	185.4	193.2				\$38,978.02
290705	T45-105 EP-SQ	LDV378B-SQ	214.3	196	204.1				\$42,371.10
290706	T45-106 EP-SQ	LDV409B-SQ	225	205.7	214.3				\$45,710.06
290707	T45-107 EP-SQ	LDV454B-SQ	270.4	247	257.6				\$47,993.77
290708	T45-108 EP-SQ	LDV505B-SQ	286.4	261.8	272.7				\$52,063.75
290709	T45-109 EP-SQ	LDV547B-SQ	300.9	275.1	286.5				\$56,167.64
290710	T45-110 EP-SQ	LDV568B-SQ	338.1	309.1	322				\$57,561.73
290711	T45-111 EP-SQ	LDV631B-SQ	358	327.3	340.9				\$64,185.45
290712	T45-112 EP-SQ	LDV684B-SQ	376.1	343.9	358.2				\$73,118.16
290715	T45-101 EP-EC	LDV227B-EC	171.5	156.8	163.3			EC	\$39,685.04
290716	T45-102 EP-EC	LDV252B-EC	189.1	172.9	180.1				\$43,332.76
290717	T45-103 EP-EC	LDV273B-EC	201.6	184.3	192				\$46,124.54
290718	T45-113 EP-EC	LDV302B-EC	224.2	205	213.5				\$22,395.90
290719	T45-104 EP-EC	LDV340B-EC	257.2	235.2	245				\$78,447.66
290720	T45-105 EP-EC	LDV378B-EC	283.1	258.9	269.6				\$65,032.48
290721	T45-106 EP-EC	LDV409B-EC	304.6	275.7	287.2				\$68,251.46
290722	T45-107 EP-EC	LDV454B-EC	343	313.6	326.6				\$76,371.28
290723	T45-108 EP-EC	LDV505B-EC	378.3	345.9	360.3				\$83,167.82
290724	T45-109 EP-EC	LDV547B-EC	403.2	368.6	384				\$80,473.70
290725	T45-110 EP-EC	LDV568B-EC	428.8	392	408.3				\$93,283.05
290726	T45-111 EP-EC	LDV631B-EC	472.9	432.3	450.4				\$99,435.79
290727	T45-112 EP-EC	LDV684B-EC	504	460.8	480				\$107,887.26

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290579	1ST LDV/LDH VB	1st Additional Condenser Circuit	\$378.02
290580	2ND LDV/LDH VB	2nd Additional Condenser Circuit	\$262.96
290568	R72000187	Crate LDV/H-B 227-252-273	\$665.52
290569	R72000188	Crate LDV/H-B 302-340-378-409	\$864.14
290570	R72000189	Crate LDV/H-B 454-505-547	\$989.06
290571	R72000190	Crate LDV/H-B 568-631-684	\$1,136.47



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Condensers



Buffalo Trident

LDV-D Remote Air Cooled Series

The Delta Series has extended its family to include the optimised third generation LDV-D. Its market-leading efficiency, incorporating composite Ziehl-Abegg ZPlus - EC fan technology comprising of innovative cowling design with integrated air straightener, low sound, marine grade stucco housing and epoxy coated fin material, it is bound to have an impact on the Australian market.

Single Module

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fans		List Price \$ Exc. GST
			R404A: kW		R134a: kW				
			Full Speed: 1100RPM	Speed: 680RPM	Full Speed: 1100RPM	Speed: 680RPM	Number	Nom Diameter: mm	
290760	T56-101-EP-EC	LDV-D-6-4R-2F	150	117	138	87	2	800	\$20,408.14
290761	T56-102-EP-EC	LDV-D-6R-2F	186	142	172	106			\$22,185.40
290762	T56-103-EP-EC	LDV-D-6-4R-3F	225	141	207	130	3		\$29,285.97
290763	T56-104-EP-EC	LDV-D-6R-3F	280	172	258	159			\$31,917.78
290764	T56-105-EP-EC	LDV-D-6-4R-4F	300	188	277	173	4		\$38,485.37
290765	T56-106-EP-EC	LDV-D-6R-4F	373	229	344	211			\$41,449.95

Dual Module

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fans		List Price \$ Exc. GST
			R404A: kW		R134a: kW		Number	Nom Diameter: mm	
			Full Speed: 1100RPM	Speed: 680RPM	Full Speed: 1100RPM	Speed: 680RPM			
290766	T56-107-EP-EC	LDV-D-6-4R-2F-2M	300	188	277	173	4	800	\$41,424.49
290767	T56-108-EP-EC	LDV-D-6R-2F-2M	373	229	344	211			\$44,977.73
290768	T56-109-EP-EC	LDV-D-6-4R-3F-2M	450	282	415	260	6		\$59,782.55
290769	T56-110-EP-EC	LDV-D-6R-3F-2M	559	344	515	317			\$65,046.14
290770	T56-111-EP-EC	LDV-D-6-4R-4F-2M	600	376	553	347	8		\$78,558.27
290771	T56-112-EP-EC	LDV-D-6R-4F-2M	746	459	687	423			\$84,485.78

Options

Cat. No.	Part No.	Description	Suits Model	List Price \$ Exc. GST
290579	1ST LDV/LDH VB	1st Additional Condenser Circuit	All LDV-D	\$378.02
290580	2ND LDV/LDH VB	2nd Additional Condenser Circuit		\$262.96
290772	T56-113	LDV-D Condenser Sub-Frame Base	1M-2F	\$1,104.64
290773	T56-114		1M-3F	\$1,393.40
290774	T56-115		1M-4F	\$1,727.09



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Condensers



Buffalo Trident VB Remote Air Cooled Series



Features

- Epoxy finned
- Vertical airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	Motor Type	List Price \$ Exc. GST
			R404A: kW	R134a: kW	R22				
			High Fan Speed						
290601	T33-201 EP-4P	VB-4-4R-4P	194	177.3	184.7	630	3	4 Pole	\$29,642.27
290602	T33-202 EP-4P	VB-4-5R-4P	214.6	196.1	204.3				\$32,744.55
290603	T33-203 EP-4P	VB-4-6R-4P	226.4	206.9	215.5				\$34,960.45
290604	T33-204 EP-4P	VB-6-4R-4P	300.6	274.7	286.2				\$45,155.58
290605	T33-205 EP-4P	VB-6-5R-4P	325	297.1	309.4				\$46,188.68
290606	T33-206 EP-4P	VB-6-6R-4P	340	310.8	323.7				\$48,467.71
290607	T33-207 EP-4P	VB-8-4R-4P	339.8	365.4	380.6				\$55,324.58
290608	T33-208 EP-4P	VB-8-5R-4P	433.2	395.9	412.4				\$61,376.07
290609	T33-209 EP-4P	VB-8-6R-4P	453.8	414.8	432				\$63,931.42
290610	T33-210 EP-4P	VB-10-4R-4P	497.4	454.6	473.5				\$64,957.45
290611	T33-211 EP-4P	VB-10-5R-4P	542.8	496.1	516.7				\$73,423.84
290612	T33-212 EP-4P	VB-10-6R-4P	566.6	517.9	539.4				\$76,928.79
290613	T33-201 EP-Q	VB-4-4R-Q	205.8	188.1	195.9	800	3	6 Pole	\$34,172.59
290614	T33-202 EP-Q	VB-4-5R-Q	223.8	204.6	213.1				\$36,908.19
290615	T33-203 EP-Q	VB-4-6R-Q	232.2	212.2	221.1				\$38,917.50
290616	T33-204 EP-Q	VB-6-4R-Q	318.4	291	303.1				\$48,384.02
290617	T33-205 EP-Q	VB-6-5R-Q	338.8	309.7	322.5				\$52,282.37
290618	T33-206 EP-Q	VB-6-6R-Q	348.8	318.8	332.1				\$53,943.98
290619	T33-207 EP-Q	VB-8-4R-Q	422.8	386.4	402.5				\$63,594.00
290620	T33-208 EP-Q	VB-8-5R-Q	451.4	412.6	429.7				\$70,773.62
290621	T33-209 EP-Q	VB-8-6R-Q	465.2	425.2	442.9				\$74,581.00
290622	T33-210 EP-Q	VB-10-4R-Q	527.6	482.2	502.3				\$76,307.62
290623	T33-211 EP-Q	VB-10-5R-Q	565.8	517.1	538.6				\$84,169.46
290624	T33-212 EP-Q	VB-10-6R-Q	580.6	530.7	552.7				\$88,029.86
290625	T33-201 EP-Q	VB-4-4R-NQ	171.4	156.7	163.2			8 Pole	\$32,238.29
290626	T33-202 EP-Q	VB-4-5R-NQ	184	168.2	175.2				\$34,819.05
290627	T33-203 EP-Q	VB-4-6R-NQ	189.6	173.3	180.5				\$36,714.62
290628	T33-204 EP-Q	VB-6-4R-NQ	264.8	242	252.4				\$45,645.28
290629	T33-205 EP-Q	VB-6-5R-NQ	270	254.1	265.7				\$49,323.00
290630	T33-206 EP-Q	VB-6-6R-NQ	284.2	259.8	270.6				\$50,890.54

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290579	1ST LDV/LDH VB	1st Additional Condenser Circuit	\$378.02
290580	2ND LDV/LDH VB	2nd Additional Condenser Circuit	\$262.96
290572	R72000333	Crate V Block 4 Fan	\$897.02
290573	R72000344	Crate V Block 6 Fan	\$1,097.75
290574	R72000346	Crate V Block 8 Fan	\$1,306.25
290575	R72000341	Crate V Block 10 Fan	\$1,530.72



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Condensers



Buffalo Trident VB Remote Air Cooled Series



Features

- Epoxy finned
- Vertical airflow

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD			Fan Dia.: mm	Phase:	Motor Type	List Price \$ Exc. GST
			R404A: kW	R134a: kW	R22				
			High Fan Speed						
290631	T33-207 EP-Q	VB-8-4R-NQ	353	322.6	336.1	800	3	8 Pole	\$59,994.33
290632	T33-208 EP-Q	VB-8-5R-NQ	371.6	339.6	353.8				\$66,767.56
290633	T33-209 EP-Q	VB-8-6R-NQ	378.6	346	360.4				\$70,359.44
290634	T33-210 EP-Q	VB-10-4R-NQ	437.2	399.6	416.2				\$71,988.34
290635	T33-211 EP-Q	VB-10-5R-NQ	464.4	424.5	442.1				\$79,405.14
290636	T33-212 EP-Q	VB-10-6R-NQ	473	432.3	450.3				\$83,047.02
290637	T33-201 EP-SQ	VB-4-4R-SQ	164.6	150.4	156.7				\$31,969.95
290638	T33-202 EP-SQ	VB-4-5R-SQ	175.4	160.3	167				\$34,874.11
290639	T33-203 EP-SQ	VB-4-6R-SQ	179.6	164.2	171				\$36,960.57
290640	T33-204 EP-SQ	VB-6-4R-SQ	252.2	230.5	240.1				\$45,342.16
290641	T33-205 EP-SQ	VB-6-5R-SQ	263.4	240.7	250.8				\$49,333.29
290642	T33-206 EP-SQ	VB-6-6R-SQ	269.4	246.2	245.5				\$50,848.40
290643	T33-207 EP-SQ	VB-8-4R-SQ	336.6	307.7	320.4				\$59,454.74
290644	T33-208 EP-SQ	VB-8-5R-SQ	352	321.7	335.1				\$64,549.60
290645	T33-209 EP-SQ	VB-8-6R-SQ	359	328.1	341.8				\$68,562.70
290646	T33-210 EP-SQ	VB-10-4R-SQ	416.2	380.4	396.2				\$71,768.05
290647	T33-211 EP-SQ	VB-10-5R-SQ	439.8	402	418.7				\$78,817.47
290648	T33-212 EP-SQ	VB-10-6R-SQ	446.2	407.8	424.8				\$82,518.97
290649	T33-201 EP-EC	VB-4-4R-EC	194	177.3	184.7			EC	\$42,652.71
290650	T33-202 EP-EC	VB-4-5R-EC	214.6	196.1	204.3				\$46,290.06
290651	T33-203 EP-EC	VB-4-6R-EC	226.4	206.9	215.5				\$49,114.50
290652	T33-204 EP-EC	VB-6-4R-EC	300.6	274.7	286.2				\$61,680.56
290653	T33-205 EP-EC	VB-6-5R-EC	325	297.1	309.4				\$66,648.21
290654	T33-206 EP-EC	VB-6-6R-EC	340	310.8	323.7				\$69,197.79
290655	T33-207 EP-EC	VB-8-4R-EC	339.8	365.4	380.6				\$79,962.19
290656	T33-208 EP-EC	VB-8-5R-EC	433.2	395.9	412.4				\$84,770.31
290657	T33-209 EP-EC	VB-8-6R-EC	453.8	414.8	432				\$89,991.41
290658	T33-210 EP-EC	VB-10-4R-EC	497.4	454.6	473.5				\$98,838.38
290659	T33-211 EP-EC	VB-10-5R-EC	542.8	496.1	516.7				\$105,088.58
290660	T33-212 EP-EC	VB-10-6R-EC	566.6	517.9	539.4				\$110,026.62

Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
290579	1ST LDV/LDH VB	1st Additional Condenser Circuit	\$378.02
290580	2ND LDV/LDH VB	2nd Additional Condenser Circuit	\$262.96
290572	R72000333	Crate V Block 4 Fan	\$897.02
290573	R72000344	Crate V Block 6 Fan	\$1,097.75
290574	R72000346	Crate V Block 8 Fan	\$1,306.25
290575	R72000341	Crate V Block 10 Fan	\$1,530.72



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Condensers

Cabero

ACW Remote Air Cooled Series

The ACW is a compact V form air cooled condenser series from Cabero. The ACW has an extremely small footprint with a narrow width which allows application in tight spaces. Models range from 85kW to 660kW total heat of rejection at 10KTD. For larger capacities, ACW condensers can be mounted in a W form utilising optional mounting frames. They are suitable for all common HFC refrigerants.



Features

- Powder coated zinc plated steel construction offers corrosion resistance
- The aluminium fins are protected with Blue-Fin coating
- The fins are straight to reduce fouling and improve long term efficiency
- Zeihl Abegg 800mm and 900mm fans
- Fans pre-wired to IP54 isolator switches

800mm Fan Model

Cat. No.	Model No.	Nominal Capacities at 10 KTD				Fans		List Price \$ Exc. GST
		R404A: kW		R134a: kW		Number	Nominal Diameter: mm	
		High Speed	Low Speed	High Speed	Low Speed			
293001	ACW085A2.2/2N	100.2	85	93.2	79.1	2	800	\$17,242.31
293002	ACW087A2.2/2N	117	95.2	108.8	88.6			\$19,670.00
293003	ACW089A2.2/2N	129.6	102.2	120.6	95.1			\$22,138.68
293004	ACW085A3.3/3N	151.8	127.6	141.2	118.7	3		\$25,090.05
293005	ACW087A3.3/3N	178	143.2	165.6	133.2			\$28,977.71
293006	ACW089A3.3/3N	192.4	153.6	179	142.9			\$32,949.83
293007	ACW085A4.4/4N	204.4	167.8	190.1	156.1	4		\$32,604.73
293008	ACW087A4.4/4N	234	192.2	217.7	178.8			\$37,677.27
293009	ACW089A4.4/4N	259.4	204.4	241.3	190.1			\$42,863.28
293010	ACW085A5.5/5N	253.4	208.2	235.7	193.7	5		\$41,137.83
293011	ACW087A5.5/5N	290.4	240.8	270.1	224			\$46,849.85
293012	ACW089A5.5/5N	324.2	255.4	301.6	237.6			\$52,856.30
293013	ACW085A6.6/6N	293.6	255.2	273.1	237.4	6		\$48,961.41
293014	ACW087A6.6/6N	356	286.4	331.2	266.4			\$56,029.66
293015	ACW089A6.6/6N	385.2	310.6	358.3	288.9			\$63,223.41
293016	ACW085A7.7/7N	351.4	288.8	326.9	268.7	7		\$55,539.82
293017	ACW087A7.7/7N	402.4	338.6	374.3	315			\$63,725.38
293018	ACW089A7.7/7N	437.4	359	406.9	334			\$72,058.15
293019	ACW085A8.8/8N	409	335.8	380.5	312.4	8		\$65,011.63
293020	ACW087A8.8/8N	467.8	372.6	435.2	346.6			\$74,336.22
293021	ACW089A8.8/8N	507.4	414.2	472	385.3			\$83,834.56



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Cabero

ACW Remote Air Cooled Series

The ACW is a compact V form air cooled condenser series from Cabero. The ACW has an extremely small footprint with a narrow width which allows application in tight spaces. Models range from 85kW to 660kW total heat of rejection at 10KTD. For larger capacities, ACW condensers can be mounted in a W form utilising optional mounting frames. They are suitable for all common HFC refrigerants.



Features

- Powder coated zinc plated steel construction offers corrosion resistance
- The aluminium fins are protected with Blue-Fin coating
- The fins are straight to reduce fouling and improve long term efficiency
- Zeihl Abegg 800mm and 900mm fans
- Fans pre-wired to IP54 isolator switches

900mm Fan Model

Cat. No.	Model No.	Nominal Capacities at 10 KTD				Fans		List Price \$ Exc. GST
		R404A: kW		R134a: kW		Number	Nominal Diameter: mm	
		High Speed	Low Speed	High Speed	Low Speed			
293022	ACW095A2.2/2N	123.8	111	115.2	103.3	2	900	\$19,397.28
293023	ACW097A2.2/2N	146.8	129.6	136.6	120.6			\$21,817.74
293024	ACW099A2.2/2N	164.6	140.2	153.1	130.4			\$24,288.88
293025	ACW095A3.3/3N	185.6	162.6	172.7	151.3	3		\$28,314.08
293026	ACW097A3.3/3N	223.2	192.4	207.6	179			\$32,218.66
293027	ACW099A3.3/3N	245.8	213.4	228.7	198.5			\$36,183.52
293028	ACW095A4.4/4N	247.6	216.8	230.3	201.7	4		\$36,900.24
293029	ACW097A4.4/4N	301.4	259.4	280.4	241.3			\$41,975.21
293030	ACW099A4.4/4N	330.2	281.2	307.2	261.6			\$47,158.76
293031	ACW095A5.5/5N	298.4	280.8	277.6	261.2	5		\$46,509.61
293032	ACW097A5.5/5N	373.8	321.6	347.7	299.2			\$52,236.12
293033	ACW099A5.5/5N	409.4	348.8	380.8	324.5			\$58,240.15
293034	ACW095A6.6/6N	371.4	325.2	345.5	302.5	6		\$55,419.14
293035	ACW097A6.6/6N	433	374	402.8	347.9			\$62,475.33
293036	ACW099A6.6/6N	476	427	442.8	397.2			\$69,666.68
293037	ACW095A7.7/7N	380.6	304.3	354	283.1	7		\$63,059.32
293038	ACW097A7.7/7N	517.6	446	481.5	414.9			\$71,244.93
293039	ACW099A7.7/7N	567.8	484	528.2	450.2			\$79,577.70
293040	ACW095A8.8/8N	452	398	420.5	370.2	8		\$73,605.00
293041	ACW097A8.8/8N	602.6	518.8	560.6	482.6			\$82,929.63
293042	ACW099A8.8/8N	660.4	562	614.3	522.8			\$92,437.62



Water Cooled Condensers



Bitzer



Fresh Water

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
297130	J13-502	K033N	\$1,539.82
297131	J13-504	K073H	\$1,872.51
297132	J13-508	K123H	\$2,145.75
297133	J13-513	K203H	\$4,020.66
297134	J13-516	K283H	\$4,695.50
297135	J13-520	K373H	\$5,187.38
297136	J13-526	K573H	\$8,243.28
297137	J13-529	K813H	\$9,621.50
297138	J13-506	K1053H	\$11,287.26
297139	J13-509	K1353T	\$13,573.22
297140	J13-511	K1973T	\$21,305.59
297141	J13-518	K2923T	\$26,792.41
297142	J13-522	K3803T	\$39,598.06
297143	J13-525	K4803T	\$45,555.36

Salt Water

Cat. No.	Part No.	Model No.	List Price \$ Exc. GST
297147	J13-003	K033NB	\$2,229.91
297148	J13-004	K073HB	\$2,879.47
297149	J13-006	K123HB	\$3,142.76
297150	J13-009	K203HB	\$5,767.92
297151	J13-010	K283HB	\$6,915.42
297152	J13-012	K373HB	\$7,561.81
297153	J13-015	K573HB	\$11,624.84
297154	J13-016	K813HB	\$13,999.41
297155	J13-005	K1053HB	\$16,104.76
297156	J13-007	K1353TB	\$19,638.56
297157	J13-008	K1973TB	\$30,406.23
297158	J13-011	K2923TB	\$39,628.38
297159	J13-013	K3803TB	\$54,885.34
297160	J13-014	K4803TB	\$58,456.63

Inclusions

- All condensers are supplied with angle mounting brackets above & below the vessel
- Connection for safety valve
- Plastic coated tube plates
- Liquid sight glass is standard from Model No. K123H
- Connection for vent valve from Model No. K1053H
- Plug for water outlet from Model No. K573H

Actrol Sales and Applications Engineers can assist with selection advice.

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Heaters



Key Drain

Cat. No.	Part No.	Watts	Type	List Price \$ Exc. GST
294105	8132	10	PVC	\$93.07
294106	8133	25		\$173.24
294107	8138	46		\$238.96



Tecumseh L'Unite Hermetique Crankcase



Cat. No.	Part No.	Volts	Watts	Type	Application	List Price \$ Exc. GST
294137	CH101-40	240	54	External	AH Series	\$153.63
294138	CH101-3-40	440				\$153.63
294139	CH102-40	240	60	Internal	AJ Series	\$153.63
294144	8681590	480	27		FH, TAG Series	\$138.01



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Heaters

Maneurop



Maneurop

Cat. No.	Part No.	Volts	Watts	Type	Application	List Price \$ Exc. GST
294146	7773107	230	65	External	MT/MTZ44-81, NTZ096-136 & SM/SZ084-161	\$75.94
294147	7773108	230	75		MT/MTZ100-160, NTZ215-271 & SM/SZ175-185 & SH180-300	\$118.70
294148	7773122	230	130		SY/SZ240-380 & SH380	\$118.70
294145	120Z0459	-	27	Internal	MTZ & NTZ	\$158.26



Thermon

Cat. No.	Part No.	Volts	Watts	Type	Application	List Price \$ Exc. GST
294140	651-1010	240 Vac	52 at 10°C	External	Compressors up to 1200mm circumference	\$182.44

KASON

Kason

Heated Condensate Evaporation Pans

The CRH-600 is heated with a heat pad which is thermostatically controlled to lower the wattage automatically to conserve energy when the pan is empty.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
294014	CRH-660	Cast Aluminium General Purpose	\$334.29

Specifications

- Dimensions: 120mm x 317mm x 73mm
- 1829mm Wire Lead, no plug
- Pan: Die-cast Aluminium pan. Stainless Steel Spring Wire Legs
- Volume: 1479ml
- Evaporation Rate: 157ml/hr

CRH AUSTRALIA

CRH

The CRH-WRC65 is a large capacity thermostatically controlled condensate evaporation pan.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
294013	CRH-WCR65	Large Condensate Evaporation Pan	\$1,339.84

Specifications

- Dimensions: 335mm x 275mm x 164mm
- 1800mm Lead, with plug
- Pan: Stainless Steel
- Volume: 6500ml
- Evaporation Rate: up to 550ml/hr

Heat Recovery Systems

BROMIC REFRIGERATION

Bromic

IM Series Self Contained Ice Machines



Cat. No.	Model No.	Voltage	Max. Ice Production: kg/24hr	Storage Capacity: kg	Max. Ambient Temp	Dimensions: mm	Gross Weight: kg	List Price \$ Exc. GST
300500	IM23/14SSC	240	23	14	40°C	735h x 478w x 580d	43	\$2,701.39
300501	IM40/20SSC		40	20		725h x 675w x 580d	50	\$2,853.15
300502	IM75/38SSC		75	38		999h x 675w x 670d	75	\$4,508.64



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Ice Making Solutions

Hotels • Restaurants • Bars • Clubs • Fast Foods
Fish Markets • Medical • Mining Sites • Manufacturing

FEATURES:

- Electromechanical – no PC boards/electronics
- Ease of use, cleaning and maintenance
- Operation in high ambient temperatures
- Italian design and manufacturing
- Two years parts and labour warranty



13g Cubes



7g Cubes



Pebbles Ice



Ice Flakes



Cold Flakes

Ice Makers



Brema CB Series

The popular CB series produce a 13 gram solid individual rhomboid shape cube. The CB series are fully self contained incorporating an ice maker & integral insulated polyurethane foam injected bin.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Storage Capacity: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300250	CB184A	240	10	21	4	345 x 400 x 590	34	\$2,491.84
300251	CB249A			28	9	390 x 460 x 690	44	\$3,029.55
300252	CB316A			33	16	500 x 580 x 690	56	\$3,586.93
300253	CB416A			42			60	\$3,652.51
300254	CB425A			46	25	500 x 580 x 800	64	\$3,783.66
300255	CB640A			65	40	738 x 600 x 920	89	\$4,970.57
300256	CB840A			80			98	\$5,377.11
300257	CB955A			90	55	738 x 600 x 1020	102	\$5,691.85
300258	CB1265A	15	15	130	65	840 x 740 x 1075	133	\$7,752.89
300259	CB1565A			155			138	\$8,083.38

C Series

The C series cuber heads produce the popular rhomboid shape cube in 13 grams (or with special orders – 18, 33 or 42 gram). Storage Bins should be ordered separately.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300268	C150A	240	15	155	862 x 555 x 720	128	\$7,849.26
300269	C300A	415	32	300	1250 x 580 x 848	178	\$12,558.83

VB Series

The VB series are fully self contained & produce a 7 gram solid individual cube. It is designed for many applications including bars, restaurants, clubs, and fast food chains and is suitable for carbonated drinks.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Storage Capacity: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300260	VB250A	240	10	105	35	738 x 600 x 980	85	\$6,541.39

VM Series

The VM series produce solid 7gm cubes and the ice makers are equipped with vertical evaporators that with their simple design and functionality can produce up to 750kg of ice per day. These high production ice makers are rated up to 48°C ambient and the 'V' series ice is suitable for juice bars. Storage Bins should be ordered separately.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300264	VM350A	240	10	140	540 x 544 x 707	95	\$6,431.88
300265	VM500A		15	200	770 x 550 x 805	101	\$7,928.74
300266	VM900A		32	400		124	\$10,542.92
300295	VM1700A	415		770	1250 x 645 x 950	242	\$21,737.96

GB Series

The GB series of granulated ice flakers are fully self contained & produce ice that is suitable for fresh produce (e.g. broccoli), seafood, laboratories, leather companies, and poultry.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Storage Capacity: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300270	GB902A	240	10	90	20	500 x 660 x 690	67	\$6,329.60
300304	GB903A				30	500 x 660 x 800	76	\$6,495.83
300271	GB1555A		15	150	55	738 x 690 x 1020	105	\$7,435.67



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Ice Makers



Brema G Series

The G series of granulated ice flakers produce ice that is suitable for fresh produce (e.g. broccoli), seafood, laboratories, leather companies, and poultry. The G series can also be purchased as a split unit. Storage Bins should be ordered separately.



Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300305	G150A	240	10	150	640 x 470 x 555	68	\$7,544.34
300272	G250A		15	250	640 x 470 x 700	93	\$9,878.17
300273	G500A			500		113	\$11,776.87
300274	G1000A	415		1000	934 x 684 x 700	195	\$23,560.12
300306	G500Split	240	15	500	640 x 470 x 700	75	\$9,756.51
300307	G1000Split			1000	474 x 684 x 700	122	\$19,097.44

Muster Series

The Muster series produces subzero, flat ice flakes that have an ideal thickness for all the sectors they cater for such as baking, fishing, meat, dairy & chemical industries. The Muster series produces flakes which are between -5°C and -10°C. The M350 and M800 also have the added advantage of including both an air cooled & water cooled condenser in the one machine. Storage Bins should be ordered separately.



Cat. No.	Model No.	Voltage	Electrical Plug Type Amps	Ice Production: kg per day	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300275	M350A/W	240	15	400	900 x 588 x 705	150	\$19,263.67
300314	M600A	415		620		166	\$23,016.66
300276	M800A/W			900	1107 x 700 x 880	262	\$29,327.07
300316	M1500A			1500	1107 x 700 x 970	342	\$46,033.32
300318	M2000A			2200	1062 x 832 x 1423	500	\$62,656.47
300277	M350Split			400	495 x 588 x 705	82	\$13,228.20
300319	M600Split	240	15	620		89	\$16,623.15
300278	M800Split			900	604 x 700 x 880	153	\$20,408.11
300320	M1500Split			1500	604 x 700 x 970	160	\$30,688.90
300321	M2000Split	415		2200	736 x 832 x 1075	328	\$42,836.58

Dispenser Series

The Brema ice dispenser series produce a 13 gram solid individual rhomboid shape cube. These units allow the user to easily dispense ice without making human contact with the product, eliminating the risk of contamination.



Cat. No.	Model No.	Voltage	Elect. Plug Type	Ice Production per day	Dimensions: mm	Shipping Weight	List Price \$ Exc. GST
	HIKU26A	240	10 Amps	26kg	395 x 530 x 790	47kg	P.O.A
	DSS42A			42kg	500 x 360 x 920	72kg	P.O.A

Bins



Cat. No.	Model No.	Bin Storage Capacity: kg	Dimensions: mm	Shipping Weight: kg	List Price \$ Exc. GST
300282	Bin 240PE	240	942 x 795 x 1153	92	\$2,525.42
300279	Bin 200	200	870 x 790 x 1000	74	\$3,542.00
300281	Bin 350	350	1250 x 790 x 1100	126	\$8,370.00
300290	Bin 550	550	1110 x 1060 x 1284	177	\$10,868.96
300283	Single Roller Bin	125	795 x 1060 x 1284	80	\$5,944.11
300284	Double Roller Bin 100	266	1560 x 1060 x 1484	170	\$10,944.07
300287	Double Roller Bin 500	516	1560 x 1145 x 1780	185	\$23,054.88

Water Filter



Cat. No.	Part No.	Description	Contents	List Price \$ Exc. GST
300288	CCE10	Water Filter Assembly	Water Filter	\$778.38
			Pressure Limiting Valve	
			1/2" & 3/4" Brass Connections	
			Ball Valve	
300289	CCE100	Quick Change Water Filter Cartridge and Housing		\$301.50

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Drinking Water Systems

Aqua Cooler

Bottled Water Coolers - B17 & B18 Modern Round Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Top	List Price \$ Exc. GST
300430	B17-11	5	White	Hot & Cold	Spike	\$928.17
300431	B17-11G		Granite			\$928.17
300432	B17-11T		Titanium			\$972.64
300436	B18-11		White	Cook & Cold		\$750.32
300437	B18-11G		Granite			\$750.32
300438	B18-11T		Titanium			\$794.78

B10 Traditional Square Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Top	List Price \$ Exc. GST
300450	B10	5	White	Cook & Cold	Open	\$930.95

B22 Modern Bench Top Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Top	List Price \$ Exc. GST
300452	B22-11	5	Grey & Black Sides	Cook & Cold	Spike	\$1,005.97

Water Bottles

Cat. No.	Model No.	Description	List Price \$ Exc. GST
300457	C-155	8 litre water bottle with filter	\$191.74
300458	C-159	Replacement filter cartridge	\$61.13

Freestanding Drinking Water Fountains

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered	List Price \$ Exc. GST
300402	M2	10	Stone Colourbond	Bubbler	No	\$1,878.55
300403	M2F				Yes	\$2,075.86
300404	M3			Bubbler & Glass Filler	No	\$2,000.82
300405	M3F				Yes	\$2,195.36
300406	M4	19	Stainless Steel	Bubbler	No	\$2,156.44
300407	M4F				Yes	\$2,353.76
300408	M4SS				No	\$2,634.41
300409	M4FSS				Yes	\$2,834.51
300410	M5		Stone Colourbond	Bubbler & Glass Filler	No	\$2,273.17
300411	M5F		Stainless Steel		Yes	\$2,470.47
300412	M5SS				No	\$2,756.71
300413	M5FSS				Yes	\$2,959.55
300414	M10	26	Stone Colourbond	Bubbler	No	\$2,642.75
300415	M10F		Stainless Steel		Yes	\$2,845.63
300416	M10SS				No	\$3,140.20
300417	M10FSS				Yes	\$3,340.27
300418	M11		Stone Colourbond	Bubbler & Glass Filler	No	\$2,762.26
300419	M11F		Stainless Steel		Yes	\$2,962.35
300420	M11SS				No	\$3,259.68
300421	M11FSS				Yes	\$3,459.76

WM Series Wall Mounted Water Fountains

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered	List Price \$ Exc. GST
300424	WM2	8	Stone Colourbond	Bubbler	No	\$2,156.44
300425	WM2SS		Stainless Steel			\$2,598.29
300426	WM3		Stone Colourbond	Bubbler & Glass Filler		\$2,273.17
300427	WM3SS		Stainless Steel			\$2,723.34

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Drinking Water Systems

Aqua Cooler

Mains Connected Point of Use Water Coolers

RP Modern Round Series



Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered	List Price \$ Exc. GST
300460	RP2	5	White	Cook & Cold	No	\$950.39
300461	RP2F				Yes	\$1,225.50
300462	RP2G		Granite		No	\$950.39
300463	RP2GF				Yes	\$1,225.50
300464	RP2T		Titanium		No	\$1,014.31
300465	RP2TF				Yes	\$1,289.42
300466	RP3		White	Hot & Cold	No	\$1,094.89
300467	RP3F				Yes	\$1,364.45
300468	RP3G		Granite		No	\$1,094.89
300469	RP3GF				Yes	\$1,364.45
300470	RP3T		Titanium		No	\$1,136.57
300471	RP3TF				Yes	\$1,411.69

SP Modern Square Series



Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered	List Price \$ Exc. GST
300473	SP2G	5	Granite	Cook & Cold	No	\$905.93
300474	SP2GF				Yes	\$1,167.15

PB Modern Square Series



Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered	List Price \$ Exc. GST
300480	PB1	5	Grey & Black Sides	Cook & Cold	No	\$1,083.78
300481	PB1F				Yes	\$1,292.20

Mains Connected Under Bench Water Coolers



Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Filtered	List Price \$ Exc. GST
300485	UB3	5	White	No	\$1,372.79
300486	UB3F			Yes	\$1,745.17
300487	UB1	8		No	\$1,608.99
300488	UB1F			Yes	\$1,970.26
300489	UB2	15		No	\$1,903.56
300490	UB2F			Yes	\$2,248.16

Mains Connected Under Bench Water Heater



Hydra Master Series

Cat. No.	Model No.	Max Heating: l/h	Cabinet	Filtered	List Price \$ Exc. GST
300492	UH1	11.25	White	No	\$3,821.02

Mains Connected Wall Recessed Water Coolers



Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Filtered	List Price \$ Exc. GST
300493	IBWR	26	Stainless Steel	No	\$8,475.75

Mains Connected Wall Mount Remote Water Coolers



Cat. No.	Model No.	Max Cooling: l/h	Filtered	List Price \$ Exc. GST
300494	WR45	26	No	\$2,362.10

Mains Connected Central Storage Remote Water Coolers



Cat. No.	Model No.	Max Cooling: l/h	Filtered	List Price \$ Exc. GST
300495	PT30	90	No	\$9,326.09



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Oil Separators

Emerson



Cat. No.	Part No.	Connection ODF Solder	Capacity Ratings : kW						Dimensions mm		List Price \$ Exc. GST
			R134a		R22		R404A /R507		Overall Height	Diameter	
			Evaporating Temperature °C								
			-40	5	-40	5	-40	5			
301129	A-XW55823	3/8"	1.72	2.03	2.67	2.96	2.37	3.00	183	102	\$344.67
301130	A-W55824 3/8	1/2"	3.5	6.3	5.3	7	5.3	7	260		\$399.09
301131	A-W55855 3/8	5/8"	11.2	15.8	15.8	19.3	14.1	19.3	362		\$413.58
301132	A-W55877 3/8	7/8"	16.9	22.5	24.6	28	22.9	29.9	450		\$463.85
301133	A-W55889 3/8	1 1/8"	22.5	29.9	31.7	37	29.9	38.7	533		\$481.79
301134	A-W559011 3/8	1 3/8"	28.1	40	40.4	47.5	36.9	49.2	540		\$522.77
301137	A-W569213 3/8	1 5/8"	41.5	56.3	56.3	63.3	52.7	66.8	473	152	\$792.51



Cat. No.	Part No.	Max Capacity kW		Connection ODF Solder	Suits Bitzer Accessible Hermetec Compr.	Dimensions mm		Min. Op. Oil Charge Lts	List Price \$ Exc. GST
		R22	R404A R507			Height (less conns)	Diameter		
301150	B36-001	15.4	16.5	7/8"	2HC to 2CC	320	168	0.87	\$1,878.14
301151	B36-009	23.2	24.8	1 1/8"	4FC to 4CC	370			\$1,313.88
301152	B36-004	34.8	36.5	1 1/8"	4Z to 4V	435			\$1,587.57
301153	B36-011	48	50.5	1 3/8"	4T to 4H	435			\$1,578.21
301154	B36-010	78.3	82	1 5/8"	4G to 6F	495	220	1.8	\$1,685.27

Oil Control Accessories

Antal



Cat. No.	Part No.	Oil Return Connection	List Price \$ Exc. GST
301051	AA-HS	3/8" Male Flare	\$1,102.29

Traxoil

Oil Level Control System



Cat. No.	Part No.	Description	List Price \$ Exc. GST
301053	TR3203	Oil level system with screw adaptor 1-1/8" UNEF	\$900.48
		L'Unite Hermetique FH, TFH, TAH, TAG, TAGP	
		Bitzer 2KC, 2JC, 2HC, 2GC, 2FC, 2EC, 2DC, 2CC, 4FC, 4EC, 4DC, 4CC	
		Bock HG22/34, HA22/34	
		Dorin All H, K100CC/CS, K150CC/CS, K180CC/CS, K200CC, K230CS, K235CC, K240SB, K40CC, K50CS, K75CC/CS	
		Maneurop LT, MT, SM, SZ	
301054	TR3202	Oil level system with screw adaptor 3/4" 14 NPTF	\$900.48
		Bitzer ZL, ZM	
		Copeland ZB, ZF, ZS	
301055	TR3201	Oil level system with flange adaptor 3-4 hole	\$900.48
		Bock HA, HG (Except HG/HA-34/22 see TR3203 series)	
		Copeland D2, D3, D4, D6, D9, 4CC, 6CC	
		Dorin All KP, K sozes (except those under TR3203)	
		Frascold Series A, B, D, F, S, V, Z	
301058	TR3205	Bitzer 4VC, 4TC, 4PC, 4NC, 4J, 4H, 4G, 6J, 6H, 6G, 6F, 8GC, 8FC	\$1,137.25
		Bock HA& HG with no provision for sight glass on side, F3, F4 F5, F14, F16 AM series, 04	
	TR 3204	Oil level system with screw adaptor 1-1/8" 12 UNF	P.O.A
		Copeland DK, DL	
	TR3207	Oil level system with flange adaptor 3 hole	P.O.A
		Copeland D8D, D8S (except D8SJ and D8SK), Terry VS	
	TR3212	Oil level system with Rotalock adaptor 1-3/4" 12 UNF	P.O.A
		Copeland ZR90 tp ZR19M, ZR250 to ZR380, ZRT180K to 30K	



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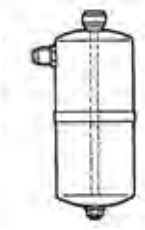
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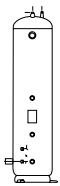
Liquid Receivers



Tecumseh L'Unite Hermetique



Cat. No.	Part No.	Volume: Lts	Inlet Connection	Rotalock Size	Height: mm	Diameter: mm	List Price \$ Exc. GST
302070	8380142	0.75	1/4" Tube	N/A	205	77	\$140.06
302071	8661567	1.5	Rotalock valve	1"	248	101	\$165.52
302072	8661566	2.35			280	124	\$198.10
302076	8380159	3.9			383	125	\$581.15
302074	8380160	6			311	169	\$915.28
302075	8380157	9.5		1 1/4"	504		\$1,116.22
302077	8380156	12			604		\$1,598.45



Bitzer

Cat. No.	Part No.	Pump Down Capacity: Kg		Inlet Connection	Outlet Connection	Height: mm	Dia.: mm	List Price \$ Exc. GST
		R22	R404A					
302060	RV73	28	25	3/4" Rotalock	3/4" Rotalock	920	220	\$1,591.41
	RV80	42	37	1 1/8" Rotalock	1 1/8" Rotalock	1200	220	P.O.A
302065	RV221	90	79.4	1 3/8" Rotalock	1 3/8" Rotalock	1160	356	\$5,434.50

Suction Accumulators



Emerson

Cat. No.	Part No.	Connection ODF Solder	Capacity: kW – Evaporating Temperature: °C									Liquid Holding Capacity* kg	Weight kg	List Price \$ Exc. GST
			R134a			R22			R404A / R507					
			-18	-7	5	-18	-7	5	-18	-7	5			
302320	A-AS-384	1/2"	2.1	2.8	4.2	3.2	4.9	7	2.8	3.5	4.6	0.9	0.8	\$106.83
302321	A-AS-3125	5/8"	2.8	4.2	6	4.9	7.4	10.5	4.2	5.6	7	1.4	1	\$118.81
302322	A-AS-3126	3/4"	3.5	5.6	8.1	6.3	9.8	14	5.3	7	9			\$128.34
302323	A-AS-596		2.4									\$215.47		
302324	A-AS-597	7/8"	6.3	9.8	14	11.6	18	25.7	9.5	12.7	16.2	2.7	2.4	\$229.16
302325	A-AS-5126	3/4"	3.5	5.6	8.1	6.3	9.8	14	5.3	7	9			4
302326	A-AS--5127	7/8"	6.3	9.8	14	11.6	18	25.7	9.5	12.7	16.2	4.3	3.7	
302327	A-AS-5137		3.7											\$199.21
302328	A-AS-5139	1 1/8"	10.9	17.6	25.3	18.6	29.2	41.5	15.5	20.7	26.7	5.4	3.8	\$283.36
302329	A-AS-5179		3.8											\$303.14
302330	A-AS-51711	1 3/8"	16.2	25.7	37.6	29.9	46.4	66	25.3	33.8	43	5.9	5.6	\$344.74
302331	A-AS-61411		5.6											\$378.00
302332	A-AS-62013	1 5/8"	25.7	41	60	45	70	100	37.6	50	64	9	7.4	\$479.84

*Holding Capacity of R22 at 4°C Evaporator Temperature.



Bitzer

Cat. No.	Part No.	Model No.	Connection ODF Solder	List Price \$ Exc. GST
302151	B40-060	SXE-118	Solder	\$1,445.30
302150	B40-061	SXE-138	1 3/8"	\$1,565.97
302152	B40-062	SXE-158	1 5/8"	\$2,096.80
302153	B40-063	SXE-218	2 1/8"	\$2,467.49
	B40-064	SXE-258	2 5/8"	P.O.A
	B40-065	SXE-300	3"	P.O.A



Acpar

Cat. No.	Part No.	Description	Connection	Length	List Price \$ Exc. GST
302010	116-06	Copper Spun Accumulator	3/8"	230mm	\$39.05



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Air Conditioners



Mitsubishi Heavy Industries

Wall Mount Split Heat Pump R410A Inverter



Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
30471001	DXK06ZM-S	2.0	2.7	6.35	9.52	P.O.A
30471101	DXK09ZMA-S	2.5	3.2			P.O.A
30471201	DXK12ZMA-S	3.5	4.0			P.O.A
30471301	DXK18ZMA-S	5.0	5.8		12.70	P.O.A
30471401	DXK21ZMA-S	6.3	7.1		15.88	P.O.A
30471501	DXK24ZMA-S	7.1	8.0			P.O.A
30471601	DXK28ZMA-S	8.0	9.0			P.O.A
30471701	DXK32ZMA-S	9.2	10.0		15.88	P.O.A

Wall Mount Split Heat Pump R410A Inverter

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304749	SRK20ZJ-S	2.0	2.7	6.35	9.52	P.O.A
304750	SRK25ZJ-S	2.5	3.2			P.O.A
304751	SRK35ZJ-S1	3.5	4.0			P.O.A
304756	SRK50ZJ-S	5.0	5.8		12.7	P.O.A
304869	SRK63ZK-S	6.3	7.1		15.88	P.O.A
304764	SRK71ZK-S	7.1	8.0			P.O.A
304870	SRK80ZL-S	8.0	9.0			P.O.A
304871	SRK92ZL-S	9.2	10.0	9.52	15.88	P.O.A

Wall Mount Split Heat Pump R410A Inverter Hi EER/COP

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm		List Price \$ Exc. GST
		Cooling	Heating	Liquid	Gas	
304745	SRK20ZJX-S	2.0	2.5	6.35	9.52	P.O.A
304746	SRK25ZJX-S	2.55	3.13			P.O.A
304747	SRK35ZJX-S	3.5	4.3			P.O.A
304752	SRK50ZJX-S1	5.0	6.0		12.7	P.O.A
304757	SRK60ZJX-S1	6.0	6.8			P.O.A

Wall Mount Split Cool Only R410A Inverter



Cat. No.	Model No.	Capacity: kW	Pipe Sizes: mm		List Price \$ Exc. GST
		Cool	Liquid	Gas	
304761	SRK10YJ-S	2.5	6.35	9.52	P.O.A
304763	SRK18YJ-S	5.0		12.7	P.O.A

Floor Console Split Heat Pump R410A Inverter

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm		List Price \$ Exc. GST
		Cooling	Heating	Liquid	Gas	
304766	SRF25ZJX-S	2.5	3.4	6.35	9.52	P.O.A
304767	SRF35ZJX-S	3.5	4.5		12.7	P.O.A
304768	SRF50ZJX-S1	5.0	6.0			P.O.A

Control Options

Cat. No.	Part No.	Description	List Price \$ Exc. GST
303169	RC-E5	Wired Remote Controller - 2 Wire	P.O.A
303179	SC-BIKN-E	Interface Kit for SRK, ZJ, ZJX & DXK to RC-5E	P.O.A

Mitsubishi Heavy Industries (MHI) manufactures a wide range of Air Conditioners. Specifications are continually being upgraded as technology changes. Please contact us for the latest information on the MHI product range. Equivalent Model may be supplied in lieu of Model requested.



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Air Conditioners



Mitsubishi Heavy Industries

Multi Head Heat Pump R410A Inverter

Outdoor Units



Cat. No.	Model No.	Capacity: kW		Connect	Max kW Cool Connect	Largest kW Indoor Connect	List Price \$ Exc. GST
		Cooling	Heating				
304770	SCM40ZJ-S1	4.0	4.5	2 Indoor	6.0	3.5	P.O.A
304772	SCM50ZJ-S1	5.0	6.0	2~3 Indoor	8.5	5.0	P.O.A
304773	SCM60ZJ-S1	6.0	7.0		11.0	6.0	P.O.A
304769	SCM71ZJ-S1	7.1	8.6	2~4 Indoor	12.5		P.O.A
304774	SCM80ZJ-S1	8.0	9.5		13.5		P.O.A
304775	SCM100ZJ-S1	10.0	12.0	4-5 Indoor	16.0	7.1	P.O.A
304776	SCM125ZJ-S1	12.5	13.5	4-6 Indoor	19.5		P.O.A

Indoor Units

SRK-Z Wall Mount



Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304778	SRK20ZMA-S	2.0	3.0	P.O.A
304780	SRK25ZMA-S	2.5	3.4	P.O.A
304782	SRK35ZMA-S	3.5	4.5	P.O.A
304783	SRK50ZMA-S	5.0	5.8	P.O.A
304785	SRK71ZMA-S	7.1	8.6	P.O.A

Cassette Units



Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304790	FDTC25VF	2.5	3.4	P.O.A
304791	FDTC35VF	3.5	4.5	P.O.A
304792	FDTC50VF	5.0	5.8	P.O.A
304793	FDTC60VF	6.0	6.8	P.O.A

*Control not included and must be ordered separately

SRK-ZJX Wall Mount



Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304860	SRK20ZJX-S	2.0	3.0	P.O.A
304861	SRK25ZJX-S	2.5	3.4	P.O.A
304862	SRK35ZJX-S	3.5	4.5	P.O.A
304863	SRK50ZJX-S1	5.0	5.8	P.O.A
304864	SRK60ZJX-S1	6.0	6.8	P.O.A

Bulk Head Units (low static)

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304795	SRR25ZJ-S	2.5	3.4	P.O.A
304796	SRR35ZJ-S	3.5	4.5	P.O.A
304797	SRR50ZJ-S	5.0	5.8	P.O.A
304798	SRR60ZJ-S	6.0	6.8	P.O.A

Floor Type Units

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304787	SRF25ZJX-S	2.5	3.4	P.O.A
304788	SRF35ZJX-S	3.5	4.5	P.O.A
304789	SRF50ZJX-S1	5.0	5.8	P.O.A

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DXK Series

Inverter Wall Mount Split

HyperInverter



- **Wall Split Systems DXK 2.5~9.2kW**



DXU Series

Inverter Ducted Split

HyperInverter



- **Packaged Unit Single Phase 7.1~14.0kW**
- **Packaged Unit Three Phase 16.0kW**



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Air Conditioners



Mitsubishi Heavy Industries

Cassette Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304809	FDT60ZJXVD	5.6	6.7	P.O.A
304811	FDT71VNXVD	7.1	8.0	P.O.A
304812	FDT100VNVVD	10.0	11.2	P.O.A
304813	FDT125VNXVD	12.5	14.0	P.O.A
304814	FDT140VNXVD	14.0	16.0	P.O.A

Infrared Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304815	FDT60ZJXVD	5.6	6.7	P.O.A
304818	FDT71VNXVD	7.1	8.0	P.O.A
304819	FDT100VNVVD	10.0	11.2	P.O.A
304820	FDT125VNXVD	12.5	14.0	P.O.A
304821	FDT140VNXVD	14.0	16.0	P.O.A

Cassette Compact Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304828	FDTC50ZJX-S	5.0	5.4	P.O.A

Infrared Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304829	FDTC50ZJX-S	5.0	5.4	P.O.A

Ducted Heat Pump

50 ~ 85Pa Wired Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304845	FDUM50ZIXVD	5.0	5.4	P.O.A
304846	FDUM60ZIXVD	5.6	6.7	P.O.A
304847	FDUM71VNXVF	7.1	8.0	P.O.A

10 ~ 200Pa Wired Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304280	FDDA71VNXVF	7.1	8.0	P.O.A
304281	FDDA100VNVF	10.0	11.2	P.O.A
304282	FDDA125VNXVF	12.5	14.0	P.O.A
304283	FDDA140VNXVF	14.0	16.0	P.O.A
304284	FDDA160VSVF	16.0	18.0	P.O.A

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cooling	Heating	
304290	DXU24VNXVF	7.1	8.0	P.O.A
304291	DXU34VNVF	10.0	11.2	P.O.A
304292	DXU43VNXVF	12.5	14.0	P.O.A
304293	DXU48VNXVF	14.0	16.0	P.O.A
304294	DXU55VSVF	16.0	18.0	P.O.A

Under Ceiling Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304853	FDEN100VNVVD	10.0	11.2	P.O.A
304802	FDEN125VNXVD	12.5	14.0	P.O.A

Infrared Control

Cat. No.	Model No.	Capacity: kW		List Price \$ Exc. GST
		Cool	Heat	
304858	FDEN100VNVVD	10.0	11.2	P.O.A
304807	FDEN125VNXVD	12.5	14.0	P.O.A

Control Options

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303181	CnT Connector	Card connector flying leads	P.O.A
303165	RC-EX1A	EcoTouch Controller	P.O.A
303169	RC-E5	Wired Remote Control - 2 Wire	P.O.A
303168	SC-ADNA-E	Superlink Interface - RC-E5	P.O.A

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Air Conditioners



Mitsubishi Heavy Industries

VRF Systems (Variable Refrigerant Flow) - Outdoor Units

Single units up to 68kW - Combined modules achieve up to 136kW



KX6 Compact 2 Pipe Multi Heatpump

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303004	FDC112HKXEN6	11.2	P.O.A
303005	FDC140HKXEN6	14.0	P.O.A
303006	FDC155HKXEN6	15.5	P.O.A



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303010	FDC224KXE6	22.4	P.O.A
303011	FDC280KXE6	28.0	P.O.A
303012	FDC335KXE6	33.5	P.O.A



KX6 2 Pipe Multi Heatpump

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303018	FDC335KXE6-K*	33.5	P.O.A
303019	FDC400KXE6	40.0	P.O.A
303020	FDC450KXE6	45.0	P.O.A
303021	FDC504KXE6	50.4	P.O.A
303022	FDC560KXE6	56.0	P.O.A
303023	FDC560KXE6-K*	56.0	P.O.A
303024	FDC615KXE6	61.5	P.O.A
303025	FDC680KXE6	68.0	P.O.A

* Combination

KXR6 3 Pipe Multi Heat Recovery



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303033	FDC224KXRE6	22.4	P.O.A
303034	FDC280KXRE6	28.0	P.O.A
303035	FDC335KXRE6	33.5	P.O.A
303036	FDC335KXRE6-K	33.5	P.O.A
303037	FDC400KXRE6	40.0	P.O.A
303038	FDC450KXRE6	45.0	P.O.A
303039	FDC504KXRE6	50.4	P.O.A
303040	FDC560KXRE6	56.0	P.O.A
303041	FDC560KXRE6-K	56.0	P.O.A
303042	FDC615KXRE6	61.5	P.O.A
303043	FDC680KXRE6	68.0	P.O.A

* Combination

KX & KXR System Commissioning

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303046	KXR SYS COMM	3 Hours Assistance	P.O.A

Selection and application of VRF systems must be referred to Actrol to obtain specific piping and wiring schematics prior to ordering. Commissioning must be completed with Mente PC software by an approved agent - this is a chargeable service. Mitsubishi Heavy Industries (MHI) manufactures a wide range of air conditioners. Specifications are continually being upgraded as technology changes. Please contact us for the latest information on the MHI product range. Equivalent models may be supplied on lieu of models requested.



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Air Conditioners



Mitsubishi Heavy Industries

VRF Systems (Variable Refrigerant Flow) - Indoor Units

Wall mount



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303050	FDK22KXE6	2.2	P.O.A
303051	FDK28KXE6	2.8	P.O.A
303052	FDK36KXE6	3.6	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303053	FDK45KXE6	4.5	P.O.A
303054	FDK56KXE6	5.6	P.O.A
303055	FDK71KXE6	7.1	P.O.A

4 Way Cassette



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303058	FDT28KXE6	2.8	P.O.A
303059	FDT36KXE6	3.6	P.O.A
303060	FDT45KXE6	4.5	P.O.A
303061	FDT56KXE6	5.6	P.O.A
303062	FDT71KXE6	7.1	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303063	FDT90KXE6	9.0	P.O.A
303064	FDT112KXE6	11.2	P.O.A
303065	FDT140KXE6	14.0	P.O.A
303066	FDT160KXE6	16.0	P.O.A

4 Way Compact Cassette



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303070	FDT22KXE6	2.2	P.O.A
303071	FDT28KXE6	2.8	P.O.A
303072	FDT36KXE6	3.6	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303073	FDT45KXE6	4.5	P.O.A
303074	FDT56KXE6	5.6	P.O.A

1 Way Blow Cassette



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303078	FDTQ22KXE6	2.2	P.O.A
303079	FDTQ28KXE6	2.8	P.O.A
303080	FDTQ36KXE6	3.6	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303081	FDTQ45KXE6	4.5	P.O.A
303082	FDTQ71KXE6	7.1	P.O.A

Ducted Fan Coil Unit (FCU) (50-130Pa)



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303095	FDU71KXE6	7.1	P.O.A
303096	FDU90KXE6	9.0	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303097	FDU112KXE6	11.2	P.O.A
303098	FDU140KXE6	14.0	P.O.A
	FDUA160KXE6	16.0 kW	P.O.A

High Static Ducted Fan Coil Unit (FCU) (100-200Pa)



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303100	FDU224KXE6	22.4	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303102	FDU280KXE6	28.0	P.O.A

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Air Conditioners



Mitsubishi Heavy Industries

VRF Systems (Variable Refrigerant Flow) - Indoor Units

Ducted Fan Coil Unit (FCU) (50-90Pa)



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303105	FDUM22KXE6	2.2	P.O.A
303106	FDUM28KXE6	2.8	P.O.A
303107	FDUM36KXE6	3.6	P.O.A
303108	FDUM45KXE6	4.5	P.O.A
303109	FDUM56KXE6	5.6	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
303110	FDUM71KXE6	7.1	P.O.A
	FDUM90KXE6	9.0	P.O.A
	FDUM112KXE6	11.2	P.O.A
	FDUM140KXE6	14.0	P.O.A

Low Profile Ducted FCU (Low Static)

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
	FDUT22KXE6	2.2kW	P.O.A
	FDUT28KXE6	2.8kW	P.O.A
	FDUT36KXE6	3.6kW	P.O.A
	FDUT45KXE6	4.5kW	P.O.A
	FDUT56KXE6	5.6kW	P.O.A
	FDUT71KXE6	7.1kW	P.O.A

Compact Ducted Fan Coil Unit (FCU)



Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
	FDUH22KXE6	2.2	P.O.A
	FDUH28KXE6	2.8	P.O.A

Cat. No.	Model No.	Capacity: kW	List Price \$ Exc. GST
	FDUH36KXE6	3.6	P.O.A

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Air Conditioners



Mitsubishi Heavy Industries Controls and Accessories

Individual Remote

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303169	RC-E5	Wired Remote Control	P.O.A
303172	RCH-E3	Simple Wired Remote Control	P.O.A
303165	RC-EX1A	EcoTouch Controller	P.O.A

Controller Wireless Kits

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303173	RCN-T-36W-E	FDT	P.O.A
303174	RCN-TC-24W-ER	FDTC	P.O.A
	RCN-E-E	FDE	P.O.A
	RCN-K-E	FDK	P.O.A
	RCN-K71-E	FDK 7.1 and above	P.O.A
303177	RCN-KIT3-E	General Use	P.O.A

Superlink Network Controllers

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303190	SC-SL1N-E	Central Controller	P.O.A
303191	SC-SLA2N-E	Centralized Controller	P.O.A
303192	SC-SL3N-AE		P.O.A

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303194	SLA3R-BX	Mounting Box for SC-SLA3N	P.O.A
303200	CONT COMM	Controls Commissioning Assistance 5hrs	P.O.A

Accessories

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303210	SC-THB-E3	Remote Sensor	P.O.A
	U-FCRA	Fan Speed Controller	FDU
	U-FCRB		FDU-F

Pipe Kits

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303220	DIS-22-1	HP Branch Pipe Kit	2.2 to 18.0kW
303221	DIS-180-1		18.0 to 37.1kW
303222	DIS-371-1		37.1 to 54.0kW
303223	DIS-540-1		54.0kW up
303224	DOS-2A-1	HP Outdoor Branch Pipe Kit	73.5 to 136.0kW
303225	HEAD4-22-1	HP Header Pipe Kit	4 Port 2.2 to 18.0kW
303226	HEAD6-180-1		6 Port 18.0 to 37.1kW
303227	HEAD8-371-1		8 Port 37.1 to 54.0kW
303228	HEAD8-540-1		8 Port 54.0kW up

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303229	DIS-22-1-R	HR Branch Pipe Kit	2.2 to 18.0kW
303230	DIS-180-1-R		18.0 to 37.1kW
303231	DIS-371-1-R		37.1 to 54.0kW
303232	DIS-540-1-R		54.0kW up
303233	DOS-2A-1-R	HR Outdoor Branch Pipe Kit	73.5 to 136.0kW

KX6 Refrigerant Flow Controllers Interfaces

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303245	PFD1123-E	Single Refrig. Contr.	2.2 to 9.0kW
303246	PFD1123X4-E	Multi Refrig. Contr.	
303247	PFD1803-ER	Single Refrig. Contr.	11.2 to 18.0kW
303248	PFD2803-ER		18.0kW up
	PFD-15WR-E	Wiring Extension for PFD 15m	

Cat. No.	Model No.	Description	List Price \$ Exc. GST
303179	SC-BIKN-E	Interface Kit for SRK, ZJ, ZJX & DXK to RC-5E	P.O.A
303181	CnT Connector	Card connector flying leads	P.O.A
303168	SC-ADNA-E	Superlink Interface - RC-E5	P.O.A

Filter Kits

Cat. No.	Model No.	Description	List Price \$ Exc. GST
	UM-FL1E	Filter Kit for FDUM	2.2 to 5.6kW
	UM-FL2E		7.1 to 9.0kW
	UM-FL3E		11.2 to 14.0kW
	QS-FL1E	Filter Kit for FDQS	P.O.A



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Air Conditioners

Midea

Wall Mount Split Systems

Corona Inverter Series

Corona inverter model are only available while stocks last and will be replaced by the new Fairwind inverter series.



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304133	MSCP09M4A	2.5	2.8	1/4"	3/8"	P.O.A
304134	MSCP12M4	3.2	3.7	1/4"	1/2"	P.O.A
304135	MSP18M4A	5	5.3	1/4"	1/2"	P.O.A
304136	MSP21M4A	6.1	6.7	3/8"	5/8"	P.O.A
304138	MSC28M4	7.6	7.8	3/8"	5/8"	P.O.A

Fairwind Inverter Series

The new Fairwind inverter series will replace the Corona inverter series.



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304202	FMV09	2.45	2.7	1/4"	3/8"	P.O.A
304203	FMV12	3.5	3.7	1/4"	1/2"	P.O.A
304204	FMV18	5.0	5.3	1/4"	1/2"	P.O.A
304205	FMV24	6.7	6.7	3/8"	5/8"	P.O.A

Oasis Inverter Series



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304148	MORC09	2.5	2.6	1/4"	3/8"	P.O.A
304149	MORC12	3.25	3.15	1/4"	1/2"	P.O.A
304150	MORC14	4.25	4.3	1/4"	1/2"	P.O.A
304151	MORC18	5	5.3	1/4"	1/2"	P.O.A
304153	MORC24	6.9	7.4	3/8"	5/8"	P.O.A
304154	MORC28	7.9	8.3	3/8"	5/8"	P.O.A

Fairwind Fixed Speed Series



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304210	MEF09	2.7	2.8	1/4"	3/8"	P.O.A
304211	MEF12	3.5	3.5	1/4"	1/2"	P.O.A
304212	MEF18	5.1	5.3	1/4"	1/2"	P.O.A
304213	MEF24	6.4	7	3/8"	5/8"	P.O.A

Room Air Conditioners

• Reverse Cycle

• Remote Control Included



Cat. No.	Model No.	Capacity: kW		Dimensions: mm			List Price \$ Exc. GST
		Cool	Heat	Width	Depth	Height	
304095	MWF09HB4	2.6	2.35	600	560	380	P.O.A
304096	MWF12HB4	3.5	3.2	660	680	428	P.O.A
304097	MWF18HB4	5.5	4.7	660	780	428	P.O.A



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Air Conditioners

Midea

Multi Head Systems

Outdoor Units



Cat. No.	Model No.	Capacity: kW		Connections		Max No of Heads	List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas		
304216	M2OC18HRDN1	5.2	6.1	2 x 1/4"	2 x 3/8"	2	P.O.A
304217	M3OC27HRDN1	7.9	8.8	3 x 1/4"	3 x 3/8"	3	P.O.A
304218	M4OC27HRDN1	7.9	8.8	4 x 1/4"	4 x 3/8"	4	P.O.A
304219	M5OC36HRDN1	10.5	11	5 x 1/4"	5 x 3/8"	5	P.O.A
304220	MM4OC36	10.5	11	5 x 1/4"	5 x 3/8"	4	P.O.A

Indoor Units Wall Mount



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304237	MS11DI07HRDN1Q	2	2.3	1/4"	3/8"	P.O.A
304238	MS11DI09HRDN1Q	2.6	2.9	1/4"	3/8"	P.O.A
304239	MS11DI12HRDN1Q	3.5	3.8	1/4"	3/8"	P.O.A
304240	MS11DI18HRDN1Q	5	5.3	1/4"	1/2"	P.O.A
304241	MMSO24	7	7.3	3/8"	5/8"	P.O.A

Mini 4 Way Cassette

Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304242	MCA2I07HRDN1	2	2.6	1/4"	3/8"	P.O.A
304243	MCA2I09HRDN1	2.6	3.2	1/4"	3/8"	P.O.A
304244	MCA2I12HRDN1	3.5	3.8	1/4"	3/8"	P.O.A
304245	MCA2I18HRDN1	5.2	6	1/4"	1/2"	P.O.A

Ducted Unit

Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304246	MTBI07HWDN1Q	2	2.4	1/4"	3/8"	P.O.A
304247	MTBI09HWDN1Q	2.6	3.2	1/4"	3/8"	P.O.A
304248	MTBI12HWDN1Q	3.5	3.8	1/4"	3/8"	P.O.A
304249	MTBI18HWDN1Q	5.2	5.8	1/4"	1/2"	P.O.A

Floor Console

Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304250	MFF18HRDN1	5.2	5.8	1/4"	1/2"	P.O.A

Ducted Systems

• Single Phase

• Wired Control



Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304184	MHG24HWFN1Q	7.35	8.5	3/8"	5/8"	P.O.A
304185	MHG36HWFN1Q	10.4	11.2	3/8"	5/8"	P.O.A
304186	MHG48HWFN1Q	13.5	16	3/8"	3/4"	P.O.A
304187	MHG60HWFN1Q	16.8	17.7	3/8"	3/4"	P.O.A

Cassette Systems

• Single Phase

• Wired Control

Cat. No.	Model No.	Capacity: kW		Connections		List Price \$ Exc. GST
		Cool	Heat	Liquid	Gas	
304188	MCD24HRFN1Q	7.1	7.6	3/8"	5/8"	P.O.A
304189	MCD42HRFN1Q	11	13	3/8"	3/4"	P.O.A
304190	MCD46HRFN1Q	12.8	14	3/8"	3/4"	P.O.A



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Air Conditioners



Teco

Room Air Conditioners

Features

- R410A Refrigerant
- Reverse Cycle
- Remote Control Included

Cat. No.	Model No.	Capacity: kW		Dimensions: mm			List Price \$ Exc. GST
		Cool	Heat	Height	Width	Depth	
304056	TWW22HFB	2.2	1.9	375	560	668	P.O.A
304057	TWW27HFB	2.7	2.4				P.O.A
304058	TWW40HFB	4.0	3.6	430	660	705	P.O.A
304059	TWW53HFB	5.3	5.0				P.O.A
304060	TWW60HFB	6.0	5.6				P.O.A

Universal Air Conditioner Remote Control

An economical answer to lost or damaged air conditioner remote controls, the universal remote controls will work with thousands of different models of air conditioning units. They are simply programmed by using the codes on the back of the remote.

The Ultra Plus 2124 is designed for commercial operations within the resort/motel industry. It features a narrow temperature range of 21 to 24 degrees with a two hour timer.

Features

- Digital read out
- Adjustable fan control
- Swing and directional control
- Mode control



Cat. No.	Part No.	Description	List Price \$ Exc. GST
304002	A/C Ultra Plus	Universal A/C Remote Control	P.O.A
304003	ESR	Energy Saving Remote Control	P.O.A



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Air Conditioners



Dunnair

Air Cooled Split Ducted

The Dunnair range of split ducted air conditioners are designed and manufactured in accordance with strict quality control standards and for Australian conditions.



Features

- SHS6 to 35 single stage
- Optional two stage available for 18kW to 35kW
- SH40 to 200 belt drive
- Liquid Accumulator
- 24 volt control
- Durable powder coated cabinet (outdoor unit)
- Easy access panels with turn lock handles, no screws
- Coil corrosion protection
- High/low pressure protection for compressor
- Limit start timer
- Independent defrost dual circuit units for two stage units
- Optional Electric Reheat high temperature protection
- SH40 to 200 two stage
- SHS6 to 35 direct drive
- Automatic De-Ice
- Crankcase heater
- Galvanised steel panelling
- External stainless steel fittings
- 25mm insulation
- High quality scroll compressors
- Time delay protection for compressor
- Quiet & efficient
- Phase reverse protection

Cat. No.	Model No.	Refrigerant	Phase	Refrigerant Circuits	Cooling Capacity: kW	Sensible Cooling: kW	Heating Capacity: kW	List Price \$ Exc. GST
303400	SHS06	R410A	1	1	6.2	5.3	5.9	P.O.A
303401	SHS08	R410A	1	1	7.8	6.8	7.4	P.O.A
303402	SHS10	R410A	1	1	9.1	7.9	9.4	P.O.A
303403	SHS12	R410A	3	1	11.5	9.7	12.1	P.O.A
303404	SHS15	R410A	3	1	14.3	13	14.2	P.O.A
303405	SHS18	R410A	3	1	17.1	15.1	18	P.O.A
303406	SHS20	R410A	3	1	19.9	15.9	19.5	P.O.A
303407	SHS25	R410A	3	1	24.2	19.3	24.5	P.O.A
303408	SHS30	R410A	3	1	30.6	25.4	30.6	P.O.A
303409	SHS35	R410A	3	1	34.8	28.8	32.4	P.O.A
303410	SH40	R410A	3	2	39.7	32.6	36.1	P.O.A
303411	SH45	R410A	3	2	44.8	37.6	44.2	P.O.A
303412	SH50	R410A	3	2	48.6	39.8	44.2	P.O.A
303413	SH56	R410A	3	2	55.6	45	57.4	P.O.A
303414	SH66	R410A	3	2	65.5	50.9	60.7	P.O.A
303415	SH73	R410A	3	2	72.8	59.3	66.6	P.O.A
303416	SH80	R407C	3	2	80.4	65.5	80.7	P.O.A
303595	SH85	R410A	3	2	86.6	68.2	87.1	P.O.A
303417	SH90	R407C	3	2	88.5	71	85	P.O.A
303596	SH95	R410A	3	2	95.8	72.3	96.2	P.O.A
303418	SH100	R407C	3	2	102.2	82.9	98.5	P.O.A
303419	SH120	R407C	3	2	117.6	95.2	116.2	P.O.A
303420	SH140	R407C	3	2	137.8	110.6	132	P.O.A
303421	SH160	R407C	3	2	156.2	127.5	152.5	P.O.A
303422	SH180	R407C	3	2	176.8	143.6	169.4	P.O.A
303423	SH200	R407C	3	2	201.8	164.3	196.2	P.O.A

Nominal cooling capacity based on 27°C DB, 19°C WB entering air temperature & 35°C ambient.



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Air Conditioners



Dunnair

Air Cooled Rooftop Packaged

The Dunnair range of rooftop packaged air conditioners are designed and manufactured in accordance with strict quality control standards and for Australian conditions.



Features

- PHS8 to 35 single stage
- Optional two stage available for 18kW to 35kW
- PH40 to 200 belt drive
- Liquid Accumulator
- 24 volt control
- Durable powder coated cabinet (outdoor unit)
- Easy access panels with turn lock handles, no screws
- Coil corrosion protection
- High/low pressure protection for compressor
- Limit start timer
- Independent defrost dual circuit units for two stage units
- Optional Electric Reheat high temperature protection
- PH40 to 200 two stage
- PHS8 to 35 direct drive
- Automatic De-Ice
- Crankcase heater
- Galvanised steel panelling
- External stainless steel fittings
- 25mm insulation
- High quality scroll compressors
- Time delay protection for compressor
- Quiet & efficient
- Phase reverse protection

Cat. No.	Model No.	Refrigerant	Phase	Refrigerant Circuits	Cooling Capacity: kW	Sensible Cooling: kW	Heating Capacity: kW	List Price \$ Exc. GST
303425	PHS08	R410A	1	1	7.8	7.2	7.6	P.O.A
303426	PHS10	R410A	1	1	9.1	7.9	9.4	P.O.A
303427	PHS12	R410A	3	1	11.5	9.7	12.1	P.O.A
303428	PHS15	R410A	3	1	14.3	13	14.2	P.O.A
303429	PHS18	R410A	3	1	17.1	15.1	18	P.O.A
303430	PHS20	R410A	3	1	19.9	15.9	19.5	P.O.A
303431	PHS25	R410A	3	1	24.2	19.3	24.5	P.O.A
303432	PHS30	R410A	3	1	30.6	25.4	30.6	P.O.A
303433	PHS35	R410A	3	1	34.8	28.8	32.4	P.O.A
303434	PH40	R410A	3	2	39.7	32.6	36.1	P.O.A
303435	PH45	R410A	3	2	44.8	36.8	44.2	P.O.A
303436	PH50	R410A	3	2	48.6	39.8	44.2	P.O.A
303437	PH56	R410A	3	2	55.6	45	57.4	P.O.A
303438	PH66	R410A	3	2	65.5	50.9	60.7	P.O.A
303439	PH73	R410A	3	2	72.8	59.3	66.6	P.O.A
303440	PH80	R407C	3	2	80.4	65.5	80.7	P.O.A
303593	PH85	R410A	3	2	86.6	68.2	87.1	P.O.A
303441	PH90	R407C	3	2	88.5	71	85	P.O.A
303594	PH95	R410A	3	2	95.8	72.3	96.2	P.O.A
303442	PH100	R407C	3	2	102.2	82.9	98.5	P.O.A
303443	PH120	R407C	3	2	117.6	95.2	116.2	P.O.A
303444	PH140	R407C	3	2	137.8	110.6	132	P.O.A
303445	PH160	R407C	3	2	156.2	127.5	152.5	P.O.A
303446	PH180	R407C	3	2	176.8	143.6	169.4	P.O.A
303447	PH200	R407C	3	2	201.8	164.3	196.2	P.O.A

Nominal cooling capacity based on 27°C DB, 19°C WB entering air temperature & 35°C ambient.



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Air Conditioners



Dunnair

Air Cooled Split Ducted with Economy Cycle

The Dunnair range of split ducted air conditioners are designed and manufactured in accordance with strict quality control standards and for Australian conditions. Units with Economy Cycle are a smart design solution for energy efficiency.



- Section J compliant
- Units fully complete with economy cycle function
- Fully variable 0–100% fresh air
- Reliable defrost control
- Energy efficient fresh air used when outside temp 17°C–24°C
- Assist to achieve 5 star rating in commercial application

Features

- High quality scroll compressor
- Quiet & efficient
- Coil corrosion protection
- Crankcase heater
- Liquid accumulator
- Limit start timer
- 24 volt control
- Durable galvanized steel powder coated cabinet
- Opposite return & supply air options
- Stringent quality control procedures
- Automatic de-ice
- HP/LP cutouts
- Thermal overload protection
- Easy access panels with turn lock handles, no screws

Cat. No.	Model No.	Refrigerant	Nominal Air Flow: l/s	Phase	Nominal Current: FLA	Refrigerant Circuits	Cooling Capacity: kW	Sensible Cooling: kW	Heating Capacity: kW	List Price \$ Exc. GST
303508	SHSE8	R410A	472	1	15.1	1	7.8	6.8	7.4	POA
303509	SHSE10	R410A	560	1	20.1	1	9.1	7.9	9.4	POA
303510	SHSE12	R410A	695	3	11.6	1	11.5	9.7	12.1	POA
303511	SHSE15	R410A	850	3	12.1	1	14.3	13	14.2	POA
303512	SHSE18	R410A	1000	3	13.5	1	17.1	15.1	18	POA
303513	SHSE20	R410A	1110	3	16	1	19.9	15.9	19.5	POA
303514	SHSE25	R410A	1390	3	19.3	1	24.2	19.3	24.5	POA
303515	SHSE30	R410A	1800	3	23.3	1	30.6	25.4	30.6	POA
303516	SHSE35	R410A	2000	3	25.3	1	34.8	28.8	32.4	POA
303517	SHE40	R410A	2200	3	29.2	2	39.7	32.6	36.1	POA
303518	SHE45	R410A	2700	3	32.8	2	44.8	37.6	44.2	POA
303519	SHE50	R410A	2800	3	38.9	2	48.6	39.8	44.2	POA
303520	SHE56	R410A	3000	3	41.7	2	55.6	45	57.4	POA
303521	SHE66	R410A	3500	3	46.3	2	65.5	50.9	60.7	POA
303522	SHE73	R410A	3900	3	51.2	2	72.8	59.3	66.6	POA
303523	SHE80	R407C	4300	3	61.4	2	80.4	65.5	80.7	POA
303524	SHE90	R407C	4800	3	72.6	2	88.5	71	85	POA
303525	SHE100	R407C	5500	3	91	2	102.2	82.9	98.5	POA
303526	SHE120	R407C	6500	3	98.9	2	117.6	95.2	116.2	POA
303527	SHE140	R407C	7500	3	125.4	2	137.8	110.6	132	POA
303528	SHE160	R407C	8500	3	140.2	2	156.2	127.5	152.5	POA
303529	SHE180	R407C	9500	3	170.2	2	176.8	143.6	169.4	POA
303530	SHE200	R407C	10500	3	190.3	2	201.8	164.3	196.2	POA

Nominal cooling capacity based on 27°C DB, 19°C WB entering air temperature & 35°C ambient.



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Air Conditioners



Dunnair

Air Cooled Rooftop Packaged with Economy Cycle

The Dunnair range of split ducted air conditioners are designed and manufactured in accordance with strict quality control standards and for Australian conditions. Units with Economy Cycle are a smart design solution for energy efficiency.



- Section J compliant
- Units fully complete with economy cycle function
- Fully variable 0–100% fresh air
- Reliable defrost control
- Energy efficient fresh air used when outside temp 17°C–24°C
- Assist to achieve 5 star rating in commercial application

Features:

- High quality scroll compressor
- Quiet & efficient
- Coil corrosion protection
- Crankcase heater
- Liquid accumulator
- Limit start timer
- 24 volt control
- Durable galvanized steel powder coated cabinet
- Opposite return & supply air options
- Stringent quality control procedures
- Automatic de-ice
- HP/LP cutouts
- Thermal overload protection
- Easy access panels with turn lock handles, no screws

4

Cat. No.	Model No.	Refrigerant	Nominal Air Flow: l/s	Phase	Nominal Current: FLA	Refrigerant Circuits	Cooling Capacity: kW	Sensible Cooling: kW	Heating Capacity: kW	List Price \$ Exc. GST
303531	PHSE8	R410A	472	1	15.7	1	7.8	7.2	7.6	PO.A
303532	PHSE10	R410A	555	1	16.8	1	9.1	7.9	9.4	PO.A
303533	PHSE12	R410A	695	3	9.5	1	11.5	9.7	12.1	PO.A
303534	PHSE15	R410A	850	3	11.8	1	14.3	13	14.2	PO.A
303535	PHSE18	R410A	1000	3	13.4	1	17.1	15.1	18	PO.A
303536	PHSE20	R410A	1110	3	15	1	19.9	15.9	19.5	PO.A
303537	PHSE25	R410A	1390	3	19.2	1	24.2	19.3	24.5	PO.A
303538	PHSE30	R410A	1800	3	23.2	1	30.6	25.4	30.6	PO.A
303539	PHSE35	R410A	2000	3	25.4	1	34.8	28.8	32.4	PO.A
303540	PHE40	R410A	2200	3	28.6	2	39.7	32.6	36.1	PO.A
303541	PHE45	R410A	2700	3	32.4	2	44.8	36.8	44.2	PO.A
303542	PHE50	R410A	2800	3	38.9	2	48.6	39.8	44.2	PO.A
303543	PHE56	R410A	3000	3	41.7	2	55.6	45	57.4	PO.A
303544	PHE66	R410A	3500	3	46.3	2	65.5	50.9	60.7	PO.A
303545	PHE73	R410A	3900	3	51.2	2	72.8	59.3	66.6	PO.A
303546	PHE80	R407C	4300	3	61.4	2	80.4	65.5	80.7	PO.A
303547	PHE90	R407C	4800	3	72.6	2	88.5	71	85	PO.A
303548	PHE100	R407C	5500	3	91	2	102.2	82.9	98.5	PO.A
303549	PHE120	R407C	6500	3	106	2	117.6	95.2	116.2	PO.A
303550	PHE140	R407C	7500	3	125.4	2	137.8	110.6	132	PO.A
303551	PHE160	R407C	8500	3	140.2	2	156.2	127.5	152.5	PO.A
303552	PHE180	R407C	9500	3	177.3	2	176.8	143.6	169.4	PO.A
303553	PHE200	R407C	10500	3		2	201.8		196.2	PO.A

Nominal cooling capacity based on 27°C DB, 19°C WB entering air temperature & 35°C ambient.



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Air Conditioners



Dunnair

Water Cooled Ducted

Horizontal



Model No.	Heat Pump				Cooling Only			Cooling with Electric Heating			
	Cat. No.	Cooling Capacity: kW	Heating Capacity: kW	List Price \$ Exc. GST	Cat. No.	Cooling Capacity: kW	List Price \$ Exc. GST	Cat. No.	Cooling Capacity: kW	Heating Capacity: kW	List Price \$ Exc. GST
WPR4	303448	4.1	4.3	P.O.A	303460	4.1	P.O.A	303472	4.1	3	P.O.A
WPR5	303449	4.8	5.1	P.O.A	303461	4.8	P.O.A	303473	4.8	3.6	P.O.A
WPR6.5	303450	6.3	6.8	P.O.A	303462	6.3	P.O.A	303474	6.3	4.5	P.O.A
WPR8	303451	8	8.5	P.O.A	303463	8	P.O.A	303475	8	6	P.O.A
WPR9.5	303452	9.3	9.9	P.O.A	303464	9.3	P.O.A	303476	9.3	6.6	P.O.A
WPR12	303453	11.6	12.4	P.O.A	303465	11.6	P.O.A	303477	11.6	9	P.O.A
WPR14	303454	13.9	14.3	P.O.A	303466	13.9	P.O.A	303478	13.9	10.5	P.O.A
WPR16	303455	15.8	17	P.O.A	303467	15.8	P.O.A	303479	15.8	12	P.O.A
WPR19	303456	18.9	20	P.O.A	303468	18.9	P.O.A	303480	18.9	13.5	P.O.A
WPR25	303457	23.1	22.1	P.O.A	303469	23.1	P.O.A	303481	23.1	15	P.O.A
WPR30	303458	29.6	30.6	P.O.A	303470	29.6	P.O.A	303482	29.6	21	P.O.A
WPR38	303459	37.2	37.8	P.O.A	303471	37.2	P.O.A	303483	37.2	24	P.O.A

Vertical



Model No.	Heat Pump				Cooling Only			Cooling with Electric Heating			
	Cat. No.	Cooling Capacity: kW	Heating Capacity: kW	List Price \$ Exc. GST	Cat. No.	Cooling Capacity: kW	List Price \$ Exc. GST	Cat. No.	Cooling Capacity: kW	Heating Capacity: kW	List Price \$ Exc. GST
WPR8L	303484	8	8.5	P.O.A	303492	8	P.O.A	303500	8	6	P.O.A
WPR9.5L	303485	9.3	9.9	P.O.A	303493	9.3	P.O.A	303501	9.3	6.6	P.O.A
WPR12L	303486	11.6	12.4	P.O.A	303494	11.6	P.O.A	303502	11.6	9	P.O.A
WPR14L	303487	13.9	14.3	P.O.A	303495	13.9	P.O.A	303503	13.9	10.5	P.O.A
WPR16L	303488	15.8	17	P.O.A	303496	15.8	P.O.A	303504	15.8	12	P.O.A
WPR25L	303489	23.1	22.1	P.O.A	303497	23.1	P.O.A	303505	23.1	15	P.O.A
WPR30L	303490	29.6	30.6	P.O.A	303498	29.6	P.O.A	303506	29.6	21	P.O.A
WPR38L	303491	37.2	37.8	P.O.A	303499	37.2	P.O.A	303507	37.2	24	P.O.A

4

Spring Mounting Kits

Spring mounting kits to suspend WPR series horizontal ducted water cooled packaged air conditioners.



Cat. No.	Part No.	Description	Suits Unit Model	List Price \$ Exc. GST
591011	KDXSS	Spring Mounting Kit	WPR4/5/6.5	P.O.A
591012	KDXSS		WPR8/9.5/12/14/16/19	P.O.A
591013	KDXSS		WPR25/30	P.O.A
591014	KDXSS		WPR38	P.O.A

Flexible Hoses

Flexible hoses to connect WPR & WPRL series ducted water cooled packaged air conditioners.



Cat. No.	Part No.	Description	Connections	Suits Unit Model	List Price \$ Exc. GST
208026	WPR4-6	Flexible Hose Set of 2	1/4"	WPR4-6	P.O.A
208027	WPR8-19		1"	WPR8-19	P.O.A
208028	WPR25-38		1 1/4"	WPR25-38	P.O.A
208029	WPR8-19L		1"	WPR8-19L	P.O.A
208030	WPR25-38L		1 1/4"	WPR25-38L	P.O.A



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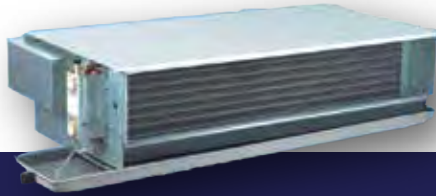
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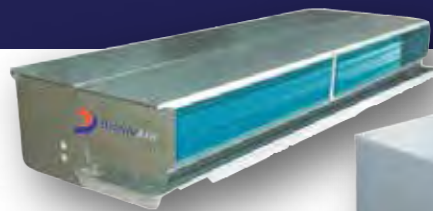
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- Split Ducted Air Conditioner
- Rooftop Packaged Units
- Chillers
- Air Handlers
- Chilled Water Fan Coils
- 100% Fresh Air Air Conditioner
- Water Sourced Horizontal and Vertical Air Conditioner
- Inverter water-cooled heat pumps, packaged and splits
- Custom built retrofits also available

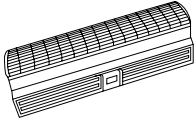


From 8kW to 200kW

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Air Curtains

Agree



Cat. No.	Model No.	Span: mm	Voltage: V	Frequency: Hz	Power: W	Weight: kg	Dimensions: mm W x D x H	Air Flow: m3/h	Air Speed: m/min	Fan dia: mm	Sound Level	List Price \$ Exc. GST
304198	FM125-09	900	240	50	95	17	900 x 215 x 193	1150	>480	125	<60	P.O.A
304199	FM125-12	1200	240	50	135	21	1200 x 215 x 193	1640	>480	125	<60	P.O.A

Humidification

CAREL



Carel

HumiDisk Adiabatic Humidifier

Cat. No.	Part No.	Humidification Ltr/hr	Supply Voltage	Rated Current	List Price \$ Exc. GST
304551	UC065D1000	1.1 to 6.5	230V	2A	P.O.A

Unit Guards

PROTECT



Protect

Condenser Guard

Protect guards are designed to be quick & easy to install to provide maximum strength and maximum security to air conditioning units. They have been manufactured in accordance with South Australian Government requirements which require they are made of 40mm angle iron & 25mm mesh which has been hot dipped galvanised.

Features

- Maximum Strength
 - Heavy duty angle iron and 25mm steel mesh
 - Hot dipped galvanised
- Maximum Security
 - Can be bolted to a wall or fastened to a concrete pad
 - Padlock the front access panel for added security
- Easy and quick to install
- Easy to handle and store

25mm Mesh



Cat. No.	Model No.	Description	Dimensions: mm			List Price \$ Exc. GST
			Width	Height	Depth	
262260	ACG9	25mm Mesh Condenser Guard	1000	900	600	P.O.A
262261	ACG10	25mm Mesh Condenser Guard	1200	1000	600	P.O.A
262262	ACG12	25mm Mesh Condenser Guard	1200	1200	600	P.O.A
262263	ACG14	25mm Mesh Condenser Guard	1200	1400	600	P.O.A
262264	ACG16	25mm Mesh Condenser Guard	1200	1600	600	P.O.A

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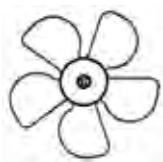
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Fan Blades



AFMC Torin Plastic



Cat. No.	Part No.	Diam. mm (inches)	Bore	No. of Blades	Direct. of Rotation	Application	List Price \$ Exc. GST
305052	5-S4-4-CCW 125F	100 (4)	1/8"	4	ACW	Domestic Frost Free Refrigerators	\$42.58

Cat. No.	Part No.	Diam. mm (inches)	Type of mounting	No. of Blades	List Price \$ Exc. GST
305049	FBP190UWEFR	196 (7 3/4)	Hub Mount or 6mm Bore	5	\$17.82



Radlon Aluminium Hub Mount



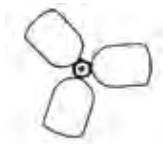
Cat. No.	Part No.	Diam. mm	Pitch	Airflow	List Price \$ Exc. GST
305093	A-170S+	170	30°	Suction with CCW Direction	\$6.42
305097	A-200S+	200			\$8.28
305096	A-230S+	230			\$10.45
305098	A-250S+	250			\$13.11
305099	A-300S+	300			\$19.66
305094	A-350S	350	20°		\$42.17
305060	A-170B+	170	30°	Blower with CCW Direction	\$6.42
305061	A-200B+	200			\$8.28
305062	A-230B+	230			\$10.45
305063	A-250B+	250			\$13.11
305064	A-300B+	300			\$19.66
305065	A-350B	350	20°		\$42.17

Direction of rotation is determined when looking at the driving shaft end of the motor.



AFMC Torin Type 'S' Light Duty

Fabricated from plated drawing quality steel spiders with riveted aluminium blades.



Cat. No.	Part No.	Diam. mm (inches)	Bore	Application	List Price \$ Exc. GST
307056	PS3178N18L05AA	178 (7)	5/16"	Suck on Clockwise Motor	\$91.93
307073	PS3178N32R05AA			Suck on Anti-Clockwise Motor	\$254.44
307045	PS3178A20L05AA	203 (8)		Blow on Anti-Clockwise Motor	\$254.44
307009	PS3203N28R05AA			Suck on Anti-Clockwise Motor	\$91.93
307034	PS3203N29L05AA			Suck on Clockwise Motor	\$91.93
307135	PS3229N30L05AA	229 (9)		Suck on Clockwise Motor	\$84.32
307142	PS3229A30L05AA			Blow on Anti-Clockwise Motor	\$94.86
307008	PS3254A30R05AA	244 (9 1/2)		Blow on Clockwise Motor	\$84.60
307031	PS3-254N30R05AA	254 (10)		Suck on Anti-Clockwise Motor	\$86.40
307025	PS3254A30L05AA			Blow on Anti-Clockwise Motor	\$94.86
307026	PS3-254N30L05AA			Suck on Clockwise Motor	\$94.86
307032	PS3254A29R05AA			Blow on Clockwise Motor	\$84.72
307039	PS3-305N25R05AA	305 (12)		Suck on Anti-Clockwise Motor	\$86.76
307051	PS3305A25L05AA			Blow on Anti-Clockwise Motor	\$104.58
307057	PS3305N25L05AA			Suck on Clockwise Motor	\$88.47
307016	PS3305A25R05AA			Blow on Clockwise Motor	\$88.47



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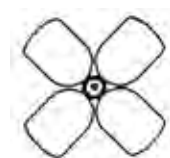


Fan Blades

AFMC Torin

Type 'H' Heavy Duty

Fabricated from plated drawing quality steel spiders with riveted aluminium blades



Cat. No.	Part No.	Diameter		Bore	Application	List Price \$ Exc. GST
		mm	inches			
307148	PH3457A20L08AA	457	18"	1½"	Blow on Anti-Clockwise Motor	\$194.94
307149	PH3457N20R08AA				Suck on Anti-Clockwise Motor	\$172.85
307145	PH3457A20R10AA			5⁄8"	Blow on Clockwise Motor	\$194.94
307144	PH3508A16R08AA	508	20"	1½"		\$182.57

Type 'M' Medium Duty

Fabricated from plated drawing quality steel spiders with riveted aluminium blades

Cat. No.	Part No.	Diameter		Bore	Application	List Price \$ Exc. GST
		mm	inches			
307113	PM3356A16L05AA	356	14"	5⁄16"	Blow on Anti-Clockwise Motor	\$99.77
307134	PM3406A20R08AA	406	16"	1½"	Blow on Clockwise Motor	\$110.06
307146	PM3406N20R08AA				Suck on Anti-Clockwise Motor	\$112.96
307109	PM3406A20R09AA			9⁄16"	Blow on Clockwise Motor	\$334.22
307072	PM3406N20R09AA				Suck on Anti-Clockwise Motor	\$334.22

Type 'U' Light Duty

One piece pressings in aluminium

Cat. No.	Part No.	Diameter		Bore	Application	List Price \$ Exc. GST
		mm	inches			
307001	PU5178A30R05AA	178	7"	5/16"	Blow on Clockwise Motor	\$39.36
307002	PU5203A30R05AA	203	8"		Suck on Anti-Clockwise Motor	\$39.36
307004	PU5203N40R05AA					\$39.36
307006	PU5229N40R05AA	229	9"		\$45.04	
307003	PU5254A30R05AA	254	10"		Blow on Clockwise Motor	\$46.72



Temperzone

Fan Blades to suit Temperzone Air Conditioning Units

Cat. No.	Part No.	Application	List Price \$ Exc. GST
307181	018000072	Fan Blade Metal	\$222.37
307183	018000075	Fan Blade Plastic	\$738.83

Blower Wheels



AFMC Torin

Single Inlet

Injection moulded plastic

Cat. No.	Part No.	Diameter x Width		Bore	Application	List Price \$ Exc. GST
		mm	inches			
307156	GA0201010-R08-46	203 x 203	8" x 8"	1½"	Left and Right Hand	\$115.22



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Fan Motors

CMG Fasco

50D Series

Double Shaft Bi-Directional

240 Volt 50Hz 1300 rpm



Cat. No.	Part No.	Amps	Watts Output	Maximum Fan Blade Dia. x Pitch	Dimensions - mm			Mounting	List Price \$ Exc. GST
					Shaft Diameter	Body Diameter	Body Length		
309041	50D501-80A	0.3	10	225 X 40°	7.9 ($\frac{5}{16}$ ")	102	62	3 and 4 Hole	\$116.15
309053	50D502-80A	0.5	20	250 X 40°			66		\$129.92
309042	50D503-80A	0.75	40	275 X 40°			73		\$135.75
309005	50D505-80A	1	60	350 X 30°			85		\$230.90

Single Shaft

240 Volt 50Hz 1300 rpm

Cat. No.	Part No.	Amps	Watts Output	Rotation	Maximum Fan Blade Dia. x Pitch	Dimensions - mm			List Price \$ Exc. GST
						Shaft Diameter	Body Diameter	Body Length	
309013	50D503-61C	0.75	40	CW	275 X 40°	7.9 ($\frac{5}{16}$ ")	102	73	\$286.80
309006	50D505-61C	1	60		350 X 30°			85	\$370.70

Special Purpose

Cat. No.	Part No.	Watts Output	Rotation	Replaces / Application	List Price \$ Exc. GST
309052	50D521-76A	10	ACW	Agitator Motor, 140mm Shaft	\$267.36
309076	50D509-22A	40		415V (Kirby) Two Phase Motor Rep. Brinsmead BG4A	\$226.26
309040	50D505-71C	60	CW	BP146C (Muller), BDS60-1C	\$274.52
309092	50D551-01A	14	ACW	5-2868-509-039, General Replacement, Muller, CDN, CDL Series	\$201.59
309019	50D543-01A	35			\$316.97

Hub Mount – Threaded Shaft

240 Volt 50Hz 1300 rpm to suit Hubless Fan Blades

Cat. No.	Part No.	Watts Output	Rotation	Replaces / Application	List Price \$ Exc. GST
309001	50D520-82A	8	ACW	30D520-79A	\$199.80
309002	50D501-81A	13		30D501-70A	\$218.40
309009	50D552-01A/S	10		BKM 90150, Kysor Warren, 3 Hole Mount, Low	\$228.04
309010	50D551-02A	20		BKM 9170, 3 or 4 Hole Mount	\$244.83
309018	50D543-03A	35			\$206.24

Bearing Service Pack

Cat. No.	Part No.	Description	List Price \$ Exc. GST
309043	391-074-01	Two Bearings, Wave Washers, etc	\$45.01

Rotation viewed from shaft end ACW = Anti-Clockwise CW = Clockwise



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Fan Motors

CMG Fasco 6 & 8 Series Motors



Single Shaft

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Current: A	Rotation	Reversible	No. Speeds	Speed: rpm	Mounting	Run Capacitor: μ F/V	List Price \$ Exc. GST		
309114	8061S077-02S	60	240	1	0.75	Clockwise Lead End	Yes	1	920	-	2/440	\$488.99		
309115	8061S122-08	130	240	1	1.2	Clockwise Drive End		No	3	1370	Tie Rods	4/440	\$448.84	
309116	8061S059-04S	150	240	1	0.9		Yes			920	-	6/440	\$488.99	
309096	808557KTB-A11	150	240	1	1.2			900	-	6/440	\$488.99			
309084	8061S107-02S	180	415	3	0.75			1	1400	Mounting Bushes	Nil	\$488.99		
309111	808534LTB-A12	180	415	3	0.9		1400		-	Nil	\$488.99			
309100	808554LTB-A80	180	240	1	1.25		1380		-	4/440	\$471.45			
309078	808554LTB-A13S	185	415	2	0.9		No	1400	Bracket	6/440	\$609.78			
309117	8061S065-01	200	240	1	1.5			1	1340	Resilient Ring	4/440	\$528.99		
309118	808556MTA-A14	240	240	1	1.55				850	-	7.5/400	\$426.41		
309085	8061S009-06S	250	240	1	2.65				915	-	6/440	\$488.99		
309090	8061S137-80	250	240	1	2.3		Yes Yes	910	-	4/440	\$503.99			
309091	808536MTB-A11	250	415	3	0.95			900	-	Nil	\$674.84			
309072	8061S109-03	315	240	1	2.5		Anticlockwise Lead End	No	3	1315	Resilient Mount	4/440	\$462.17	
309119	8061S118-02S	300	240	1	2.7		910			-	6/440	\$488.99		
309120	808555NVA-A13S	315	240	1	2.5	1350	-			4/440	\$462.17			
309097	8061S120-80	240	240	1	2.9	Clockwise Drive End	Yes	1	900	-	8/440	\$488.99		
309098	8061S121-80S	370	415	3	1.1		890	Resilient Mount	Nil	\$488.99				
309121	808557NTA-A11S	370	240	1	2.4			3	840	-	12/440	\$543.63		
309122	8061S148-01S	410	240	1	3.2		890		-	15/370	\$623.71			
309123	80855CNTA-A12	436	240	1	2.9		Variable	825	-	12/440	\$623.71			
309124	808557NVB-B11	450	240	1	3			2	900	Bracket	20/440	\$723.06		
309073	8061S082-03	600	240	1	4.4		No	3	1200	Resilient Mount	15/440	\$497.90		
309127	8061S082-17S	600	240	1	4.4				1200	Resilient Mount	15/440	\$497.90		
309128	8061S146-02	600	240	1	3.8			5	1350	-	15/440	\$524.00		
309380	80855BPVA-A11S	600	240	1	4.2			Variable	1270	-	20/440	\$473.97		
309129	8061S128-06S	750	240	1	4.9			3	1360	Resilient Mount	20/440	\$535.41		
309130	80855BQVA-A14	750	240	1	4.9			Anticlockwise Drive End	Variable	1350	-	25/400	\$443.93	
309131	80855BQVA-A18	750	220	1	5.1		Clockwise Drive End	Yes		No	1280	Tie Rods	25/440	\$506.83
309381	80855BQVA-A25S	750	240	1	4.4			1370			-	25/400	\$506.83	
309132	80855BRVA-A13S	950	240	1	6.8	1295		-			25/400	\$633.71		
309133	80855BRVA-A16S	950	240	1	6.8	1295		-			25/400	\$633.71		

Note: Run capacitors must be ordered separately



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Fan Motors

CMG Fasco 6 & 8 Series Motors

Double Shaft

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Curent: A	Rotation	Reversable	No. Speeds	Speed: rpm	Mounting	Run Capacitor: μ F/V	List Price \$ Exc. GST	
309071	8061S134-80	40	240	1	-	Clockwise Lead End	No	3	900	Resilient Cradle	2/440	\$488.99	
309089	8061S057-80	90/60			0.9			Anticlockwise Lead End	2 2	940/820	Bracket	4/440	\$473.97
309155	8061S083-80	100			1.1					1370	Resilient Cradle	2/440	\$473.97
309094	8061S122-80	130			1.2			3	1370	4/440		\$488.99	
309156	8061S130-80	130			0.9				Clockwise Lead End	910		4/440	\$488.99
309099	8061S004-80	200			2				Anticlockwise Lead End	890		4/440	\$498.96
309157	8061S019-80	250			1.8				Clockwise Lead End	1300		6/440	\$488.99
309075	8061S109-01S	425			3.35				Anticlockwise Lead End	1330		10/440	\$480.00
309158	8061S109-04S	315			2.5					1350		4/440	\$480.00
309159	8061S082-15S	600			3.4					1354		15/440	\$515.76
309088	8061S082-80	600			4					1330		15/440	\$540.78
309160	808555PVA-A11	600			4					1360		15/440	\$515.76
309161	8061S128-04	750			4.9					1360		20/440	\$553.30
309162	8061S128-80	750			4.9					1360		20/440	\$578.30
309163	808555QVA-A11S	750			4.9					1360		20/440	\$553.30

Note: Run capacitors must be ordered separately

9 Series Motors

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Curent: A	Rotation	Reversable	No. Speeds	Speed: rpm	Mounting	Run Capacitor: μ F/V	List Price \$ Exc. GST	
309079	809436NTB-B11	375	415	3	1.1	Clockwise Drive End	Yes	1	940	Lug	Nil	\$733.42	
309170	809455PVB-B13S	600	240	1	4		No			1433	Resilient Cradle	20/400	\$887.85
309171	809454PVB-B19	550			3.3					1400		20/440	\$748.44
309172	809454PVB-A16	600			3.9					1400	Lug	20/400	\$872.83
309221	809455QVB-B13S	750			4.6					1400	Resilient Cradle	20/400	\$947.87
309173	80945BQVB-B11S	750			4.2					1400		20/400	\$927.88
309174	80945CPTC-B11	950			6.8					860	Lug	25/400	\$1,072.61
309175	809455SVA-B12S	1100			6.3	Anticlockwise Lead End		3		1420	Resilient Cradle	30/440	\$1,047.62
309222	809455SVB-B14	1100			6			1	1400	30/400		\$1,037.60	
309176	809455XVB-B13S	1500			8.4				1400	30/440		\$1,042.62	
309177	809455XVB-B14	1500/500			8.5/6.3	Clockwise Drive End		2	1400/940			45/400	\$1,072.61
309178	809455SVB-B17	1500			6.2			3	1400	Lug	25/440	\$1,037.60	

Note: Run capacitors must be ordered separately



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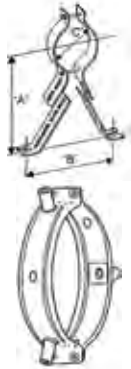
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Fan Motors

CMG Fasco

Motor Mounting Brackets



Cat. No.	Part No.	Brand	Type	Centre Height 'A' mm		Feet Centres 'B' mm		Motor Diameter 'C' mm	List Price \$ Exc. GST
				Max.	Min.	Max.	Min.		
309081	391-160-02	CMG Fasco	3 Lug Collar	Suits Fasco Apollo / 35F Series Motors					\$73.94
309106	391-127-U		Stud Band Mounting, 3 or 4 Post			189mm External Diameter			\$83.90
309107	391-127-V		Suits Fasco S Series			176mm External Diameter			\$83.90
309109	MUA 133-1		Suits Fasco 50D Series			300mm Blade			\$139.80
310058	5-MU206		Mounting Bracket to suit Muller Evaporators					\$73.16	
309023	HBA	Radlon	AdJustbale Height - max 173mm Suits Radlon RMV Series						\$7.96

Evaporative Cooler Series

240V 1Ph. R.S.I.R., 2 Speed, Resilient Mount, Ball Bearings, Auto Reset Overload

Cat. No.	Part No.	Watts Output	Amps	Speed RPM	Enclosure	Rotation	List Price \$ Exc. GST
309220	9441 PVB-B11	550/180	5.9/3.2	1440/960	Drip Proof	CW	\$692.61
309221	9441 QYB-B11	750/250	6.9/3.6				\$947.87

Open Frame – 240V, 50Hz



Cat. No.	Part No.	Rotation	Amps	Stack	Shaft	Application	List Price \$ Exc. GST
310055	J03RF03	CW (Reversible)	0.11	9.55mm (3/8")	3.2mm (1/8")	Domestic Frost Free Refrigerators	\$57.69
310065	J06RF07	ACW	0.3	19mm (3/4")	4.8mm (3/16")	Muller CSN, CSI, Series Cabinet Coils	\$100.70
310066	J06RF24	CW	0.3	19mm (3/4")	4.8mm (3/16")	Kirby, Repco Cabinet Coils	\$100.70
310063	J06KR10	ACW	0.36	19mm (3/4")	4.8mm (3/16")	To Suit Muller Replaces 2858-306-005	\$98.62
310062	J06FM02	ACW	0.26	19mm (3/4")	6mm (1/4")	Muller CN Series P/No. MPB 220-1	\$132.43
310061	J09BM05	ACW	0.15	28mm (1 1/8")		Kirby UECL, UJAV Drop-in Replaces 46C019-02A	\$108.62
309209	J090R05S	ACW	0.22	28mm (1 1/8")		Threaded ShaftSuit Orford Cabinets	\$124.82

Rotation viewed from shaft end ACW = Anti-Clockwise CW = Clockwise

Open Frame – 240V, 50Hz – Ball Bearings

Complete with Blade – Ring Mounted

Cat. No.	Part No.	Fan Size	Amps	Stack	Air Flow m3/hr	List Price \$ Exc. GST
310047	J06RFK11	203mm (8")	0.3	19mm (3/4")	260	\$347.93

All are assembled air movement over the motor.



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Fan Motors

Radlon



Type RMV – 220-240V, 50/60Hz

Cat. No.	Part No.	Watts Output	Rotation	Shaft	Dimensions			List Price \$ Exc. GST
					P	C	A	
310024	RMV-005/FIVE	5	CCW	Fan Hub	12.7	51	81	\$110.87
310038	RMV-010/FIVE	10			19.1	51	88	\$127.24
310044	RMV-016/FIVE	16			25.4	55	97	\$150.04
310028	RMV-034/FIVE	34			38.4	53	118	\$230.64

Type RMV – 220-240V, 50/60Hz

With an extended shaft length of 113mm, these motors are ideal as replacement motors on condensing units.



Cat. No.	Part No.	Watts Output	Rotation	Shaft	List Price \$ Exc. GST
310025	RM-025.5	25	CCW	8mm	\$238.77
310026	RM-025/113			Fan Hub	\$231.61

Type RDMV Ring Mounted Motor – 220-240V, 50/60Hz



Cat. No.	Part No.	Watts Output	Rotation	Suits Blade Diam.mm	Blade Included	Overall Mount. Ring mm	Depth mm	List Price \$ Exc. GST
310046	RDMV07-200	7	CCW	200	N	246	103	\$155.89
3100461	RDMV07-200/AUS				Y - Suction			\$156.15
310056	RDMV12-250	12		250	N	300		\$168.85
3100561	RDMV12-250/AUS				Y - Suction			\$193.79

Rotation viewed from shaft end – CCW = Counter Clock Wise

Fan Hubs

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
310040	27000163	Plastic Fan Hubs	6.35mm shaft	\$2.31
310041	27000280		8mm shaft	\$4.62



Temperzone

Fan motors to suit Temperzone air conditioning units

Cat. No.	Part No.	Description	List Price \$ Exc. GST
310125	046000222	Condenser Fan Motor	\$749.62
310126	046000228	Condenser Fan Motor	\$1,290.06
310127	046000204	Condenser Fan Motor	\$582.20



CMG Fasco CW Series

Cat. No.	Part No.	Description	Input kW	Full Load Amps	Speed: RPM	List Price \$ Exc. GST
309219	CWC4031D	Dual Speed Evaporative Cooler Motor	0.85	3.7/2.2	1380/900	\$604.06



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IQ Series

Cat. No.	Part No.	Description	Power Input: W	Volt.: V	Freq.	Speed: RPM	Max Air Temp °C	Approx Weight: kg	Lead Length	List Price \$ Exc. GST
310035	iQ3612	High Efficiency Fan Motor	≤ 16	220-240	50/60	1300	50	0.6	1500	\$147.63
310036	iQ3620		≤ 25					0.8		\$212.49

Q Series

Base Model

Cat. No.	Part No.	Power Output: W	Power Input: W	Volt.: V	Speed: RPM	Current: A	Approx Weight: kg	Notes	List Price \$ Exc. GST
310030	M4Q045-CF01-38	16	60	230	1300	0.42	1.3	450mm lead, iP42	\$93.25
310031	M4Q045-EA01-38	25	90			0.62	2.0	450mm lead, iP42	\$114.44

Variants

Cat. No.	Part No.	Power Output: W	Power Input: W	Volt.: V	Speed: RPM	Current: A	Approx Weight: kg	Notes	List Price \$ Exc. GST
310033	M4Q045-CA01-72-LYALL	7	31	230	1300	0.20	1.1	300mm Lyall plug lead	\$171.09
310034	M4Q045-CA01-72/AO1	7	31			0.20	1.1	2000mm lead and no lamination varnish	\$146.04
	M4Q045-CA01-48	7	31	0.20	1.1	42	82		P.O.A
310072	M4Q045-CA03-75/B01	10	36	0.25	1.2	42	82	1500mm lead and iP20	\$96.72
310073	M4Q045-CF01-75/B01	16	60	0.42	1.3	42	87		\$104.56
310074	M4Q045-DA05-75/B01	23	86	0.62	1.6	54	93		\$118.37
310075	M4Q045-EF01-75/B01	34	110	0.75	2.2	79	125		\$145.27



ebmpapst

Fan Motors

EBM-Papst

Compact Axial

EC Series



Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase	List Price \$ Exc. GST
310340	W1G200-EC91-45	EC Compact Axial Fan Assembly	200	230	1	\$321.35
310343	W1G200-EC91-10					\$321.35

W Series



Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase	List Price \$ Exc. GST
310320	W2S130-AA03-63	Compact Axial Fan Assembly	130	230	1	\$226.63
310322	W2E142-BB01-01		142			\$291.31

Radial R Series



Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase	List Price \$ Exc. GST
310338	R2S133-AE17-05	Backward Curved Radial Fan Assembly	133	230	1	\$338.79
310339	R2E180-CB28-09		180			\$302.79
310337	R2E190-AO26-37		190			\$203.17

Radial D Series



Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase	List Price \$ Exc. GST
310464	D2E146-HS97-04	Forward Curved Radial Fan Assembly	146	230	1	\$564.70

Radial G Series



Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase	List Price \$ Exc. GST
310325	G2E120-CR26-03	Forward Curved Radial Fan Assembly	120	230	1	\$476.12
310326	G2E140-A128-01		140			\$815.01

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Fan Motors

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Fan Motor Assembly

Induced Draft- Basket Mounting



→ A = Forced
← B = Induced

Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres	List Price \$ Exc. GST	
				Volts	Amps	Watts	RPM	l/s			
310145	HRB/2-200 BPN	200mm	1PH	240	0.34	60	2775	208	260	\$328.10	
310146	HRB/4-250 BPN	250mm			0.21	40	1450	242	300	\$352.81	
310147	HRB/4-300 BPN	300mm			0.33	78	1380	444	360	\$335.16	
310148	HRB/4-350 BPN	350mm			0.55	130	1400	786	440	\$448.08	
310149	HRB/4-400 BPN	400mm			3PH	415	0.71	160	1150	1049	505
310155	HRT/4-400 BPN		1250	\$508.05							
310120	HRB/4-450/30 BPN	450mm	1PH	240	2.4	490	1320	1681	515	\$829.09	
310167	HRB/6-451/32BMN		3PH	415	0.9	200	850			\$702.09	
310150	HRT/4-450/30 BPN				0.9	480	1340			\$832.64	
310122	HRB/4-500/25 BPN	500mm	1PH	240	2.65	600	1340	2097	565	\$860.87	
310168	HRB/4-500/30BPN				3.3	780		1320		2417	\$889.09
310153	HRB/6-500/35 BPN				1.3	300		867		1722	\$896.15
310152	HRT/4-500/25 BPN		3PH	415	1.1	620	1340	2097		\$860.87	
310130	HRT/4-500/30 BPN				1.45	730	1360	2417		\$963.18	
310151	HRB/6-560/30 BPN	560mm	1PH	240	1.8	400	830	2153	700	\$1,047.84	
310158	HRT/4-560/25 BPN		3PH	415	1.9	1000	1350	2983		\$1,065.50	
310154	HRB/6-630/35 BPN	630mm	1PH	240	3.0	700	820	3333	750	\$1,178.39	
310159	HRT/4-630/25 BPN		3PH	415	2.5	1400	1330	4111		\$1,284.24	
310160	HRT/6-630/30 BPN				1.35	640	830	3028		\$1,192.51	
310161	HRT/6-710/30 BPN	710mm			2.3	800	900	3889	825	\$1,605.28	

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Soler & Palau Fans



INFINITE SOLUTIONS

- Evaporators
- Condensers

- Ventilators
- Fan Coil Units





Fan Motors

Soler Palau

Fan Motor Assembly

Induced Draft- Square Plate Mounting



Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres	List Price \$ Exc. GST
				Volts	Amps	Watts	RPM	I/s		
310171	HRBT/4-630/30 BZ	630mm	3PH	415	3.5	1850	1350	5136	750	\$2,183.90
310172	HRST/4-630/33BZ				4.1	2500	1320	5500		\$2,385.03
310175	HRST/6-800/28BZ	800mm			3.5	1900	890	7166	910	\$2,681.39
310176	HRST/8-800/28BZ				1.83	760	670	5302		\$2,603.76
310177	HRST/6-910/15BZ	910mm			3.5	1920	900	6950	1010	\$3,408.18

Forced Draft- Basket Mounting

Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres	List Price \$ Exc. GST
				Volts	Amps	Watts	RPM	I/s		
310191	HRB/4-300 APN	300mm	1PH	240	0.33	78	1380	444	360	\$405.71
310192	HRB/4-350 APN	350mm			0.55	130	1400	786	440	\$525.67

Inlet Cones

Cat. No.	Model No.	Fan Inlet: mm	A	B	C	D	R	Gauge	List Price \$ Exc. GST
310142	ARIC 350/560	350	470	363	403	45	20	1.2mm	\$70.55
310144	ARIC 400/630	400	525	410	450				
310121	AIC 450	450	550	455	495				\$81.16
310123	AIC 500	500	600	508	550		18		\$91.73
310140	AIC 560	560	730	560	650	50	25		\$137.62
310141	AIC 630	630	780	637	700				\$137.62

Fan Decks



Cat. No.	Model No.	Description	Technical Data						List Price \$ Exc. GST
			Volts	Amps	Watts	RPM	I/s	Min. Pa.	
310201	KD2-9/7T 600W	3spd. Deck Tight	240	4	600	1350	1200	180	\$800.64
310203	KD2-9/7T 750W			4.9	750		1390	120	\$857.81
310205	KD2-9/7 750W	3spd. Fan Deck					1420	180	\$950.75
310207	KD2-9/9 1100W			7.1	1100	1420	1750	310	\$1,469.00

Torin

Direct Drive Blowers

Cat. No.	Model No.	Description	Wheel: mm Diam x Width	Motor Model No.	Motor	Watts Out	List Price \$ Exc. GST
310301	DDC270-270-360	Direct Drive Blower	270 x 270	40P5134-750SA	240V 4 Pole 3 Speed	750	\$751.26



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EBM-Papst Fan Motor Assembly



A new, first-of-its-kind hybrid blade design makes these ebm-papst axial fans even quieter, more powerful and more durable than ever. In designing the HyBlade fan blades, ebm-papst have developed a support structure of high-strength, corrosion resistant aluminium alloy with a jacket of a special, fibre-reinforced plastics. Compared to conventional blades, the optimal aerodynamic shape results in an enormous noise reduction while significantly increasing efficiency. It offers even more advantages for use in refrigeration, heating and ventilation technology.

Induced Draft Basket Mount

Cat. No.	Model No.	Description	Diameter: mm	Nominal Voltage	Phase	Common Applications	List Price \$ Exc. GST
310420	S4E300-AR26-38-CTN	Fan Motor Assembly	300	230	1	Buffalo, Bitzer	\$389.46
310421	S4E300-AS72-44-CTN					Cabero, Kirby	\$405.25
310423	S4E350-AN02-48-CTN		350			Buffalo, Bitzer	\$542.62
310424	S4E350-AN02-60-CTN					Cabero, Kirby	\$592.79

Forced Draft Basket Mount

Cat. No.	Model No.	Description	Diameter: mm	Nominal Voltage	Phase	Common Applications	List Price \$ Exc. GST
310422	S4E300-AS72-45/F01	Fan Motor Assembly	300	230	1	Cabero	\$439.48

Ziehl Abegg FE2 Series



The Ziehl Abegg FE2 owl fan motor assemblies with unique performances and excellent characteristics.

- Excellent acoustics
- High efficiency
- Low operating costs
- High quality raw materials
 - Highly corrosion resistant and strong
 - High degree of durability and operational dependability

Induced Draft Basket Mount

Cat. No.	Model No.	Diameter: mm	Nominal Voltage	Phase	Poles	Common Applications	List Price \$ Exc. GST
310359	FN050-VDK.4I.V7-BL	500	415	3	4	Cabero	\$1,325.81

Induced Draft Plate Mount

Cat. No.	Model No.	Diameter: mm	Nominal Voltage	Phase	Poles	Common Applications	List Price \$ Exc. GST
310370	FN050-4EQ.4I.V7BLACK	500	230	1	4	Buffalo RC	\$1,888.59
310371	FN050-VDQ.4I.V7-GREY		415	3		Buffalo DV	\$1,888.59
310374	FN063-VDQ.6N.V7-GREY	630			6	Buffalo LDV	\$4,041.59
310376	FN080-SDQ.6N6V7P2-SH	800					\$4,713.91

FB Series

Available in a wide range of sizes, the Ziehl Abegg FB series of fan motor assemblies in 350 to 650mm sizes are a 4 bladed aluminium sheet metal impeller design.

Cat. No.	Model No.	Diameter: mm	Nominal Voltage	Phase	Poles	List Price \$ Exc. GST
310381	FB063-6EK.4I.V4P	630	230	1	6	\$1,514.67

Electrical



Danfoss

Starting Equipment



Cat. No.	Part No.	Description	For Compressor Type	List Price \$ Exc. GST
324123	103N0011	PTC Starting Device (LST)	PL, TL, NL, FR	\$77.01
324124	103N0002	PTC Starting Device (LST)	SC10B, G/12A, B, G/15A, F	\$79.64
324125	117-7011	Starting Device (HST)	SC10GHH/15, 15D/21, 21B	\$502.28



Kickstart

Kickstarts are "Hard Start" devices consisting of a potential relay and start capacitor improving the starting performance of single phase 208-265Vac refrigeration and air conditioning compressors.



Cat. No.	Part No.	Compressor Application Guide	List Price \$ Exc. GST
323181	TO-5	3.5 to 10.5 KW	\$177.99



Supco

Solid State Relays, Overloads and Capacitors

ICG Series Relay

One size for all compressors from 1/12 HP through 1/2 HP



Cat. No.	Part No.	List Price \$ Exc. GST
324051	ICG-220	\$35.96

PO Series Relay

One size for all compressors from 1/12 HP through 1/2 HP



Cat. No.	Part No.	List Price \$ Exc. GST
324058	PO-230	\$40.45

RO Series Relay and Overload

Replaces ALL Hermetic refrigerator compressor relay and overload units from 1/12 HP through 1/3 HP



Cat. No.	Part No.	HP	List Price \$ Exc. GST
324054	RO-82	1/12, 1/10, 1/8	\$76.02
324059	RO-62	1/6, 1/5	\$76.02
324055	RO-42	1/4, 1/3	\$76.02

RSC Series Starting Relay and Capacitor

One size for all compressors from 1/12 HP through 1/2 HP



Cat. No.	Part No.	List Price \$ Exc. GST
3240591	URSC-20	\$133.03

Type REA-1 – Solid State Relay

For Refrigeration, Air Conditioning, General Single Phase Electric Motor Applications up to 2 HP



Cat. No.	Part No.	List Price \$ Exc. GST
324215	REA-1	\$207.55

Type REA-2 – Solid State Centrifugal Switch Replacement

For Capacitor Start and Capacitor Start and Run Motors – 0.25 hp to 3 hp, 240 Volt ac, 50Hz



Cat. No.	Part No.	List Price \$ Exc. GST
324216	REA-2	\$212.15



ICM

Universal Relays



Cat. No.	Part No.	Description	List Price \$ Exc. GST
323060	USMR-50	Universal Motor Starting Relay	\$70.25

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LS IS

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Contactors



With 240 VAC 50 Hz Coil		Ratings: AC3 415V		Auxiliary Contacts	List Price \$ Exc. GST
Cat. No.	Part No.	kW	Amps		
324710	MC-9B 240VAC	4	9	1 NO & 1 NC	\$68.48
324711	MC-12B 240VAC	5.5	12		\$81.88
324712	MC-18B 240VAC	7.5	18		\$102.16
324713	MC-22B 240VAC	11	22		\$138.36
324714	MC-32A 240VAC	15	32		\$205.93
324715	MC-40A 240VAC	18.5	40	2 NO & 2 NC	\$242.82
324716	MC-50A 240VAC	22	50		\$292.86
324717	MC-65A 240VAC	30	65		\$314.54

Thermal Overload Relays



Cat. No.	Part No.	Rating: Amps	Suits Contactors	List Price \$ Exc. GST
324724	MT-32-0.16	0.1 - 0.16	MC-9B to MC-40A	\$105.84
324725	MT-32-0.25	0.16 - 0.25		\$105.84
324726	MT-32-0.4	0.25 - 0.4		\$105.84
324727	MT-32-0.63	0.4 - 0.63		\$105.84
324728	MT-32-1	0.63 - 1		\$105.84
324729	MT-32-1.6	1 - 1.6		\$105.84
324730	MT-32-2.5	1.6 - 2.5		\$105.84
324731	MT-32-4	2.5 - 4		\$105.84
324732	MT-32-6	4 - 6		\$105.84
324733	MT-32-8	5 - 8		\$105.84
324734	MT-32-9	6 - 9		\$105.84
324735	MT-32-10	7 - 10		\$105.84
324736	MT-32-13	9 - 13		\$105.84
324737	MT-32-18	12 - 18		\$105.84
324738	MT-32-22	16 - 22		\$105.84
324739	MT-32-25	18 - 25		\$105.84
324740	MT-32-32	22 - 32		\$105.84
324741	MT-32-40	28 - 40		\$105.84
324742	MT-63-40	28 - 40	MC-50A to MC-65A	\$200.39
324743	MT-63-50	34 - 50		\$200.39
324744	MT-63-65	45 - 60		\$200.39

Electronic Overloads



Cat. No.	Part No.	Rating: Amps	Suits Contactors	List Price \$ Exc. GST
324750	GMP22-2P 1.5A	0 - 1.5	MC-9B to MC-22B	\$202.47
324751	GMP22-2P 5A	1 - 5		\$202.47
324752	GMP22-2P 22A	4.4 - 22		\$202.47

Accessories



Cat. No.	Part No.	Description			List Price \$ Exc. GST
324755	AU-220	Auxiliary Contacts	Front Mount	2 NO	\$33.21
324756	AU-202			2 NC	\$33.21
324757	UA-111		Side Mount	1 NO & 1 NC	\$33.21

Coils



Cat. No.	Part No.	Description		Suits Contactors	List Price \$ Exc. GST
324760	MC22-CO-24VAC	Replacement Coil	24 VAC	MC-9B to MC-22B	\$29.98
324761	MC22-CO-415VAC		415 VAC		\$34.36
324762	MC40-CO-24VAC		24 VAC	MC-32A to MC-40A	\$42.89
324763	MC40-CO-415VAC		415 VAC		\$29.98
324764	MC65-CO-24VAC		24 VAC	MC-50A to MC-65A	\$34.59
324765	MC65-CO-415VAC		415 VAC		\$42.89



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Electrical

LS

C Curve Circuit Breakers

Circuit breakers with C Curve are typically used in domestic applications.
Rated breaking capacity 6kA. 17.5mm width.



Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324520	BKN61P10-C	C Curve Circuit Breaker	10	1	\$15.82
324522	BKN61P16-C		16		\$15.82
324524	BKN61P20-C		20		\$15.82
324525	BKN61P25-C		25		\$15.82
324526	BKN61P32-C		32		\$15.82
324527	BKN61P40-C		40		\$15.82
324528	BKN61P50-C		50		\$15.82
324529	BKN61P63-C		63		\$15.82

D Curve Circuit Breakers

Circuit breakers with D Curve are typically used in commercial applications.
Rated breaking capacity 6kA. 17.5mm width.



Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324502	BKN61P10-D	D Curve Circuit Breaker	10	1	\$20.98
324509	BKN61P16-D		16		\$20.98
324510	BKN61P20-D		20		\$20.98

Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324511	BKN63P10-D	D Curve Circuit Breaker	10	3	\$95.24
324503	BKN63P20-D		20		\$95.24
324504	BKN63P25-D		25		\$95.24
324505	BKN63P32-D		32		\$95.24
324506	BKN63P40-D		40		\$95.24
324507	BKN63P50-D		50		\$95.24
324508	BKN63P63-D		63		\$95.24

Residual Current Circuit Breakers

30mA sensitivity, 10Ka fault rating.



Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324572	RKS-C10/003	C Curve Residual Current Circuit Breaker	10	1	\$127.52
324574	RKS-C16/003		16		\$127.52
324576	RKS-C20/003		20		\$127.52



Eureka

MCB Enclosures



Cat. No.	Part No.	Description	Poles	List Price \$ Exc. GST
324112	DA-L1	MCB Enclosure	1	\$14.02
324134	DA-L2		2	P.O.A
324135	DA-L4		4	P.O.A
324136	DA-L6		6	P.O.A
324137	DA-L8		8	P.O.A
324138	DA-L12		12	P.O.A
324139	DA-L18		18	P.O.A



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Electrical

Eureka

Eureka Push Buttons



Cat. No.	Part No.	Description	Colour	Contacts	List Price \$ Exc. GST
327243	TS2BFR-C	22mm Flush Push Button	Red	1 N/O & 1 N/C	\$15.67
327244	TS2BFG-C		Green		\$15.67

Indicator Lights



Cat. No.	Part No.	Description	Colour	Voltage	List Price \$ Exc. GST
327251	PL22/24R	22mm LED Indicator Light	Red	24VAC	\$13.56
327252	PL22/24G		Green		\$13.56
327256	PL22/240R		Red	240VAC	\$16.15
327257	PL22/240G		Green		\$16.15

Toggle Switches



Cat. No.	Part No.	Description	Poles	Amps	Positions	List Price \$ Exc. GST
327272	TO11A	Toggle Switch	1	10	Off On	\$18.87
327273	T511A			15		\$25.18
327274	TO23A		2	10	On Off On	\$24.21
327275	T513A		1	15		\$26.48

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Eureka Distribution Products



Metasol Contactors and Overloads & LSIS Miniature Circuit Breakers

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Eureka Installation Products



HEAD OFFICE

98 Commercial Drive,
Thomastown VIC 3074
Phone (03) 9464 6555
Fax (03) 9464 5155
Email sales@nawcontrols.com.au

QUEENSLAND OFFICE

24/256 Musgrave Road,
Coopers Plains QLD 4108
Phone 1300 NAW NAW
Fax (07) 3272 7564
Email sales.qld@nawcontrols.com.au

Metasol **LSIS** **Eureka**

NAW Controls are “the one stop shop”,
for all your electrical needs.
We are proud to have our range
available via your local Actrol Branch.



Electrical

Eureka Relays & Bases

Square & flat pin relays with LED & push to test button.

Cat. No.	Part No.	Description	Pins	Voltage: AC	Amps	Poles	List Price \$ Exc. GST
324412	BLY2-240VACLT	Flat Pin Relay	8	240	10	2	\$30.87
324413	BLY2-24VACLT			24			\$30.87
324414	BMV4-240VACLT		14	240	5	4	\$30.87
324415	BMV4-24VACLT			24			\$30.87

Bases to suit square & flat pin relays.

Cat. No.	Part No.	Description	Pins	Poles	List Price \$ Exc. GST
324408	PTF-08I	DIN Rail Mount Relay Base	8	2	\$18.55
324416	NDSQ-14		14	4	\$20.18

Slimline relays.

Cat. No.	Part No.	Description	Pins	Voltage: AC	Amps	Poles	List Price \$ Exc. GST
324417	EUR-2-SN 240VAC	Slimline Flat Pin Relay	8	240	10	2	\$60.53
324418	EUR-2-SN-24VAC			24			\$24.81

Bases to suit slimline relays.

Cat. No.	Part No.	Description	Pins	Poles	List Price \$ Exc. GST
3244161	EUR-08-E	DIN Rail Mount Slimline Relay Base	8	2	\$23.40

HRC Type Fuse Links

Compact clip-in fuse for industrial & general applications.

80kA, 415VAC / 40kA, 240VDC

Cat. No.	Part No.	Description	Amps	List Price \$ Exc. GST
324420	NSD 2	415V Offset Fuse Link	2	\$8.48
324421	NSD 4		4	\$8.48
324422	NSD 6		6	\$8.48
324423	NSD 10		10	\$8.48
324424	NSD 16		16	\$8.48
324425	NSD 20		20	\$13.32
324426	NSD 25		25	\$13.32
324427	NSD 32		32	\$13.32

Fuse Fittings for NS fuses.

Cat. No.	Part No.	Description	Amps	List Price \$ Exc. GST
324438	32NNF	Fuse Fitting	32	\$24.21

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Electrical

Eureka Glass Fuses

3AG Fuses

Cat. No.	Part No.	Description	Rating	Size	Pack Qty	List Price \$ Exc. GST
324451	3AG100MA	Glass Fuse	100mA	0.25" x 1.25"	10	\$18.15
324452	3AG250M		200mA			\$18.15
324453	3AG375M		300mA			\$18.15
324454	3AG500MA		500mA			\$18.15
324455	3AG750M		800mA			\$18.15
324456	3AG1A		1A			\$18.15
324457	3AG1.5A		1.6A			\$18.15
324458	3AG2A		2A			\$18.15
324459	3AG2.5A		2.5A			\$18.15
324460	3AG3A		3.15A			\$18.15
324461	3AG4A		4A			\$18.15
324462	3AG5A		5A			\$18.15
324463	3AG6.3A		6.3A			\$18.15
324464	3AG8A		8A			\$18.15
324465	3AG10A		10A			\$18.15
324466	3AG15A		15A			\$18.15
324467	3AG20A		20A			\$18.15

M205 Fuses

Cat. No.	Part No.	Description	Rating	Size: mm	Pack Qty	List Price \$ Exc. GST
324471	M205100MA	Glass Fuse	100mA	5 x 20	10	\$18.15
324472	M205200MA		200mA			\$18.15
324473	M205315M		300mA			\$18.15
324474	M205500MA		500mA			\$18.15
324475	M205630M		800mA			\$18.15
324476	M2051A		1A			\$18.15
324477	M2051.6A		1.6A			\$18.15
324478	M2052A		2A			\$18.15
324479	M2052.5A		2.5A			\$18.15
324480	M2053.15A		3.15A			\$18.15
324481	M2054A		4A			\$18.15
324482	M2055A		5A			\$18.15
324483	M2056.3A		6.3A			\$18.15
324484	M2058A		8A			\$18.15
324485	M20510A		10A			\$18.15
324486	M20515A		15A			\$18.15
324487	M20520A		20A			\$18.15

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theben

Electrical

Theben Time Switches



Cat. No.	Part No.	Programme Dial	Time Setting Intervals	Min. Switching Period	No. Pins	Type of Circuit	Elect. Rating 240 VAC	List Price \$ Exc. GST
155034	64 BA/7	24 hours	7.5 mins	30 mins.	3 Green 3 Red	Single Pole Change Over	16 (2)	\$164.47
155035	64 Ca7	24 hours/ 7 days	5 mins./ 30 mins.	20 mins./ 2 hours	16 Blue 16 Red			\$211.26
155036	FRI 77G	60 mins./ 24 hours	1 min./ 1 hour	2 mins./ 1 hour	4 Green 4 Red	Double Pole	16 (2.5)	\$426.40

SIEMENS

Siemens

Digital Weekly Time Clock



Cat. No.	Model No.	Voltage	IP Rating	Type Of Curcuit	Output Voltage	Output Current	List Price \$ Exc. GST
155031	SEH62.1	240V	20	Single Pole Changeover	5...250V	0.1...6Amps	\$161.88

MJB
CONTROLS

MJB Controls Solid State Cube Timers



Cat. No.	MJB Model No.	Avion Model No.	Description		Control Voltage	Max. Current	List Price \$ Exc. GST
155100	LT240X180	TCB320	Anti Cycling Lock Out Timer	3 min. fixed	19-288 Vdc or Vac	1A	\$108.12
155102	LTA240X480	TCB621		10 sec. to 8 min.			\$108.12
155106	LT240X300T			5 min. fixed (4 pin)			\$151.36
155104	ODT240X480	TCG621	Delay on Timer	10 sec. to 8 min.			\$108.12
155105	ROT240X1800	TRC621	Run on / Lag off	30 sec. to 30 min.			\$151.36

Defrost Timers

155110	EDF-02A	DFT126	Elect. Demand Defrost Timer C/W 2m Probe	230 Vac	16A	\$246.46
155112	EDF-02A/24	CDP104		24 Vac		\$246.46
155114	EDF-02A-SEN	-	Replacement sensor Suits EDF series timers	-	-	\$64.86

Eureka

Eureka Multi Function Timers

- Multi voltage
- DIN rail mount



Cat. No.	Part No.	Description	Voltage	Adjustment	Mount	C/O Contacts	List Price \$ Exc. GST
155125	CRM-93H	Multi Function Timer	12-240VDC	0.1s to 10 days	DIN Rail	-	\$263.10
155126	CRM-91H UNI	Multi Function Timer	12-240VDC	0.1s to 10 days	DIN Rail	3	\$236.96

Digital Time Clocks



Cat. No.	Part No.	Description	Voltage	Mounting	Timing	List Price \$ Exc. GST
155086	PET-010	1 Channel Digital Time Clock	240	DIN Rail	7 Day 24 Hour	\$103.31



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Electrical

PHASEFALE

Phasefale Motor Protectors

Three phase motors can fail due to electrical supply problems including loss of phase, low supply voltage, intermittent supply or damaged control contacts. All too commonly the loss of a phase is beyond your control and occurs at a critical time. The consequence is a burnt out motor which at least requires re-winding, but the cost of a failure can be much more. Cost to remove & re-install the motor for repair, possible loss of stock and profits, loss of management time. MP15's are suitable for all sizes of three phase motors and therefore have many applications. The MP15 protects motors from all the above and is fully automatic in operation. Evolved since 1971, the MP15 employs advanced microprocessor technology and is built with surface mount technology for improved reliability. With these advanced features it is compact and economical and can be used on individual motors from 1Hp and above on 415-450V AC 50-60Hz.

Single Phase Protection

All Model include the option to convert to Single Phase operation by looping terminals 1, 2 & 3.

Operationally the MP15 signals system status with the single multi coloured LED:

- Green (running OK)
- Amber (previous memory fault)
- Red (fault-motor not running)

MP15's



Cat. No.	Part No.	Description	Delay	Restart Delay	Mounting	List Price \$ Exc. GST
155070	MP15	Motor Protector	1 to 60 seconds	15 minutes	8 Pin Octal	\$407.27
155069	MP15D				DIN Rail	\$380.64

Mounting Bases

Cat. No.	Part No.	Description	List Price \$ Exc. GST
155084	PF-083A-E	8 Pin Round Mounting Base	\$29.04

PARAGON

Paragon Defrost Timers

Domestic Series

Cat. No.	Part No.	Description	Defrosts in 24 Hours	Defrost Frequency Hours	Defrost Time Minutes	List Price \$ Exc. GST
159050	A1400-21	Defrost Timer	4	6	21	\$62.95

Commercial Series

Cat. No.	Part No.	Description	Type	List Price \$ Exc. GST
155001	632-21	Defrost Timer	With pump down, drain or fan delay cycles	\$794.13
155014	8245-21		Time initiated, pressure terminated	\$1,125.49
155015	8145-21		Time initiated, remote temperature or pressure terminated	\$489.00
155017	8045-21		Time initiated, time terminated	\$456.65

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Electrical

Eureka

Weatherproof Isolators

- Voltage rating: 240 – 440V AC
- Utilisation Category: M180
- Standard: IEC 947.3
- Frequency: 50 – 60Hz
- Material: Thermo Plastic
- Conduit Entry: 25mm
- Degree of Protection: IP56
- Maximum Cable Size: 25mm

Mini Isolators

Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324113	MIS1-20	Weatherproof Mini Isolator	20	1	\$30.45
324114	MIS3-20		20	3	\$41.51
324115	MIS3-35		35		\$41.51

Standard Isolators

Cat. No.	Part No.	Description	Amps	Poles	List Price \$ Exc. GST
324116	DNA-W32-1P	Weatherproof Isolator	32	1	\$35.96
324117	DNA-W63-3P		63	3	\$41.51

Compact Weatherproof Switches

- Voltage Rating: 240V, 25A
- Degree of Protection: IP56
- Screwed Entry

Cat. No.	Part No.	Description	Amps	Gang	List Price \$ Exc. GST
324120	WSW1	Weatherproof Compact Switch	15	1	\$31.82

Plugs & Sockets

Cat. No.	Part No.	Description	Amps	List Price \$ Exc. GST
327450	HWRS10	3 Pin Socket	10	\$14.39
327454	HWRP10	3 Pin Plug		\$12.58

Industrial Switches & Plugs

The range of IP66 industrial switchgear and plug sets are made from PCA18 virgin grade plastic and all internal components have a greater than 85% copper component, which helps to generate less heat rise. All products have Australian / NZ approvals and compliance certificates and switched sockets include mounting templates and all plugs are complete with compression glands.

Switched Sockets

Cat. No.	Part No.	Description	Amps	Pins	List Price \$ Exc. GST
327508	CO3PH410	IP66 Switched Socket	10	4	\$85.04
327509	CO3PH510			5	\$96.57
327510	CO3PH520		20		\$104.35

Straight Plugs

Cat. No.	Part No.	Description	Amps	Pins	List Price \$ Exc. GST
327515	PLS3PH410	IP66 Straight Plug	10	4	\$72.64
327516	PLS3PH420		20		\$73.50
327517	PLS3PH432		32		\$113.86
327518	PLS3PH510		10	5	\$77.55
327519	PLS3PH520		20		\$86.48

GPO's & Switches

Switches

Cat. No.	Part No.	Description	Amps	Gang	List Price \$ Exc. GST
327300	88SW1	White Vertical Switch with Plate	10	1	\$10.18
327301	88SW2			2	\$16.31
327302	88SW3			3	\$21.31
327303	88SW4			4	\$28.25
327304	88SW5			5	\$36.47
327305	88SW6			6	\$45.84

GPO's

Cat. No.	Part No.	Description	Amps	Gang	List Price \$ Exc. GST
327320	88PP1H	White Horizontal GPO with Plate	10	1	\$13.49
327322	88PP1H15		15		\$20.98
327330	88PP2H		10	2	\$14.68

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Electrical

Eureka

GPO'S & Switches

Weatherproof GPO's

- Degree of Protection: IP53
- Conduit Entry: 25mm
- Rear and side entry



Cat. No.	Part No.	Description	Amps	Gang	List Price \$ Exc. GST
327340	EUR WPG01	Weatherproof Single GPO	10	1	\$35.96
327342	EUR WPG02	Weatherproof Double GPO		2	\$53.98

Mounting Blocks



Cat. No.	Part No.	Description	List Price \$ Exc. GST
327344	MB-30	Standard Mounting Block 30mm Deep	\$8.39
327346	WP/CBOX	Weatherproof Mounting Block 30mm Deep	\$16.80

Installation Accessories

Clips & Saddles



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
327361	EUR-PCLIP	Plaster C Clip	5	\$5.65
329124	EUR-SAD20	20mm Half Metal Saddle	25	\$12.43
329125	EUR-SAD25	25mm Half Metal Saddle		\$17.12
327128	EUR-CC10	1.5mm Cable Clip	500	\$27.76
327129	EUR-CC12	2.5mm Cable Clip		\$28.09

Cable Connectors

Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
327118	EUR-G32A1	Single Screw Connector	100	\$34.59
327119	EUR-G32A2	Two Screw Connector	50	\$26.56

DIN Rail



Cat. No.	Part No.	Description	Length: m	List Price \$ Exc. GST
329150	TBR-N	Aluminium Slotted DIN Rail	1	\$10.96
329151	TBR-N2		2	\$22.05
329152	RS-35D8	Steel Slotted DIN Rail		\$33.99

Terminal Strips



Cat. No.	Part No.	Description	Amps	No. Ways	List Price \$ Exc. GST
327120	TS126A	4mm Terminal Strip	17.5	12	\$7.43
327121	TS1210A	6mm Terminal Strip	24		\$8.39
327122	TS1235A	10mm Terminal Strip	41		\$10.00

Cable Ties



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
327098	CT102B	Black Cable Ties	100 x 2.5	100	\$4.98
327102	CT143B		150 x 3.6		\$13.29
327103	CT194B		203 x 4.6		\$20.33
327104	CT280B		300 x 4.8		\$28.23



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Electrical

Eureka

Junction Boxes & Enclosures

Junction Boxes



Cat. No.	Part No.	Description	List Price \$ Exc. GST
327470	EUR-JBOX-S	Small Junction Box with Connectors	\$6.30
327472	EUR-JBOX-L	Large Junction Box with Connectors	\$7.75

Waterproof PVC Enclosures

- UV stabilised
- Double insulated
- Tamperproof seals

- IP56 waterproof
- Inbuilt hinges
- Grey cover & body



Cat. No.	Part No.	Description	Dimensions: mm			List Price \$ Exc. GST
			Height	Width	Depth	
327473	44204	PVC Junction Box	100	100	50	\$19.53
327474	44206		150	110	70	\$34.06
327475	44207		190	140	70	\$62.63
327476	44208		240	190	90	\$86.84
	44209		300	220	120	P.O.A
	44210		380	300		P.O.A
	44211		460	380		P.O.A
	44215		120	80	140	P.O.A
	44216		150	110		P.O.A
	44217		190	140		P.O.A
	44218		240	190		P.O.A
	44219		300	220	180	P.O.A
	44220		380	300		P.O.A
	44221		460	380		P.O.A

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Electrical

Eureka

Junction Boxes & Enclosures

Metal Enclosures

- Polyester coated grey - RAL 7035
- Earthing on door, body and mounting plates
- Complete with mounting plate
- Concealed hinges give 130 degree opening
- Wall mounting brackets and internal doors available



Cat. No.	Part No.	Description	Dimensions: mm			Gland Openings	Locks	List Price \$ Exc. GST
			Height	Width	Depth			
327473	EUR252010	Metal Enclosure	250	200	100	0	1	\$19.53
	EUR252015				150			P.O.A
	EUR252020				200			P.O.A
	EUR302015		300	250	150	P.O.A		
324623	EUR302515				200	\$190.47		
	EUR302520				200	P.O.A		
324624	EUR303015		300	300	150	\$210.16		
	EUR303020				200	P.O.A		
	EUR403015				150	P.O.A		
	EUR403020		400	400	200	P.O.A		
324625	EUR404020				250	\$267.97		
	EUR406025				250	P.O.A		
	EUR504015		400	400	150	P.O.A		
324626	EUR504020				200	\$327.03		
	EUR504025				250	P.O.A		
324628	EUR505020		500	500	200	\$363.51		
324629	EUR505025				250	\$399.35		
	EUR604015				400	400		150
324627	EUR604020		200	\$357.06				
	EUR605015		150	P.O.A				
	EUR604025		500	500	250	P.O.A		
324630	EUR605020				200	\$431.46		
324631	EUR605025				250	\$460.52		
324634	EUR606020		600	600	200	\$483.45		
324635	EUR606025				250	\$531.87		
324636	EUR606030				300	\$580.44		
324632	EUR705020		700	500	200	\$509.41		
324633	EUR705025				250	\$549.47		
324637	EUR806020		800	600	200	\$609.02		
	EUR806025				250	P.O.A		
	EUR806030				300	P.O.A		
	EUR808020			800	800	200		P.O.A
	EUR808025					250		P.O.A
	EUR808030					300		P.O.A
	EUR1006025		1000	600	250	P.O.A		
	EUR1006030				300	P.O.A		
	EUR1008025				250	P.O.A		
	EUR1008030		800	800	300	P.O.A		
	EUR10010030					1000		P.O.A
	EUR1208030					800		P.O.A
	EUR1210030		1200	1000	4	P.O.A		



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Electrical

Eureka

PVC Corrugated Conduit

- Operating temperature -20°C to +60°C
- Chemical resistant
- UV stabilised

- Self extinguishing, non flame propagating
- Confirms to AS 2053



Cat. No.	Part No.	Description	Length: m	List Price \$ Exc. GST
329003	EURCC20GR	20mm Grey Corrugated Conduit	50	\$125.89
329007	EURCC25GR	25mm Grey Corrugated Conduit		\$161.42

PVC Clip Lock Glands

Straight



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
329103	MA20GR	20mm Gland Straight to Corrugated	5	\$15.17
329105	MA25GR	25mm Gland Straight to Corrugated		\$18.41

Elbow



Cat. No.	Part No.	Description	Pack Qty	List Price \$ Exc. GST
329111	MA20GR-90	20mm Gland Elbow to Corrugated	5	\$40.36
329113	MA25GR-90	25mm Gland Elbow to Corrugated		\$45.20

PVC Screwed Bushes

Female



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
329130	EUR-VF16	Female PVC Screwed Bush	16	3	\$4.84
329131	EUR-VF20		20		\$4.84
329132	EUR-VF25		25		\$7.26
329133	EUR-VF32		32		\$10.66
329134	EUR-VF40		40		\$12.58
329135	EUR-VF50		50		\$15.50

Male



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
329136	EUR-VM16	Male PVC Screwed Bush	16	3	\$4.84
329137	EUR-VM20		20		\$4.84
329138	EUR-VM25		25		\$7.26
329139	EUR-VM32		32		\$10.66
329140	EUR-VM40		40		\$12.58
329141	EUR-VM50		50		\$15.50

Nylon Cable Glands - IP68, AS1939-1990



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
	M12	Nylon Cable Gland	12	3	P.O.A
329143	M16		16		\$5.32
329144	M20		20		\$7.43
329145	M25		25		\$12.27
329146	M32		32		\$19.04
	M40		40		P.O.A
	M50		50		P.O.A
	M63		63		P.O.A



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Electrical

Eureka Installer Packs

The Eureka corrugated conduit packs enable the installer to purchase all the items required to install a 1 pole isolator in 1 easy to store and carry carton. Each pack contains 10 x DNA 20A isolators, 1 x 50m roll of 20mm conduit hose and 20 x conduit fittings with locknuts.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
329001	CCS2020C	1 Pole 20A Electrical Install Pack	\$494.63

Conduit Fixing Clips

- Steel clip with black PVC liner



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
329153	FCC16	Conduit Fixing Clips	16	10	\$37.78
329154	FCC20		20		\$37.78
329155	FCC25		25		\$79.08
329156	FCC32		32		\$72.62

Conduit Mounting Saddles



Cat. No.	Part No.	Description	Size: mm	Pack Qty	List Price \$ Exc. GST
329157	FCL16	Nylon Conduit Saddle	16	10	\$25.82
329158	FCL21		20		\$30.67
329159	FCL28		25		\$37.14
329160	FCL34		32		\$36.98



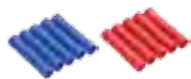


Electrical

Eureka

Insulated Terminals

Connectors



Cat. No.	Part No.	Description	Cable Size: mm	Colour	Pack Qty	List Price \$ Exc. GST
327059	BSV1	Insulated Connector	0.5/1.5	Red	20	\$6.77
327060	BSV2		1.5/2.5	Blue		\$6.77

Wire Pin Terminals



Cat. No.	Part No.	Description	Cable Size: mm	Colour	Pack Qty	List Price \$ Exc. GST
327063	WPV1/12	Insulated Wire Pin Terminal	0.5/1.5	Red	20	\$6.77
327065	WPV2/12		1.5/2.5	Blue		\$6.77

Ring Terminals



Cat. No.	Part No.	Description	Cable Size: mm	Stud	Colour	Pack Qty	List Price \$ Exc. GST
327070	RV1-5	Insulated Ring Terminal	0.5/1.5	5.3	Red	20	\$6.77
327072	RV2-5		1.5/2.5		Blue		\$6.77

Female Terminals



Cat. No.	Part No.	Description	Cable Size: mm	Suits Tab	Colour	Pack Qty	List Price \$ Exc. GST
327081	QCF1-3/5	Insulated Female Terminal	0.5/1.5	2.8 x 0.5	Red	20	\$6.77
327082	QCF1-3/8			2.8 x 0.8			\$6.77
327083	QCF1-5/5			4.8 x 0.5			\$6.77
327084	QCF1-5/8			4.8 x 0.8			\$6.77
327085	QCF1-6			6.3 x 0.8			\$6.77
327086	QCF2-3/5		1.5/2.5	2.8 x 0.5	Blue		\$8.39
327087	QCF2-3/8			2.8 x 0.8			\$8.39
327088	QCF2-5/5			4.8 x 0.5			\$8.39
327089	QCF2-5/8			4.8 x 0.8			\$8.39
327090	QCF2-6			6.3 x 0.8			\$8.39

Male Terminals



Cat. No.	Part No.	Description	Cable Size: mm	Suits Female	Colour	Pack Qty	List Price \$ Exc. GST
327094	QCM1-6	Insulated Male Terminal	0.5/1.5	6.3 x 0.8	Red	20	\$8.39
327095	QCM2-6		1.5/2.5		Blue		\$8.39

Heat Shrink Kits

An assortment of popular sizes of red and black general purpose heat shrink tubing supplied in a boxed grab kit.



Cat. No.	Part No.	Description	Size Range: mm	Colours	List Price \$ Exc. GST
327036	HSKB	Heat Shrink Kit	2 - 25	Black & Red	\$213.71



Fujitsu

Batteries

Fujitsu G Series batteries are a premium grade alkaline cell for everyday applications.



Cat. No.	Part No.	Description	Size	Pack Qty	List Price \$ Exc. GST
327174	LR03G/BP4	Alkaline Batteries	AAA	4	\$6.62
327169	LR6G/BP2			2	\$5.18
327168	LR6G/BP4			4	\$11.59
327166	LR14G/BP2		C	2	\$13.24
327163	LR20G/BP2		D		\$19.13
327179	PJ996/4R25	Alkaline Lantern Battery	6V	1	\$14.67
327170	6LF22G/BP1	Alkaline Batteries	9V		\$12.56

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Electrical Cable

Building Wires- Flat



Cat. No.	Part No.	No. of Cores	Nom. Area mm ²	Stranding No/mm	Nom. OD mm	Insul. Thick. mm	Sheath Thick. mm	Pack Length m	List Price \$ Exc. GST
325018	SRF2015AV	Twin Active	1.5	7/0.50 x 2	7.4 x 4.7	0.6	0.9	100	P.O.A.
325002	SRF3010V	Twin + Earth	1.0	1/1.13 x 2 7/0.50 E	9.0 x 4.3				P.O.A.
325004	SRF3015V		1.5	7/0.50 x 2 7/0.50 E	10.0 x 4.7				P.O.A.
325006	SRF3025V		2.5	7/0.67 x 2 7/0.67 E	12.4 x 5.6	0.7	1.0		P.O.A.
325008	SRF3040V		4.0	7/0.85 x 2 7/0.67 E	14.2 x 6.4	0.8	1.1		P.O.A.
325005	SRF4015V	3 Core + Earth	1.5	7/0.50 x 3 7/0.50 E	12.5 x 4.5	0.6	0.8		P.O.A.

Building Wires- Single Core, Double Insulated



Cat. No.	Part No.	No. of Cores	Nom. Area mm ²	Stranding No/mm	Nom. OD mm	Insul. Thick. mm	Sheath Thick. mm	Pack Length m	List Price \$ Exc. GST
325154	SDI1025V	1	2.5	7/0.67 x 1	5.2	0.8	0.9	100	P.O.A.

Flexible Cable

Ordinary Duty- Orange



Cat. No.	Part No.	No. of Cores	Nom. Area mm²	Stranding No/mm	Nom. OD mm	Insul. Thick. mm	Sheath Thick. mm	Pack Length m	List Price \$ Exc. GST
325020	F2075-OR	2	0.75	24/0.20 x 2	6.4	0.6	0.8	100	P.O.A.
325022	F3075-OR	2 + E		24/0.20 x 3	6.8				P.O.A.
325024	F4075-OR	3 + E		24/0.20 x 4	7.3		P.O.A.		
325026	F5075-OR	4 + E		24/0.20 x 5	8.2		0.9		P.O.A.
325028	F2010-OR	2	1.0	32/0.20 x 2	6.7		0.8		P.O.A.
325030	F3010-OR	2 + E		32/0.20 x 3	7.1				P.O.A.
325032	F4010-OR	3 + E		32/0.20 x 4	7.9		0.9		P.O.A.
325034	F5010-OR	4 + E		32/0.20 x 5	8.7				P.O.A.
325100	F2015-OR	2	1.5	30/0.25 x 2	7.7	0.7	0.8		P.O.A.
325110	F3015-OR	2 + E		30/0.25 x 3	8.3		0.9		P.O.A.
325120	F4015-OR	3 + E		30/0.25 x 4	9.3		1.0		P.O.A.
325130	F5015-OR	4 + E		30/0.25 x 5	10.4		1.1		P.O.A.
325036	F3025-OR	2 + E	2.5	50/0.25 x 3	10.2	0.8	1.1		P.O.A.
325038	F4025-OR	3 + E		50/0.25 x 4	11.1				P.O.A.
325040	F5025-OR	4 + E		50/0.25 x 5	12.4		1.2		P.O.A.

Ordinary Duty- Grey

Cat. No.	Part No.	No. of Cores	Nom. Area mm ²	Stranding No/mm	Nom. OD mm	Insul. Thick. mm	Sheath Thick. mm	Pack Length m	List Price \$ Exc. GST
325023	F3075-GR	2 + E	0.75	24/0.20 x 3	6.8	0.6	0.8	100	P.O.A.
325025	F4075-GR	3 + E		24/0.20 x 4	7.3				P.O.A.
325031	F3010-GR	2 + E	1	32/0.20 x 3	7.1				P.O.A.
325061	F4010-GR	3 + E	1.5	32/0.20 x 4	7.9	0.7	0.9		P.O.A.
325101	F2015-GR	2		30/0.25 x 2	7.7		0.8		P.O.A.
325111	F3015-GR	2 + E		30/0.25 x 3	8.3		0.9		P.O.A.
325121	F4015-GR	3 + E		30/0.25 x 4	9.3		1.0		P.O.A.
325131	F5015-GR	4 + E		30/0.25 x 5	10.4		1.1		P.O.A.



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Electrical

Refrigeration Electricals

Motor Start Capacitors

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326001	25-30	250	\$52.12
326002	36-43		\$54.90
326004	47-56		\$59.06
326005	53-64		\$63.86
326006	63-72		\$65.93
326007	72-88		\$68.49
326008	88-108		\$69.56

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326030	31-40	320	\$62.49
326033	63-80		\$63.55
326034	80-100		\$65.23
326035	100-125		\$89.01

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326009	108-130	250	\$72.03
326010	124-149		\$73.09
326011	145-175		\$74.45
326012	161-193		\$62.49
326013	189-227		\$91.97
326014	200-250		\$101.55
326015	250-315		\$121.59

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326036	125-160	320	\$92.56
326037	160-200		\$95.94
326038	200-250		\$101.16
326039	250-315		\$122.69

Motor Run Capacitors

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326320	2	450	\$20.08
326321	3		\$20.08
326322	4		\$20.42
326323	5		\$21.24
326324	6		\$22.68
326325	8		\$24.11
326326	10		\$26.31
326327	12.5		\$28.80
326328	14		\$31.34
326329	15		\$32.10
326330	16		\$33.54
326331	18		\$36.18
326332	20		\$39.10

Cat. No.	MFD	Volts AC	List Price \$ Exc. GST
326333	25	450	\$43.09
326334	30		\$49.26
326335	35		\$54.79
326336	40		\$60.25
326337	45		\$66.81
326338	50		\$70.22
326340	55		\$82.52
326341	60		\$85.57
326342	70		\$100.85
326343	75		\$104.53
326344	80		\$106.68
326346	90		\$116.33
326347	100		\$122.86



Diversitech

SwitchCap Dual

The SwitchCap Dual Multiple Value Capacitor provides two capacitors in one simple package. Using easy to set switches, rather than jumper wires, SwitchCap is the future of multiple value capacitors as it can replace hundreds of single setting capacitors. SwitchCap offers excellent reliability in an epoxy-filled motor-run capacitor and can be easily configured to any setting using the adjustable rocker switches on the bottom. It simplifies the way you work by eliminating the need for almost all of the typical motor-run capacitor inventory. It's a must have for any technician.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
326050	SCAP-60D	SwitchCap Dual Multiple Value Capacitor	\$302.66



Thermon

Self Regulating Heater Cable - with Tinned Copper Braid

Cat. No.	Part No.	Description	List Price \$ Exc. GST
327039	FLX-10-2BC	10 Watts per ft - 33 Watts per m Cable	\$75.63
327040	SX-TERM-1BC	End and Power Connection Kit	\$42.34
327037	ATUM 1 1/4 400	Shrink Tube 400mm Lengths	\$39.46

Cat. No.	Part No.	Description	List Price \$ Exc. GST
327035	CDH-2-1-OJ	Condensate Drain Heater - 1m Terminated	\$238.08

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Section 5

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Electrical

CRH

Lighting Products

Bulkhead Light

The SF-200L Bulkhead light fitting is an IP65 rated Cool room & Freezer light fitting and is supplied with a wall gasket sealing the unit from wall condensate. Measuring 280mm x 188mm x 100mm high, the B27 lamp holder is suited to a 12 watt LED or low energy lamp.

Features

- Rugged enclosure
- Supplied with a compact fluorescent tube



Cat. No.	Part No.	Description	List Price \$ Exc. GST
325200	SF-200L	Bulkhead Light Assembly	\$80.00

LED Light Assemblies

The CRH Eco-Series rated IP65 light fitting contains LED tubes with inbuilt drivers and are ideal for all cool room and freezer room applications.

Features

- Power saving LED technology
- IP65
- Inbuilt driver
- 50,000 hour tube life
- Complete kit



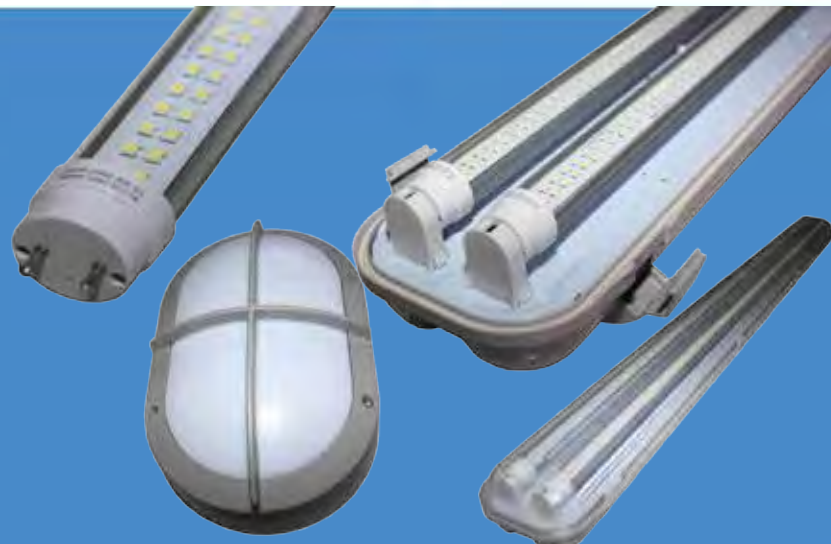
Cat. No.	Part No.	Description	List Price \$ Exc. GST
325201	FH9218T8	600mm Single LED Tube Light Assembly	\$112.76
325202	FH9236T8	1200mm Twin LED Tube Light Assembly	\$284.64
	FH9136T8	1200mm Single LED Tube Light Assembly	P.O.A



Cool Room & Freezer Room Lights

- Waterproof IP65 Twin & Single LED Light Fittings
- Bulk Head IP65 Lights
- LED Energy Saving Tubes

Available in store





Electrical

CRH

Lighting Products

LED Tubes

The CRH LED Tubes not only suit the range of LED light assemblies, but are also able to replace existing fluorescent tubes for these customers wanting long life energy saving light fittings.

Features

- 50,000 hour average life
- Replaces existing T8 fluorescent tubes



Cat. No.	Part No.	Description	List Price \$ Exc. GST
325210	CF001	435mm 8 Watt Cool White Clear Cover LED Tube	\$75.66
325212	CF002	600mm 9 Watt Cool White Clear Cover LED Tube	\$89.78
325214	CF004	900mm 13 Watt Cool White Clear Cover LED Tube	\$124.07
325216	CF006	1200mm 18 Watt Cool White Clear Cover LED Tube	\$137.02
325218	CF007	1500mm 23 Watt Cool White Clear Cover LED Tube	\$167.48

Specifications



	CF001	CF002	CF004	CF006	CF007
Colour	Cool White	Cool White	Cool White	Cool White	Cool White
Cover	Clear	Clear	Clear	Clear	Clear
Watts	8W	9W	13W	18W	23W
Average Life: Hours		50,000	50,000	50,000	50,000
LED's: Qty		144		288	360
Lumens		810	1250	1440	2070
Comparable Fluorescent		18W	30W	36W	58W
CRI		83		83	83
Beam Angle		180°	180°	180°	180°



Eureka

LED Fuse Starters



Cat. No.	Part No.	Description	List Price \$ Exc. GST
325195	EURLEDSTARTER	Fuse Starter For LED Tubes	\$9.19



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Gauges

Refco

60mm Diameter Dual Scale

Direct Mounted - Bottom Entry 1/8" NPT



Cat. No.	Part No.	Type	Range	Temp. Refrigerant	Features	List Price \$ Exc. GST	
330059	M2-250-R134a/22	Compound	-100 : 1000 kPa 30" : 0 : 140 psi	R134a, R22, R404A	Bourdon Type Adjustable	\$54.79	
330060	M2-500-R134a/22	Pressure	0 : 3000 kPa 0 : 400 psi			\$54.79	
330067	M2-250-DS-CLIM	Compound	-100 : 3600 kPa 30" : 0 : 520 psi			R22, R407C, R410A	\$72.82
330068	M2-500-DLS-CLIM	Pressure	-100 : 5400 kPa 30" : 0 : 780 psi				\$72.82
330052	M2-255-kPa-R410A	Compound	-100 : 3600 kPa 30" : 0 : 520 psi	R410A			\$72.82
330053	M2-555-kPa-R410A	Pressure	-100 : 5400 kPa 30" : 0 : 780 psi				\$72.82
330054	R3-220-DS-R410A	Compound	-100 : 3600 kPa 30" : 0 : 520psi			Bellows Type, Adjustable Oil Filled Aluminium Housing	\$435.05
330055	R3-320-DS-R410A	Pressure	-100 : 5400 kPa 30" : 0 : 780 psi				\$435.05
330065	R3-220-kPa-R22	Compound	-100 : 1000 kPa 30" : 0 : 140 psi	R134a, R22, R404A	\$352.35		
330066	R3-320-kPa-R22	Pressure	0 : 3000 kPa 0 : 400 psi		\$352.35		

Gauge Protectors



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352282	CPR6333	Rubber Gauge Protector Black	\$16.04

Differential Pressure Gauges



HK Instruments

Differential Pressure Gauge



Cat. No.	Part No.	Gauge Range	List Price \$ Exc. GST
331154	DPG250	0 - 250 Pa	\$476.17
331157	DPG500	0 - 500 Pa	\$476.17

Differential Pressure Gauge and Pressure Switch Combination



Cat. No.	Part No.	Gauge Range	Switch Range	Accuracy of Gauge	Switching Difference	Accuracy of Switching Point		List Price \$ Exc. GST
						Low Limit Typ.	High Limit Typ.	
331173	DPG600/PS600	0 - 600 Pa	40 - 600 Pa	±2%	30 Pa	40 Pa ± 5 Pa	600 Pa ± 30 Pa	\$608.89



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Test & Measurement



Refco

Cat. No.	Part No.	Range °C	Description	List Price \$ Exc. GST
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Pocket Thermometers – Dial Type

331191	15150	-40 to 40	25mm Dial. 127mm Stem c/w Pocket Tube and Clip	\$22.79
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Cabinet Thermometers

331190	15519	-40 to 40	Circular Plastic 64.5mm Diameter	\$16.78
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Dial Thermometers

Cat. No.	Part No.	Size: mm	Description	Capillary Length: m	Range °C	List Price \$ Exc. GST
332049	F84-60MM-FA	60	Front Flange Rear Entry	1.5	-40 to 40	\$149.97
332053	F84-100MM-FA	100				\$182.59
332050	F84-60MM-FP	60	Rear Flange Bottom Entry			\$142.93
332051	F84-80MM-FP	80				\$149.97
332052	F84-100MM-FP	100				\$175.53
332057	F87R-60MM	60	Reversible Flange can be changed from Front Flange to Rear Flange Mounting Bottom Entry			
332056	F87R-100MM	100		\$120.21		
332055	F87R-100MM-7.5M	100		7.5		\$220.92

• Suitable for building into cabinets

Cat. No.	Part No.	Brand	Size: mm	Capillary Length: m	Range °C	List Price \$ Exc. GST
332058	CPF-83	Refco	52	1.5	-40 to 40	\$63.64
332061	CPN	Arthermo			0 to 120	\$82.11

Rectangular Thermometer

Cat. No.	Part No.	Size Rectangular: mm	Range °C	Capillary Length: m	List Price \$ Exc. GST
332060	15165	26 x 58	-40 to 40	1.5	\$55.33



Actrol

Digi-thermo

Cat. No.	Range °C	Resolution °C	Accuracy °C	Sample Time	Battery Type (inc.)	Dimensions: mm	List Price \$ Exc. GST
332120	-50 to 260	0.1	0.5	1 sec or 10 sec	1.5V 'AAA'	106 x 66 x 20	\$103.93

Thermo Controls

Dual Input Digital Thermometer

Cat. No.	Part No.	Range °C	Resolution °C	Accuracy °C	Battery Type (inc.)	Dimensions: mm	List Price \$ Exc. GST
332066	4918	-50 to 1300	0.1	0.1	9V	149 x 71 x 41	\$162.17

Paragon

Temp Tech Digital Maximum / Minimum Thermometer

Cat. No.	Part No.	Range °C	Resolution °C	Sampling Cycle	Ext. Sensor Length	Battery Type (inc.)	List Price \$ Exc. GST
331057	EMT 88	-5 to 50	1	10 sec	3m	G13 or LR44	\$114.74



Carel

Panel Mount Thermometers

Cat. No.	Part No.	Range °C	Power Supply	Sensor (not inc.)	List Price \$ Exc. GST
332025	IR33M00N00	-50 to 50	12Vac	NTC	\$157.05
332026	IR33M0ER00		240Vac		\$210.87
332018	IREVM0LN0U		12-24Vac/dc		\$187.55
332019	IREVM0EN0U		240Vac		\$210.87

Refco

Digital Pocket Thermometer

Cat. No.	Model No.	Description	Range	List Price \$ Exc. GST
332113	15140	Digital Pocket Thermometer	-50 to 150°C	\$123.36

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Test & Measurement

FLUKE®

Fluke

Fluke 61 Infrared Thermometer

Cat. No.	Model No.	Temp. Range °C	Resolution °C	Distance to Spot Ratio	List Price \$ Exc. GST
332140	Fluke 61	-18 to 275	0.2	8:1	\$534.63

Fluke 62 MAX+ Infrared Thermometer

Cat. No.	Model No.	Temp. Range °C	Resolution °C	Distance to Spot Ratio	List Price \$ Exc. GST
332144	Fluke 62 MAX+	-30 to 650	0.1	12:1	\$487.97

Fluke 561 HVACPro Infrared and Contact Thermometer

Cat. No.	Part No.	Temp. Range	Reading Resolution	List Price \$ Exc. GST
332143	Fluke 561	-40°C to 550°C	0.1°C of reading	\$827.42

Fluke 52-2 Digital Thermometer

Cat. No.	Model No.	Temp. Range °C	Size (HxWxD)	Weight (kg)	List Price \$ Exc. GST
332150	Fluke 52-2	-250 to 1372	173 x 86 x 38	0.4	\$1,219.92

Fluke 971 Temperature Humidity Meter

Cat. No.	Part No.	Temp. Range	Temp. Resolution	Humidity Range %RH	List Price \$ Exc. GST
332160	Fluke 971	-20°C to 60°C	1°C	5% to 95% R.H.	\$860.51

Fluke Thermal Imagers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
332200	Ti25 9HZ	Thermal Imaging Kit	P.O.A.

Fluke 411D Laser Distance Meter

Cat. No.	Part No.	Description	Range	Measuring accuracy	List Price \$ Exc. GST
338198	Fluke 411D	Laser Distance Meter	0.1 m to 30 m (0.33 ft to 100ft)	± 3 mm (0.118 in)	\$479.46

Fluke 922/Kit Airflow Meter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338206	Fluke 922/Kit	Airflow Meter Kit	\$2,280.68

Fluke 975V AirMeter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338202	Fluke 975V	AirMeter Kit with velocity probe	P.O.A

Fluke 1AC II Voltage Detector

Cat. No.	Part No.	Description	Range	List Price \$ Exc. GST
338023	Fluke 1AC-II	Voltage Detector	90 to 1000V	\$131.72

Fluke T5 Electrical Tester

Cat. No.	Part No.	Measuring	Maximum Ranges	List Price \$ Exc. GST
338014	T5-600	AC Current	100 A	\$446.17
		AC/DC Voltage	600 V	
		Resistance	1000 Ω	

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Test & Measurement

FLUKE®



Fluke

Fluke 324 Clamp Meter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338031	Fluke 324	True RMS Clamp Meter	\$509.16



Fluke 902 True RMS HVAC-R Clamp Meter

Cat. No.	Part No.	Measuring	Maximum Ranges	List Price \$ Exc. GST
338032	Fluke 902	AC Current	600 A	\$1,071.41
		AC/DC Voltage	600 V	
		Resistance	9999 Ω	
		Capacitance	1000 µF	



Fluke 381 Remote Display Clamp Meter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338035	Fluke 381	Remote Display Clamp Meter	\$1,760.88



Fluke 365 Detachable Jaw Clamp Meter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338036	Fluke 365	Detachable Jaw Clamp Meter	\$1,050.19



Fluke 771 Milliamp Process Clamp Meter

Cat. No.	Part No.	Range/Resolution	Accuracy	List Price \$ Exc. GST
338034	Fluke-771	-20.99 to +20.99 mA	0.2% or reading +5 counts	\$1,844.08
		-21.0 to -99.9 mA	1% reading +5 counts	
		+21.0 to +99.9 mA	1% reading +5 counts	

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ACTROL

Test & Measurement

FLUKE®

Fluke

Fluke 116 Digital Multimeter



Cat. No.	Part No.	Measuring	Maximum Ranges	List Price \$ Exc. GST
338028	Fluke 116	AC/DC Voltage	600V	\$786.06
		Resistance	40M Ω	
		Capacitance	10000 µF	
		Frequency	50k Hz	
		Temperature	-40°C to +400°C	



Fluke 233 Remote Display Multimeter

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338029	Fluke 233	Remote Display Multimeter	\$1,241.13

Fluke 116/323 Combo kit

Cat. No.	Part No.	Kit contents	List Price \$ Exc. GST
338043	116/323	116 Multimeter 323 Clamp Meter TL75 Test Lead Set T Pak Meter Hanging Kit 80pk11 Velcro Pipe Clamp Thermocouple 80AK Thermocouple Adaptor 80PK1 Bead Type Thermocouple C115 Carry Case	\$1,177.49



Fluke 116/62 Combo Kit

Cat. No.	Part No.	Kit contents	List Price \$ Exc. GST
338042	116/62	116 Multimeter 62 Infrared Thermometer TL75 Test Lead Set T Pak Meter Hanging Kit 80BK Temperature Probe 80AK Thermocouple Adaptor 80PK11 Velcro Pipe Clamp Thermocouple C115 Carry Case	\$1,145.64



Fluke 1735 Three Phase Power Logger

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338052	Fluke 1735	Three Phase Power Logger	\$7,049.53



Fluke VR1710 Voltage Power Recorder

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338051	Fluke VR1710	Voltage Power Recorder	\$3,383.89



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Test & Measurement

FLUKE®



Fluke

Fluke 1587 Insulation Multimeter

Cat. No.	Part No.	Size (HxWxD): mm	Weight: kg	List Price \$ Exc. GST
338040	Fluke 1587	203 x 100 x 50	0.55	\$2,620.13

Accessories

Cat. No.	Part No.	Description		List Price \$ Exc. GST
338058	TPAK	Meter Hanging Kit. Includes; Universal hanger clips (2), hook and loop straps (2 lengths), strong magnet		\$135.76
338060	80AK	Thermocouple Adapter		\$84.85
338061	TP1	Modular Test Probes		\$61.54
338062	TL75	Test Lead, Lead Set. Inc.: Pair Comfort Grip probes with PVC insulated test leads, with right-angle shrouded banana plugs		\$74.27
338063	TP175	Twistguard Test Probe Set		\$72.12
338064	TI175	Twistguard Test Lead Set		\$101.84
338068	TLK225	Master Accessory Kit. Inc: Alligator Clip Set, Hook Clip Set, Pincer Clip Set, Large Jaw Alligator Clip Set, Test Probe Set, Silicone Test Lead Set, 6-Pocket Storage Pouch		\$445.53
338069	TLK289	Industrial Master Accessory Kit. Inc: Alligator Clip Set, Hook Clip Set, Large Jaw Alligator Clip Set. Lantern Tip Test Probe Set, Test Lead Set, Hanging Kit, Temperature Thermocouple, Soft Storage Case		\$464.63
338070	80PK1	Temperature Probe	Bead K Type -40°C to 260°C	\$95.50
338072	80PK3A		Surface K Type 0°C to 260°C	\$509.16
338074	80PK25		Piercing K Type -40°C to 350°C	\$360.65
338076	80PK11		Velcro Strap on K Type -30°C to 105°C	\$137.90
338077	80PK8		Pipe Clamp K Type -29°C to 149°C	\$615.25
338013	H5	Holster		\$101.84
338085	C12A	Soft Case		\$93.36
338087	C25			\$131.53
338089	C33			\$97.58



Refco

Inverter Check Kit

Cat. No.	Part No.	Description	List Price \$ Exc. GST
338133	4678571	Inverter Check Kit	\$583.43

LP-88 Infrared Thermometer

The LP-88 is a rugged and practical infrared thermometer with a pistol grip, which allows for contact free temperature measurement. Various temperatures can efficiently be measured within a room. The built in dual laser pointer simplifies the measurement, by marking the measurement area with two red laser points.

- Temperature range: -60°C to +550°C
- Operating temperature: +0°C to +50°C

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
332110	4686697	LP-88	Infrared Thermometer	\$397.29

Evolve

Magjumper

The Magjumper Magnetic Jumper cables are the ideal troubleshooting tool for low voltage electronic circuits. The leads are magnetic, making them a great addition to anyone's arsenal of tools for troubleshooting electric circuits.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
332009	EVO-MAG	Magjumper magnetic test cable	\$37.58

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Test & Measurement



Kimo

AQ100S Air Quality Meter

AQ100S Air Quality Meter is a key tool to diagnose, inspect and check air quality measuring CO2 and temperature.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338250	AQ100S	CO2: From 0 to 5000 PPM Temp: -20°C to +80°C	$\pm 3\%$ / ± 50 PPM $\pm 0.4\%$ / $\pm 0.3^\circ\text{C}$	1 ppm 0.1°C	\$1,779.59



AQ200P Air Quality Meter

AQ200P Air Quality Meter is a key tool to diagnose, inspect and check air quality measuring CO2 and temperature.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338251	AQ200P	CO2: 0 to 5000ppm Temp: -20°C to +80°C	$\pm 0.3\%$ / ± 50 ppm $\pm 0.3\%$ of reading $\pm 0.25^\circ\text{C}$	1 ppm 0.1°C	\$3,144.44



LV110S Vane Probe Thermo-Anemometer

LV110S Vane Probe Thermo-Anemometer is a key tool to diagnose, inspect and check air velocity, airflow and ambient temperature.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338252	LV110S	Temp: -20°C to 80°C Air Flow: 0 to 99999m3/h Air Velocity: from 0.25 to 3m/s Air Velocity: from 3.1 to 35m/s	$\pm 0.4\%$ of reading $\pm 0.3^\circ\text{C}$ $\pm 0.3\%$ of reading $\pm 0.03 \times \text{area}(\text{cm}^2)$ $\pm 0.3\%$ of reading $\pm 0.01\text{m/s}$ $\pm 0.1\%$ of reading $\pm 0.3\text{m/s}$	0.1°C 1m3/h 0.01m/s 0.1m/s	\$1,220.33



LV130S Vane Probe Thermo-Anemometer

LV130S Vane Probe Thermo-Anemometer is a key tool to diagnose, inspect and check air velocity, air flow and ambient temperature.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338258	LV130S	Air Velocity: 0.25 to 3m/s Air Flow: 0 to 99999m3/h Temp: 0 to +50°C	$\pm 3\%$ / $\pm 0.1\text{m/s}$ $\pm 3\%$ / $\pm 0.03 \text{ area}(\text{cm}^2)$ $\pm 0.4\%$ / $\pm 0.3^\circ\text{C}$	0.01m/s 1m3/h 0.1°C	\$991.13

MP100S Manometer

MP100S Manometer is a key tool to diagnose, inspect and check pressure and air velocity, using a Pitot tube.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338253	MP100S	Pressure: From 0 to ± 1000 Pa Air Velocity: from 2 to 5 m/s From 5 to 40m/s	$\pm 0.5\%$ / $\pm 2\text{Pa}$ $\pm 0.7 \text{ m/s}$ $\pm 0.5\%$ / $\pm 0.3\text{m/s}$	1 Pa 0.1 m/s	\$755.44



MP120S Manometer

MP120S Manometer is a key tool to diagnose, inspect and check differential pressure and air velocity.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338254	MP120S	Pressure: (mmHg, PSI, DaPa) From 0 to ± 1000 Pa Air Velocity: (m/s, fpm, Km/h) from 2 to 5 m/s From 5 to 40m/s	$\pm 0.5\%$ / $\pm 2\text{Pa}$ $\pm 0.7 \text{ m/s}$ $\pm 0.5\%$ / $\pm 0.3\text{m/s}$	1 Pa 0.1 m/s	\$887.82



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Test & Measurement



Kimo

VT100S Hotwire Thermo-Anemometer

VT100S Hotwire Thermo-Anemometer is a key tool to diagnose, inspect and check air velocity, airflow and ambient temperature.



Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338255	VT100S	Temp: -20°C to 80°C Air Flow: 0 to 99999m3/h Air Velocity: from 0.15 to 3m/s Air Velocity: from 3.1 to 30m/s	±0.4% of reading ± 0.3°C ±0.3% of reading ± 0.03*area(cm2) ±0.3% of reading ± 0.05m/s ±0.3% of reading ± 0.2m/s	0.1°C 1m3/h 0.01m/s 0.1m/s	\$1,023.38

MP200G Thermo-Anemo-Manometer

MP200G Thermo-Anemo-Manometer is a key tool to diagnose, inspect and measure pressure, air velocity, and airflow.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338256	MP200G	Pressure: 0 to ± 500 Pa	±0.2% / ±0.8Pa ±0.2% / ±2Pa ±0.2% / ± 10 Pa ±0.3 m/s ±0.5% / ±0.2m/s ±0.2% / ±1% PE	0.1 Pa 1Pa 1Pa 0.1m/s 0.1 m/s 1m3/h	\$2,418.03
		0 to 2,500 Pa			
		0 to 10,000 Pa			
		Air Velocity: 2 to 5 m/s			
		5.1 to 100m/s			
		Air Flow : 0 to 99,999m3/h			

DBM610 Portable Flow Meter

DBM700 is designed and manufactured to be indispensable to engineers responsible for balancing Air Flow in air conditioning systems.



Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338257	DBM610	Air Flow: 40 to 3500 m3/h Temp: 0 to +50°C	3% / ±10m3/h 2% / ±0.1°C	1m3/h 0.1°C	\$9,000.67

KiRay 100 Infrared Thermometer

Cat. No.	Model No.	Temperature Range °C	Resolution °C	Distance to Spot Ratio	List Price \$ Exc. GST
338261	KiRay 100	-50°C to +800°C	0.1°C	20:1	\$435.80

KiRay 200 Infrared Thermometer

Cat. No.	Model No.	Temperature Range °C	Resolution °C	Distance to Spot Ratio	List Price \$ Exc. GST
338263	KiRay 200	-50°C to +850°C	0.1°C	30:1	\$590.77

TK100S Thermocouple Thermometer

TK100S Thermometer is a key tool to diagnose, inspect and check any temperature, using a Thermocouple Type K.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution	List Price \$ Exc. GST
338265	TK100S	-200 to 1300°C	±1.1°C or ±0.4%	0.1°C	\$606.92

TR100S PT100 Thermometer (RTD)

TR100S Thermometer is a key tool to diagnose and check low temperature to high accuracy.

Cat. No.	Model No.	Temperature Range °C	Accuracy	Resolution	List Price \$ Exc. GST
338266	TR100S	-100 to 400°C	±0.3°C or ±0.4%	0.1°C	\$587.56

HD100S Hygrometer

HD100S Hygrometer is a key tool to diagnose, inspect and check Relative Humidity, Dew Point and Ambient Temperature.

Cat. No.	Model No.	Temperature Range °C	Accuracy	Resolution	List Price \$ Exc. GST
338268	HD100S	Humidity : from 5 – 95% RH Dew Point: from -40°C to + 70°C Temp: from -20 to + 70°C	RH: ±1.8%(15°C to 25°C) DP: ±0.8% / ±0.6°C Temp: ±0.4% / ± 0.3°C	0.1%RH 0.1°C 0.1°C	\$881.32

Protective Cases

Providing not only protection for your meter, these cases feature a super strong magnet, strap and rear stand for visual ease while working.

Cat. No.	Model No.	Description	List Price \$ Exc. GST
338280	CE100	100 Class Protective Case	\$129.13
338281	CE200	200 Class Protective Case	\$171.08



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Data Loggers

Kimo Data Loggers

Starter Kits

Cat. No.	Part No.	Description	Kit Contents	List Price \$ Exc. GST
335200	KT-110-IN STARTER KIT	Data Logging Starter Kit	1 x KT 110 IN Logger 1 X KIC2 N Software 1 x USB Cable	\$643.35

Loggers

Cat. No.	Part No.	Description	Display	IP Rating	Int. Sensor	Ext. Inputs	Working Temp Range	Working Humidity Range	Light Range	List Price \$ Exc. GST
335204	KT 110 IN	Temperature Data Logger	No	IP67	Yes	0	-40°C to 70°C			\$380.49
335205	KT 110 IO		Yes			0			\$525.76	
335206	KT 110 AN	Data Logger with External Input for Temperature, Current, Voltage, Amperage	No	IP40		1			\$574.18	
335207	KT 110 AO		Yes			1		\$709.07		
335208	KH 110 AN	Temperature, Humidity & Light Data Logger	No	IP40		0	-20°C to 70°C	5 to 95%	0 to 10,000 lux	\$1,020.36
335209	KH 110 AO		Yes			0				\$1,144.89

Software

Cat. No.	Part No.	Description	List Price \$ Exc. GST
335202	KIC2-N	Software with USB Cable	\$290.56

External Sensors

Cat. No.	Part No.	Description	Range	List Price \$ Exc. GST
335210	KCG 50N	General Use Temperature Sensor with 50 x 4.5mm stainless steel probe & 2m PVC cable	-40°C to 120°C	\$162.55
335211	KCV200N	Velcro Temperature Sensor with 200mm Velcro for clamp on pipe measurement. 2m PVC cable	-20°C to 90°C	\$162.55
335212	KPIJ 100N	Ammeter Clamp Sensor with 2m PVC cable	0°C to 100A	\$1,030.78
335213	KCTJ 10N	Voltage Input Sensor. 2m PVC cable	0°C to 10V	\$141.81
335214	KCCJ 20N	Current Input Sensor. 2m cable	0 to 0/20mA and 4/20mA	\$190.22



Flaring Tools



Refco

Flaring and Swaging Tool Kit

Converts quickly into flaring or swaging tool. Hand chrome finished with self-centering, slip on forged steel yoke.

Cat. No.	Part No.	List Price \$ Exc. GST
348091	RF-175-FS	\$288.90

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.	List Price \$ Exc. GST
348089	RF888Z	\$636.07
348088	RF899Z	\$595.37



Super Ego

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.	List Price \$ Exc. GST
348112	R222402SE	\$649.44



Ridgid

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.	List Price \$ Exc. GST
348120	70677	\$798.53

Equipment & Tools



Refco

Fin Combs

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
347010	9881562	14142	Fin Comb with Spare Head	\$53.16
347011	9881561	14144	Spring Steel Fin Comb	\$41.32

Service Piercing Pliers

Cat. No.	Part No.	Description	List Price \$ Exc. GST
348004	14210-STD	Service Piercing Pliers	\$223.56
348005	14210-01	Spare Needle	\$17.17

Pinch-Off Pliers

Cat. No.	Part No.	List Price \$ Exc. GST
348003	14200	\$108.08

Swaging Pole

Cat. No.	Part No.	List Price \$ Exc. GST
348014	T-21100	\$51.80



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Equipment & Tools

Refco

Charging Hoses – 1/4" Flare Connection



Cat. No.	Part No.	Nominal Length	Colour	List Price \$ Exc. GST
349290	CCL-36	Set of 3 - 900mm (36")	Blue, Red, Yellow	\$90.22
349291	CCL-72	Set of 3 - 1800mm (72")	Blue, Red, Yellow	\$120.17
349277	CL-36B	900mm (36")	Blue	\$34.21
349275	CL-36R		Red	\$34.21
349276	CL-36Y		Yellow	\$34.21
349280	CL-60B	1500mm (60")	Blue	\$40.22
349278	CL-60R		Red	\$40.22
349279	CL-60Y		Yellow	\$40.22
349283	CL-72B	1800mm (72")	Blue	\$43.30
349281	CL-72R		Red	\$43.30
349282	CL-72Y		Yellow	\$43.30
349288	CL-144B	3600mm (144")	Blue	\$80.55
349289	CL-144R		Red	\$80.55
349287	CL-144Y		Yellow	\$80.55

Charging Hoses – For R410A

Cat. No.	Part No.	Description	Working Press.	List Price \$ Exc. GST
349029	CCL-36- 1/2"-20 UNF	Set of 3 hoses, 1 each Blue, Red & Yellow. 900mm (36") long	6000 kPa (870 psig)	\$119.83
349028	CCL-60- 1/2"-20 UNF	Set of 3 hoses, 1 each Blue, Red & Yellow. 1500mm (60") long		\$150.14

Charging Hoses – 3/8" Flare Connection

Cat. No.	Part No.	Nominal Length	List Price \$ Exc. GST
349315	HCL6-36Y	900mm (36")	\$58.76
349316	HCL6-48Y	1200mm (48")	\$62.38
349317	HCL6-60Y	1500mm (60")	\$65.98

R134a Automotive A/C Ball Service Valves

Cat. No.	Part No.	Description	Connection	List Price \$ Exc. GST
349203	CX-AUTO-R-1/4	High Side Valve – Red	1/4" M. Fl. x Auto Quick Connect Supplied with Angle Adaptor	\$140.50
349202	CX-AUTO-B-1/4	Low Side Valve – Blue		\$140.50

Charging Line Valve



Cat. No.	Part No.	Description	Connection	List Price \$ Exc. GST
349210	CA-1/4 SAEY	Charge Line Valve	1/4" FF x 1/4" MF	\$52.22
349211	CA-1/2 2OUNF		5/16" FF x 1/4" MF R410A Rated	\$82.64



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Equipment & Tools



Refco

Digimon Digital Manifold

Digimon-SE are Refco's latest generation digital manifolds offering users easy to use 2-way and 4-way digital manifolds for the efficient and safe maintenance of air conditioning and refrigeration systems. This latest generation is characterized by its compact design and sturdy construction. The modern display allows for superheating, subcooling, vacuum levels and leakage test to be shown along with the pressure and temperature reading. Additionally, in analog mode, the digital figures are displayed visually. The Digimon meets the most important requirements for a digital manifold and is available in various versions. Available accessories include K-type pipe clamp temperature sensors as well as an external vacuum sensor.

Features

- 48 Refrigerant tables incl. R410A, R32, R744(CO2), R407F & R1234yf
- Analog and Digital Display
- Direct calculation and display of superheat and subcool
- 2 precise K-Type temperature sensors
- Leak-test function
- Backlit LCD display with multiple protection
- User-friendly operation
- Fiber reinforced ergonomic knobs
- Automatic power-save mode
- Low battery indicator
- Continuous measuring rate

Specifications

- Accuracy: Class 1.0
- Pressure resolution: 0.01 bar / 0.5psi / 1kPa / 0.001MPa
- Pressure Gauge from -0,95 bar to +60 bar

2 Way Manifold

Digimon digital two way manifold with:

- 3 x 1500mm charging lines $\frac{1}{4}$ " flare, blue, red and yellow
- 2 x 1500mm charging lines $\frac{5}{16}$ " flare, blue and red
- 2 x K type temperature sensors
- Sturdy plastic case

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
349141	4686736	DIGIMON-SE-3-PLUS	Digital Manifold Set	\$1,191.82

4 Way Manifold

Digimon digital two way manifold with:

- 3 x 1500mm charging lines $\frac{1}{4}$ " flare, blue, red and yellow
- 2 x 1500mm charging lines $\frac{5}{16}$ " flare, blue and red
- 2 x K type temperature sensors
- Sturdy plastic case

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
349144	4686740	DIGIMON-4-3-PLUS	Digital Manifold Set	\$1,545.54

Digimon Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349146	4681466	K Type Pipe Clamp Temperature Sensor	\$210.07
349147	4681394	K Type Temperature Sensor	\$93.62
349148	4686713	External Vacuum Sensor	\$429.90



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Equipment & Tools

Refco

APEX Series

For 134a, R22 and R404A

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349121	APEX-M2-6-kPa-R22	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines	\$273.61

BM2 Series

Cat. No.	Part No.	Description	List Price \$ Exc. GST
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For R134a, R22 and R404A

349125	BM2-6-R134a/22-kPa/psi	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines	\$310.08
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For R134a Automotive Air Conditioning

349123	BM2-3-kPa-R134A-Acme	Autoset R134a manifold, gauges 3 x 1800mm charging lines and CX-Auto couplings supplied in plastic case	\$760.13
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For R22 and R410A

349130	BM2-6-DS-CLIM	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm $\frac{1}{4}$ " charging lines, 1 x Red, Blue & Yellow & 2 x 900mm $\frac{1}{4}$ " x $\frac{5}{16}$ " charging lines (Red,Blue)	\$431.63
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For R410A

349126	BM2-3-K8a-R410A	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines and $\frac{1}{2}$ "-20UNF ($\frac{5}{16}$ "SAE) connection and core depressor on the unit side. Supplied in plastic case.	\$428.63
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R32 and R410A

Cat. No.	Part No.	Model No.	Description	Refrigerant Scales	Hose Connections: inch			List Price \$ Exc. GST
					Red	Blue	Yellow	
349119	4686948	BM2-6-DS-R32	Manifold Set with 3 x 900mm Hoses	R32, R410A	1/4 x 5/16	1/4 x 5/16	1/4 x 1/4	\$367.85

M4 Series - 4-Way Service Manifold

Cat. No.	Part No.	Description	List Price \$ Exc. GST
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For R134a, R22 and R404A

349132	BM4-3-M2	Manifold with dual scale gauges and 3 x 900mm charging lines. Supplied in plastic case.	\$562.12
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For R410A

349129	M4-3-Deluxe-DS-R410A	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines with $\frac{1}{2}$ "-20 UNF ($\frac{5}{16}$ "SAE) connection and core depressor on the unit side. Supplied in plastic case.	\$1,014.97
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Multicase

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349137	M4-6-15	Empty plastic case	\$129.26

Gauge Protectors

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352282	CPR333	Rubber Gauge Protector Black	\$16.04



SUPER EGO

Super Ego

Digital Manifolds

The Super Ego digital manifold gauge gives the user more functionality and information as compared to standard manifold gauges out of one easy to use device. The manifold can be used on over 60 different refrigerants and gives the user automatic superheat / Sub-cooling calculations.

Manifolds

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349470	R170525	Digital Manifold Set With 1 Clamping Thermometer, 3 x $\frac{1}{4}$ " x 1.5m hoses & 2 x $\frac{5}{16}$ " adaptors	\$1,513.63
349471	R170523	Digital Manifold Only	\$1,250.63

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349472	R1705N300	Clamping Thermometer	\$266.50
349473	R170521	Vacuum Sensor	\$882.47

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Equipment & Tools



Refco

Quick Couplers



Cat. No.	Part No.	Description		List Price \$ Exc. GST
349213	V35010	1/4" x 1/4"	Straight	\$88.21
349214	V35012		Elbow	\$103.69
349217	V35410	1/4" x 5/16"	Straight	\$141.62
349218	V35412		Elbow	\$158.30

Replacement Parts for Service Manifolds



Cat. No.	Part No.	Description		Suit Model	List Price \$ Exc. GST
349127	M4-6-11	Sight Glass Assembly		All Refco	\$43.14
349128	M4-6-04	Piston c/w 'O' Ring & Gasket			\$10.21
349131	M2-10-95	Valve Seat & Stem			\$32.31
349134	M2-6-09B	Knob	Blue	BM2, M2, Ultra	\$18.67
349135	M2-6-09R		Red		\$18.67
349270	M4-7-SET-B		Blue	M3, M4, BM4	\$10.33
349271	M4-7-SET-R		Red		\$10.33
349272	M4-7-SET-N		Black		\$10.33
349273	M4-7-SET-Y		Yellow		\$10.33
349380	M2-7-B		Blue	Digimon	\$19.51
349381	M2-7-R		Red		\$19.51
349382	4677647		External Temperature Sensor Single Pin		\$144.68

Replacement Parts – For 1/4" Flare Charging Hoses

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349039	P509/10	Black Neoprene Gasket (Packet of 10)	\$11.29
349040	P509T/10	White Teflon Gasket (Packet of 10)	\$22.28
349311	PSI3/10	Valve Core Depressor (Packet of 10)	\$30.01

Replacement Parts – For 3/8" Flare Charging Hoses

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349120	P510/10	3/8" Charging Line Gasket O'Ring (Packet of 10)	\$30.01

Charge-Oil Pump



Cat. No.	Part No.	List Price \$ Exc. GST
349458	21702	\$453.04



Actrol

Manual Oil Pump



Cat. No.	Part No.	List Price \$ Exc. GST
349459	RMP	\$401.85



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Refco



Tools



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Equipment & Tools

Refco

Electronic Scales

Fully Portable weighing scales.

Features:

- Modern design, large LCD display
- Sturdy construction for a long lifetime
- Programmable
- Supplied in carrying pouch
- Compact and lightweight (2.5kg)
- High accuracy and resolution
- Large platform for refrigerant cylinders
- Field calibratable



REF-METER-OCTA

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
349460	4679462	REF-METER-OCTA	100kg Electronic Scales	\$1,016.69

OCTA-WIRELESS

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
349461	4686663	OCTA-WIRELESS	100kg Wireless Electronic Scales	\$1,214.95

Replacement Control Boxes

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
349451	4686813	Replacement Control Box	REF-METER-OCTA	\$355.64
349452	4686752	Replacement Control Box	OCTA-WIRELESS	\$406.05



Super Ego

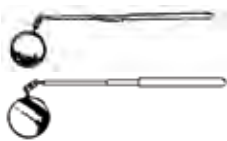
Electronic Scales

Cat. No.	Part No.	Description	List Price \$ Exc. GST
349468	R173004	120kg Electronic Scales	\$1,301.30

Flexible Lines

Cat. No.	Part No.	Length: mm	I.D: mm	Connection	List Price \$ Exc. GST
349550	F01099	700	2mm	1/4" FF Straight x 1/4" FF 90° Elbow	\$45.74
349552	F01071	1000			\$49.84
349554	F03179	700	4mm		\$46.72
349556	F03087	1000			\$51.95

Inspection Mirrors



Cat. No.	Part No.	Brand	Description	List Price \$ Exc. GST
350017	M-1	Wagner	Swivel Mirror with double ball joint links. With telescoping feature 160mm long extending to 475mm. Mirror 32mm Diameter	\$58.86
350018	M-2		Same specifications as M1 but telescoping feature 250mm long extending to 355mm. Mirror 57mm Diameter	\$69.89

Safe Test Screwdriver



Cat. No.	Part No.	List Price \$ Exc. GST
350011	Safe Test Screwdriver	\$7.72



Refco

Inner-Outer Tube Reamer

Cat. No.	Part No.	Description	List Price \$ Exc. GST
350008	RFA-209	For copper, aluminium and brass tubing	\$44.93



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Fixed Leak Detection

PHASEFALE

Phasefale

RAM Fixed Leak Detection

Features

- Gas concentration readout from 0-990ppm.
- Data logging function to USB
- Fan control output function
- Display flashes for alarm condition
- All common refrigerants supported
- Alarm bypass for isolating alarm
- 1 to 5 channels of the same refrigerant type.
- Light & security outputs, onboard buzzer
- Bright red LCD display, 3 digits
- Programmable settings
- Optional battery backup supported
- Separate RAMiv/4 board to power sensors, supplied in surface mount enclosure



Cat. No.	Part No.	Description	List Price \$ Exc. GST
351171	RAMIV9	Refrigerant Air Monitor	\$967.77
351172	RAMIV4	4 Way Sensor Board with Enclosure	\$888.89
351173	RAMIV/P308	P308 HCFC Gas Sensor	\$409.31
351174	RAMIV/P328	P328 HFC Gas Sensor	\$409.31

CAREL

Carel

DPWL Gas Detectors

The Carel fixed gas detector which can detect a wide range of different gases and can be used on a standalone basis or integrated into refrigeration control systems or building management systems (BMS).

Specifications

- Power Supply: 12 to 24 V AC/DC
- Output Selectable: 0 to 10V or 4 to 20mA
- High Level Interface: Modbus RS485
- Built In Relay: 1A @ 24 V AC/DC

Cat. No.	Part No.	Description	Gas	Enclosure	Temperature Range: C°	Measuring Range: ppm	List Price \$ Exc. GST
351250	DPWLA07000	Compact Gas Detector with inbuilt semiconductor sensor	R22	IP41	-20 to 50	0 to 1000	\$1,004.59
351251	DPWLB07000		R134a				\$1,004.59
351252	DPWLC07000		R404a				\$1,004.59
351253	DPWLD07000		R407c				\$1,004.59
351254	DPWLE07000		R410a				\$1,004.59
351262	DPWLL417000	Compact Gas Detector with inbuilt infrared sensor	CO2	IP66	-40 to 50	0 to 10000	\$2,678.79
351256	DPWLA27000	Gas Detector with 5m Remote Sensor	R22		-20 to 50	0 to 1000	\$1,582.21
351257	DPWLB27000	Gas Detector with 5m remote semiconductor sensor	R134a				\$1,582.21
351258	DPWLC27000		R404a				\$1,582.21
351259	DPWLD27000		R407a				\$1,582.21
351260	DPWLE27000		R410a				\$1,582.21
351264	DPWLL427000	Gas Detector with 5m remote infrared sensor	CO2	IP41	-40 to 50	0 to 10000	\$3,069.48
	DPWLK07000	Compact Gas Detector with inbuilt dual beam infrared sensor	R134a		-20 to 50	0 to 1000	P.O.A
	DPWLL07000		R404a				P.O.A
	DPWLM07000		R407c				P.O.A
	DPWLN07000		R410a				P.O.A

Danfoss

Danfoss

DGS Gas Detectors

The Danfoss Gas Sensor (DGS) is a state of the art fixed gas detector which can detect a wide range of different gases.

The sensors can be used on a standalone basis or integrated into refrigeration control systems or building management systems (BMS).



Cat. No.	Part No.	Description	Default Gas	Enclosure	Temp. Range: C°	Sensor Type	List Price \$ Exc. GST
351200	080Z2098	DGS Gas Detector	R404A/R507	IP41	-20 to 50	Semiconductor	\$944.83
351201	080Z2092		R134a				\$947.74
351202	080Z2093		R407A				\$976.15
351203	080Z2090		R22				\$976.15
351204	080Z2095		CO2			Infrared	\$2,351.03
351210	080Z2099		R404A	IP66	-40 to 50	Semiconductor	\$1,290.18
351211	080Z2089		R134A				\$1,290.18
351212	080Z2094		R407A				\$1,290.18
351213	080Z2091		R22				\$1,290.18
351214	080Z2096		CO2			Infrared	\$2,721.02
351215	080Z2097	DGS Gas Detector with 3m Probe	CO2				\$2,957.87



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Leak Detection



Inficon

Leak Detectors - Electronic Type

TEK-Mate



Cat. No.	Part No.	Description	List Price \$ Exc. GST
351009	705-202-G1	TEK-Mate Electronic Leak Detector	\$709.17
351011	703-020-G1	Replacement Sensor	\$210.11
351012	705-600-G1	Tip Filters	\$73.58

D-TEK™ Select



Cat. No.	Part No.	Description	List Price \$ Exc. GST
351010	712-202-G6	D-Tek™ Select Electronic Leak Detector	\$1,900.28
351013	712-701-G1	Replacement Infrared Cell	\$408.23



Refco

Ref-Locator

The requirements for leak detectors are constantly increasing and in order to keep up with the newest developments and technologies Refco have developed the Ref-Locator. This high-end unit fulfills all the norms and requirements which are expected from a modern leak detector today. The basis of heated electrolyte sensor technology sets new standards in the area of leak detection. The sensor has a higher than average life cycle of approximately 10 years, which is a large advantage over conventional leak detectors.



Through the adjustment of the 3 sensitivity levels, it is easy to localize large leakages. In addition, the inspection light is ideal when using in a dark location. The Ref-Locator is delivered in a practical and rugged case.

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
351033	4686714	REF-LOCATOR	Refrigerant Leak Detector	\$1,496.56



Robinair

22791A Leak Detector



Cat. No.	Part No.	Description	List Price \$ Exc. GST
351007	22791A	Infrared Refrigerant Leak Detector	\$2,320.27



Kimo

DFC100 Leak Detector



Cat. No.	Part No.	Description	List Price \$ Exc. GST
351005	DFC-100	Refrigerant Leak Detector	\$2,171.53



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Leak Detection

AMPROBE



Amprobe

Ultrasonic Leak Detector

Cat. No.	Part No.	Description	List Price \$ Exc. GST
351002	ULD-300	Ultrasonic Leak Detector	\$1,196.21



Cliplight

UV Leak Detection System

Cat. No.	Part No.	Description	List Price \$ Exc. GST
351150	9928 KIT	Kit includes, Vector7 UV LED light. Clipinject dye injector, 2 x 14 shot dye cartridges, Swivel injector hose, 1/4" adaptor, service stickers, UV enhancing safety glasses, dye cleaner and drip guards.	\$746.83
351154	9528 KIT	Clipinject dye injector kit with 2 x 14 shot cartridges.	\$350.32
351158	87 DC	Vector7 UV inspection lamp. Cordless and rechargeable. Full charge provides up to 5 hours of use. Can be used in broad daylight. Supplied with 240V charger and cigarette lighter charger.	\$447.12
351160	955028	2 x replacement 14 shot cartridges to suit Clipinject dye injector.	\$233.01
351162	900008	240ml squeeze measure and pour bottle of UV dye. Required ratio to system lubricant is 40:1.	\$205.85
351164	805CLN	500ml spray bottle of industrial strength, bio-degradable dye cleaner.	\$77.99



Halide Lamp Leak Detector Accessories

Cat. No.	Part No.	Brand	Description	List Price \$ Exc. GST
352021	BG 1001	Blue Gaz	Gas Cartridge – Screw Type	\$16.12
352023	"J" Jet		Replacement Jet	\$8.35
352028	C206	Halogaz	Gas Cartridge	\$11.97

FLUKE



Fluke

UV Flashlight

Cat. No.	Part No.	Description	List Price \$ Exc. GST
351040	RLD2	UV Leak Detector Flashlight	\$159.13

Brazing Equipment

SUPER EGO



Super Ego

Superfire 2 Brazing Torch

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352288	35644C	Super Fire 2 Torch	\$489.33

Superfire 3 Brazing Torch

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352293	35430S	Super Fire 3 Torch Set	\$602.53



Superfire 3 Hot Box Kit

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352294	35490SEK	Super Fire 3 Hot Box Kit	\$786.14

Soldering Mats

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352289	67022S	12" x 12" Soldering Mat	\$85.66

Heat Deflector Guards

Cat. No.	Part No.	Suits	List Price \$ Exc. GST
352298	31042S	Superfire 2	\$148.70
	31043S	Superfire 3	P.O.A

Spare Parts

Cat. No.	Part No.	Description	Suits	List Price \$ Exc. GST
352296	35659	Burn Tube	Superfire 2	\$243.19
352295	35661	Turbine Flame Burner		\$139.68



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Brazing Equipment



Tesuco

Turbo 200 Brazing Kits

The Turbo Set 200 is a compact and light weight gas brazing set, making it ideal for use within the air conditioning and refrigeration industries. Weighing in at only 5kg (including cylinders), the unit is extremely versatile and suitable for use in hard to reach areas.

The Turbo Set 200 has been specifically designed for use with 1 each of disposable Mapp & Oxygen gas cylinders. This leads to a number of advantages: firstly, the gas cylinders are bought outright, so there are no ongoing cylinder rental payments. Secondly, the gas cylinders are lightweight and much less cumbersome than even the smallest refillable gas cylinder available, making the Turbo Set 200 convenient to take anywhere.

Features

- Metal carry case
- Flashback arrestors at regulator and handgrip
- 2m of separated hose
- Brazing lance with 160 L/h nozzle
- Protective welding goggles
- Multipurpose spanner
- Pressure regulator for Oxygen with cylinder contents gauge
- Pressure regulator for MAP//Pro with delivery pressure gauge
- Gas adjustment valves at handgrip
- Spare Nozzles 63, 100, 250 and 315 l/h
- Flint lighter



Disposable gas cylinders supplied separately

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352030	OTS 200C	Turbo Set 200 Brazing Kit	\$657.22



Refco

Brazing Torch

Features

- Operates on Mapp gas
- Supplied with Cyclone Tube & Heat guard



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352302	16868	Brazing Torch	\$212.15



Disposable Gas Cylinders

Cat. No.	Part No.	Cylinder Contents	List Price \$ Exc. GST
352285	35663C	453 grams (16 oz) of Mapp Gas	\$43.65
352275	OIBC	1 Litre Oxygen 11000kPa	\$109.55

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Brazing Equipment



Silbraz

Silver Solder

Silbraz is a family of high quality Cadmium Free brazing and other metal joining products designed to meet the exacting needs of the plumbing, HVAC&R, engineering, and other industries using silver and bronze brazing and welding. Our silver brazing solders are manufactured to the highest standards with conformance to the requirements of Australian Standard 1167, as well as Watermark™ certification for all of our low-silver phosphorus alloys. The product range includes phosphorus copper alloys, silver copper phosphorus alloys, high silver Cadmium Free brazing alloys, engineering bronzes, flux coated brazing rods and fluxes.

Handy Packs



Cat. No.	Part No.	Description	Silver Content	Rod Size: mm	Pack Size	List Price \$ Exc. GST
353050	67390	2P Silbraz Silver Solder	2%	2.5 x 750	5	\$39.45
353052	67419	5P Silbraz Silver Solder	5%			\$60.29
353054	67386	15P Silbraz Silver Solder	15%		10	\$251.42
353056	67537	45 Silbraz Silver Solder	45%	1.5 x 750	5	\$150.62

Bulk

Cat. No.	Description	Silver Content	Rod Size: mm	List Price \$ Exc. GST
353014	2P Silbraz Silver Solder	2%	2.5 x 750	\$7.89
353022	5P Silbraz Silver Solder	5%		\$12.05
353010	15P Silbraz Silver Solder	15%		\$25.12
353013	45 Silbraz Silver Solder	45%	1.5 x 750	\$30.10



Flux

Cat. No.	Part No.	Description	Size:	List Price \$ Exc. GST
353020	00567	Easyflo Flux	250 gram	\$31.35



Harris Dynaflow

Dynaflow melts and flows at temperatures very close to 15% silver solders and provides comparable brazed mechanical properties. This makes Dynaflow an excellent cost effective alternative to traditional 15% silver alloys.



Cat. No.	Part No.	Description	Silver Content	Pack Size	List Price \$ Exc. GST
353060	66039	Dynaflow Silver Brazing Alloy	6%	8	\$132.87

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Equipment and Tools



Tesuco

Nitrogen Regulator

A pressure regulator designed for use with nitrogen should be used to reduce the cylinder pressure of nitrogen to a safe and useable working pressure.

The Tesuco 6000kPa high outlet pressure nitrogen regulator has inlet and outlet pressure gauges with rubber protectors, meets AS4267, has a Type 50 inlet connection and 1/4" male flare outlet fitting and is purpose built for the air conditioning and refrigeration industries.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352060	RI1SNI60	Nitrogen Regulator 6000kPa	\$661.01

Regulator for Disposable Nitrogen Cylinders

The pressure regulator is specially designed to take the full cylinder pressure down to a safe and usable working pressure. The Tesuco nitrogen regulator has an adjustable range of 0-1500kPa and complies to AS4267 except for the inlet connection which is M10 x 1 to suit the cylinder connection. Outlet is 1/4" male flare.

Cat. No.	Part No.	Description	List Price \$ Exc. GST
352050	RCG1MNI15	Nitrogen Regulator 1500kPa	\$129.93

Nitrogen Purge Tools



Cat. No.	Part No.	Description	Sizes	List Price \$ Exc. GST
352064	GEPTT	Nitrogen Purge Tools	1/4 to 3/4 and 3/4 to 1 1/8	\$116.23



Harris

Nitrogen Regulator

A pressure regulator designed for use with nitrogen should be used to reduce the cylinder pressure of nitrogen (17 600kPa @15°C) to a safe and useable working pressure. Harris model 825 nitrogen regulators have an adjustable range from 0 to 4000 kPa and comply with AS4267.95. The regulators feature a side inlet with a Type 50 connection and a 1/4" Male Flare outlet. Optional rubber gauge protectors will help protect gauges from damage.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352283	825Z080	Nitrogen Regulator	\$881.42
352282	CPR6333	Rubber Gauge Protector Black	\$16.04

Replacement Gauges



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352277	U8E6620K	Deliver Gauge 0 - 6 000 kPa	\$105.65
352278	U8E615K	Content Gauge 0 - 30 000 kPa	\$105.65



Nitro 3000

Nitrogen Purge Controller

The Nitro 3000 is an innovative device designed to remotely turn the supply of nitrogen on and off using a mobile phone.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
352070	N3000	Nitro 3000 Nitrogen Purge Controller	\$2,006.20



BVA

Hand Refractrometer



Cat. No.	Part No.	Description	List Price \$ Exc. GST
349496	BVA ET	Ester Tester Hand Refractrometer	\$656.17



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Equipment and Tools

Refco Ratchet Spanners – Reversible

Cat. No.	Part No.	Description	List Price \$ Exc. GST
354024	RFA-124-C	1/2", 9/16", Hex. 3/16", 1/4" Square Ratchets	\$48.79
354025	RFA-127-C	1/4", 3/8", 3/16", 5/16" Square Ratchets	\$44.62
354023	RFA-127-C - Offset		\$49.96

Reamer

Cat. No.	Part No.	Description	List Price \$ Exc. GST
350007	RFA0209-STYLO	Reamer HSS blade	\$56.08

Capillary Tube Gauge

Cat. No.	Part No.	Description	List Price \$ Exc. GST
354053	10971	Capillary Tube Gauge	\$216.21

Torque Wrench Kit

Cat. No.	Part No.	Description	List Price \$ Exc. GST
354018	TW8	Torque wrench kit c/w 7 different sized interchangeable spanners to fit R410A flare nuts Sizes: 17, 19, 22, 24, 26, 27, 29mm Adjustable torque setting range 10 - 75Nm	\$374.87



Super Ego

Gratfix Deburrer

Cat. No.	Part No.	Description	List Price \$ Exc. GST
354030	107050	GRATFIX with HSS general purpose blade	\$102.73
354031	21652	Spare HSS general purpose blade	\$30.38

Copper Tube Expander Kit

Cat. No.	Part No.	Size	Description	List Price \$ Exc. GST
355020	012321	Kit	c/w 4 Heads – 1/2", 5/8", 3/4", 7/8"	\$1,127.70

Copper Tube Expander Heads

Cat. No.	Part No.	Size	List Price \$ Exc. GST
355022	11052N	3/8"	\$261.37
355023	11053S	1/2"	\$261.37
355024	11054S	5/8"	\$261.37
355025	11055S	3/4"	\$261.37
355026	11056S	7/8"	\$261.37

Cat. No.	Part No.	Size	List Price \$ Exc. GST
355027	11057S	1"	\$261.37
355028	11058S	1 1/8"	\$306.49
355029	11059S	1 1/4"	\$311.27
355057	11035S	1 3/8"	\$421.74
355032	10351S	1 5/8"	\$421.74



SOS

Condenser Tube Cleaning Tools

Nylon stiff bristles are used for removing algae and silt. The bush size should be slightly smaller or size for size with the I.D. of the tube to be cleaned.

Cat. No.	Part No.	Description	Size	List Price \$ Exc. GST
355150	NB-58	Nylon Tube Cleaning Brush	5/8"	\$35.89
355151	NB-34		3/4"	\$35.11
355155	FS12.7-7.6	Flexible Shaft	12.7mm x 7.6m	\$1,378.27
355156	FS-RTC-8	Adaptor	8mm	\$22.04



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Tool Bags & Boxes

Veto Pro Pac MB Tool Bags

The MB is a clip-on meter bag designed to hold a small selection of tools and one or two meters. When not in use it can clip onto any model Veto bag's tape clip or D-Rings. It features 10 pockets of various sizes that will accommodate a number of meters and a few of the most commonly used tools to diagnose and repair problems on service calls.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354607	VETOMB	HVAC Test Meter Tool Bag	\$132.60
354606	VETOMB2	HVAC Test Meter Tool Bag	\$161.42

TP Tool Bag

The TP3 and TP4 are clip-on diagnostics bags designed to hold a meter and a variety of tools. When not in use they can clip onto any model Veto tool bag's tape clip or D-Rings. They feature pockets of various sizes that will accommodate the most commonly used tools to diagnose and repair problems on service calls.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354608	VETOTP3	HVAC 3 Pocket Tool Bag	\$132.60
354609	VETOTP4	HVAC 3 Pocket Tool Bag	\$161.42

OTLC Tool Bag

The OT-LC is compact with plenty of capacity to hold over 75 hand tools. Load it up with meters, tools, fixtures or whatever else you need. Top-in loading and unloading allows for a less disciplined grab and bolt approach without sacrificing durability or comfort.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354612	VETOOTLC	Open Top Tool Bag	\$472.72

TECH LC Tool Bag

The TECH-LC is a HVAC service technician bag designed to accommodate HVAC service technicians tools and work routines. The TECH-LC sports 53 pockets with ample pocket room for hand tools, a parts box(es), meter(s), a cordless impact drill and other bulkier items. 8 new small neoprene pockets have been added for drill bits and bit extensions.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354610	VETOTECHLC	HVAC Tech Large Tool Bag	\$432.38

XLT Laptop Tool Bag

The XLT is a rugged laptop/tool and tech bag designed to organize and store a laptop, business accessories and hand tools in the field. Its rugged construction will protect sensitive computing and testing equipment on the jobsite and will keep other business essentials and hand tools organized and within easy reach. This is the one bag that does it all.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354611	VETOXLT	Laptop and Tool Bag	\$686.04

Tech Pac Backpack

The Tech Pac is a backpack tool bag designed to help HVAC&R technicians carry hand tools, meters, gauges and other instruments safely up ladders and across long distances. It features 47 vertically tiered pockets inside and out and a patented centre panel design with ample room for hand tools, meters, parts boxes, cordless drills and impact drivers, and other bulkier items such as manifold gauges and hoses.

The backpack toolbag is designed to maintain a safe work environment while servicing equipment that is either located on rooftops or in buildings where walking long distances are required.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354613	VETOTECHPAC1	Backpack Tool Bag	\$611.09

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Tool Bags & Boxes

STANLEY

Stanley

FatMax Back Pack

The Stanley FatMax backpack is made from heavy-duty fabric for long lasting durability and has an extendable metal handle for easy transportation. It also comes with a removable internal divider with multiple pockets for a variety of tools, a laptop compartment and multiple loop and external pockets for additional storage.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
357461	1-79-215	Tool Back Pack On Wheels	\$101.98

FatMax Open Tote Bag

- Open bag for quick access to contents
- Rubber gripped steel handle
- Ideal for hand tools and other commonly used small items
- Multiple compartments



Cat. No.	Part No.	Description	List Price \$ Exc. GST
357462	1-93-957	Large Open Tote Tool Bag	\$77.50

Professional Deep ABS Organiser

- Lid locks everything in place
- Removable trays



Cat. No.	Part No.	Description	List Price \$ Exc. GST
357463	1-94-203	Deep ABS Professional Organiser	\$47.90



Cliplight

LED Worklight

Features

- 160 Lumens
- 28 high intensity LED'S on the face of The worklight
- 5 high intensity LED'S on the top - for a flash light
- 360 degree swivel hook that folds away when not in use
- Powerful magnetic base
- 3 AAA batteries included



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354650	24-458	33 LED Pivoting Worklight	\$50.94



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Tube Benders



Refco

Spring Type Tube Benders



Cat. No.	Part No.	Tube OD	List Price \$ Exc. GST
355060	BS-4	1/4"	\$12.71
355061	BS-5	5/16"	\$13.95
355062	BS-6	3/8"	\$15.52
355063	BS-8	1/2"	\$17.37
355064	BS-10	5/8"	\$20.11
355065	BS-12	3/4"	\$21.73
355066	BS-44 Set	1/4", 3/8", 1/2", 5/8"	\$62.30



Lever Type Tube Benders

Cat. No.	Part No.	Tube OD	List Price \$ Exc. GST
355116	RFA-364-FHB-04	1/4"	\$175.55
355117	RFA-364-FHB-06	3/8"	\$244.73
355118	RFA-364-FHB-08	1/2"	\$298.89
355119	RFA-364-FHB-10	5/8"	\$422.43
355120	RFA-364-FHB-12	3/4"	\$517.89

3-in-1 Lever Type Tube Benders



Cat. No.	Part No.	Tube OD	List Price \$ Exc. GST
355121	FRA368FH	1/4", 5/16", 3/8"	\$146.78



Cross Bow Type Tube Benders

Cat. No.	Part No.	Tube OD	List Price \$ Exc. GST
355124	Tell- 7	1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8"	\$667.15

Hole Cutters



Super Ego

Dry Diamond Core Drill Kit



Cat. No.	Part No.	List Price \$ Exc. GST
354305	89020S	\$1,320.28



Patlee Tools

Core Cutter Sets



Cat. No.	Part No.	Description	List Price \$ Exc. GST
354300	PWCCSET-AN	Tungsten Carbide Tipped	\$516.77
354301	PWCCSET-AG	Tungsten Carbide Grit	\$573.85
354302	PWCCSET-AD	Diamond	\$1,045.49

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Tube Cutters



Refco RS Series



Cat. No.	Part No.	Description	List Price \$ Exc. GST
356005	RS-16	1/8" to 5/8" Tube Cutter	\$38.04
356006	RS-25	1/8" to 1" Tube Cutter	\$45.58
356007	RS-35	1/8" to 1 3/8" Tube Cutter	\$86.58
356008	RS-42	1/8" to 1 5/8" Tube Cutter	\$114.10
356009	RS-67	1/4" to 2 5/8" Tube Cutter	\$327.60

Ratchet Series



Cat. No.	Part No.	Description	List Price \$ Exc. GST
356021	RTC-13	For 1/8" to 1 1/8" (3 to 13mm) Tubing	\$119.52
356020	RTC-29	For 5/16" to 1 1/8" (8 to 29mm) Tubing	\$183.67



Super Ego



Cat. No.	Part No.	Description	List Price \$ Exc. GST
356080	7162000	Mini tube cutter 1/4"-5/8"	\$80.43
356081	7222000	Mini tube cutter 1/4"-7/8"	\$96.75
356082	7221000	Minicut 2000 tube cutter 1/4"-7/8"	\$110.01
356083	7280000	Minimax tube cutter 1/4"-1 1/8"	\$157.16
356084	7350000	No.35 tube cutter 1/4"-1 3/8"	\$258.33
356085	7500000	Automatic pipe cutter 1/4"-2 5/8"	\$477.74

Hand Tools



Stanley

Pliers



Cat. No.	Part No.	Description	Price \$ Exc. GST
357300	84-011-S	3 Piece Plier Set 1000V VDE	\$104.69
357301	84-002-S	210mm Combination Pliers 1000V VDE	\$43.86
357302	84-007-S	210mm Long Nose Pliers 1000V VDE	\$43.86
357303	84-004-S	210mm Diagonal Cutting Pliers 1000V VDE	\$43.86
357304	84-294	255mm Multigrip Pliers 1000V VDE	\$43.86
357306	84-369	Locking Jaw Pliers	\$25.96

Snips



Cat. No.	Part No.	Description	Price \$ Exc. GST
357310	14-567	Left Hand Aviation Snips	\$23.46
357311	14-566	Straight Aviation Snips	\$23.46
357312	14-564	Right Hand Aviation Snips	\$23.46

Saws & Knives



Cat. No.	Part No.	Description	Price \$ Exc. GST
357320	20-531	Hacksaw Hi Tension	\$51.01
357321	17-206	Fatmax PVC Saw 300mm x 11 TPI	\$38.48
357323	15-836-S	Hacksaw Blade Hi Speed 305mm x 24 TPI	\$3.59
357324	FMHT20559	Fatmax Folding Jabsaw	\$24.17
357329	10-099	Fatmax Retractable Utility Knife	\$9.65
357332	11-700T	Fatmax Utility Blades 10 Pack	\$6.68

Tapes & Measuring



Cat. No.	Part No.	Description	Price \$ Exc. GST
357340	30-393	Tape Tylon 8m	\$13.05
357341	33-731	Tape 8m/26ft Blade Armour	\$29.24
357343	34-138	Fatmax Tape 30m	\$46.54
357344	35-464	Contractor Grade Folding Rule 1m	\$35.80

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Hand Tools

STANLEY

Stanley

Levels



Cat. No.	Part No.	Description	Price \$ Exc. GST
357361	43-625	600mm Fatmax Magnetic Box Beam Level	\$86.79
357362	43-636	900mm Fatmax Level	\$84.10
357364	43-603	3 Vial Fatmax Magnetic Torpedo Level	\$35.81
357365	77-500	Stud Sensor & Laser Line Level	\$82.23

Hammers & Chisels



Cat. No.	Part No.	Description	Price \$ Exc. GST
357371	XTHT51147	Framing Hammer 425g/15oz	\$59.75
357372	51-164	Claw Hammer Antivibe 567g/20oz	\$54.17
357373	57-528	Rubber Mallet 680g/24oz	\$10.85
357374	55-099	Fatmax Fubar Functional Utility Bar	\$55.84
357377	16-328	Fatmax Brick Chisel With Handle Guard	\$27.73
357378	2-16-269	Fatmax Thru-Tang Chisel Set 5 Piece	\$142.52

Screwdrivers



Cat. No.	Part No.	Description	Price \$ Exc. GST
357380	65-980	7 Piece Screwdriver Set 1000V VDE	\$54.17
357381	65-750A	20 Piece Screwdriver Set Acetate Handle	\$38.32
357385	65-973	1 x 80mm Phillips Screwdriver 1000V VDE	\$13.43
357386	65-974	2 x 100mm Phillips Screwdriver 1000V VDE	\$16.10
357387	65-975	3 x 150mm Phillips Screwdriver 1000V VDE	\$20.59
357388	65-966	3 x 100mm Slot Screwdriver 1000V VDE	\$8.05
357389	65-968	5.5 x 125mm Slot Screwdriver 1000V VDE	\$10.74
357390	65-969	6.5 x 150mm Slot Screwdriver 1000V VDE	\$14.32
357391	65-970	8 x 175mm Slot Screwdriver 1000V VDE	\$19.69
357392	65-971	10 x 200mm Slot Screwdriver 1000V VDE	\$22.37

Spanners & Wrenches



Cat. No.	Part No.	Description	Price \$ Exc. GST
357424	89-542	16 Piece Spanner Set Ring & Open End AF & Metric	\$82.83
357425	70-470	6 Piece Ratchet Flex Spanner Set AF & Metric	\$82.83
357436	87-432	200mm Adjustable Wrench	\$18.56
357437	87-433	250mm Adjustable Wrench	\$23.63
357438	87-434	300mm Adjustable Wrench	\$28.68
357441	87-624	350mm Pipe Wrench	\$32.18
357442	87-625	450mm Pipe Wrench	\$40.48

Socket Sets & Tool Kits



Cat. No.	Part No.	Description	Price \$ Exc. GST
357451	71-610	94 Piece Tool Kit AF & Metric	\$188.88
357453	89-518	37 Piece 1/4" & 3/8" Drive Socket Set AF & Metric	\$62.44

General Tools



Cat. No.	Part No.	Description	Price \$ Exc. GST
357307	990401-S	Terminal Crimp & Wire Stripping Pliers	\$13.79
357309	MR100CG	Heavy Duty Contractor Grade Riveter	\$49.22
357314	69-900	9 Piece Metric Hex Key Set	\$13.08
357351	47-314	Permanent Marker Chisel Tip Twin Pack	\$8.17



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Restraints & Tie Downs

STANLEY



Stanley

Cat. No.	Part No.	Description	Price \$ Exc. GST
357036	5881-987	4 Piece Ratchet Tie Down Set	\$34.66



Wilsecure

Restraint Systems

Wilsecure kits are a fully adjustable anodised aluminium track and bracket system that provides safe and secure restraint of cylinders, drums, ladders and more in workshops and vehicles.

Cylinder Restraints



Cat. No.	Part No.	Description	Kit Contents	Ideal for	List Price \$ Exc. GST
357040	J113	Single Cylinder Restraint Kit	200mm Track 2 x Curved Brackets 1 x 900mm Strap	Refrigerant cylinders Industrial gases such as Nitrogen, Oxygen & Acetylene	\$108.48
357044	J130	Twin Cylinder Restraint Kit	400mm Track 4 x Curved Brackets 2 x 600mm Straps	Industrial gases such as Nitrogen, Oxygen & Acetylene	\$181.79

Ladder Restraints



Cat. No.	Part No.	Description	Kit Contents	Ideal for	List Price \$ Exc. GST
357047	H125	Ladder Restraint Kit	400mm Track 2 x Square Brackets 1 x 900mm Strap	Ladders on utes racks etc	\$144.32

Rope Ratchet

Rope Ratchets are an excellent way to secure light and medium-weight objects. A wide variety of loads such as ladders, units and tool boxes can be tied-down quickly and easily.

With the Rope Ratchet you simply attach the two hooks and pull the loose end of the rope to get the secure tightness you need; hook ends, pull tight – it's that simple.



Cat. No.	Part No.	Description	Rope Diameter: mm	Rope Length: m	Max Load: kg	List Price \$ Exc. GST
357032	A1001	Ratchet Tie Down	3	1.8	34	\$35.24
357033	B1010		6	2.0	68	\$60.57
357034	C1020		8 to 10	2.0	113	\$98.49

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Restraints & Tie Downs



Wagner

Rubber Tie Down Strap

Cat. No.	Part No.	Length: mm	Recom. Max. Stretch : mm	List Price \$ Exc. GST
357061	RS-15	380	475	\$13.30
357062	RS-20	510	765	\$15.84
357063	RS-31	785	980	\$20.87



Lash-N-Strap

Cat. No.	Part No.	Length: mm	List Price \$ Exc. GST
357030	HS30	785	\$23.41
357031	HS60	1520	\$31.16



Wendar

Folding Hand Trolley

Features

- Convenient - folds for easy storage
- Lightweight - just 4.1kg
- Compact - 69 x 42 x 5cm folded
- Sturdy - steel construction with 70kg load capacity

Cat. No.	Part No.	Description	List Price \$ Exc. GST
354721	HT2022FK	Steel Folding Hand Trolley	\$83.16



Aztec

Bungee Cords

Features

- 8 piece assorted pack
- 4 lengths included:
 - 2 x 300mm
 - 2 x 450mm
 - 2 x 600mm
 - 2 x 750mm
- 17mm wide x 4mm thick



Cat. No.	Part No.	Description	Pack Size	List Price \$ Exc. GST
357020	AB170408	Flat Bungee Cords	8 Piece Assortment	\$31.15



Cargo Nets

Cat. No.	Part No.	Description	Size: m	List Price \$ Exc. GST
357022	AZCN1218	Cargo Net	1.2 x 1.8	\$43.26

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Equipment and Tools



Patlee Tools

High Speed Steel Drill Bits

Fully ground Ti-Nite drill bits are made from M2 High Speed Steel and they are suitable for drilling metal, plastic and wood.



13 Piece Set in a Metal Case

Cat. No.	Part No.	Description	List Price \$ Exc. GST
357100	PWHSSDS13MT	1 each of: 1mm to 6.5mm Drill Bits	\$94.56

Individual Bits in a PVC Pouch

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357105	PWHSS1T	1	\$1.92
357106	PWHSS15T	1.5	\$2.09
357107	PWHSS2T	2	\$2.29
357108	PWHSS25T	2.5	\$2.79
357109	PWHSS3T	3	\$4.37
357110	PWHSS35T	3.5	\$4.98
357111	PWHSS4T	4	\$5.74
357112	PWHSS45T	4.5	\$6.86
357113	PWHSS5T	5	\$7.81
357114	PWHSS55T	5.5	\$10.20
357115	PWHSS6T	6	\$11.32
357116	PWHSS65T	6.5	\$12.49
357117	PWHSS7T	7	\$14.50

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357118	PWHSS75T	7.5	\$16.75
357119	PWHSS8T	8	\$18.47
357120	PWHSS85T	8.5	\$23.04
357121	PWHSS9T	9	\$26.96
357122	PWHSS95T	9.5	\$29.44
357123	PWHSS10T	10	\$34.21
357124	PWHSS105T	10.5	\$37.11
357125	PWHSS11T	11	\$42.79
357126	PWHSS115T	11.5	\$47.05
357127	PWHSS12T	12	\$53.90
357128	PWHSS125T	12.5	\$57.96
357129	PWHSS13T	13	\$62.22

SDS Drill Bits

SDS-PLUS hammer drill bits are suitable for use with electric hammer drills for drilling harder building materials such as granite, marble, brick, etc.



10 Piece Set

Cat. No.	Part No.	Description	List Price \$ Exc. GST
357200	PWSDSSET	1 each of: 5 x 110, 5 x 160, 5.5 x 110, 5.5 x 160, 6 x 110, 6 x 160, 6.5 x 110, 6.5 x 160, 8 x 110 & 10 x 160mm SDS Drill Bits	\$162.82

Individual Bits in a PVC Pouch

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357205	PW5110	5 x 110	\$17.58
357206	PW55110	5.5 x 110	\$17.92
357207	PW6110	6 x 110	\$17.92
357208	PW65110	6.5 x 110	\$17.92
357209	PW5160	5 x 160	\$19.34
357210	PW55160	5.5 x 160	\$20.39
357211	PW6160	6 x 160	\$20.39
357212	PW65160	6.5 x 160	\$21.11
357213	PW8160	8 x 160	\$22.33
357214	PW10160	10 x 160	\$24.46
357215	PW13160	13 x 160	\$31.57



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Equipment and Tools



Patlee Tools

Masonry Drill Bits

High strength masonry drill bits are made from carbon steel and are chrome plated. Suitable for drilling masonry building materials.



8 Piece Set in a PVC Pouch

Cat. No.	Part No.	Description	List Price \$ Exc. GST
357140	PWMDS8SET	1 each of: 4, 5, 5.5, 6, 6.5, 8, 10 & 12mm Drill Bits	\$45.73

Individual Bits in a PVC Pouch

Standard



Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357145	PWMDS3	3 x 60	\$2.04
357146	PWMDS4	4 x 75	\$2.04
357147	PWMDS5	5 x 85	\$2.85
357148	PWMDS55	5.5 x 85	\$3.15
357149	PWMDS6	6 x 100	\$3.66

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357150	PWMDS65	6.5 x 100	\$4.63
357151	PWMDS7	7 x 100	\$4.63
357152	PWMDS8	8 x 120	\$6.19
357153	PWMDS9	9 x 120	\$7.04
357154	PWMDS10	10 x 120	\$8.06

Single Brick

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357160	PWMDSB5	5 x 150	\$4.63
357161	PWMDSB55	5.5 x 150	\$4.98
357162	PWMDSB6	6 x 150	\$5.27
357163	PWMDSB65	6.5 x 150	\$6.03
357164	PWMDSB7	7 x 150	\$6.45
357165	PWMDSB8	8 x 150	\$7.94
357166	PWMDSB10	10 x 150	\$9.59

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357167	PWMDSB11	11 x 150	\$11.36
357168	PWMDSB12	12 x 150	\$12.84
357169	PWMDSB13	13 x 150	\$14.81
357170	PWMDSB16	16 x 150	\$20.35
357171	PWMDSB20	20 x 160	\$31.31
357172	PWMDSB22	22 x 160	\$39.12
357173	PWMDSB25	25 x 160	\$52.88

Double Brick

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357180	PWMDDDB65	6.5 x 400	\$9.95
357181	PWMDDDB8	8 x 400	\$12.69
357182	PWMDDDB10	10 x 400	\$17.25
357183	PWMDDDB13	13 x 400	\$20.90

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357184	PWMDDDB16	16 x 400	\$31.57
357185	PWMDDDB20	20 x 400	\$49.59
357186	PWMDDDB22	22 x 400	\$59.23
357187	PWMDDDB25	25 x 400	\$86.94

Compatible
with R32

G5 Twin

MEGA FLOW
VACUUM CERTIFIED SPEED KIT

TEZ B
TWO-STAGE VACUUM PUMP

APPION

APPLIED INNOVATION

www.appiontools.com

MADE IN USA

Equipment and Tools



Patlee Tools

Spade Bits

Spade Bits are made from manganese steel and can be used for drilling holes in wood from 6mm to 40mm.



6 Piece Set in a PVC Pouch

Cat. No.	Part No.	Description	List Price \$ Exc. GST
357220	PWSBSET	1 each of: 10, 13, 16, 19, 22 & 25mm Spade Bits	\$73.68

Individual Bits in a PVC Pouch

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST	Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357225	PWSB6	6 x 155	\$8.53	357233	PWSB22	22 x 160	\$14.41
357226	PWSB8	8 x 155	\$8.53	357234	PWSB25	25 x 160	\$18.38
357227	PWSB10	10 x 155	\$8.53	357235	PWSB28	28 x 160	\$19.03
357228	PWSB13	13 x 155	\$10.35	357236	PWSB30	30 x 160	\$19.80
357229	PWSB14	14 x 155	\$10.56	357237	PWSB32	32 x 170	\$20.46
357230	PWSB16	16 x 160	\$10.56	357238	PWSB35	35 x 170	\$21.16
357231	PWSB19	19 x 160	\$12.28	357239	PWSB38	38 x 170	\$22.17
357232	PWSB20	20 x 160	\$13.60	357240	PWSB40	40 x 170	\$24.36



Spade Bit Extensions

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357246	PWSBEXT150	150	\$21.52
357247	PWSBEXT300	300	\$29.09

Bi Metal Hole Saws

Bi-Metal Hole saws are made from high speed steel, which is suitable for cutting through metal, plastic and wood.

9 Piece Set in a plastic case

Cat. No.	Part No.	Description	List Price \$ Exc. GST
357260	PWHSSET09	1 each of: 16, 22, 25, 29 & 32mm Hole Saws Includes Arbor & Pilot Drills	\$225.75



Individual Hole Saws

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST	Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357265	PWHS16	16	\$18.64	357275	PWHS44	44	\$41.61
357266	PWHS19	19	\$19.94	357276	PWHS51	51	\$52.84
357267	PWHS20	20	\$22.89	357277	PWHS65	65	\$65.57
357268	PWHS22	22	\$25.73	357278	PWHS73	73	\$76.98
357269	PWHS25	25	\$29.29	357279	PWHS83	83	\$85.98
357270	PWHS29	29	\$31.01	357280	PWHS92	92	\$96.69
357271	PWHS32	32	\$37.76	357281	PWHS102	102	\$96.34
357272	PWHS35	35	\$39.59	357282	PWHS111	111	\$106.93
357273	PWHS40	40	\$43.31	357283	PWHS152	152	\$149.93
357274	PWHS41	41	\$39.95				



Arbors

Cat. No.	Part No.	Size: mm	List Price \$ Exc. GST
357286	PWHSA1	14 to 32	\$29.94
357287	PWHSA2	32 to 152	\$74.04

Pilot Drills

Cat. No.	Part No.	Size	List Price \$ Exc. GST
357288	PWHSPLDS	Short	\$15.17
357289	PWHSPLDL	Long	\$19.84



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Vacuum Pumps



Appion Vacuum Pumps

Cat. No.	Model No.	Capacity Litre/min	End Vacuum Microns	Weight: Kg	Description	List Price \$ Exc. GST
362135	TEZ8	227	20	12.7	Two Stage Vacuum Pump	\$3,941.91



Robinair Vacuum Pumps

Cat. No.	Part No.	Capacity Litre/min	End Vacuum Microns	Motor HP	Weight: Kg	Intake Ports	Oil Capacity	List Price \$ Exc. GST
362040	15151S2	35	25	1/4	8.2	1/4" & 3/8"	210ml	\$701.27
362041	15501S2	118		1/2	10.5		300ml	\$1,023.67
362043	15801S2	212		1	16.3		590ml	\$1,616.64



Super Ego Vacuum Pumps

Cat. No.	Part No.	Capacity Litre/min	End Vacuum Microns	Motor HP	Weight: Kg	Intake Ports	Oil Capacity	List Price \$ Exc. GST
362092	1500050001	42	25	1/4	9	1/4"	250ml	\$1,074.69
362093	1500050002	85		1/3	10.7		330ml	\$1,380.22
362094	1500050003	170		1/2	11.5		330ml	\$1,622.57
362095	1500050004	255		1	17		590ml	\$2,054.52



JB Industries Vacuum Pumps

Cat. No.	Model No.	Capacity Litre/min	Vacuum Rating: Microns	Motor: HP	Weight: kg	Oil Capacity	List Price \$ Exc. GST
362110	DV42N250AU	36	15	1/2	13.2	798ml	\$1,203.72
362111	DV85N250AU	70			13.6	798ml	\$1,337.46
362091	DV142N250AU	120			14.5	680ml	\$1,437.78
362112	DV200N250AU	170			14.5	680ml	\$1,538.08
362113	DV285N250AU	242			15.4	709ml	\$2,139.95

Oil Pump Caddy

Cat. No.	Part No.	Description	List Price \$ Exc. GST
362117	DVT1	The Tank Vacuum Pump Oil Caddy	\$86.93

Vacuum Pump Spare Parts

Cat. No.	Part No.	Brand	Description	Suits	List Price \$ Exc. GST
362036	VS4016	Javac	Exhaust Demister Oil Filter Kit	Javac Shark	\$91.37
362037	VC2005		Drain Plug		\$14.04
362039	VC2036		Power Socket Panel Mount		\$34.18
362038	PS-4106		Power Cord	Javac	\$49.95
362074	S20-502	Robinair	Round Oil Sight Glass	Javac SE Series	\$177.40
362090	S20-501		Vertical Sight Glass	Javac JD/DD/DS Series	\$92.16
362044	523195		Oil Fill Plug Plastic	Robinair 15151, 15301, 15501, 15801	\$30.35
362047	541482		Oil Fill Plug Brass		\$30.84
362046	523192		Handle	Robinair 15151, 15301, 15501	\$59.06
362048	535491			Robinair 15801	\$48.43



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RAPTOR



Raptor



MicroRaptor



RaptorEX



Tools and Equipment



Hydrocarbon Recovery



Hydrocarbon Vacuum
Pumps



Vacuum Pumps



Leak Detectors



Scales

www.robinair.com

ROBINAIR®

Vacuum Gauges



Refco

Ref-Vac Vacuum Gauge

The Ref-Vac is a measuring instrument for the continuous reading of measured values during the evacuation process out in the field as well as in the laboratory. The unit also has a practical hook for hanging.

Cat. No.	Part No.	Model No.	Description	Effective Range	List Price \$ Exc. GST
361011	4686712	REF-VAC	Electronic Vacuum Gauge	0 to 18000 Microns	\$757.29

Electronic Vacuum Gauge

The DV-150 battery operated electronic vacuum gauge measures from atmospheric pressure to a vacuum of 50 microns.

Cat. No.	Part No.	Range	Battery Included	List Price \$ Exc. GST
361010	DV-150	atm. to 50 microns	9 Volt	\$783.88

Dial Vacuum Gauge

A recalibratable gauge with a scale of 1000-0 mbar and 1/8" NPT connection.

Cat. No.	Part No.	Model No.	Description	List Price \$ Exc. GST
330070	9882473	19800 SV	80mm Recalibratable Vacuum Gauge	\$255.02

JB Industries

Digital Vacuum Gauge

Cat. No.	Part No.	Conn. Size	Description	Effective Range	List Price \$ Exc. GST
361022	DV-24N	1/4"MF	Digital Vacuum Gauge with Case	25 to 12000 microns	\$1,066.52
361023	DV-41AU			10 to 12000 microns	\$1,322.47

Vacuum Connection Kits



Appion

MegaFlow Connection Kits

The Appion MegaFlow line of products offers the tools and equipment necessary to satisfy your need for speed. These vacuum-certified refrigerant hoses, manifolds, and other HVAC/R hand tools are designed to help technicians do a better job faster. By removing restrictive valve cores and using large diameter vacuum rated hoses evacuation times can be up to 10 times faster compared to 1/4" connections.

Cat. No.	Part No.	Description	Kit Contents	List Price \$ Exc. GST
349481	MGABAS	MegaFlow Basics Evacuation Kit	1 x 1/2" MegaFlow Hose	\$570.44
			1 x 1/4" valve removal tool	
349482	MGAKIT	MegaFlow Speed Kit	Gauge Manifold	\$2,239.88
			2 x 1/2" MegaFlow Hoses	
			2 x 3/8" MegaFlow Hoses	
			2 x Vacuum Rated Valve Core Removal Tools	
			1 x 1/2" Connection Hose	
			1 x 3/8" Connection Hose	
349483	MGAKIT-V	MegaFlow Vacuum Speed Kit	9 Port Tree Vacuum Manifold	\$1,899.46
			2 x 1/2" MegaFlow Hoses	
			2 x 3/8" MegaFlow Hoses	
			2 x Vacuum Rated Valve Core Removal Tools	
			1 x 1/2" Connection Hose	
			1 x 3/8" Connection Hose	
349484	MGAKIT-R	MegaFlow Recovery Speed Kit	1 x Carrying Case	\$2,580.27
			Gauge Manifold	
			4 x 3/8" MegaFlow Hoses (RBY)	
			2 x 1/4" Valve Core Removal Tools	
			2 x 5/16" Valve Core Removal Tools	
			1 x Carrying Case	

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Refrigerant Recovery Units



Appion

Appion recovery units are designed to be lighter, faster and more reliable. The industry leading G5 Twin is the fastest recovery unit in its class, and the G1 Single is the lightest and easiest to use.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
362131	G5TWIN	Twin Cylinder Refrigerant Recovery Unit	\$3,722.05
362132	G1SINGLE	Single Cylinder Refrigerant Recovery Unit	\$2,280.71



Inficon



Cat. No.	Part No.	Description	List Price \$ Exc. GST
362080	714-202-G31	Vortex AC Refrigerant Recovery Unit	\$3,353.46



Super Ego



Cat. No.	Part No.	Description	List Price \$ Exc. GST
362097	1500050051	Superec Plus Refrigerant Recovery Unit	\$4,808.86



Robinair



Cat. No.	Part No.	Description	List Price \$ Exc. GST
362077	RG3000-A	Refrigerant Recovery Unit	\$2,124.94
362078	RG5410EX		\$3,746.04
362079	RG600A		\$3,483.19

Recovery Unit Spare Parts

Cat. No.	Part No.	Brand	Description	Suits	List Price \$ Exc. GST
362089	QS22014	Javac	Manifold Knob Set	Javac XTRACT-R, XTR	\$18.45

Time-Saving Service Tools



D-TEK® Select REFRIGERANT LEAK DETECTOR

- 3 g/year sensitivity
- Rechargeable NiMH batteries for 6.5 hours of run-time
- Infrared sensor provides 1000 hour lifetime with no loss of sensitivity over time
- Two-year replacement warranty

712-202-G31



Vortex® Dual REFRIGERANT RECOVERY MACHINE

- 1 HP dual piston compressor provides industry leading recovery rates of all common refrigerants.
- Micro-channel condenser provides exceptional heat exchange keeping head pressures low.
- Industry leading three-year replacement warranty.

714-202-G1



TEK-Mate® REFRIGERANT LEAK DETECTOR

- 7 g/year sensitivity
- Runs on two "D" batteries for 16 hours of run-time
- INFICON patented heated diode sensor technology
- Two-year replacement warranty

705-202-G1

Safety

Eyewear



Cat. No.	Part No.	Description	List Price \$ Exc. GST
371002	02/ARW02	Clear Safety Sunglasses	\$13.33
371003	02/ARW02SMO	Smoke Safety Sunglasses	\$13.33
371004	02/ARW02SIL	Silver Safety Sunglasses	\$13.33

Wide Vision Goggles

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371010	02/UN45	Wide Vision Goggle	\$19.66

Head Protection

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371020	01/UN22	Safety Helmet ABS	\$37.43

Hearing Protection

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371030	04/EP011	Ear plugs with cords - single pair	\$1.28



Ear Muffs

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371040	04/X02	Ear Muff Yellow 23dB Class 4	\$39.70



Respiratory Protection

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371050	05/BD842	Disposable Respirator Masks Box 20	\$49.63



Hi-Visibility

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371060	06/B1261	Day Safety Vest	\$12.56
371062	06/B1691	Day Night Safety Vest	\$37.87



Gloves

Cat. No.	Part No.	Description	List Price \$ Exc. GST
371070	09/AR029	Amourwear Foam Nitrile Palm Gloves Size 9	\$11.09
371080	09/H115	Candy Stripe Leather Palm Gloves	\$5.25

Accessories

Sunscreen



Cat. No.	Part No.	Description	List Price \$ Exc. GST
371090	10/JA21	Sunscreen SPF 30+ 125ml	\$30.58

First Aid Kits



Cat. No.	Part No.	Description	List Price \$ Exc. GST
371095	18/B05	Small Travel First Aid Kit	\$66.88



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Pumps

Mini Condensate Pumps



Sauermann SI30 & SI33

The Sauermann SI30 & SI33 pumps are specifically designed to be installed on:

- Wall mounted units
- Ceiling suspended units
- Fan coil unit
- Ducted units

These pumps are a two piece kit with the pump and float detection sensor interconnected via the click fit sensor cable and suitable drain hose, depending on the installation requirements.

Features

- 90°C Thermal protection
- 34dBA at 1m - SI33
- 20dBA at 1m - SI30



Cat. No.	Model No.	Description	Nominal Flow Rate	Max Suction Lift	Max Discharge Head	List Price \$ Exc. GST
550057	SI-30	Condensate Pump	20l/hr	3m	10m	\$441.89
550065	SI-33		30l/hr	4m	13m	\$475.55

Delta Pack

The Sauermann Delta Pack is a convenient complete ready to install 'quick fit kit' for wall mounted units. The pump is mounted on a anti-vibration bracket inside the trunking elbow, inline with the drain reservoir. Suitable for either side of the unit. The kit comes with pump & integrated detection, anti-vibrating reversible mounting bracket, electrical quick mount power cable, 15mm connecting rubber drain hose, trunking and rubber joint.



Features

- 90°C Thermal protection

Cat. No.	Model No.	Description	Nominal Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550055	DELTA PACK	Condensate Pump Kit	20l/hr	6m	\$542.26

SI1082

The Sauermann SI1082 is a monobloc pump with integrated float detection. The pump is mounted onto the included anti-vibration reversible fastening bracket which can be located inside most brands of trunking and is designed to be installed on:

- Wall split systems
- Ceiling suspended units
- Fan coil units
- Floor mounted units
- Ducted units

Pump also comes with quick fit electrical power cable, 15mm & 35mm rubber inlet connecting drain hose and a 4mm vent tube.



Features

- 90°C Thermal protection

Cat. No.	Model No.	Description	Nominal Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550045	SI-1082	Condensate Pump	8l/hr	6m	\$440.30

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Pumps

Mini Condensate Pumps



Aspen Mini & Maxi Orange

The Aspen Mini Orange & Maxi Orange pumps are designed to be installed:

- Above the false ceiling where possible
- Behind wall mounted evaporators
- In plastic conduit

Connecting the drain hose to the reservoir and placing the pump drive unit within the evaporator, condensate water can be pumped away to a suitable drain. Within the Orange kit there are two reservoirs to choose from, which must sit flat and horizontal. One allows you to connect directly to the drain hose of the evaporator and the second reservoir can be placed directly into a condensate tray.



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550153	FP2212	Mini Orange Condensate Pump	14l/hr	10m	\$435.18
550155	FP2210	Maxi Orange Condensate Pump	37l/hr	20m	\$500.73

Mini & Maxi Lime

The Aspen Mini Lime & Maxi Lime pumps are completely unique, in both their design and installation advantages. The pumps are clipped directly onto the reservoir so there is minimal suction lift. By connecting the drain hose to the reservoir of the pump unit, condensate water can be pumped away to a suitable drain. The pumps fit securely into a specifically designed elbow that holds them horizontally to ensure reliable operation. The pump and elbow are reversible therefore they can be installed easily on either side of an evaporator unit.



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550154	FP3312	Mini Lime Condensate Pump	14l/hr	10m	\$609.96
550156	FP2213	Maxi Lime Condensate Pump	37l/hr	20m	\$719.24

Mini Blanc

Designed to be fitted below the indoor unit, the Mini Blanc offers an extremely easy to install mini pump for all wall and ceiling suspended indoor units. Suitable for both commercial and domestic installations, the quick fit pump is simply screwed to the wall. It is easy to access therefore low maintenance. The Mini Blanc is ultra quiet in operation as well as discreet, with a slim profile of 55mm from the wall.



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550151	FP1080	Mini Blanc Condensate Pump	12l/hr	10m	\$435.18

Mini Aqua

The Mini Aqua has been designed to give the installation flexibility, where the latest generation of A/C units are becoming even smaller.

The Mini Aqua is designed to be installed:

- Within wall mounted evaporators
- In plastic conduit

By connecting the drain hose to the reservoir and placing the pump drive unit within the evaporator or conduit, condensate water can be pumped to a height of 8 metres. Using the proven functionality of Aspen's other mini pumps, the Mini Aqua is also incredibly slim in size. Measuring only 28mm in height and 28mm in depth, it is one of the smallest condensate pumps in the world.



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550152	FP2406	Mini Aqua Condensate Pump	14l/hr	8m	\$435.18



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Pumps

Mini Condensate Pumps

BlueDiamond

Blue Diamond

The Blue Diamond is a heavy duty rotary diaphragm condensate pump. The rubber construction of the rotary diaphragm copes with sludge, slime, grit and even running dry. The pump is whisper quiet and yet has high flow rates. The pump comes complete with a reservoir sensor. This pump is ideal for larger and/or problematic installations.

Features

- Self priming
- Ultra reliable
- Reduced service costs
- Slimline
- Blue Diamond has the performance to overcome installation difficulties - just plug and play, fit and forget.
- Kit with in & out tubing & connections, anti vibration feet & mountings, integral volt free alarm module & 3 core power cord (2m)
- Connect the drip tray to the pump reservoir. The hi-low solid state level sensors automatically switch the pump on/off to remove the condensate.
- The alarm shuts off the A/C in fault mode and restarts the A/C when the condensate has cleared.



Cat. No.	Part No.	Description	Max Flow Rate	Max Head	Max Suction Lift	List Price \$ Exc. GST
550080	MegaBlue	Condensate Pump	50l/hr	20m	7m	\$874.21
550081	MaxiBlue		14l/hr	8m	8m	\$700.15
550082	MiniBlue		8l/hr	8m	5m	\$548.82

Little Giant

Little Giant

EC-400 Condensate Pump

Removes condensate from wall or ceiling mounted air conditioners. The EC-400 consists of three components: control unit, detection reservoir and pump. All three components can be placed inside the air handler, or any of the three can be placed outside the air handler. The pump and control unit can be placed up to one metre above the air handler. A three position float detection system assures reliable On, Off and Safety Alarm functions. The EC-400 is suitable for use with split air conditioners up to 10 kW.



Cat. No.	Part No.	Description	Max Flow	Max Head	Max Suction Lift	List Price \$ Exc. GST
550031	EC-400	Condensate Pump	18l/h	14m	1m	\$811.87



Pumps



Mini Condensate Pumps

Refco

Gobi

The Gobi is a condensate discharge module designed to be fitted below modern wall mounted air conditioners.

Features

- Electronic Energy Control System (EECS) with alarm circuit
- Quick, simple trouble free installation
- Thermal protection
- Built-in non-return valves
- CE and UL marked
- Soft start with EECS
- Aesthetic design blends in naturally into its surroundings
- Amazingly quiet
- Fits all high-wall-mount air conditioners

Specifications

- Power supply: 120/240 V, 50/60 Hz auto sensing
- Alarm relay: 5A, 30 VDC, 250 VAC break on fault
- Maximum discharge head: 20m vertical, 100m horizontal
- Ambient temperature: 0C - 40C
- Discharge tube: 6 mm ID
- Power consumption: 16W maximum, 0.25A when idle
- Capacity: 12l/h maximum
- Maximum suction head: 1m
- Material: Flame retardant ABS - UL94 5 VA
- Dimensions: 286 x 61 x 53 mm



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550100	4678538	Gobi Condensate Pump	12l/hr	15m	\$653.98

Karoo

The Karoo drain pan pump is a submersible condensate removal pump designed to automatically remove condensate water from refrigerated cases, dehumidifiers, fan coils and air conditioning systems.

Features

- Electronic Energy Control System (EECS) with alarm circuit
- CE and UL marked
- Amazingly quiet
- Filter and non-return valves built in
- All electrical components safely encapsulated against moisture ingress
- Soft start with "EECS"
- Submersible
- Powerful and compact
- No mechanical floats to stick

Specifications

- CE & UL markedCapacity: 12l/h maximum
- Maximum suction head: 1m
- Ambient temp: 0C - 40C
- Material: Flame retardant ABS - UL94 5 VA
- Discharge tube: 6mm ID
- Dimensions: 160 x 43 x 34 mm
- CE & UL markedPower supply: 120/240 V, 50/60 Hz Auto sensing
- Maximum discharge head: 20m vertical, 100m horizontal
- CE & UL markedPower consumption: 16W maximum, 0.25W when idle
- CE & UL markedAlarm relay: 5A, 30VDC, 250VAC break on fault



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550102	4678512	Karoo Condensate Pump	12l/hr	6m	\$354.53

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Pumps

Peristaltic Pumps



Sauermann

PE5200

The Sauermann PE5200 pump is suitable for units up to 8kW. Specifically designed for the following:

- Wall mounted air conditioners
- Ceiling mounted units
- Ducted air conditioning units

This model is a compact in size and operates via a float detector. It features a high 12m discharge head height and is very quiet in operation. It is IP65 rated. It offers a high level NC alarm contact. Replacement tubes and heads make maintenance/ replacement easy (no need to re-wire the base unit – simple fit and clip in the new motor) Supplied with an easy fix wall bracket.



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Suction Lift	Max Discharge Head	List Price \$ Exc. GST
550052	PE-5200	Peristaltic Condensate Pump	6l/hr	2m	12m	\$835.81

PE5100

The Sauermann PE5100 pump is suitable for units up to 8kW. Specifically designed for the following:

- Wall mounted air conditioners
- Ceiling mounted units
- Ducted air conditioning units

This model is a compact in size and operates via two sensors which measures 6C delta T temperature differential. It features a high 12m discharge head height and is very quiet in operation. It is IP65 rated. Replacement tubes and heads make maintenance / replacement easy (no need to re-wire the base unit – simple fit and clip in the new motor) Supplied with an easy fix wall bracket.



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Suction Lift	Max Discharge Head	List Price \$ Exc. GST
550048	PE-5100	Peristaltic Condensate Pump	6l/hr	2m	12m	\$856.17

PE5000

The Sauermann PE5000 pump is suitable for units up to 8kW. Specifically designed for the following:

- Wall mounted air conditioners
- Ceiling mounted units
- Ducted air conditioning units

This model is a compact in size and operates via a cooling signal. It features a high 12m discharge head height and is very quiet in operation. It is IP65 rated. Replacement tubes and heads make maintenance / replacement easy (no need to re-wire the base unit – simple fit and clip in the new motor) Supplied with an easy fix wall bracket.



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Suction Lift	Max Discharge Head	List Price \$ Exc. GST
550042	PE-5000	Peristaltic Condensate Pump	6l/hr	2m	12m	\$863.74

PE6250

The Sauermann PE6250 pump is suitable for the following;

- Refrigerated display and cold store cabinets
- Ceiling mounted units
- Evaporators
- Ducted air conditioning units

This model offers a high flow rate of 25 l/h and operates float control switch and is IP65 rated. It features a high 10m discharge head height and maximum 2m suction lift. Replacement tubes make maintenance easy. Supplied with an easy fix wall bracket.



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Suction Lift	Max Discharge Head	List Price \$ Exc. GST
550053	PE-6250	Peristaltic Condensate Pump	25l/hr	2m	10m	\$1,367.72



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Pumps

Peristaltic Pumps



Aspen Universal Peristaltic

The Universal peristaltic pump operates with two temperature sensors. These allow the pump to detect and be triggered by a change in air temperature, making this pump suitable for many applications.

The Universal is designed to fit in ceiling voids and lift the condensate water from wall mounted machines where a gravity drain is too obtrusive. It can also be used on cassettes fitted with an internal lift pump. The pump can be mounted remotely as it is self-priming to a height of 3 metres and will pump 6.25 litres of water per hour against a maximum head of 12 metres. The pump runs constantly while the air conditioning system is cooling – when the cooling switches off a 3 minute timer ensures that the condensate tray is emptied before the pump switches off.

The Universal pump is a peristaltic rotary type - which means that it is quiet in operation, very reliable and will run dry without fear of damage or embarrassing noise. Unlike other pumps using either mechanical or electrical conductivity sensors, the Universal does not suffer from corrosion or contamination problems.

Features

- Senses 5C differential across the evaporating coil
- 12 metres discharge head
- No loud sound from dry running
- Pumps water, fibrously contaminated water and air
- Only requires live/neutral supply and 2 sensors either side of the evaporating coil – one 'air on' and one 'air off'
- Operates only on cooling
- 3 minute timer overrun
- Manual test switch
- Push-in plug
- Self-priming lifts 3 metres
- No siphoning back
- Fire retardant plastics
- Wall-mounted bracket

Specifications

- Dimensions: 115mm(H) x 135mm(W) x 77mm(D)
- Pump rating: 0.2A, 230V AC
- Inlet /outlet size: 6mm
- Connecting cable: 3 metres



Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head	List Price \$ Exc. GST
550161	FP2082	Universal Peristaltic Condensate Pump	6.25l/hr	12m	\$819.34

Little Giant®

Little Giant VC Series

For removal of condensate from air conditioners, condensing boilers, refrigerated display cabinets, and dehumidifiers.

Features

- Fully automatic; start, stop, safety switch
- Check valve outlet: 9.5 mm, for 9.5 mm ID tubing
- 1/30 HP motor
- Operating point: 4 m: 70 l/h
- IP 20
- ABS tank, motor cover, and volute
- Thermally protected motor
- CE, TUV and BAU approved
- Stainless steel shaft

VCMA-20S

Features

- 2.0L tank capacity
- Removable 9.5 mm barbed check valve
- 3 inlet drain holes

Cat. No.	Part No.	Description	Capacity: l/m					Amps	List Price \$ Exc. GST
			0.5m Water Head	1m Water Head	1.5m Water Head	3m Water Head	4.3m Water Head		
550032	VCMA-20S	Condensate Pump	4.8	4.7	4.5	3.3	0	0.6	\$570.46



VCC-20S

Features

- Low profile for limited space applications
- Removable 9.5 mm barbed check valve
- 1.0L tank capacity

Cat. No.	Part No.	Description	Capacity: l/m					Amps	List Price \$ Exc. GST
			0.5m Water Head	1m Water Head	1.5m Water Head	3m Water Head	4.3m Water Head		
550033	VCC-20-S	Condensate Pump	4.8	4.7	4.5	3.3	0	0.6	\$660.06



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Pumps

Tank Pumps



Sauer mann

SI60

The Sauer mann SI60 is a monbloc pump with built in tank. It is an ergonomic and compact tank pump which offers condensate inlet on the top or on the front side. The patented detection system is not sensitive to clogging, whatever the environment. It has a plug in power cord and easily accessible tank and is designed to be installed on floor mounted units, ceiling suspended units, ducted units and fan coil units.



Features

- 90°C Thermal protection
- 38dBA at 1m

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550062	SI-60	Condensate Pump	20l/hr	10m	0.5l	\$866.93

SI82

The Sauer mann SI82 pump is specifically designed to be installed on:

- Refrigerated display cabinets
- Cold store cabinets
- Dehumidifiers
- Ducted units
- Multi cassette unit
- Column air conditioning units
- Gas condensing boilers

This model is a single piece 2 litre tank unit, and is built to last. It has high performance and tolerates charged, high temperature and mildly acidic condensates from refrigeration and air conditioning systems. Can be floor mounted attached to a wall or hung from a ceiling. Easily removable tank and reversible pump, for left or right entry with a quick fit electrical cable.



Features: 105°C Thermal protection

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550056	SI-82	Condensate Pump	500l/hr	5m	2l	\$460.70

SI1805

The Sauer mann SI1805 pump has a compact tray and is specifically designed to be installed on:

- Refrigerated display cabinets
- Cold store cabinets
- Dehumidifiers
- Ducted units
- Multi cassette unit
- Column air conditioning units
- Gas condensing boilers

This model is a single piece 0.5 litre tank unit, and is built to last. It has high performance and tolerates charged, high temperature and mildly acidic condensates from refrigeration and air conditioning systems. Can be floor mounted attached to a wall or hung from a ceiling. Easily removable tank and reversible pump, for left or right entry.



Features: 130°C Thermal protection

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550038	SI-1805	Condensate Pump	500l/hr	5m	0.5l	\$472.94

SI1830

The Sauer mann SI1830 pump is an IPX4 rated pump, which has been specifically designed for high resistance acid and temperature applications but can be installed on:

- Oil condensing boilers
- Gas condensing boilers
- Gas furnaces
- Refrigerated display cabinets
- Cold store cabinets
- Evaporators
- Multi cassette unit
- Column air conditioning units

This model is a single piece 0.5 litre tank unit, which can be installed internally or externally to the system. It is a semi submersible design and has a waterproof rating of IPX4. It also has a low sound level and is compact in size.



Features: 120°C Thermal protection

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550064	SI-1830	Condensate Pump	400l/hr	3.7m	0.5l	\$521.85



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Pumps

Tank Pumps



Sauermann

SI1822

The Sauermann SI1822 pump has a large volume tank of 3.8 litre it has been specifically designed for large volume and higher than standard discharge height (up to 5.8m). This model can be used on the following applications:

- Refrigerated display cabinets
- Cold store cabinets
- Multi cassette units
- Gas furnaces
- Evaporators
- Column air conditioning units
- Ducted units
- Gas condensing boilers

This model has high performance of up to 380 l/h and can evacuate heavy, charged, high temperature and acidic (pH >3.4) condensates from refrigeration or air conditioning systems.



Features: 105°C Thermal protection

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550066	SI-1822	Condensate Pump	380l/hr	5.8m	3.8l	\$492.39

SI1850

The Sauermann SI1850 pump has a large volume tank of 3.8 litres and it has been specifically designed for large volume and higher than standard discharge heights (up to 10m). This model can be used on the following applications;

- Refrigerated display cabinets
- Cold store cabinets
- Multi cassette units
- Gas furnaces
- Evaporators
- Column air conditioning units
- Ducted units
- Gas condensing boilers

This model has the highest performance of flow and discharge height (100 l/h and 10m respectively) and is designed to evacuate heavy, charged, high temperature and acidic (pH >3.4) condensates from refrigeration or air conditioning systems.



Features: 135°C Thermal protection

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550063	SI-1850	Condensate Pump	1100l/hr	10m	3.8l	\$1,700.20

SI1931

The Sauermann SI1931 pump is specifically designed to be installed on refrigerated display cabinets and cold store cabinets.

This model is a single piece unit with a 4.5 litre tank and is a very powerful membrane pump suited for applications of up to 4 refrigerated display cabinets. Built to last in stainless steel, this model has a ventilated motor, can run dry and has a built in safety switch. Slides easily underneath the refrigerated display cabinet with a minimum tank profile of 65.5mm. It also has an easy clip tank lid for ease of maintenance.



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size	List Price \$ Exc. GST
550058	SI-1931	Condensate Pump	650l/hr	20m	4.5l	\$2,015.82

OEM Replacement

SI2052

The Sauermann SI2052 pump is maintenance kit, specifically designed for replacing failed OEM centrifugal lifter pumps:

- 2 way and 4 way blow cassette units
- Ceiling mounted units
- Ducted air conditioning units

This model is a compact unit with a universal mounting bracket, float and standard length electrical cable. It is capable of pumping a maximum of 70 l/h and has a maximum discharge lift of 0.95m



Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Max Immersion	List Price \$ Exc. GST
550059	SI-2052	Universal OEM Replacement Condensate Pump	70l/hr	0.95m	20mm	\$315.63



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Pumps

Pump Accessories



Sauermann

Inline Filter

The Sauermann ACC17010 inline filter is designed for applications or conditions on site that requires advanced protection against heavy particulates or pollutants that can cause damage to the system and/or reduce the longevity of the pump.

Applications such as:

- Industrial area with heavy dust particulate (workshops)
- Food preparation areas and bakeries etc (flour)
- Print rooms (print dust)

This inline filter is easy to install and comes with two male 6mm spigots.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550051	ACC17010	Inline Filter	\$53.03

Peristaltic Tube

The Sauermann PE5002 replacement tube is designed for replacing worn tubes and is easy to replace. Suitable for the PE5000, PE5100, PE5200 pump Model. Comes with 2 cable ties for a firm and secure fit. NB: Must be lubricated a silicone based lubricant (to prevent failure or early wear)



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550049	PE-5002	Replacement Tube for Peristaltic Pumps	\$146.78

Peristaltic Head

The Sauermann PE5001 replacement head is designed for replacing pumps with burnt out motors, without the hassle of rewiring the complete unit again. Simply screw off the head and unclip the electrical cable. Clip in the new one and re-screw front face. Suitable for the PE5000, PE5100, PE5200 pump Model.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550116	PE-5001	Replacement Head for Peristaltic Pumps	\$538.67





COMPLETE RANGE

WORLD LEADER

HIGH QUALITY

Pumps

Pump Accessories



Sauermann

Float Detection Switch

The Sauermann ACC00601 float detection switch can be used as an additional safety alarm or to switch on or off the pump / device. The control switch has a mechanical float switch which can be used in a NO or NC position.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550118	ACC00601	Float Detection Switch	\$134.67

Sensor Extension Cable

The Sauermann ACC00705 sensor extension is used when the length between the pump and sensor needs to be increased. The extension cable comes with a female connector.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550121	ACC00705	Sensor Extension Cable	\$113.62

Check Valve

The Sauermann ACC00801 replacement 10mm check valve is a quick fit solution. Comes with o-ring.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550119	ACC00801	10mm Check Valve	\$46.30

Detection Sensor

The Sauermann SI2958 is a universal float detection sensor designed to suit most piston pumps. It comprises 3 switching levels:

- On = 16mm
- Off = 1mm
- High level alarm = 19mm



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550115	SI-2958	Universal Float Detection Sensor	\$370.33

Adaptor Reducer

The Sauermann PE5003 is a reducer adapter suited for tubing installations when a reduction is required from 15mm. Steps down in various sizes to a minimum 6mm. Comes with rubber connector.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550117	PE5003	15mm to 6mm Adaptor Reducer	\$39.99

Anti Siphoning Device

The Sauermann ACC00216 anti siphoning device is designed and used for in installations when the discharge point is lower than the detector level which can cause siphoning through the pump. For 6mm hoses.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550123	ACC00216	Anti Siphoning Device	\$37.88

Inlet Adaptor

The Sauermann ACC02040 one size fits all adaptor can be used to connect two different diameter pipes together. Specifically designed for centrifugal tank pumps.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550124	ACC02040	Multi Size Inlet Adaptor	\$46.30

Rubber Inlet Adaptors

The Sauermann ACC00110 special kit can be used to connect two different diameter pipes together via rubber inlet adaptors, specially designed for centrifugal tank pumps. This kit comes with 6mm spigots.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550125	ACC00110	Rubber Inlet Adaptor Kit	\$63.13

Non Return Valves

The Sauermann ACC00805 pack of non return valves comprises 5 pieces of non return valves suitable for 6mm tubing.



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550122	ACC00805	6mm Non Return Valves Pack of 5	\$140.06

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Pumps

Evaporative Cooler Pumps



CMG Fasco

JRM Pumps incorporate features based on a worldwide study and are manufactured in Australia using double coated winding wire produced and tested in the JRM plant, thus assuring a top quality product.

Features

- 240 V, 50 Hz encapsulated, shaded pole motor
- Double insulated motor does not require earthing
- Precision double shielded ball bearings
- Auto reset overload
- Stainless steel shaft
- Optional filter basket
- ABS plastic body mouldings
- Acetal impeller



Pumps

Cat. No.	Part No.	Description	Watts	Flow at 600mm Head	Flow at 1600mm Head	List Price \$ Exc. GST
550023	Model 38	Evaporative Cooler Pump	50	29.5l/m	23l/m	\$182.33
550024	Model 50		60	38l/m	30.5l/m	\$195.64

Accessories

Cat. No.	Part No.	Description	List Price \$ Exc. GST
550022	BAS/STR	Evaporative Cooler Filter Basket	\$18.42



EBM Papst

EBM-Papst have taken their proven ebm 40 JB pump design and improved it significantly. The powerful split-capacitor motor with high starting torque supports easy starts even after long off-periods. It is protected and self-cooling for longer lifetime. The improved design gives increased performance while using 20% less energy than the comparable evap pumps in the market. It replaces most other pumps on the market and its single point mounting enables quick exchange.

Features

- Reliable external rotor motor
- Performance improved by 20%
- 2 year warranty
- Low draft - requires minimum of only 57mm water depth
- Efficient – up to 20% less energy use
- Easy replacement of most evap pumps on the market
- Exclusive proven design for harsh Australian conditions



Cat. No.	Part No.	Description	Watts	Flow at 1m Head	Flow at 2m Head	List Price \$ Exc. GST
550017	Alpha Pump	Evaporative Cooler Pump	50	32l/m	25l/m	\$168.88



Pumps



Sump Dump

With the Sump Dump drainage system, evaporative coolers can now be operated with a hydraulically operated valve ensuring reliable closing and draining in one movement.

As an active part of the cooler, incorporating only one solenoid for both water isolation and drainage, the Sump Dump™ System ensures that:

- The unit is completely dry and clean when not in use
- The pads remain clean and odour free
- No residual water means no corrosion
- The absence of stagnant water means no algal build-up

Kits

Kit Contents

- Complete retrofit dump valve unit
- 300mm SWC PVC drain adapter with O-ring
- 240V to 24V encapsulated transformer with 2 metre lead
- 24V solenoid
- 6mm water supply tube from solenoid to valve



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550090	6001331	Dump Valve Kit	\$530.81

Replacement Parts



Cat. No.	Part No.	Description	List Price \$ Exc. GST
550092	6001336	Dump Valve Body	\$179.54
550091	6001341	24V Solenoid with 6mm Straight Tube Connector	\$130.75
550089	6001334	240V to 24V Transformer with 2m Leads	\$126.84



Little Giant Submersible Pumps

Small submersible epoxy encapsulated pumps for commercial, industrial and home use. Applications include statuary fountains, water displays, air conditioners, machine tool coolants, and many other applications where liquid must be transferred or recirculated.

Features

- Continuous operation
- Can be installed on any of five sides
- Motor overload protection on PE-2
- Filled with special oil that provides lifetime lubrication & rapid dissipation of heat through housing
- Sump type pick-up
- Removable inlet screen
- Epoxy encapsulated motor
- Operates fully submerged



Cat. No.	Part No.	Description	Flow at 300mm Head	Flow at 0mm Head	Max Water Head	Discharge Connection	List Price \$ Exc. GST
550035	PE-1H	Submersible Pump	9l/m	10l/m	1400mm	1/4" MNPT	\$477.88
550036	PE-2		15l/m	18l/m	2500mm	1/4" MNPT	\$575.93

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Noise & Vibration Control Products



Refco

Anti-Vibration Pads

Refco's AVP Pads are the latest generation in vibration dampening technology. AVP pads outperform cork or solid rubber pads by a margin greater than 3:1. This enhanced performance is due to the special composite foam centre. The rubber plates on top and on the bottom have opposing ribs to prevent the pad from moving under the vibrating machinery. The AVP pad is also much more durable than for example cork as the AVP is not affected by oils, chemicals or humidity.



Cat. No.	Part No.	Model No.	Description	Size: mm	List Price \$ Exc. GST
594063	4507241	AVP-4	Anti-Vibration Pad	101 x 101 x 22	\$25.38



Mason

Waffle Pad



Cat. No.	Part No.	Size : mm	Load Ratings:			List Price \$ Exc. GST
			Durometer	Load per 50 x 50 mm Sq.	Rated Deflection : mm	
591213	18 x 18 SW	457 x 457 x 19	50	82 kg	2.5	\$350.85
591212	R18 x 18 MSW	457 x 457 x 9.5	40	1.3	-	\$150.01



Metalflex

Tear Away Mounting Pads



Cat. No.	Part No.	Nominal Dimensions : mm	List Price \$ Exc. GST
594052	ADG3310K	300 x 300 x 10	\$47.37
594053	ADG3315K	300 x 300 x 15	\$59.63



Propipe

Waffle Pad



Cat. No.	Nominal Dimensions : mm	List Price \$ Exc. GST
594051	450 x 450 x 8	\$52.31
594050	50 x 50 x 10	\$2.83



Fasteners

Self Drilling Screws

Button Head



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615400	8 x 12mm-HP50	50	\$14.40
615402	8 x 16mm-HP50		\$14.40
615404	8 x 20mm-HP50		\$15.55
615406	8 x 25mm-HP50		\$15.55
615408	8 x 30mm-HP50		\$17.26

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615412	8 x 12mm-T500	500	\$58.20
615414	8 x 16mm-T500		\$74.92
615416	8 x 20mm-T500		\$75.52
615418	8 x 25mm-T500		\$70.95
615420	8 x 30mm-T500		\$83.30

Hex Head



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615426	10 x 16mm-HP50	50	\$10.48
615428	12 x 20mm-HP50		\$23.06
615430	12 x 45mm-HP50		\$31.71

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615436	10 x 16mm-T500	500	\$77.13
615438	12 x 20mm-T500		\$117.19
615440	12 x 45mm-T500		\$178.90

Pan Head



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615444	8 x 12mm-HP50	50	\$8.66
615446	8 x 16mm-HP50		\$9.00
615448	8 x 20mm-HP50		\$9.00
615450	8 x 25mm-HP50		\$10.25

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615456	8 x 12mm-T500	500	\$49.37
615458	8 x 16mm-T500		\$55.49
615460	8 x 20mm-T500		\$55.49
615462	8 x 25mm-T500		\$67.86

Wafer Head



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615470	10 x 16mm-HP50	50	\$11.52
615472	10 x 22mm-HP50		\$14.40
615474	10 x 30mm-HP50		\$20.19

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615478	10 x 16mm-T500	500	\$63.39
615480	10 x 22mm-T500		\$77.84
615482	10 x 30mm-T500		\$87.60

Sleeve Anchors



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615490	8 X 40mm-HP10	10	\$11.25
615492	10 X 50mm-HP10		\$15.67
615494	10 X 97mm-HP10		\$29.02



Fasteners

Nylon Anchors



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615500	5 x 25mm-HP50	50	\$17.33
615502	5 x 40mm-HP50		\$19.76
615504	6.5 x 25mm-HP50		\$19.76
615506	6.5 x 40mm-HP50		\$34.59

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615510	5 x 25mm-T500	500	\$158.55
615512	5 x 40mm-T500		\$201.75
615514	6.5 x 25mm-T250	250	\$115.30
615516	6.5 x 40mm-T250		\$126.84

Wall Anchors

Nylon

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615520	NWM-HP50	50	\$31.71

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615522	NWM-T500	500	\$259.40

Metal



Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615521	MWM-HP50	50	\$54.79

Cat. No.	Part No.	Pack Size	List Price \$ Exc. GST
615523	MWM-T500	500	\$403.54

Driver Bits



Cat. No.	Part No.	Description	Length	Pack Size	List Price \$ Exc. GST
615540	DB-PH-NO2-25MMHP10	Phillips No 2	25mm	10	\$29.79
615541	DB-PH-NO2-25MMHP10	Phillips No 2	50mm		\$43.19
615542	DB-HH-5/16-HP10	Hex Head 5/16"			\$144.54
615543	DB-HH-5/16-HP2	Hex Head 5/16"		2	\$34.59

Aluminium Rivets



Cat. No.	Part No.	Diameter	Length mm	Grip Range mm	Pack Size	List Price \$ Exc. GST
615552	AR4-2-HP50	1/8"	6.3	3.2	50	\$9.93
615554	AR4-3-HP50		7.9	4.8		\$10.48
615556	AR4-4-HP50		9.5	6.4		\$11.15
615560	AR4-6-HP50		12.7	9.5		\$10.48
615566	AR5-2-HP50	5/32"	6.3	3.2		\$9.83
615568	AR5-3-HP50		7.9	4.8		\$10.98
615570	AR5-4-HP50		10.4	6.4		\$11.75
615572	AR5-6-HP50		13.5	9.5		\$12.36

Cat. No.	Part No.	Diameter	Length mm	Grip Range mm	Pack Size	List Price \$ Exc. GST
615582	AR4-2-T500	1/8"	6.3	3.2	500	\$37.01
615584	AR4-3-T500		7.9	4.8		\$37.01
615586	AR4-4-T500		9.5	6.4		\$40.11
615590	AR4-6-T500		12.7	9.5		\$49.37
615596	AR5-2-T500	5/32"	6.3	3.2		\$63.45
615598	AR5-3-T500		7.9	4.8		\$67.86
615600	AR5-4-T500		10.4	6.4		\$55.49
615602	AR5-6-T500		13.5	9.5		\$67.86



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Flexitrak

Your Complete Refrigerant Management Solution



FlexiTrak, Actrol's complete refrigerant management solution, incorporates numerous helpful features well suited to assist with ARC compliance such as:

- Detailed Cylinder Tracking and Usage
- Detailed Refrigerant Purchasing Records

Keep Your Eye on the Gas



Reports are available as summaries on cylinder usage or detailed usage. All refrigerant purchases are recorded including information such as:

- Tradesperson
- Date of Transaction
- Invoice Number
- Job Number / Name
- Refrigerant Type and Volume
- Detail of Refrigerant Purchased
- Availability

Refrigerant trading authorisation AU24898

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Air Filtration

Filtratech

Disposable Filters



Cat. No.	Model No.	Size : mm			Capacity : L/s			Pressure Loss : Pa			Performance Rating	List Price \$ Exc. GST				
		Height	Width	Depth	Low	Medium	High	Low	Medium	High						
627140	14x20x1	356	495	22	274	458	581	50	87		G4	\$18.73				
627142	15x20x1	368			293	490	601					\$18.73				
627150	16x20x1	394			313	523	643					\$18.73				
627151	20x20x1	495			392	655	808					\$21.06				
627152	12x24x1	293	595		282	472	575					\$18.52				
627153	20x24x1	495			471	787	971					\$22.96				
627154	24x24x1	595			565	945	1168					\$25.90				
627141	14x25x1	356	622		343	574	730					\$20.83				
627143	16x25x1	394			392	655	808					\$21.06				
627155	20x25x1	495			490	819	1016					\$23.77				
627148	10x20x2	248	495	48	156	254	323	32	65	90		\$22.72				
627149	12x12x2	293	293		137	223	283					\$31.58				
627146	12x20x2	293	495		236	394	492					\$22.51				
627156	14x20x2	356			274	458	572					\$26.09				
627137	15x20x2	368										\$27.33				
627157	16x20x2	394			313	523	654					\$27.33				
627145	18x20x2	445			353	589	736					\$29.88				
627158	20x20x2	495			392	655	818					\$31.58				
627159	12x24x2	293	595		282	472	589					\$25.05				
627138	14x24x2	356			338	550	700					\$37.04				
627144	16x24x2	394			375	610	773					\$30.53				
627160	18x24x2	445			423	708	883					\$32.42				
627161	20x24x2	495			471	787	982					\$34.72				
627162	24x24x2	595			565	945	1179					\$38.95				
627139	14x25x2	356	622		354	575	730					\$29.68				
627163	16x25x2	394			392	655	818					\$31.58				
627164	20x25x2	495			490	819	1022					\$36.62				
627147	20x30x2	495			588	983	1229					\$59.55				
627165	16x20x4	394	495		98	313	523					654	30	50	75	\$52.40
627166	18x20x4	445				353	589					736				\$69.63
627167	20x20x4	495				392	655					818				\$59.77
627168	12x24x4	293	595	282		472	589	\$47.76								
627169	18x24x4	445		423		708	883	\$59.97								
627170	20x24x4	495		471		787	982	\$65.04								
627171	24x24x4	595		565		945	1179	\$69.63								
627172	16x25x4	394	622	392		655	818	\$59.31								
627173	20x25x4	495		490		819	1022	\$67.74								



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Air Filtration



Space Filters

Deep Bed Bag Filters

Available in various sizes, styles and efficiencies deep bed bag filters are suitable for a wide variety of applications.

SpacePeak

The SpacePeak bag filter is made to fit a supporting inner basket and outer mounting frame.



Cat. No.	Part No.	Description	Dimensions: mm	Rating	List Price \$ Exc. GST
628061	SPACEPEAK664	Four Pyramid Bag Filter	610 x 610 x 380	F5	\$40.36
628062	SPACEPEAK634	Two Pyramid Bag Filter	610 x 305 x 380	F5	\$33.45

SpacePak

The SpacePak bag filter comes with a self-supporting wire header. Using this filter with the wire header eliminates the need for the inner wire basket.



Cat. No.	Part No.	Description	Dimensions: mm	Rating	List Price \$ Exc. GST
628063	SPACEPAK663W	Three Pocket Bag Filter with Wire	610 x 610 x 570	F5	\$74.95
628064	SPACEPAK632W	Two Pocket Bag Filter with Wire	610 x 305 x 570	F5	\$57.65

SpaceCube

The SpaceCube deep bed filters are ideal general-purpose filters for applications where high efficiency and long duty cycles are required. These filters offer superior performance to typical roll type and metal viscous filters. The key to the excellent performance of these filters is their shape. The SpaceCube is a pyramid within a cube in construction.



Cat. No.	Part No.	Description	Dimensions: mm	Rating	List Price \$ Exc. GST
628065	SPACECUBE66	Cube Style Bag Filter	610 x 610 x 600	F5	\$80.70
628066	SPACECUBE63	Cube Style Bag Filter	610 x 305 x 600	F5	\$51.90

SpaceCone

The SpaceCone deep bed filters are ideal general-purpose filters for applications where high efficiency and long duty cycles are required. These filters offer superior performance to typical roll type and metal viscous filters. The key to the excellent performance of these filters is their shape. The SpaceCone is a cone within a truncated cone.



Cat. No.	Part No.	Description	Dimensions: mm	Rating	List Price \$ Exc. GST
628067	SPACECONE66	Cone Style Bag Filter	610 x 610 x 660	F5	\$72.06
628068	SPACECONE63	Cone Style Bag Filter	610 x 305 x 660	F5	\$51.90

Multi-Pocket High Efficiency Bag Filters

PrecisionPak extended surface bag filters are designed for use in most commercial or industrial HVAC systems where medium to high efficiency filtration is required and are manufactured from micro-fine synthetic media.



Cat. No.	Part No.	Description	Dimensions: mm	No. of Pockets	Rating	List Price \$ Exc. GST
628070	PAP665S4422	Multi-Pocket Bag Filter	610 x 610 x 559	6	F6	\$144.12
628071	PAP365S2422	Multi-Pocket Bag Filter	610 x 305 x 559	3	F6	\$92.24
628072	PAP685S4422	Multi-Pocket Bag Filter	610 x 610 x 559	6	F7	\$155.66
628073	PAP385S2422	Multi-Pocket Bag Filter	610 x 305 x 559	3	F7	\$100.89
628074	PAP895S4422	Multi-Pocket Bag Filter	610 x 610 x 559	8	F8	\$201.78
628075	PAP495S2422	Multi-Pocket Bag Filter	610 x 305 x 559	4	F8	\$126.84



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Conversion Data

Summary of Common Conversion Factors

Multiply Left Hand Unit by Factor to obtain Right Hand Unit. Divide Right Hand Unit by Factor to obtain Left Hand Unit.

Measurement	Units	Factor
Length	inches ↔ mm	25.4
	feet ↔ metres	0.3048
Area	inch ² ↔ mm ²	645.16
	ft ² ↔ m ²	0.0929
Volume	inch ³ ↔ mm ³	16387
	ft ³ ↔ m ³	0.0283
Volume (Liquid)	gall (Imp) ↔ gall US	1.20095
	gall (Imp) ↔ l	4.5456
	gall (US) ↔ l	3.785
Volume (Flow Rate) Liquid	gall/min (Imp) ↔ l/sec	0.07575
	gall/min (Imp) ↔ l/min	4.5456
	gall/min (Imp) ↔ l/hour	272.736
	gall/min (US) ↔ l/sec	0.06308
	gall/min (US) ↔ l/min	3.785
	gall/min (US) ↔ l/hour	227.1
Volume (Flow Rate) Air	cfm ↔ l/sec	0.472
	cfm ↔ l/min	28.32
	cfm ↔ m ³ /min	42.372
	cfm ↔ m ³ /hour	1.6992
	m ³ /hour ↔ l/sec	0.2778
Power	HP ↔ Watts	746
	HP ↔ kW	0.746

Measurement	Units	Factor
Heat Flow	BTU/hr ↔ Watts	0.29307
	Tons (Refrig) ↔ BTU/hr	12000
	Tons (Refrig) ↔ kW	3.517
	kcal/hr ↔ Watts	1.163
	kcal/hr ↔ Tons (Refrig)	0.000331
Pressure	psi ↔ kPa	6.895
	psi ↔ mPa	0.006895
	psi ↔ bar	0.06895
	psi ↔ Atmos.	0.06895
	In. Wg ↔ Pa	248.6
	In. Wg ↔ kPa	0.249
	Atmos. ↔ kPa	101.325
	in. Hg ↔ Pa	3386
	in. Hg ↔ kPa	3.386
	In. Hg ↔ bar	0.034
	kg/cm ² ↔ psi	14.22
	kg/cm ² ↔ kPa	98.07
Velocity	ft/sec ↔ km/hr	1.609
	ft/sec ↔ m/sec	0.3048
	ft/min ↔ m/sec	0.00508
Weight (Mass)	lbs ↔ kg	0.4536

Conversion Factors

Multiply	By	To Obtain
Atmospheres	29.92	Inches of Mercury
Atmospheres	33.9	Feet of Water
Atmospheres	1.0333	kg/cm ²
Atmospheres	14.696	lbs/in ² (psi)
Atmospheres	762.48	mmHg (torr)
Atmospheres	101.325	kPa
Bars	100	kPa
Bars	14.5	psi
British Thermal Units	0.252	Kilogram-calories
British Thermal Units	777.5	Foot-lbs
British Thermal Units	3.927 x 10 ⁻⁴	Horsepower-hrs
British Thermal Units	107.5	Kilogram-metre
British Thermal Units	2.928 x 10 ⁻⁴	Kilowatt-hrs
B.T.U./min	12.96	Foot-lbs/sec
B.T.U./min	0.02356	Horsepower
B.T.U./min	0.01757	Kilowatts
B.T.U./min	17.57	Watts
B.T.U./hr	0.293	Watts
Centimetres	0.3937	Inches
Centimetres	0.01	Metres
Centimetres	10	Millimetres
Centimetres of Mercury	0.4461	Feet of Water
Centimetres of Mercury	136	kgs/sq. metre
Centimetres of Mercury	0.1934	lbs/sq. inch

Conversion Factors

Multiply	By	To Obtain
Centimetres/second	1.969	Feet/min.
Centimetres/second	0.03281	Feet/sec.
Centimetres/second	0.6	Metres/min.
Cubic Centimetres	3.531 x 10 ⁻⁵	Cubic Feet
Cubic Centimetres	0.06102	Cubic Inches
Cubic Centimetres	10 ⁻⁶	Cubic Metres
Cubic Centimetres	0.001	Litres
Cubic Centimetres	0.001759	Pints (liq.)
Cubic Centimetres	0.002113	Imperial Pints (liq.)
Cubic Feet	1728	US Cubic Inches
Cubic Feet	0.02832	Cubic Metres
Cubic Feet	0.03704	Cubic Yards
Cubic Feet	6.22889	Gallons Imperial
Cubic Feet	7.48052	Gallons US
Cubic Feet	28.32	Litres
Cubic Feet	49.827	Pints (liq.) Imperial
Cubic Feet	59.84	Pints (liq.) US
Cubic Feet/minute	472	Cubic cms/sec.
Cubic Feet/minute	0.1038	Gallons/sec. Imperial
Cubic Feet/minute	0.1247	Gallons/sec. US
Cubic Feet/minute	0.472	Litres/sec.
Cubic Feet/minute	62.43	lbs. of water/min.
Cubic Feet/second	0.5382	Mill. Galls/day Imperial
Cubic Feet/second	0.646317	Mill. Galls/day US
Cubic Feet/second	373.733	Galls/min. Imperial
Cubic Feet/second	448.831	Galls/min. US



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Conversion Data

Conversion Factors

Multiply	By	To Obtain
Cubic Inches	16.39	Cubic Centimetres
Cubic Inches	5.787 x 10 ⁻⁴	Cubic Feet
Cubic Inches	1.639 x 10 ⁻⁵	Cubic Metres
Cubic Inches	2.143 x 10 ⁻⁵	Cubic Yards
Cubic Inches	0.004	Gallons Imperial
Cubic Inches	0.004	Gallons US
Cubic Inches	0.016	Litres
Cubic Metres	106	Cubic Centimetres
Cubic Metres	35.31	Cubic Feet
Cubic Metres	61026	Cubic Inches
Cubic Metres	1.308	Cubic Yards
Cubic Metres	220	Gallons Imperial
Cubic Metres	264.2	Gallons US
Cubic Metres	1000	Litres
Cubic Yards	27	Cubic Feet
Cubic Yards	46,656	Cubic Inches
Cubic Yards	0.765	Cubic Metres
Cubic Yards	764.6	Litres
Cubic Yards	1345.6	Pints (liq.) Imperial
Cubic Yards	1616	Pints (liq.) US
Cubic Yards/min.	0.45	Cubic
Cubic Yards/min.	2.804	Galls/sec.
Decilitres	0.1	Litres
Decimetres	0.1	Metres
Degrees (angle)	60	Minutes
Degrees (angle)	0.017	Radians
Degrees (angle)	3600	Seconds
Degrees/sec.	0.017	Radians/sec.
Degrees/sec.	0.167	Revolutions/min.
Degrees/sec.	0.003	Revolutions/sec.
Dekalitres	10	Litres
Dekametres	10	Metres
Feet	30.48	Centimetres
Feet	12	Inches
Feet	0.305	Metres
Feet	0.333	Yards
Feet of Water	0.030	Atmospheres
Feet of Water	0.883	Inches of Mercury
Feet of Water	0.030	kgs/sq. cm
Feet of Water	62.43	lbs/sq. ft
Feet of Water	0.434	lbs/sq. inch
Feet/minute	0.508	Centimetres/sec.
Feet/minute	0.017	Feet/sec.
Feet/minute	0.005	Metres/sec.
Feet/sec.	0.305	Metres/sec.
Feet/sec./sec.	30.48	cms/sec./sec.
Feet/sec./sec.	0.305	Metres/sec./sec.
Foot-pounds	1.286 x 10 ⁻³	British Thermal Units
Foot-pounds	5.050 x 10 ⁻⁷	Horsepower-hrs
Foot-pounds	3.241 x 10 ⁻⁴	Kilogram-calories
Foot-pounds	0.138	Kilogram-metres
Foot-pounds	3.766 x 10 ⁻⁷	Kilowatt-hrs
Foot-pounds/sec.	7.717 x 10 ⁻²	B.T. Units/min.
Foot-pounds/sec.	1.818 x 10 ⁻³	Horsepower
Foot-pounds/sec.	1.945 x 10 ⁻²	kg-calories/min.
Foot-pounds/sec.	1.356 x 10 ⁻³	Kilowatts
Gallons Imperial	0.161	Cubic Feet
Gallons Imperial	277.4	Cubic Inches
Gallons Imperial	4.546	Litres
Gallons Imperial	8	Pints Imperial
Gallons Imperial	4	Quarts Imperial

Conversion Factors

Multiply	By	To Obtain
Gallons Imperial	1.201	Gallons U.S.
Gallons U.S.	0.134	Cubic Feet
Gallons U.S.	231	Cubic Inches
Gallons U.S.	3.785	Litres
Gallons U.S.	8	Pints U.S.
Gallons U.S.	4	Quarts U.S.
Gallons U.S.	0.833	Gallons Imperial
Gallons Water Imperial	10.02	Pounds of Water
Gallons Water U.S.	8.345	Pounds of Water
Gallons/min. Imperial	0.027	Cubic Feet/sec.
Gallons/min. Imperial	0.076	Litres/sec.
Gallons/min. Imperial	10.713	Cubic feet/hr
Gallons/min. U.S.	0.022	Cubic Feet/sec.
Gallons/min. U.S.	0.063	Litres/sec.
Gallons/min. U.S.	8.921	Cubic Feet/hr.
Grams	0.001	Kilograms
Grams	1000	Milligrams
Grams	0.035	Ounces
Grams/litre	58.417	Grains/gal. U.S.
Grams/litre	8.345	Pounds/100 gals. U.S.
Grams/litre	0.062	Pounds/cubic foot
Grams/litre	1000	Parts/million
Hectolitres	100	Litres
Hectometres	100	Metres
Hectowatts	100	Watts
Horsepower	42.44	B.T. Units/min.
Horsepower	33,000	Foot-lbs/min
Horsepower	550	Foot-lbs/sec.
Horsepower	1.014	Horsepower (metric)
Horsepower	10.7	kg-calories/min.
Horsepower	0.746	Kilowatts
Horsepower-hours	2547	British Thermal Units
Horsepower-hours	1.98 x 106	Foot-lbs
Horsepower-hours	641.7	Kilogram-calories
Horsepower-hours	2.737 x 105	Kilogram-metres
Horsepower-hours	0.746	Kilowatt-hours
Inches	2.54	Centimetres
Inches of Mercury	0.033	Atmospheres
Inches of Mercury	1.133	Feet of Water
Inches of Mercury	0.035	kgs/sq. cm
Inches of Mercury	3.39	kPa
Inches of Mercury	0.491	lbs/sq. inch
Inches of Water	0.002	Atmospheres
Inches of Water	0.074	Inches of Mercury
Inches of Water	0.003	kgs/sq. cm
Inches of Water	0.249	kPa
Inches of Water	5.202	lbs/sq. foot
Inches of Water	0.036	lbs/sq inch
Kilograms	2.205	Pounds
Kilograms	1000	Grams
Kilograms/metre	0.672	lbs/foot
Kilograms/sq. cm	0.968	Atmospheres
Kilograms/sq. cm	32.81	Feet of Water
Kilograms/sq. cm	28.96	Inches of Mercury
Kilograms/sq. cm	2048	lbs/sq. foot
Kilograms/sq. cm	14.22	lbs/sq. inch
Kilolitres	1000	Litres
Kilometres	3281	Feet
Kilometres	1000	Metres
Kilometres	0.621	Miles
Kilometres	1094	Yards



Conversion Data

Conversion Factors

Multiply	By	To Obtain
Kilometres/hour	54.68	Feet/minute
Kilometres/hour	0.540	Knots
Kilometres/hour	16.67	Metres/minute
Kilometres/hour	0.621	Miles/hour
Kilometres/hour/sec.	27.78	cm/sec./sec.
Kilometres/hour/sec.	0.911	ft./sec./sec.
Kilometres/hour/sec.	0.278	Metres/sec./sec.
Kilowatts	56.92	BTU/minute
Kilowatts	4.425×10^4	Foot-lbs/minute
Kilowatts	737.6	Foot-lbs/second
Kilowatts	1.341	Horsepower
Kilowatts	14.34	kg-calories/minute
Kilowatts	1000	Watts
Kilowatt-hours	3415	British Thermal Units
Kilowatt-hours	2.655×10^6	Foot-lbs
Kilowatt-hours	1.341	Horsepower-hours
Kilowatt-hours	860.5	Kilogram-calories
Kilowatt-hours	3.671×10^6	Kilogram-metres
Litres	1000	Cubic Centimetres
Litres	0.035	Cubic Feet
Litres	61.02	Cubic Inches
Litres	0.001	Cubic Metres
Litres	0.220	Gallons Imperial
Litres	0.264	Gallons US
Litres	1.760	Pints (liq.) Imperial
Litres	2.113	Pints (liq.) US
Litre/minute	5.886	Cubic ft/sec.
Litre/minute	0.004	Gallons/sec. Imperial
Litre/minute	0.004	Gallons/sec. US
Metres	100	Centimetres
Metres	3.281	Feet
Metres	39.37	Inches
Metres	0.001	Kilometres
Metres	1000	Millimetres
Metres	1.094	Yards
Metres/minute	1.667	Centimetres/second
Metres/minute	3.281	Feet/minute
Metres/minute	0.055	Feet/second
Metres/minute	0.06	Kilometres/hour
Metres/minute	0.037	Miles/hour
Metres/second	196.8	Feet/minute
Metres/second	3.281	Feet/second
Metres/second	3.6	Kilometres/hour
Metres/second	0.06	Kilometres/minute
Metres/second	2.237	Miles/hour
Microns	10^{-6}	Metres
Miles	1.609	Kilometres
Miles	1760	Yards
Miles/hour	88	Feet/minute
Miles/hour	1.609	Kilometres/hour
Miles/hour	0.868	Knots
Miles/hour	26.82	Metres/minute
Miles/minute	60	Miles/hour
Millilitres	0.001	Litres
Millimetres	0.1	Centimetres
Millimetres	0.039	Inches
Minutes (angle)	2.909×10^{-4}	Radians

Conversion Factors

Multiply	By	To Obtain
Ounces	0.063	Pounds
Ounces (fluid)	1.805	Cubic Inches
Ounces (fluid)	0.030	Litres
Pounds	16	Ounces
Pounds	0.454	Kilograms
Pounds	0.001	Tons (short)
Pounds of Water	0.016	Cubic Feet
Pounds of Water	27.68	Cubic Inches
Pounds of Water	0.100	Gallons Imperial
Pounds of Water	0.120	Gallons U.S.
Pounds of Water/min.	2.670×10^{-4}	Cubic ft/sec.
Pounds/cubic foot	16.02	kg/cubic metre
Pounds/cubic foot	5.787×10^{-4}	lbs/cubic inch
Pounds/cubic inch	27.68	grams/cubic cm
Pounds/cubic inch	2.768×10^4	kgs/cubic metre
Pounds/cubic inch	1728	lbs/cubic foot
Pounds/foot	1.488	kg/metre
Pounds/foot	178.6	Grams/cm
Pounds/sq. foot	0.016	Feet of Water
Pounds/sq. foot	4.883×10^{-4}	kgs/sq. cm
Pounds/sq. foot	6.945×10^{-3}	Pounds/sq. inch
Pounds/sq. inch	0.068	Atmospheres
Pounds/sq. inch	2.307	Feet of Water
Pounds/sq. inch	2.036	Inches of Mercury
Pounds/sq. inch	0.070	kg/sq. cm
Pounds/sq. inch	6.895	Kilopascals
Temperature (°C)	°C + 273.15	Abs. Temp. (°C)
Temperature (°C)	°C x 9 / 5 + 32	Temperature (°F)
Temperature (°F)	°F - 32 x 5 / 9	Abs. Temp. (°F)
Temperature (°F)	+ 459.67	Temp. (°C)
Tons (long)	1016	Kilograms
Tons (long)	2240	Pounds
Tons (long)	1.12	Tons (short)
Tonnes	1000	Kilograms
Tonnes	2205	Pounds
Tons Refrig.	3.517	kW
Tons (short)	2000	Pounds
Tons (short)	907.185	Kilograms
Tons (short)	0.893	Tons (long)
Tons (short)	0.907	Tonnes
Watts	3.412	B.T.U./hour
Watts	0.057	B.T.U./minute
Watts	44.26	Foot-pounds/minute
Watts	0.738	Foot-pounds/second
Watts	1.34×10^{-3}	Horsepower
Watts	0.014	kg-calories/minute
Watts	1000	Kilowatts
Watt-hours	3.415	British Thermal Units
Watt-hours	2655	Foot-pounds
Watt-hours	1.341×10^{-3}	Horsepower-hours
Watt-hours	0.861	Kilogram-calories
Watt-hours	367.1	Kilogram-metres
Watt-hours	1000	Kilowatt-hours



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Conversion Data

Length

	Millimetres	Centimetres	Inches	Feet	Yards	Metres	Kilometres	Miles
Millimetres	1	0.1	0.03937	0.003281	0.0010936	0.001	0.000001	0.0000006214
Centimetres	10	1	0.3937	0.032808	0.010936	0.01	0.00001	0.000006214
Inches	25.4	2.54	1	0.08333	0.02777	0.0254	0.0000254	0.00001578
Feet	304.8	30.48	12	1	0.3333	0.3048	0.0003048	0.0001893
Yards	914.4	91.44	36	3	1	0.9144	0.0009144	0.0005682
Metres	1000	100	39.37	3.2808	1.0936	1	0.001	0.0006214
Kilometres	1,000,000	100,000	39,370	3280.8	1093.6	1000	1	0.6214
Miles	1,609,350	160,935	63,360	5280	1760	1609.35	1.60935	1

Mass

	Grams	Ounces	Pounds	Kilograms	U.S. Ton (Short)	Imp. Ton (Long)	Metric Tonne
Grams	1	0.03527392	0.00220462	0.001	0.05110231	0.0698426	0.051
Ounces	28.3496	1	0.0625	0.0283496	0.043125	0.04279	0.04283496
Pounds	453.593	16	1	0.453593	0.0005	0.0344642	0.03453593
Kilograms	1000	35.27392	2.20462	1	0.00110231	0.03984206	0.001
U.S. Ton (Short)	907,186	32,000	2000	907.186	1	0.89285	0.907186
Imp. Ton (Long)	1,016,050	35,840	2240	1016.05	1.12	1	1.01605
Metric Tonne	1,000,000	35,273.92	2204.62	1000	1.10231	0.984206	1

Energy or Work

	Joules (1 Joule=107 Ergs)	Foot - Pounds	Kilogram Metres	Litre - Atmospheres	Horsepower Hours	Kilowatts Hours	Kilogram Calories	British Thermal Units	lbs Carbon Oxidised with Perfect Efficiency	lbs Water Evaporated from and at 100°C
Joules (1 Joule=107 Ergs)	1	0.7373	0.101937	0.0098705	0.063727	0.06278	0.0323795	0.039486	0.07642	0.069662
Foot - Pounds	1.3562	1	0.138255	0.013826	0.06505	0.063766	0.0323396	0.0012861	0.078808	0.0513256
Kilogram Metres	9.81	7.233	1	0.09677	0.053653	0.052724	0.002343	0.009302	0.0663718	0.0595895
Litre - Atmospheres	1,013,667	747,386	10,333	1	0.043774	0.042794	0.0242	0.0961	0.056583	0.049907
Horsepower Hours	2,685,443	1,980,000	273,746	26,490.40	1	0.7457	641.477	2546.5	0.174	2.62
Kilowatts Hours	3,600,000	2,655,220	367,100	35,526.95	1.341	1	860.238	3415	0.234	3.52
Kilogram Calories	4185.8291	3087.35	426.843	41.309	0.001558	0.0011623	1	3.9683	0.0329909	0.004501
British Thermal Units	1054.198	778	107.5	10.40277	0.033927	0.032928	0.2519	1	0.04685	0.00103
lbs Carbon Oxidised with Perfect Efficiency	15,387,041.6	11,352,000	1,569,527.5	151,894.66	5.733	4.275	3,677.74	14,600	1	15.05
lbs Water Evaporated from and at 100°C	1,023,000	754,525	104.32	10,096.77	0.3811	0.2841	244.44	970.4	0.066466	1

Volume and Capacity

	Cubic Inches	Cubic Feet	Cubic Yards	Litres	US Quarts		US Gallons		Imperial Gallons	US Bushels	Water at Max. Density 4°C	
					Liquid	Dry	Liquid	Dry			Pounds of Water	Kilograms of Water
Cubic Inches	1	0.035787	0.042143	0.016384	0.01731	0.01488	0.004329	0.003721	0.0036065	0.034651	0.0361275	0.0163872
Cubic Feet	1728	1	0.037037	28.317	29.92208	25.713	7.48052	6.4282	6.2321	0.803564	62.4283	28.317
Cubic Yards	46,656	27	1	764.56	807.895	694.278	201.974	173.569	168.266	21.6962	1685.56	764.559
Litres	61,023.40	35.3145	1.307941	1000	1056.68	908.1	264.17	227.02	220.083	28.38	2204.62	1000
US Quarts - Liquid	61.0234	0.0353145	0.001308	1	1.05668	0.9081	0.26417	0.22702	0.220083	0.02838	2.20462	1
US Quarts - Dry	57.75	0.03342	0.001238	0.94636	1	0.8595	0.25	0.2149	0.20828	0.02686	2.08636	0.94635
US Gallons - Liquid	67.18	0.03888	0.00144	1.1009	1.1635	1	0.2909	0.25	0.24235	0.03125	8.34545	3.78543
US Gallons - Dry	231	0.133681	0.004951	3.78543	4	3.4378	1	0.8595	0.833111	0.10743	10.0172	4.54373
Imperial Gallons	268.75	0.15552	0.00576	4.404	4.654	4	1.1635	1	0.96932	0.125		
US Bushels	277.274	0.160459	0.0059429	4.54374	4.80128	4.1267	1.20032	1.0317	1	0.12896		
Pounds of Water	2150	1.24446	0.04609	35.238	37.2353	32	9.3088	8	7.81457	1		
Kilograms of Water	27.6798	0.0160184	0.035929	0.453592	0.4793	0.119825	0.0998281	1	0.453593			

Pressure

	psi.	atms.	ft. Hd. H2O at 20°C	Inches H2O	kg/cm2	Metres H2O	Inches Hg. at 20°C	mm Hg.	cm Hg.	Bar	Millibar (mb)	kPa
psi.	1	0.068	2.31	27.72	0.07	0.704	2.043	51.884	5.188	0.069	68.947	6.895
atms.	14.696	1	33.659	407.513	1.033	10.351	30.019	762.48	76.284	1.013	1013	101.325
ft. Hd. H2O at 20°C	0.433	0.029	1	12	0.03	0.305	0.884	22.452	2.245	0.03	29.837	2.984
Inches H2O	0.036	0.0025	0.833	1	0.0025	0.025	0.074	1.871	0.187	0.0025	2.486	0.249
kg/cm2	14.233	0.968	32.867	394.408	1	10.018	29.054	737.959	73.796	0.981	980.662	98.066
Metres H2O	1.422	0.097	3.287	39.37	0.099	1	2.905	73.796	7.379	0.098	98.066	9.807
Inches Hg. at 20°C	0.489	0.033	1.131	13.575	0.034	0.345	1	25.4	2.54	0.034	33.753	3.375
mm Hg.	0.019	0.0013	0.045	0.534	0.0014	0.0136	0.039	1	0.1	0.001	1.329	0.133
cm Hg.	0.193	0.0131	0.455	5.34	0.014	0.136	0.393	10	1	0.0133	13.29	1.328
Bar	14.503	0.987	33.514	402.164	1.02	10.211	29.625	752.47	75.247	1	1000	100
Millibar (mb)	0.014	0.0009	0.033	0.402	0.001	0.0102	0.029	0.752	0.075	0.001	1	0.1
kPa	0.145	0.0098	0.335	4.021	0.01	0.102	0.296	7.525	0.0752	0.01	10	1



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Conversion Data

Inch to Millimetre Equivalents

Decimals to Millimetres			
Inches	mm	Inches	mm
0.001	0.0254	0.500	12.7000
0.002	0.0508	0.510	12.9540
0.003	0.0762	0.520	13.2080
0.004	0.1016	0.530	13.4620
0.005	0.1270	0.540	13.7160
0.006	0.1524	0.550	13.9700
0.007	0.1778	0.560	14.2240
0.008	0.2032	0.570	14.4780
0.009	0.2286	0.580	14.7320
0.590	14.9860	3/32	0.0938
0.010	0.2540	7/64	0.1094
0.020	0.5080		
0.030	0.7620	0.600	15.2400
0.040	1.0160	0.610	15.4940
0.050	1.2700	0.620	15.7480
0.060	1.5240	0.630	16.0020
0.070	1.7780	0.640	16.2560
0.080	2.0320	0.650	16.5100
0.090	2.2860	0.660	16.7640
0.670	17.0180		
0.100	2.5400	0.680	17.2720
0.110	2.7940	0.690	17.5260
0.120	3.0480		
0.130	3.3020		
0.140	3.5560	0.700	17.7800
0.150	3.8100	0.710	18.0340
0.160	4.0640	0.720	18.2880
0.170	4.3180	0.730	18.5420
0.180	4.5720	0.740	18.7960
0.190	4.8260	0.750	19.0500
0.760	19.3040		
0.200	5.0800	0.770	19.5580
0.210	5.3340	0.780	19.8120
0.220	5.5880	0.790	20.0660
0.230	5.8420	19/64	0.2969
0.240	6.0960		
0.250	6.3500	0.800	20.3200
0.260	6.6040	0.810	20.5740
0.270	6.8580	0.820	21.8280
0.280	7.1120	0.830	21.0820
0.290	7.3660	0.840	21.3360
0.850	21.5900	11/32	0.3438
0.300	7.6200	0.860	21.8440
0.310	7.8740	0.870	22.0980
0.320	8.1280	0.880	22.3520
0.330	8.3820	0.890	22.6060
0.340	8.6360		
0.350	8.8900		
0.360	9.1440	0.900	22.8600
0.370	9.3980	0.910	23.1140
0.380	9.6520	0.920	23.3680
0.390	9.9060	0.930	23.6220
0.940	23.8760		
0.400	10.1600	0.950	24.1300
0.410	10.4140	0.960	24.3840
0.420	10.6680	0.970	24.6380
0.430	10.9220	0.980	24.8920
0.440	11.1760	0.990	25.1460
0.450	11.4300	1.000	25.4000
0.460	11.6840		
0.470	11.9380		
0.480	12.1920	1/2	0.5000
0.490	12.4460		

Fractions to Decimals to Millimetres					
Inches	mm	Inches	mm	Inches	mm
1/64	0.0156	0.3969	33/64	0.5156	13.0969
1/32	0.0312	0.7938	17/32	0.5312	13.4938
3/64	0.0469	1.1906	35/64	0.5469	13.8906
1/16	0.0625	1.5875	9/16	0.5625	14.2875
5/64	0.0781	1.9844	37/64	0.5781	14.6844
2.3812	19/32	0.5938	15.0812		
2.7781	39/64	0.6094	15.4781		
1/8	0.1250	3.1750	5/8	0.6250	15.8750
9/64	0.1406	3.5719	41/64	0.6406	16.2719
5/32	0.1562	3.9688	21/32	0.6562	16.6688
11/64	0.1719	4.3656	43/64	0.6719	17.0656
3/16	0.1875	4.7625	11/16	0.6875	17.4625
13/64	0.2031	5.1594	45/64	0.7031	17.8594
7/32	0.2188	5.5562	23/32	0.7188	18.2562
15/64	0.2344	5.9531	47/64	0.7344	18.6531
1/4	0.2500	6.3500	3/4	0.7500	19.0500
17/64	0.2656	6.7469	49/64	0.7656	19.4469
9/32	0.2812	7.1438	25/32	0.7812	19.8438
7.5406	51/64	0.7969	20.2406		
5/16	0.3125	7.9375	13/16	0.8125	20.6375
21/64	0.3281	8.3344	53/64	0.8281	21.0344
8.7312	27/32	0.8438	21.4312		
23/64	0.3594	9.1281	55/64	0.8594	21.8281
3/8	0.3750	9.5250	7/8	0.8750	22.2250
25/64	0.3906	9.9219	57/64	0.8906	22.6219
13/32	0.4062	10.3188	29/32	0.9062	23.0188
27/64	0.4219	10.7156	59/64	0.9219	23.4156
7/16	0.4375	11.1125	15/16	0.9375	23.8125
29/64	0.4531	11.5094	61/64	0.9531	24.2094
15/32	0.4688	11.9062	31/32	0.9688	24.6062
31/64	0.4844	12.3031	63/64	0.9844	25.0031
12.7000	1	1.000	25.4000		



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Pressure - Vacuum Conversion

Pressure Pascal [Pa] absolute	Pressure KiloPascal [kPa] absolute	Pressure bar [bar] absolute	Millibar [millibar] absolute	Micron [millitorr]	Torr [mm Hg]	Inches Hg [Inches Mercury]	PSI [Pounds Per Square Inch]
101325 1 atmosphere	101.325 1 atmosphere	1.01325 1 atmosphere	1013 1 atmosphere	760000 1 atmosphere	760 1 atmosphere	0.00 1 atmosphere	14.70 1 atmosphere
100000	100	1	1000	750062	750	0.42	14.50
80000	80	0.8	800	600049	600	6.32	11.60
53300	53.3	0.533	533	399783	400	14.22	7.73
26700	26.7	0.267	267	200266	200	22.07	3.87
13300	13.3	0.133	133	99758	100	25.98	1.93
6000	6	0.06	60	45004	45	28.15	0.87
2700	2.7	0.027	27	20252	20	29.14	0.39
133	0.133	0.00133	1.33	998	1.0	29.88	0.02
93	0.093	0.00093	0.93	698	0.7	29.89	0.013
78	0.078	0.00078	0.78	585	0.6	29.90	0.011
66	0.066	0.00066	0.66	495	0.5	29.900	0.0096
53	0.053	0.00053	0.53	398	0.4	29.910	0.0077
40	0.04	0.0004	0.40	300	0.3	29.910	0.0058
26	0.026	0.00026	0.26	195	0.2	29.920	0.0038
13	0.013	0.00013	0.13	98	0.10		0.0019
9	0.009	0.00009	0.09	68	0.07		0.0013
8	0.008	0.00008	0.08	60	0.06		0.0012
7	0.007	0.00007	0.07	53	0.05		0.0010
5	0.005	0.00005	0.05	38	0.04		0.0007
4	0.004	0.00004	0.04	30	0.03		0.0006
3	0.003	0.00003	0.03	23	0.02		0.0004
1.3	0.0013	0.000013	0.013	10	0.01		0.0002

To obtain gauge pressure subtract 1 atmosphere.



Design Temperature/Pressure

Australian Standards include minimum recommended design temperatures/pressures for different refrigerants and applications. When selecting components for use in a refrigeration system, care should be taken to ensure the minimum design pressure of the component selected is suitable for its intended use. This is especially important in R410A systems as the required pressure ratings are significantly higher than that required on systems using most other common refrigerants.

Recommended Minimum Design Temperature/Pressure for Fixed Refrigeration Systems

System Type	Temperature °C	Pressure kPa				
		R22	R134a	R404A	R410A	R507
High Pressure Side Air Cooled Condenser	59	2295	1533	2743	3635	2796
High Pressure Side Water Cooled or Evaporative Condenser	46	1688	1083	2018	2686	2063
Low Pressure Side	43	1567	995	1873	2496	1917

Minimum design temperature as per AS1677, Part 2: 1998

Flare Nut Torque Data

Dimensional and Torque Data Standard for Flare Nuts

Flare Nut Size	Thread Size UNF	Across Flats (AF) Dimension				
		Heldon Standard Flare Nuts	Heldon R410A Flare Nut	*ARI Heldon Std. Flare Nut	Heldon R410A Flare Nut	R410A Torque Wrench Setting
1/4	7/16 - 20	15.9	n/a	11 - 14	n/a	n/a
5/16	1/2 - 20	19.0	19.1		14 - 18	16
3/8	5/8 - 18	20.6	22.3	20 - 30	33 - 42	42
1/2	3/4 - 16	23.8	25.4	34 - 47	50 - 62	50
5/8	7/8 - 14	27.0	28.7	54 - 75	63 - 77	65
3/4	1 1/8 - 14	33.3	36.0	68 - 81	n/a	n/a
7/8	1 1/4 - 12	41.0	41.0	n/a	n/a	n/a

Courtesy of Heldon Products



Temperature Pressure Data for Common Refrigerants

°C	R22		R32		34M DEW		R123		R1234yf		R134a		R402A BUBBLE		R402A DEW		R404A BUBBLE		R404A DEW		R406A BUBBLE		R406A DEW		°C
	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	
-40	4	1	76	11	-46	14	-98	29	-39	6	-50	15	51	7	39	6	34	5	30	4	-29	9	-56	17	-40
-38	14	2	93	13	-40	12	-97	29	-33	5	-45	13	65	9	53	8	47	7	42	6	-22	7	-51	15	-38
-36	25	4	111	16	-34	10	-97	29	-26	4	-38	11	80	12	67	10	60	9	55	8	-15	4	-46	13	-36
-34	37	5	130	19	-26	8	-96	28	-19	3	-32	9	96	14	82	12	75	11	70	10	-6	2	-40	12	-34
-32	49	7	150	22	-19	6	-95	28	-11	2	-25	7	113	16	98	14	90	13	85	12	2	0	-34	10	-32
-30	63	9	172	25	-10	3	-95	28	-2	0	-17	5	131	19	115	17	106	15	101	15	12	2	-27	8	-30
-28	77	11	195	28	-2	0	-94	28	7	1	-9	3	150	22	134	19	124	18	118	17	22	3	-19	6	-28
-26	92	13	220	32	8	1	-93	27	16	2	0	0	170	25	153	22	143	21	137	20	32	5	-12	3	-26
-24	108	16	247	36	18	3	-92	27	27	4	10	1	191	28	174	25	162	24	156	23	44	6	-3	1	-24
-22	126	18	275	40	30	4	-91	27	38	5	20	3	214	31	196	28	183	27	177	26	56	8	6	1	-22
-20	144	21	304	44	41	6	-89	26	50	7	31	5	238	35	219	32	206	30	199	29	69	10	16	2	-20
-18	163	24	336	49	54	8	-88	26	62	9	43	6	264	38	244	35	229	33	222	32	82	12	26	4	-18
-16	184	27	369	54	68	10	-86	26	75	11	56	8	291	42	270	39	254	37	247	36	97	14	37	5	-16
-14	206	30	405	59	82	12	-85	25	90	13	69	10	319	46	298	43	281	41	273	40	112	16	49	7	-14
-12	229	33	442	64	98	14	-83	25	105	15	84	12	349	51	327	47	308	45	300	44	129	19	61	9	-12
-10	253	37	481	70	114	17	-81	24	120	17	99	14	381	55	358	52	338	49	329	48	146	21	75	11	-10
-8	279	40	523	76	132	19	-79	23	137	20	116	17	414	60	390	57	369	53	360	52	164	24	89	13	-8
-6	306	44	567	82	150	22	-77	23	155	22	133	19	449	65	424	62	401	58	392	57	183	27	104	15	-6
-4	335	49	613	89	170	25	-74	22	174	25	151	22	486	70	460	67	435	63	426	62	204	30	120	17	-4
-2	365	53	661	96	191	28	-72	21	194	28	171	25	524	76	498	72	471	68	462	67	225	33	137	20	-2
0	397	58	712	103	213	31	-69	20	215	31	191	28	564	82	537	78	509	74	499	72	247	36	155	22	0
2	430	62	765	111	236	34	-66	19	236	34	213	31	606	88	578	84	548	80	538	78	271	39	174	25	2
4	465	67	821	119	261	38	-62	18	260	38	236	34	651	94	622	90	590	86	579	84	296	43	194	28	4
6	501	73	880	128	287	42	-59	17	284	41	261	38	697	101	667	97	633	92	622	90	322	47	215	31	6
8	540	78	941	137	314	46	-55	16	309	45	286	42	745	108	715	104	678	98	667	97	349	51	237	34	8
10	580	84	1006	146	343	50	-51	15	336	49	313	45	796	115	764	111	726	105	714	104	377	55	261	38	10
12	622	90	1073	156	373	54	-46	14	364	53	342	50	848	123	816	118	775	112	764	111	407	59	285	41	12
14	665	97	1143	166	405	59	-42	12	394	57	372	54	903	131	870	126	827	120	815	118	438	64	311	45	14
16	711	103	1217	176	439	64	-37	11	425	62	403	58	960	139	927	134	881	128	869	126	471	68	338	49	16
18	759	110	1293	188	474	69	-31	9	457	66	436	63	1020	148	986	143	937	136	925	134	505	73	367	53	18
20	809	117	1373	199	511	74	-26	8	490	71	470	68	1082	157	1047	152	996	144	983	143	540	78	397	58	20
22	861	125	1457	211	549	80	-20	6	526	76	507	73	1147	166	1111	161	1057	153	1044	151	577	84	428	62	22
24	915	133	1544	224	590	86	-13	4	562	82	544	79	1214	176	1177	171	1121	163	1107	161	616	89	461	67	24
26	971	141	1634	237	632	92	-7	2	601	87	584	85	1284	186	1247	181	1187	172	1173	170	656	95	495	72	26
28	1030	149	1728	251	676	98	1	0	641	93	626	91	1356	197	1319	191	1256	182	1242	180	697	101	531	77	28
30	1091	158	1826	265	722	105	8	1	682	99	669	97	1432	208	1393	202	1327	192	1313	190	741	107	568	82	30
32	1154	167	1928	280	771	112	16	2	726	105	714	104	1510	219	1471	213	1401	203	1387	201	786	114	607	88	32
34	1220	177	2034	295	821	119	25	4	771	112	761	110	1591	231	1552	225	1479	214	1464	212	833	121	648	94	34
36	1288	187	2144	311	873	127	34	5	818	119	811	118	1675	243	1635	237	1559	226	1544	224	881	128	690	100	36
38	1359	197	2258	328	928	135	43	6	866	126	862	125	1763	256	1722	250	1642	238	1627	236	932	135	734	107	38
40	1432	208	2377	345	985	143	53	8	917	133	915	133	1853	269	1812	263	1728	251	1713	249	984	143	781	113	40
42	1508	219	2500	363	1044	151	64	9	970	141	971	141	1947	282	1905	276	1818	264	1803	261	1038	151	828	120	42
44	1587	230	2628	381	1106	160	75	11	1024	149	1029	149	2043	296	2002	290	1910	277	1895	275	1094	159	878	127	44
46	1669	242	2760	400	1170	170	86	13	1081	157	1089	158	2144	311	2102	305	2007	291	1992	289	1152	167	930	135	46
48	1754	254	2898	420	1237	179	98	14	1140	165	1152	167	2248	326	2206	320	2106	305	2091	303	1212	176	984	143	48
50	1841	267	3040	441	1306	189	111	16	1201	174	1217	176	2355	342	2313	335	2209	320	2194	318	1275	185	1040	151	50
52	1932	280	3187	462	1378	200	125	18	1264	183	1284	186	2466	358	2424	352	2316	336	2301	334	1339	194	1098	159	52
54	2026	294	3340	484	1453	211	139	20	1330	193	1354	196	2581	374	2539	368	2427	352	2412	350	1405	204	1159	168	54
56	2123	308	3498	507	1530	222	153	22	1398	203	1427	207	2700	392	2658	386	2542	369	2527	367	1474	214	1221	177	56
58	2223	322	3662	531	1611	234	169	24	1468	213	1502	218	2823	409	2782	403	2661	386	2646	384	1545	224	1286	187	58
60	2326	337	3832	556	1694	246	185	27	1541	223	1581	229	2950	428	2909	422	2784	404	2770	402	1618	235	1353	196	60
62	2433	353	4008	581	1780	258	201	29	1616	234	1662	241	3081	447	3041	441	2911	422	2898	420	1693	246	1423	206	62
64	2543	369	4190	608	1870	271	219	32	1694	246	1745	253	3217	467	3178	461	3043	441	3031	440	1771	257	1495	217	64
66	2657	385	4378	635	1963	285	237	34	1774	257	1832	266	3357	487	3320	482	3181	461	3169	460	1851	268	1570	228	66
68	2775	402	4573	663	2059	299	256	37	1857	269	1922	279	3502	508	3467	503	3323	482	3313	480	1933	280	1647	239	68
70	2896	420	4776	693	2158	313	276	40	1943	282	2158	313	3653	530	3620	525	3471	503	3463	502	2018	293	1727	251	70

Use Dew pressure for superheat calculations and Bubble pressure for sub-cooling calculations
Red figures under kPa are negative kilopascals gauge and red figures under psi are inches of mercury



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Temperature Pressure Data for Common Refrigerants

	R407B				R407C				R407F				R408A				R409A				R410A				
	BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		
°C	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	kPa	psi	°C
-40	37	5	12	2	19	3	-16	5	34	5	-2	0	24	3	21	3	-23	7	-50	15	74	11	74	11	-40
-38	50	7	23	3	31	4	-7	2	47	7	9	1	36	5	33	5	-15	4	-45	13	91	13	90	13	-38
-36	64	9	36	5	43	6	3	0	60	9	20	3	48	7	45	7	-7	2	-38	11	108	16	108	16	-36
-34	79	11	49	7	56	8	14	2	75	11	32	5	61	9	58	8	2	0	-32	9	127	18	126	18	-34
-32	95	14	63	9	71	10	25	4	91	13	45	7	76	11	73	11	12	2	-25	7	147	21	147	21	-32
-30	112	16	78	11	86	12	37	5	108	16	59	9	91	13	88	13	22	3	-17	5	169	25	168	24	-30
-28	131	19	95	14	102	15	51	7	126	18	74	11	107	16	104	15	33	5	-9	3	192	28	191	28	-28
-26	150	22	112	16	119	17	65	9	145	21	90	13	125	18	121	18	44	6	0	0	216	31	215	31	-26
-24	171	25	131	19	138	20	80	12	166	24	107	16	143	21	139	20	57	8	9	1	242	35	241	35	-24
-22	193	28	151	22	158	23	96	14	188	27	125	18	163	24	159	23	70	10	19	3	270	39	269	39	-22
-20	216	31	172	25	179	26	113	16	211	31	145	21	183	27	179	26	84	12	30	4	299	43	298	43	-20
-18	241	35	194	28	201	29	132	19	235	34	166	24	205	30	201	29	99	14	42	6	330	48	329	48	-18
-16	267	39	218	32	224	33	152	22	261	38	188	27	228	33	224	32	115	17	54	8	363	53	362	52	-16
-14	295	43	243	35	249	36	173	25	289	42	211	31	253	37	248	36	131	19	68	10	398	58	396	57	-14
-12	324	47	270	39	276	40	195	28	318	46	237	34	279	40	274	40	149	22	82	12	435	63	433	63	-12
-10	355	52	299	43	303	44	218	32	348	51	263	38	306	44	301	44	168	24	97	14	473	69	471	68	-10
-8	388	56	329	48	333	48	244	35	381	55	291	42	335	49	329	48	188	27	113	16	514	75	512	74	-8
-6	422	61	361	52	364	53	270	39	415	60	321	47	365	53	359	52	209	30	130	19	557	81	555	80	-6
-4	458	66	394	57	396	57	298	43	450	65	353	51	397	58	391	57	231	33	148	21	602	87	600	87	-4
-2	496	72	429	62	431	62	328	48	488	71	386	56	430	62	424	62	254	37	167	24	650	94	647	94	-2
0	536	78	466	68	467	68	359	52	528	77	421	61	465	67	459	67	278	40	187	27	699	101	697	101	0
2	578	84	505	73	504	73	393	57	569	83	458	66	502	73	496	72	304	44	208	30	752	109	749	109	2
4	621	90	547	79	544	79	427	62	613	89	497	72	541	78	534	77	331	48	231	33	806	117	804	117	4
6	667	97	590	86	586	85	464	67	659	96	538	78	581	84	574	83	359	52	254	37	864	125	861	125	6
8	715	104	635	92	629	91	503	73	706	102	581	84	623	90	616	89	389	56	279	40	924	134	921	134	8
10	766	111	682	99	675	98	544	79	757	110	626	91	667	97	660	96	420	61	305	44	987	143	983	143	10
12	818	119	732	106	723	105	586	85	809	117	674	98	714	103	706	102	452	66	333	48	1053	153	1049	152	12
14	873	127	784	114	773	112	631	92	864	125	723	105	762	110	754	109	486	70	362	52	1122	163	1118	162	14
16	930	135	839	122	825	120	678	98	921	134	776	113	812	118	804	117	521	76	392	57	1193	173	1189	172	16
18	990	144	896	130	879	128	727	106	980	142	830	120	864	125	856	124	558	81	424	62	1268	184	1264	183	18
20	1052	153	955	139	936	136	779	113	1043	151	888	129	919	133	910	132	597	87	458	66	1346	195	1342	195	20
22	1117	162	1017	148	996	144	833	121	1107	161	947	137	976	142	967	140	637	92	493	71	1428	207	1423	206	22
24	1184	172	1082	157	1057	153	890	129	1175	170	1010	146	1035	150	1026	149	679	99	529	77	1512	219	1507	219	24
26	1255	182	1150	167	1121	163	949	138	1245	181	1075	156	1097	159	1087	158	723	105	567	82	1601	232	1595	231	26
28	1328	193	1221	177	1188	172	1010	147	1318	191	1143	166	1161	168	1151	167	768	111	607	88	1692	245	1687	245	28
30	1404	204	1294	188	1258	182	1075	156	1394	202	1215	176	1227	178	1218	177	816	118	649	94	1788	259	1782	258	30
32	1482	215	1371	199	1330	193	1142	166	1473	214	1289	187	1296	188	1287	187	865	125	693	101	1887	274	1881	273	32
34	1564	227	1450	210	1405	204	1212	176	1555	226	1366	198	1368	198	1358	197	916	133	738	107	1990	289	1984	288	34
36	1649	239	1533	222	1483	215	1285	186	1640	238	1447	210	1443	209	1432	208	969	140	786	114	2098	304	2091	303	36
38	1737	252	1620	235	1564	227	1361	197	1729	251	1531	222	1520	220	1509	219	1024	148	835	121	2209	320	2202	319	38
40	1829	265	1709	248	1648	239	1440	209	1820	264	1618	235	1600	232	1589	230	1081	157	887	129	2324	337	2317	336	40
42	1924	279	1802	261	1735	252	1522	221	1915	278	1709	248	1683	244	1672	242	1140	165	940	136	2444	354	2437	353	42
44	2022	293	1899	275	1825	265	1608	233	2013	292	1803	262	1769	257	1758	255	1201	174	996	144	2569	373	2561	371	44
46	2124	308	2000	290	1918	278	1697	246	2115	307	1902	276	1858	269	1847	268	1264	183	1054	153	2698	391	2690	390	46
48	2229	323	2104	305	2015	292	1790	260	2221	322	2004	291	1950	283	1939	281	1330	193	1114	162	2831	411	2823	409	48
50	2338	339	2213	321	2115	307	1886	274	2330	338	2110	306	2045	297	2034	295	1397	203	1177	171	2970	431	2962	430	50
52	2451	355	2325	337	2218	322	1987	288	2443	354	2220	322	2144	311	2132	309	1468	213	1241	180	3113	451	3105	450	52
54	2567	372	2442	354	2325	337	2091	303	2559	371	2335	339	2246	326	2234	324	1540	223							

Temperature Pressure Data for Common Refrigerants

°C	R413A				R417A				R427A				R438A (MO99)				R507				R717 (Ammonia)		R744 (CO ₂)		°C
	BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		kPa	psi	kPa	psi	
-40	-26	8	-45	13	-4	1	-26	8	15	2	-17	5	12	2	-18	3	37	5	37	5	-30	9	903	131	-40
-38	-19	6	-39	11	5	1	-18	5	26	4	-9	3	23	3	-9	1	50	7	50	7	-22	6	979	142	-38
-36	-11	3	-32	10	15	2	-9	3	38	6	1	0	34	5	1	0	64	9	64	9	-13	4	1059	154	-36
-34	-3	1	-25	7	26	4	0	0	51	7	11	2	47	7	11	2	79	11	79	11	-3	1	1144	166	-34
-32	6	1	-17	5	38	5	10	2	65	9	22	3	60	9	22	3	95	14	95	14	7	1	1233	179	-32
-30	16	2	-9	3	50	7	21	3	79	12	34	5	75	11	34	5	112	16	112	16	18	3	1326	192	-30
-28	26	4	0	0	64	9	33	5	95	14	47	7	90	13	47	7	130	19	129	19	30	4	1425	207	-28
-26	37	5	10	1	78	11	45	7	112	16	61	9	106	15	60	9	149	22	149	22	43	6	1528	222	-26
-24	49	7	21	3	93	14	59	9	130	19	76	11	124	18	75	11	169	24	169	24	57	8	1636	237	-24
-22	62	9	32	5	109	16	73	11	149	22	92	13	142	21	91	13	190	28	190	28	72	11	1750	254	-22
-20	75	11	44	6	127	18	89	13	169	24	109	16	162	23	107	16	213	31	213	31	89	13	1868	271	-20
-18	90	13	57	8	145	21	105	15	190	28	127	18	183	26	125	18	237	34	237	34	106	15	1993	289	-18
-16	105	15	71	10	164	24	122	18	213	31	146	21	205	30	144	21	263	38	263	38	125	18	2122	308	-16
-14	121	18	85	12	185	27	141	20	237	34	166	24	228	33	164	24	290	42	290	42	145	21	2258	328	-14
-12	138	20	101	15	207	30	160	23	262	38	188	27	253	37	186	27	318	46	318	46	166	24	2400	348	-12
-10	156	23	118	17	229	33	181	26	289	42	211	31	279	40	209	30	348	51	348	50	189	27	2547	369	-10
-8	175	25	135	20	254	37	203	30	317	46	235	34	307	44	233	34	380	55	379	55	214	31	2701	392	-8
-6	195	28	154	22	279	41	227	33	346	50	261	38	336	49	258	37	413	60	413	60	240	35	2862	415	-6
-4	217	31	174	25	306	44	252	36	378	55	289	42	366	53	285	41	448	65	448	65	267	39	3029	439	-4
-2	239	35	195	28	335	49	278	40	411	60	317	46	398	58	314	46	485	70	484	70	297	43	3203	465	-2
0	263	38	217	32	364	53	305	44	445	65	348	50	432	63	344	50	523	76	523	76	328	48	3384	491	0
2	288	42	241	35	396	57	335	49	481	70	380	55	468	68	376	55	563	82	563	82	361	52	3572	518	2
4	314	46	266	39	429	62	365	53	520	75	414	60	505	73	409	59	606	88	605	88	396	57	3768	546	4
6	342	50	292	42	463	67	398	58	559	81	450	65	544	79	445	64	650	94	649	94	433	63	3971	576	6
8	371	54	320	46	500	72	431	63	601	87	487	71	585	85	482	70	696	101	696	101	472	69	4182	607	8
10	401	58	349	51	537	78	467	68	645	94	527	76	628	91	521	76	745	108	744	108	514	75	4401	638	10
12	433	63	380	55	577	84	505	73	691	100	568	82	673	98	562	81	795	115	795	115	557	81	4628	671	12
14	467	68	412	60	619	90	544	79	739	107	612	89	719	104	604	88	848	123	847	123	603	88	4864	706	14
16	502	73	446	65	662	96	585	85	789	114	657	95	768	111	649	94	903	131	902	131	652	95	5110	741	16
18	539	78	481	70	707	103	628	91	841	122	705	102	819	119	696	101	961	139	960	139	703	102	5364	778	18
20	577	84	518	75	755	109	673	98	895	130	755	110	873	127	746	108	1021	148	1020	148	756	110	5628	816	20
22	617	89	557	81	804	117	720	104	952	138	807	117	928	135	797	116	1083	157	1082	157	812	118	5902	856	22
24	659	96	598	87	856	124	770	112	1011	147	862	125	986	143	851	123	1148	166	1147	166	871	126	6186	897	24
26	703	102	640	93	909	132	821	119	1073	156	919	133	1046	152	907	132	1215	176	1214	176	933	135	6482	940	26
28	748	109	685	99	965	140	875	127	1137	165	979	142	1109	161	966	140	1286	186	1284	186	998	145	6791	985	28
30	796	115	731	106	1023	148	931	135	1203	175	1041	151	1174	170	1027	149	1359	197	1357	197	1066	155	7112	1032	30
32	845	123	780	113	1084	157	989	144	1273	185	1106	160	1242	180	1091	158	1435	208	1433	208	1137	165			32
34	897	130	830	120	1147	166	1050	152	1344	195	1174	170	1312	190	1158	168	1513	220	1512	219	1211	176			34
36	950	138	883	128	1212	176	1114	162	1419	206	1244	180	1385	201	1227	178	1595	231	1594	231	1289	187			36
38	1006	146	938	136	1280	186	1180	171	1496	217	1318	191	1461	212	1299	188	1680	244	1679	243	1370	199			38
40	1064	154	995	144	1350	196	1248	181	1577	229	1394	202	1539	223	1374	199	1768	256	1767	256	1454	211			40
42	1125	163	1055	153	1423	206	1320	191	1660	241	1474	214	1621	235	1453	211	1860	270	1858	269	1542	224			42
44	1187	172	1117	162	1499	217	1394	202	1746	253	1557	226	1705	247	1534	222	1954	283	1953	283	1634	237			44
46	1252	182	1181	171	1577	229	1471	213	1836	266	1643	238	1792	260	1619	235	2053	298	2051	297	1730	251			46
48	1320	191	1248	181	1659	241	1551	225	1928	280	1732	251	1883	273	1706	247	2154	312	2152	312	1829	265			48
50	1390	202	1318	191	1743	253	1634	237	2024	294	1825	265	1976	287	1798	261	2260	328	2258	328	1933	280			50
52	1462	212	1390	202	1830	265	1720	250	2123	308	1922	279	2073	301	1893	274	2369	344	2367	343	2040	296			52
54	1538	223	1465	212	1920	279	1810	263	2226	323	2022	293	2174	315	1991	289	2483	360	2480	360	2152	312			54
56	1616	234	1542	224	2014	292	1903	276	2332	338	2126	308	2277	330	2093	304	2600	377	2598	377	2269	329			56
58	1696	246	1623	235	2110	306	1999	290	2441	354	2234	324	2384	346	2199	319	2722	395	2720	394	2389	347			58
60	1780	258	1706	248	2210	321	2099	304	2554	370	2346	340	2495	362	2309	335	2848	413	2846	413	2514	365			60
62	1866	271	1793	260	2314	336	2203	319	2671	387	2463	357	2609	378	2424	352	2978	432	2976	432	2644	383			62
64	1956	284	1883	273	2421	351	2310	335	2792	405	2584	375	2727	396	2543	369	3114	452	3112	451	2779	403			64
66	2049	297	1976	287	2531	367	2421	351	2916	423	2709	393	2849	413	2666	387	3255	472	3254	472	2918	423			66
68	2144	311	2072	300	2645	384	2537	368	3045	442	2840	412	2975	431	2794	405	3402	493	3401	493	3063	444			68
70	2243	325	2171	315	2763	401	2657	385	3177	461	2975	431	3104	450	2927	425	3555	516	3554	515	3212	466			70

Use Dew pressure for superheat calculations and Bubble pressure for sub-cooling calculations
Red figures under kPa are negative kilopascals gauge and red figures under psi are inches of mercury



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Properties of Refrigerants

Refrigerant	R11	R12	R13	R13B1	R14	R22	R23	R113	R114	R115	R123	R134a
Boiling Point at 101 kPa °C	23.8	-29.8	-81.4	-57.7	-127.9	-40.8	-80.1	47.6	3.6	-39.1	27.9	-26.1
Temp. Glide at 101 kPa K	0	0	0	0	0	0	0	0	0	0	0	0
Critical Temperature °C	198	111.8	28.8	67.1	-45.7	96.2	26.3	214.1	145.7	79.9	183.7	101.1
Critical Pressure kPa	4467	4120	3870	3960	3750	4990	4833	3437	3250	3150	3670	4060
Latent Heat of Vapourisation at 101 kPa kJ/kg	180.3	165.4	149.7	119.1	136	233.8	238.8	146.8	136.3	126.3	171.6	216.1
Vapour Pressure at 25°C kPa	1.056	651.3	3550	1619.6	3280	1043.7	4732	44	213.4	911.1	91.4	664
Liquid Density at 25°C kg/m³	1476	1310	1290	1537.82	1320	1193.8	870	1580	1456.3	1284	1462.3	1206.3
Vapour Density at 101 kPa kg/m³	5.794	6.248	6.857	8.611	7.72	4.645	4.62	7.38	7.737	8.271	6.336	5.213
Ozone Depletion Potential (ODP)	1	1	1	12	0	0.04	0	0.09	0	0.4	0.014	0
Global Warming Potential (GWP) (CO ₂ =1)	4000	8500	11700	5600	6500	1700	11700	5000	9200	9320	93	1300
Flammability Limit at 25°C	None	None	None	None	None	None	None	None	None	None	None	None

Refrigerant	R141B	R142b	R152a	R290 Propane	R401A	R401B	R402A	R402B	R403B	R404A	R406A	R407B
Boiling Point at 101 kPa °C	32.2	-9.1	-24	-42.1	-33.1	-34.7	-49.2	-47.4	-49.5	-46.5	-32.4	-43.7
Temp. Glide at 101 kPa K	0	0	0	0	6.4	6	1.6 - 2	1.6 - 2	2.6	0.5	9.4	4.4
Critical Temperature °C	204.4	137.2	113.3	125.2	108	106.1	75.5	82.6	90	72.1	114.5	75.8
Critical Pressure kPa	4250	4120	4520	4250	4600	4680	4130	4450	5090	3730	4584	4160
Latent Heat of Vapourisation at 101 kPa kJ/kg	224.3	223	337.7	428.1	228.3	229.8	190.8	207.9	185.5	200.3	244.9	201.3
Vapour Pressure at 25°C kPa	78.5	337.7	614.3	924.1	697.8	749.1	1394.1	1277	1274	1236.6	542	1168.6
Liquid Density at 25°C kg/m³	1234.9	1108.5	899.2	439.7	1195.2	1193.91	1156.28	1160.4	1150.6	1043.9	1085.6	1171.07
Vapour Density at 101 kPa kg/m³	4.765	4.785	3.315	2.368	4.777	4.734	5.639	5.182	5.682	5.342	4.425	5.512
Ozone Depletion Potential (ODP)	0.1	0	0	0.03	0.032	0.018	0.026	0.027	0	0.041	0	
Global Warming Potential (GWP) (CO ₂ =1)	630	2000	140	3	1120	1230	2380	2080	2640	3850	1700	2300
Flammability Limit at 25°C	Liquid None Vapour in Air by Vol. 5.6/17.7	9.6%	4.8%	2.4%	None	None	None	None	None	None	Worst case of Fractionation flammable	None



Properties of Refrigerants

Refrigerant	R407C KLEA 66	R408A FX10	R409A FX56	R409B FX57	R410A AZ20	R413A ISCEON 49	R500	R502	R503	R507 AZ50	R600a Butane	R717 Ammonia
Boiling Point at 101 kPa °C	-43.6	-43.5	-34.2	-36.6	-51.4	-35	-33.5	-45.4	-88.7	-46.7	-11.8	-33.3
Temp. Glide at 101 kPa K	7.2	0.7	7.1	7.7	0	7.1	0	0	0	0	0	0
Critical Temperature °C	87.3	83.5	107	116	84.9	101.3	105.5	82.2	19.5	70.9	135	133
Critical Pressure kPa	4820	4340	4500	4700	4950	4110	4420	4075	4340	3793	3631	11417
Latent Heat of Vapourisation at 101 kPa kJ/kg	250.1	227.2	220.2	220.3	271.6	214.6	201	172	179.4	196.1	355.2	
Vapour Pressure at 25°C kPa	1002.8	1147.9	644	692	1646.9	717.1	770	1160	4290	1286	351.8	
Liquid Density at 25°C kg/m ³	1139.22	1062.1	1215.9	1228.4	1083.8	1169.6	1160	1220	1230	1041.6	552.3	
Vapour Density at 101 kPa kg/m ³	4.507	4.712	4.91	4.881	4.064	5.272	5.3	4.79	6.03	5.449	4.392	
Ozone Depletion Potential (ODP)	0	0.019	0.04	0.039	0	0	0.605	0.224	0.599	0	0	0
Global Warming Potential (GWP) (CO ₂ =1)	1370	3060	1530	1510	1300	1510	5210	5590	11700	3900	3	1
Flammability Limit at 25°C	None	None	None	None	None	Worst case of Fractionation flammable	None	None	None	None	1.7%	15%

Variation in Composition of Blended Refrigerants in Case of Leakage

In the following, we make the distinction between:

- Non azeotropic mixtures (having a high temperature glide* typically higher than 3K)
- Near azeotropic mixtures (having a low temperature glide typically lower than 3K)
- Azeotropic mixtures (having a temperature glide equal to zero K)

R404A and R408A are near azeotropic mixtures with a glide lower than 1 K.

The composition of the mixtures does not change when a leak occurs in a homogeneous phase. That is the case at the evaporator outlet (superheated vapour) or at the condenser outlet (subcooled liquid).

By contrast, marked differences of behaviour appear between the different types of mixtures during a leak in the two phase region equilibrium.

For non-azeotropic mixtures, the 'more volatile' components escape in preceding order, altering to a great extent the composition of the mixture remaining in the installation, resulting in change of performance.

For near azeotropic or real azeotropic mixtures, leak rates of all components of the mixture are very close; thus during a leakage, composition of refrigerant remaining in the installation is not affected significantly.

For all blended refrigerants it is stated by some manufacturers that after a leakage of 50% of the initial charge, changes in composition are less than 3% by weight.

Blended refrigerants must always be introduced in the liquid phase in the installation. Introduction in the gas phase, at the compressor suction, may increase the charging time of the installation and may alter performance of the mixture charged.

*For a non-azeotropic mixture the change process liquid ↔ vapour occurs over a range of temperatures (glide).



Properties of Refrigerants

General Rules for Handling Fluorocarbon Refrigerants and Nitrogen

Legislation

All purchasers and users of refrigerants should be aware of, and conversant with, the requirements of the Ozone Protection and Synthetic Greenhouse Gas Management Regulations and/or any other state or federal legislation.

Safety Equipment

Goggles or face shields, gloves and safety footwear must be worn when filling cylinders, coupling up storage vessels and/or handling bulk fills so as to prevent eye damage or burns should a coupling give way or a line burst.

Store Cylinders Upright

Store cylinders in a cool, dry place, away from direct sources of heat. A well ventilated area will ensure that no build up of gas can occur should a cylinder leak or relief valve unseat.

Do Not Force Connections

Cylinder connections should fit easily and snugly. Never force them. Use correct tools. Stripped threads can cause leaks and possible loss of refrigerant.

Handle Cylinders Carefully

Cylinders should not be used for 'rollers' or supports. Cuts and abrasions may result. Care in handling cylinders will prolong their life.

Read Labels

Because colour of cylinders cannot be relied upon for positive identification, labels should always be read carefully. Colour blindness might interfere with proper identification. If still in doubt, other methods of identification are available from the manufacturer/supplier.

Visual Examination

Each time a cylinder is returned or delivered for re-charging, it should be carefully examined for evidence of corrosion, cuts, dents, bulges, condition of threads, valves, etc, to ensure suitability for further service. State Codes also provide for examination and testing of cylinders to ensure their continued use.

Never Transfer

Refrigerant cylinders are labelled and identified for a particular refrigerant. Never put a different refrigerant into a cylinder labelled for another refrigerant.

Keep Away from Fire

No part of any cylinder should ever be subjected to direct flame, steam or temperatures exceeding 50°C. If necessary to warm cylinder to promote more rapid discharge, extreme caution should be taken – an easy and safe way is to place bottom part of cylinder in a container of warm or hot water not over 50°C.

Ventilation

Since many materials such as soldering flux, oil, dirt and all refrigerants decompose at the flame temperatures used in soldering, the area in which repair is carried out should be properly ventilated to remove the products of decomposition and combustion of all materials. An adequately ventilated work area is good practice at any time, but especially when an open flame of a leak detector or welding torch is to be used in the presence of 'fluorocarbon' refrigerants.

Check Pressure

The pressure within the cylinder must be greater than in the system to cause the refrigerant to flow into the system. Pressure should be checked before charging.

Main Hazards

Nitrogen is non toxic, inert and inflammable. It comprises 78.09%vol of the air we breathe however; high concentrations in confined spaces may result in unconsciousness without symptoms. Nitrogen is stored at high pressure - 20,000kPa at 15°C.

Storage and Handling

- Protect the cylinders and valves from physical damage, whether empty or full.
- Secure cylinders in an upright position.
- Store below 50°C in clean, well ventilated areas, away from combustible materials and heat sources.
- Ensure all devices, including fittings and regulators, are free from dust, oil and grease.
- Always open the valve fully to activate the back seat valve which helps to prevent leakage.
- Close valves fully when not in use.
- Check regularly for leaks.
- Do not attempt to transfer contents from one cylinder to another.
- Only regulators, manifolds and ancillary equipment, rated for the appropriate pressure and compatible with the relevant gas, shall be connected to or downstream of these cylinders.



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Section 8

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Refrigerant Line Sizing

Pipe Sizing Criteria

Pipe sizing choices for refrigeration typically represent a compromise between conflicting objectives. Minimisation of pressure drops in suction and discharge vapour piping is important since these translate directly to losses in system cooling capacity. Such pressure losses also necessitate higher thermodynamic lifts at the compressor with consequent C.O.P. penalties. Pressure losses in liquid lines can result in loss of subcooling, formation of vapour bubbles and potentially erratic and damaging impacts on the smooth functioning of the system. Piping must thus be sized generously enough to limit frictional flow losses, however, sizes must simultaneously be sufficiently small to maintain adequate flow velocities to physically entrain oil droplets in the refrigerant stream.

This reduces the risk of oil trapping and slugging and assures a positive supply of lubricant in the compressor crankcase. Other incentives for pipe size limitation include a minimum refrigerant charge and reduction of first cost. Courtesy of Allied Signal.

R22- Suction Line

Refrigeration Capacity: kW	Evaporating Temperature: °C																			
	4				-7				-18				-29				-40			
	Equivalent Length: Metres																			
	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45
0.88	3/8	3/8	3/8	1/2	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	1/2	5/8	5/8	3/4	5/8	3/4	7/8	7/8
1.76	3/8	1/2	1/2	5/8	1/2	1/2	5/8	5/8	5/8	5/8	3/4	7/8	5/8	3/4	7/8	7/8	3/4	7/8	1 1/8	1 1/8
2.64	1/2	1/2	5/8	5/8	1/2	5/8	5/8	3/4	3/4	3/4	7/8	7/8	3/4	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 3/8
3.52	1/2	5/8	5/8	3/4	5/8	5/8	3/4	3/4	3/4	7/8	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8
5.28	5/8	3/4	3/4	7/8	3/4	3/4	7/8	7/8	7/8	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 3/8	1 1/8	1 3/8	1 5/8	1 5/8
7.03	5/8	3/4	7/8	7/8	3/4	7/8	1/8	1 1/8	7/8	1/8	1 1/8	3/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8
8.79	3/4	7/8	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 1/8	1 1/8	1 3/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8
10.55	3/4	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 5/8	1 1/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8
12.3	7/8	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 3/8	1 1/8	1 3/8	1 3/8	1 5/8	1 3/8	1 3/8	1 5/8	2 1/8	1 5/8	1 5/8	2 1/8	2 1/8
14.07	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8
15.83	7/8	1 1/8	1 1/8	1 3/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8
17.59	1 1/8	1 1/8	1 3/8	1 3/8	1 1/8	1 3/8	1 3/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8
21.1	1 1/8	1 1/8	1 3/8	1 5/8	1 1/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	3 1/8
26.38	1 1/8	1 3/8	1 5/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	3 1/8	3 1/8
35.17	1 3/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3 1/8	3 1/8
43.96	1 3/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3 1/8	3 1/8
52.76	1 3/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	3 1/8	2 5/8	3 1/8	3 5/8	3 5/8
61.55	1 3/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3 1/8	3 1/8	2 5/8	3 1/8	3 5/8	3 5/8
70.34	1 5/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 5/8	2 5/8	3 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 1/8	3 1/8	3 5/8	4 1/8
87.93	1 5/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	3 1/8	3 1/8	2 5/8	3 1/8	3 1/8	3 5/8	3 1/8	3 5/8	4 1/8	5 1/8

Data based on 1.1K maximum pressure drop equivalent.

R22

Refrigeration Capacity: kW	Discharge Line				Liquid Line				Hot Gas Line **			
	Equivalent Length: Metres											
	7.5	15	30	45	7.5	15	30*	45	7.5	15	30	45
0.88	3/8	3/8	3/8	3/8	1/4	1/4	1/4	1/4	3/8	3/8	1/2	1/2
1.32	3/8	3/8	1/2	1/2	1/4	1/4	3/8	3/8	1/2	1/2	1/2	5/8
1.91	3/8	1/2	1/2	1/2	1/4	1/4	3/8	3/8	1/2	1/2	5/8	5/8
2.49	3/8	1/2	1/2	5/8	1/4	3/8	3/8	3/8	1/2	5/8	3/4	3/4
3.52	1/2	1/2	5/8	5/8	3/8	3/8	3/8	1/2	5/8	5/8	3/4	7/8
5.28	1/2	5/8	3/4	3/4	3/8	3/8	1/2	1/2	5/8	3/4	7/8	1 1/8
7.03	5/8	5/8	3/4	7/8	3/8	1/2	1/2	1/2	3/4	7/8	1 1/8	1 1/8
8.79	5/8	3/4	7/8	7/8	3/8	1/2	1/2	5/8	3/4	7/8	1 1/8	1 1/8
10.55	5/8	3/4	7/8	7/8	1/2	1/2	5/8	5/8	7/8	1 1/8	1 1/8	1 1/8
12.3	3/4	3/4	7/8	1 1/8	1/2	1/2	5/8	5/8	7/8	1 1/8	1 1/8	1 3/8
14.07	3/4	7/8	1 1/8	1 1/8	1/2	5/8	5/8	3/4	1 1/8	1 1/8	1 3/8	1 3/8
15.83	3/4	7/8	1 1/8	1 1/8	1/2	5/8	5/8	3/4	1 1/8	1 1/8	1 3/8	1 3/8
17.59	3/4	7/8	1 1/8	1 1/8	1/2	5/8	3/4	3/4	1 1/8	1 1/8	1 3/8	1 3/8
21.1	7/8	1 1/8	1 1/8	1 1/8	5/8	5/8	3/4	3/4	1 1/8	1 3/8	1 3/8	1 5/8
26.38	7/8	1 1/8	1 1/8	1 3/8	5/8	3/4	7/8	7/8	1 1/8	1 3/8	1 5/8	1 5/8
35.17	1 1/8	1 1/8	1 3/8	1 3/8	3/4	3/4	7/8	1 1/8	1 3/8	1 5/8	1 5/8	2 1/8
43.96	1 1/8	1 3/8	1 3/8	1 1/8	3/4	7/8	1 1/8	1 1/8	1 3/8	1 5/8	2 1/8	2 1/8
52.76	1 1/8	1 3/8	1 5/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 5/8	1 5/8	2 1/8	2 1/8
61.55	1 3/8	1 3/8	1 5/8	1 1/8	7/8	7/8	1 1/8	1 1/8	-	-	-	-
70.34	1 3/8	1 5/8	1 1/8	2 1/8	7/8	1 1/8	1 3/8	1 3/8	-	-	-	-
87.93	1 3/8	1 5/8	2 5/8	2 1/8	1 1/8	1 1/8	1 3/8	1 3/8	-	-	-	-

Copper tube sizes are: OD in inches.



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Refrigerant Line Sizing

R410A- Suction Line

Refrigeration Capacity: kW	Evaporating Temperature: deg.C																			
	4				-7				-18				-29				-40			
	Equivalent Length: Meters																			
	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45
0.88	3/8	3/8	3/8	1/2	3/8	3/8	1/2	1/2	3/8	1/2	1/2	5/8	1/2	1/2	5/8	5/8	1/2	5/8	5/8	3/4
1.76	3/8	1/2	1/2	1/2	1/2	1/2	5/8	5/8	1/2	1/2	5/8	3/4	5/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4
2.64	1/2	1/2	5/8	5/8	1/2	5/8	5/8	3/4	5/8	5/8	3/4	3/4	3/4	3/4	7/8	7/8	7/8	7/8	1 1/8	1 1/8
3.52	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	5/8	3/4	3/4	7/8	3/4	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8
5.28	5/8	5/8	3/4	3/4	5/8	3/4	3/4	7/8	3/4	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8
7.03	5/8	5/8	3/4	7/8	3/4	3/4	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8
8.79	3/4	3/4	7/8	7/8	7/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8
10.55	3/4	3/4	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8
12.3	7/8	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8
14.07	7/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8
15.83	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8
17.59	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8
21.1	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8
26.38	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3
35.17	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	3	4
43.96	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3	4	4	4	4
52.76	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	3	4	4	4	4	4
61.55	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	4	4	4	4	4	4	-
70.34	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	4	4	4	4	4	4	-	-
87.93	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3	3	4	4	4	4	4	4	-	-	-	-

Data based on 1.1K maximum pressure drop equivalent.

R410A

Refrigeration Capacity: kW	Discharge Line				Liquid line				Hot Gas Line**			
	Equivalent Length: Meters											
	7.5	15	30	45	7.5	15	30	45	7.5	15	30	45
0.88	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	3/8	3/8
1.32	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	3/8	3/8	3/8	1/2
1.91	3/8	3/8	3/8	3/8	1/4	1/4	1/4	3/8	3/8	3/8	1/2	1/2
2.49	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2	5/8	5/8
3.53	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2	1/2	5/8	3/4
5.28	1/2	1/2	1/2	1/2	3/8	3/8	3/8	1/2	5/8	5/8	5/8	3/4
7.03	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	5/8	5/8	3/4	7/8
8.79	1/2	1/2	1/2	5/8	1/2	1/2	1/2	1/2	5/8	3/4	3/4	7/8
10.55	5/8	5/8	5/8	5/8	1/2	1/2	1/2	5/8	3/4	3/4	7/8	1 1/8
12.3	5/8	5/8	5/8	5/8	1/2	5/8	5/8	5/8	3/4	3/4	7/8	1 1/8
14.07	5/8	5/8	5/8	3/4	5/8	5/8	5/8	5/8	3/4	3/4	7/8	1 1/8
15.83	5/8	3/4	3/4	3/4	5/8	5/8	5/8	3/4	3/4	7/8	7/8	1 1/8
17.59	3/4	3/4	3/4	3/4	5/8	5/8	5/8	3/4	7/8	7/8	7/8	1 1/8
21.1	3/4	3/4	3/4	7/8	5/8	3/4	3/4	3/4	7/8	1 1/8	1 1/8	1 3/8
26.38	7/8	7/8	7/8	7/8	3/4	3/4	3/4	7/8	1 1/8	1 3/8	1 3/8	1 3/8
35.17	1 1/8	1 1/8	1 1/8	1 1/8	7/8	7/8	7/8	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8
43.96	1 1/8	1 1/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	1 5/8	1 5/8	1 5/8
52.76	1 1/8	1 1/8	1 3/8	1 3/8	1 1/8	1 1/8	1 1/8	1 1/8	1 5/8	1 5/8	1 5/8	2 1/8
61.55	1 3/8	1 3/8	1 3/8	1 3/8	1 1/8	1 1/8	1 1/8	1 3/8	-	-	-	-
70.34	1 3/8	1 3/8	1 3/8	1 3/8	1 1/8	1 3/8	1 3/8	1 3/8	-	-	-	-
87.93	1 5/8	1 5/8	1 5/8	1 5/8	1 3/8	1 3/8	1 3/8	1 5/8	-	-	-	-

Copper tube sizes are: OD in inches.

* Line sizes are suitable for Condenser to Receiver application.

**For suction temperatures less than -29°C, the next larger line size must be used.



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Refrigerant Line Sizing

R134a

Refrigeration Capacity: kW	SUCTION LINE Sizes to Limit Pressure Drop to 1.1K Equivalent									DISCHARGE LINE Sizes for 0.56K Equivalent			LIQUID LINE Sizes for 0.56K Equivalent		
	4°C Evap.			-18°C Evap.			-40°C Evap.								
	Equivalent Length: Metres														
	7.5	15	30	7.5	15	30	7.5	15	30	7.5	15	30	7.5	15	30
0.88	3/8	1/2	1/2	1/2	5/8	3/4	3/4	7/8	1 1/8	3/8	3/8	3/8	3/8	3/8	3/8
1.76	1/2	5/8	5/8	5/8	3/4	7/8	1 1/8	1 1/8	1 3/8	3/8	1/2	1/2	3/8	3/8	3/8
2.64	5/8	5/8	3/4	3/4	7/8	1 1/8	1 1/8	1 3/8	1 5/8	1/2	1/2	5/8	3/8	3/8	3/8
3.52	5/8	3/4	3/4	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1/2	5/8	5/8	3/8	3/8	3/8
5.28	3/4	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	2 1/8	5/8	5/8	3/4	3/8	3/8	1/2
7.03	3/4	7/8	1 1/8	1 1/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	5/8	3/4	7/8	3/8	3/8	1/2
10.55	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	2 1/8	2 1/8	2 5/8	3/4	7/8	7/8	1/2	1/2	5/8
17.59	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	2 5/8	3 1/8	7/8	1 1/8	1 1/8	1/2	5/8	3/4
26.38	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	2 5/8	2 5/8	3 1/8	3 5/8	1 1/8	1 1/8	1 3/8	5/8	3/4	3/4
35.17	1 3/8	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	3 1/8	3 1/8	3 5/8	1 1/8	1 3/8	1 3/8	5/8	3/4	7/8
52.76	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	3 1/8	3 5/8	3 5/8	5 1/8	1 3/8	1 3/8	1 5/8	3/4	7/8	1 1/8
70.34	2 1/8	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	1 3/8	1 5/8	2 1/8	7/8	1 1/8	1 1/8
87.93	2 1/8	2 1/8	2 5/8	2 5/8	3 1/8	3 5/8	4 1/8	5 1/8	5 1/8	1 5/8	2 1/8	2 1/8	7/8	1 1/8	1 1/8
105.5	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	6 1/8	1 5/8	2 1/8	2 1/8	1 1/8	1 1/8	1 3/8
140.7	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	6 1/8	6 1/8	2 1/8	2 5/8	2 5/8	1 1/8	1 3/8	1 3/8

Data based on 49°C condensing.

Courtesy of Allied Signal

Copper tubing sizes are: OD in inches.

R404A and R507

Refrigeration Capacity: kW	SUCTION LINE Sizes to Limit Pressure Drop to 1.1K Equivalent									DISCHARGE LINE Sizes for 0.56K Equivalent			LIQUID LINE Sizes for 0.56K Equivalent		
	4°C Evap.			-18°C Evap.			-40°C Evap.								
	Equivalent Length: Metres														
	7.5	15	30	7.5	15	30	7.5	15	30	7.5	15	30	7.5	15	30
0.88	3/8	1/2	1/2	1/2	5/8	3/4	3/4	7/8	1 1/8	3/8	3/8	3/8	3/8	3/8	3/8
1.76	1/2	5/8	5/8	5/8	3/4	7/8	1 1/8	1 1/8	1 3/8	3/8	1/2	1/2	3/8	3/8	3/8
2.64	5/8	5/8	3/4	3/4	7/8	1 1/8	1 1/8	1 3/8	1 5/8	1/2	1/2	5/8	3/8	3/8	3/8
3.52	5/8	3/4	3/4	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1/2	5/8	5/8	3/8	3/8	3/8
5.28	3/4	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	2 1/8	5/8	5/8	3/4	3/8	3/8	1/2
7.03	3/4	7/8	1 1/8	1 1/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	5/8	3/4	7/8	3/8	3/8	1/2
10.55	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	2 1/8	2 1/8	2 5/8	3/4	7/8	7/8	1/2	1/2	5/8
17.59	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	2 5/8	3 1/8	7/8	1 1/8	1 1/8	1/2	5/8	3/4
26.38	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	2 5/8	2 5/8	3 1/8	3 5/8	1 1/8	1 1/8	1 3/8	5/8	3/4	3/4
35.17	1 3/8	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	3 1/8	3 1/8	3 5/8	1 1/8	1 3/8	1 3/8	5/8	3/4	7/8
52.76	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	3 1/8	3 5/8	3 5/8	5 1/8	1 3/8	1 3/8	1 5/8	3/4	7/8	1 1/8
70.34	2 1/8	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	1 3/8	1 5/8	2 1/8	7/8	1 1/8	1 1/8
87.93	2 1/8	2 1/8	2 5/8	2 5/8	3 1/8	3 5/8	4 1/8	5 1/8	5 1/8	1 5/8	2 1/8	2 1/8	7/8	1 1/8	1 1/8
105.5	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	6 1/8	1 5/8	2 1/8	2 1/8	1 1/8	1 1/8	1 3/8
140.7	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	4 1/8	5 1/8	6 1/8	6 1/8	2 1/8	2 5/8	2 5/8	1 1/8	1 3/8	1 3/8

Data based on 49°C condensing.

Courtesy of Allied Signal

Copper tubing sizes are: OD in inches.

Equivalent Length of Pipe: Metres - For Valves and fittings

Line Size Outside Dia. Inches	1/2	5/8	7/8	1 1/8	1 3/8	1 5/8	1/2	2 5/8	3 1/8	3 5/8	4 1/8	5 1/8	6 1/8	8 1/8	10 1/8	12 1/8
Globe Valve (Open)	4.3	4.9	6.7	8.5	11	12.8	17.4	21	25.3	30.2	36	42.1	51.2	68.6	85.3	102
Angle Valve (Open)	2.1	2.7	3.7	4.6	5.5	6.4	8.5	10.4	12.8	14.9	17.4	21.3	25.3	35.7	42.7	50.3
Standard Elbow 90°	0.3	0.6	0.6	0.9	1.2	1.2	1.5	2.1	2.4	3	3.7	4.3	4.9	6.1	7.9	9.4
Standard Elbow 45°	0.3	0.3	0.3	0.6	0.6	0.6	0.6	0.9	1.2	1.5	1.8	2.1	2.4	3	4	4.9
Standard Tee (Through Side Out.)	0.9	1.2	1.5	1.8	2.4	2.7	3.7	4.3	5.2	6.1	6.7	8.5	10.4	13.4	17.1	19.8

Values shown are average



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Refrigerant Line Design

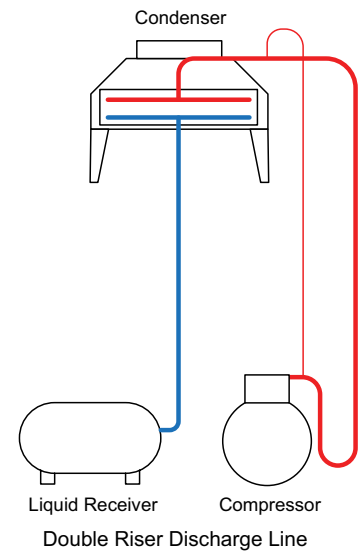
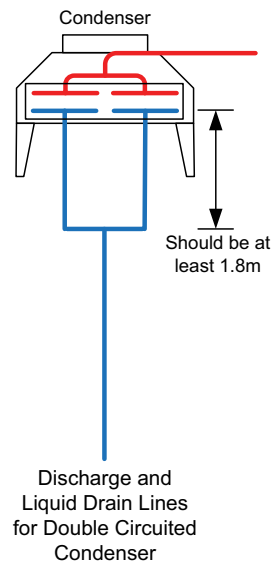
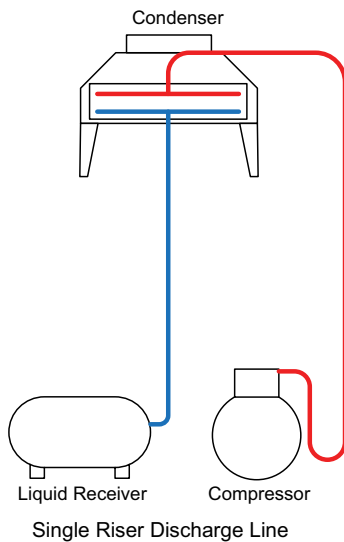
Good refrigeration line design and line sizing is essential to ensure refrigeration systems operate reliably and efficiently. The designer must satisfy the following:

Discharge Line

- Minimise pressure losses in the line
- Horizontal lines should be pitched in the direction of flow at 12mm every 3m
- Avoid oil being trapped during times of low load
- Prevent back flow of liquid refrigerant or oil to the compressor at times of low load or shut down.
- Minimise transmission of compressor vibration and dampen vapour pulsations and noise in the line.

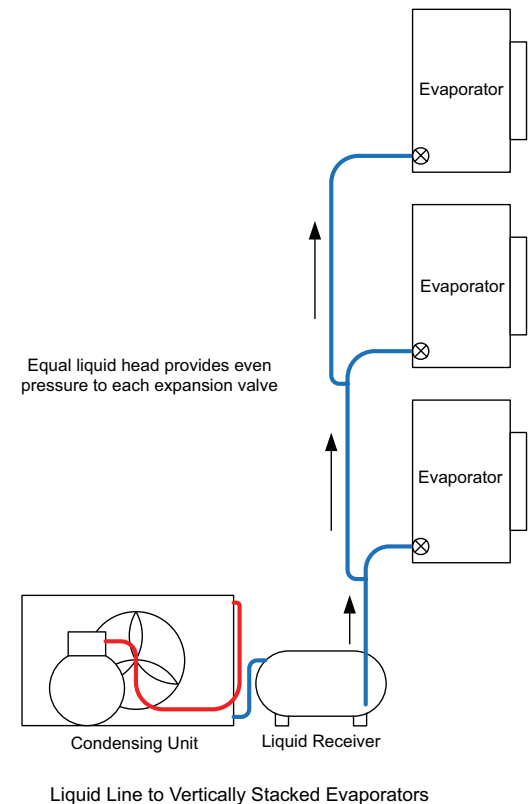
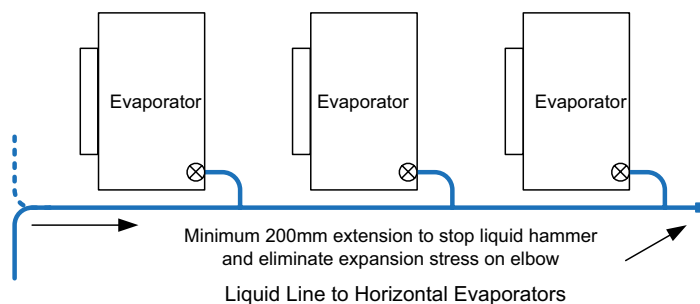
Condenser to Receiver Liquid Drain Line

- Allow liquid to freely drain to liquid receiver while providing vapour pressure to equalize in the other direction



Liquid Line

- Minimise pressure losses in the line to prevent flash gas entering the expansion device
- Minimise heat gain to the liquid refrigerant
- Prevent liquid hammer where multiple evaporators are used



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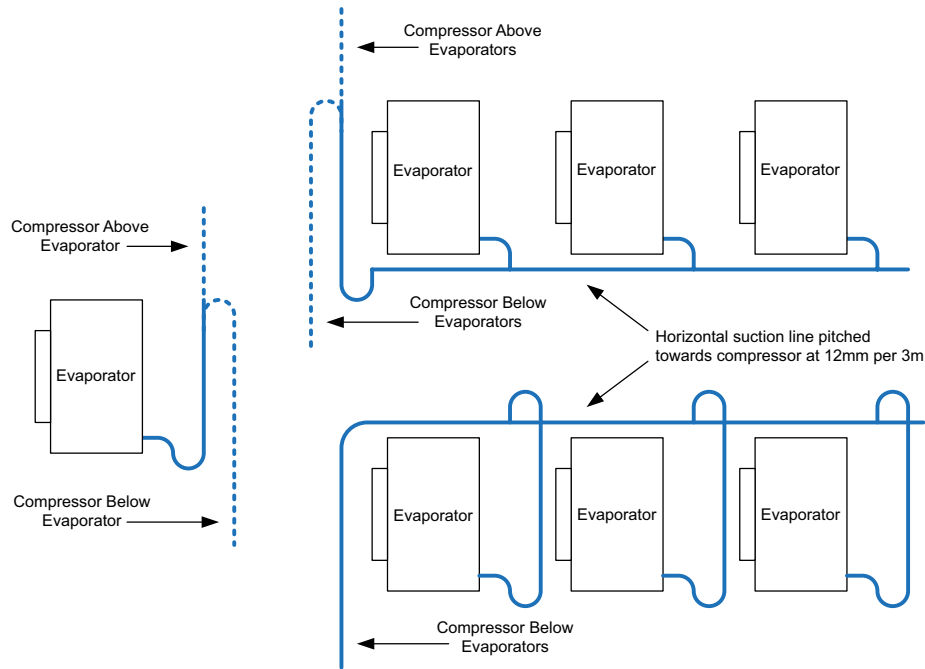
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Refrigerant Line Design

Good refrigeration line design and line sizing is essential to ensure refrigeration systems operate reliably and efficiently. The designer must satisfy the following:

Suction Line

- Minimise pressure losses in the line
- Horizontal lines should be pitched in the direction of flow at 12mm every 3m
- Return the oil to the compressor under all load conditions
- Prevent oil draining from active to inactive evaporators when multiple evaporators are used
- Minimise transmission of compressor vibration and dampen vapour pulsations and noise in the line
- Minimise heat gain into the refrigerant vapour and eliminate condensation on the outer surface of the line



Trapped Riser

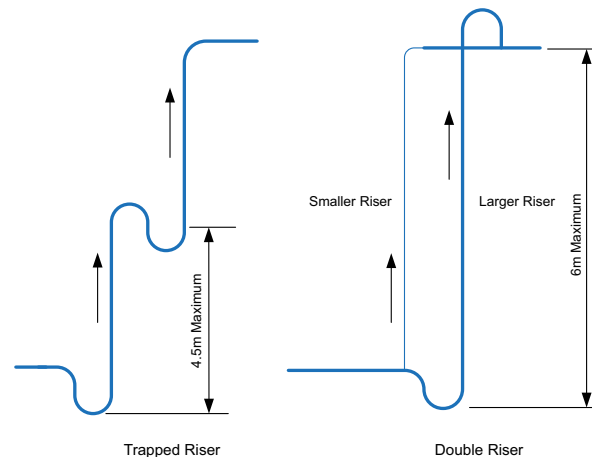
The trapped riser is used in systems with minimal capacity control. The trapped riser is used in vapour lines, both suction and discharge to ensure the oil is carried with the refrigerant vapour up the riser.

Note: the maximum distance between traps is 4.5 metres.

Double Riser

The double rise is used in systems with a wide range of capacity control. The double riser is also used in vapour lines, both suction and discharge to ensure the oil is carried with the refrigerant vapour.

Note: the maximum distance between traps is 6 meters. The smaller riser is sized at the minimum compressor capacity and the larger riser is sized at the maximum compressor capacity minus the minimum compressor capacity so the combination of the two lines is equal to the maximum compressor capacity.



Copper Tube - Safe Working Pressures

Australian Standard AS/NZS 1571 Copper Seamless Tubes for Air-conditioning and Refrigeration

Standard sizes and data for straight copper tubes

Outside Diameter (mm)	Wall Thickness (mm)	Imperial Equivalent O.D. and swg	Nominal Weight (kg/m)	Form	Temper	Safe Working Pressure (kPa) at service temperature				
						50°C	55°C	60°C	65°C	70°C
6.35	0.91	1/4" x 20	0.139	6m straight	H	12142	11431	10907	10528	10256
9.53	0.91	3/8" x 20	0.220	6m straight	H	7710	7258	6925	6685	6512
12.70	0.91	1/2" x 20	0.301	6m straight	1/2H	5653	5322	5078	4901	4774
12.70	1.02	1/2" x 19	0.335	6m straight	1/2H	6389	6015	5739	5540	5396
15.88	0.91	5/8" x 20	0.383	6m straight	1/2H	4459	4198	4006	3766	3766
15.88	1.02	5/8" x 19	0.426	6m straight	1/2H	5031	4737	4519	4362	4249
19.05	0.91	3/4" x 20	0.464	6m straight	1/2H	3684	3468	3309	3194	3111
19.05	1.02	3/4" x 19	0.517	6m straight	1/2H	4152	3909	3729	3600	3507
19.05	1.14	3/4" x 18.5	0.573	6m straight	1/2H	4670	4510	4350	4190	4030
22.23	0.91	7/8" x 20	0.545	6m straight	1/2H	3137	2953	2818	2720	2649
22.23	1.22	7/8" x 18	0.720	6m straight	1/2H	4261	4011	3827	3694	3599
22.23	1.63	7/8" x 16	0.943	6m straight	H	5794	5455	5204	5024	4894
25.40	0.91	1" x 20	0.626	6m straight	H	2732	2572	2454	2369	2308
25.40	1.22	1" x 18	0.829	6m straight	H	3705	3488	3328	3212	3129
25.40	1.63	1" x 16	1.088	6m straight	H	5026	4732	4515	4358	4245
28.57	0.91	1 1/8" x 20	0.707	6m straight	H	2420	2278	2174	2098	2044
28.57	1.22	1 1/8" x 18	0.937	6m straight	H	3277	3086	2944	2842	2768
28.57	1.83	1 1/8" x 15	1.374	6m straight	H	5016	4723	4506	4350	4237
31.75	0.91	1 1/4" x 20	0.788	6m straight	H	2171	2044	1950	1883	1834
31.75	1.22	1 1/4" x 18	1.046	6m straight	H	2937	2765	2639	2547	2481
31.75	2.03	1 1/4" x 14	1.694	6m straight	H	5007	4714	4497	4341	4229
34.92	0.91	1 3/8" x 20	0.869	6m straight	H	1969	1854	1769	1708	1663
34.92	1.22	1 3/8" x 18	1.155	6m straight	H	2662	2506	2391	2308	2248
34.92	2.03	1 3/8" x 14	1.875	6m straight	H	4527	4262	4067	3925	3824
38.10	0.91	1 1/2" x 20	0.951	6m straight	H	1801	1696	1618	1562	1522
38.10	1.22	1 1/2" x 18	1.264	6m straight	H	2433	2291	2186	2110	2055
41.27	0.91	1 5/8" x 20	1.032	6m straight	H	1660	1563	1491	1440	1402
41.27	1.22	1 5/8" x 18	1.372	6m straight	H	2241	2110	2013	1943	1893
41.27	2.41	1 5/8" x 12.5	2.630	6m straight	H	4549	4282	4086	3944	3842
44.45	0.91	1 3/4" x 20	1.113	6m straight	H	1539	1449	1383	1335	1300
44.45	1.22	1 3/4" x 18	1.481	6m straight	H	2077	1955	1866	1801	1754
50.80	0.91	2" x 20	1.275	6m straight	H	1344	1265	1207	1165	1135
50.80	1.22	2" x 18	1.699	6m straight	H	1812	1705	1627	1571	1530
50.80	1.63	2" x 16	2.251	6m straight	H	2438	2296	2190	2114	2060
53.97	0.91	2 1/8" x 20	1.356	6m straight	H	1264	1190	1135	1096	1067
53.97	1.22	2 1/8" x 18	1.807	6m straight	H	1703	1603	1530	1477	1438
53.97	1.63	2 1/8" x 16	2.396	6m straight	H	2291	2157	2058	1987	1935
66.68	1.22	2 5/8" x 18	2.243	6m straight	H	1373	1293	1233	1190	1160
66.68	1.63	2 5/8" x 16	2.978	6m straight	H	1845	1737	1657	1599	1558
76.20	1.63	3" x 16	3.414	6m straight	H	1610	1515	1446	1396	1360
101.60	1.63	4" x 16	4.577	6m straight	H	1201	1131	1079	1042	1015

Denotes R410A rated tube. Courtesy of Crane Enfield Metals Pty Ltd



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Copper Tube - Safe Working Pressures

Australian Standard AS/NZS 1571 Copper Seamless Tubes for Air-conditioning and Refrigeration

Standard sizes and data for straight copper tubes

Outside Diameter (mm)	Wall Thickness (mm)	Imperial Equivalent O.D. and swg	Nominal Weight (kg/m)	Form	Temper	Safe Working Pressure (kPa) at service temperature				
						50oC	55oC	60oC	65oC	70oC
4.76	0.56	3 1/6 " x 24	0.066	30m Coil	0	9711	9142	8723	8420	8202
4.76	0.71	3 1/6 " x 22	0.081	30m Coil	0	12715	11971	11422	11025	10739
4.76	0.91	3 1/6 " x 20	0.098	30m Coil	0	17041	16043	15308	14776	14393
6.35	0.56	1 1/4 " x 24	0.091	30m Coil	0	7069	6656	6350	6130	5971
6.35	0.71	1 1/4 " x 22	0.112	30m Coil	0	9175	8638	8242	7955	7749
6.35	0.91	1 1/4 " x 20	0.139	30m Coil	0	12142	11431	10907	10528	10256
6.35	1.22	1 1/4 " x 18	0.176	30m Coil	0	17143	16140	15400	14864	14480
7.94	0.56	5 1/6 " x 24	0.116	30m Coil	0	5558	5232	4993	4819	4694
7.94	0.71	5 1/6 " x 22	0.144	30m Coil	0	7177	6757	6447	6223	6062
7.94	0.91	5 1/6 " x 20	0.180	30m Coil	0	9431	8879	8472	8177	7966
9.53	0.56	3 3/8 " x 24	0.141	18m Coil	0	4579	4311	4113	3970	3867
9.53	0.71	3 3/8 " x 22	0.176	18m Coil	0	5893	5548	5294	5110	4978
9.53	0.91	3 3/8 " x 20	0.220	18m Coil	0	7710	7258	6925	6685	6512
12.70	0.56	1 1/2 " x 24	0.191	18m Coil	0	3389	3190	3044	2938	2862
12.70	0.71	1 1/2 " x 22	0.239	18m Coil	0	4344	4090	3903	3767	3669
12.70	0.81	1 1/2 " x 21	0.270	18m Coil	0	4994	4701	4486	4330	4218
12.70	0.91	1 1/2 " x 20	0.301	18m Coil	0	5653	5322	5078	4901	4774
15.88	0.56	5 8 " x 24	0.241	18m Coil	0	2688	2530	2414	2331	2270
15.88	0.71	5 8 " x 22	0.303	18m Coil	0	3438	3237	3088	2981	2904
15.88	0.81	5 8 " x 21	0.343	18m Coil	0	3945	3715	3544	3421	3332
15.88	0.91	5 8 " x 20	0.383	18m Coil	0	4459	4198	4006	3866	3766
15.88	1.02	5 8 " x 19	0.426	18m Coil	0	5031	4737	4519	4362	4249
19.05	0.71	3 1/4 " x 22	0.366	18m Coil	0	2846	2679	2557	2468	2404
19.05	0.91	3 1/4 " x 20	0.464	18m Coil	0	3684	3468	3309	3194	3111
19.05	1.14	3 1/4 " x 18.5	0.573	18m Coil	0	4670	4510	4350	4190	4030
22.23	0.91	7 8 " x 20	0.545	18m Coil	0	3137	2953	2818	2720	2649

Pair Coil Specifications

Outside Diameter (mm)	Wall Thickness (mm)	Imperial Equivalent O.D. and swg	Nominal Weight (kg/m)	Form	Temper	Safe Working Pressure (kPa) at service temperature				
						50oC	55oC	60oC	65oC	70oC
6.35	0.81	1 1/4 " x 21	0.126	20m Coil	0	10635	10012	9553	9221	8982
9.52	0.81	3 3/8 " x 21	0.198			6800	6402	6108	5896	5743
6.35	0.81	1 1/4 " x 21	0.126			10635	10012	9553	9221	8982
12.70	0.81	1 1/2 " x 21	0.270			4994	4701	4486	4330	4218
6.35	0.81	1 1/4 " x 21	0.126			10635	10012	9553	9221	8982
15.88	1.02	5 8 " x 19	0.426			5031	4737	4519	4362	4249
9.52	0.81	3 3/8 " x 21	0.198			6800	6402	6108	5896	5743
15.88	1.02	5 8 " x 19	0.426			5031	4737	4519	4362	4249
9.52	0.81	3 3/8 " x 21	0.198			6800	6402	6108	5896	5743
19.05	1.22	3 1/4 " x 18	0.611			5015	4722	4505	4349	4236
12.70	0.81	1 1/2 " x 21	0.270			4994	4701	4486	4330	4218
19.05	1.22	3 1/4 " x 18	0.611			5015	4722	4505	4349	4236

Interpolation of allowable design stress as defined by table D7 of AS4041 for below temps.

Temperature (oC)	50.0	55.0	60.0	65.0	70.0	75.0
SD (MPa)	41.0	38.6	36.83	35.55	34.63	34.0

Denotes R410A rated tube

Working Pressures

Safe working pressures for copper tube are calculated on the basis of annealed temper tube with the maximum allowable outside diameter and minimum wall thickness, thus allowing for softening of the tube due to brazing or heating. All safe working pressures are based on the following

$$\text{formula: } P_{sw} = 2000 \times S_D \times t_m / D - t_m$$

Where:

P_{sw} = safe working pressure (MPa)
 S_D = maximum allowable design stress for annealed copper (MPa)
 t_m = minimum wall thickness of tube (mm)
 D = outside diameter or tube (mm)

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Capillary Tube - Conversion Chart

This Conversion Chart is designed to enable users of capillary tubing to use the standard sizes which are readily available through refrigeration wholesalers. While many original equipment manufacturers and condensing unit manufacturers recommend specific lengths and diameters of capillary tubing for their units, these tube sizes are not always readily available, except on special order.

This chart enables the user to translate the recommended length into that of a tube diameter that can be readily obtained. In using the chart, it is recommended that conversions be made using factors falling in the shaded area. In addition, it is highly recommended that the minimum length of capillary used be 1 metre.

To Use Chart:

1. Located 'Recommended Cap. Tube ID' in left hand column.
2. Read across and find conversion factor under 'Possible Capillary Tube ID' sizes.
3. Multiply the given length of the recommended tube by the conversion factor of the possible tube.
4. The resultant length of tube will give the same flow characteristics as the original recommended tube.

Example: Recommended capillary tube 2 metres of 1.02mm. Locate 1.02mm in left hand column and reading across gives the following conversion factors: For 0.91mm ID Tubing - Factor 0.62. For 1.1mm ID tubing - Factor 1.55. Multiply the recommended capillary tube length of 2 metres by the conversion factors, which give the following results: 1.24m of 0.91mm ID and 3.1m of 1.1mm ID. Either of these capillary tubes will give the same results as the original.

Recommended Tube ID		Possible Tube ID - mm (inches)											
mm	Inches	0.66 (0.026)	0.8 (0.031)	0.91 (0.036)	1.1 (0.044)	1.27 (0.05)	1.4 (0.055)	1.5 (0.059)	1.62 (0.064)	1.78 (0.07)	1.9 (0.075)	2.04 (0.08)	2.3 (0.09)
0.61	0.024	1.44											
0.64	0.025	1.2											
0.66	0.026	1	2.24										
0.71	0.028	0.72	1.59										
0.76	0.03	0.52	1.16										
0.8	0.031	0.45	1	2									
0.81	0.032		0.86	1.75									
0.84	0.033		0.75	1.54									
0.86	0.034		0.65	1.35									
0.89	0.035		0.58	1.16									
0.91	0.036		0.5	1									
0.94	0.037		0.45	0.9	2.22								
0.97	0.038		0.39	0.8	1.92								
0.99	0.039		0.35	0.71	1.75								
1.02	0.04		0.31	0.62	1.55								
1.04	0.041		0.28	0.56	1.38	2.5							
1.07	0.042		0.25	0.5	1.24	2.23							
1.09	0.043		0.23	0.45	1.11	1.98							
1.1	0.044		0.2	0.39	1	1.79							
1.14	0.045			0.35	0.9	1.6							
1.17	0.046			0.32	0.82	1.47	2.27						
1.19	0.047				0.74	1.31	2.06						
1.22	0.048				0.67	1.2	1.87						
1.24	0.049				0.61	1.09	1.69						
1.27	0.05				0.56	1	1.56	2.14					
1.3	0.051				0.51	0.93	1.44	1.96					
1.32	0.052				0.47	0.85	1.32	1.78					
1.35	0.053				0.43	0.78	1.2	1.64					
1.37	0.054				0.39	0.7	1.09	1.52	2.18				
1.4	0.055				0.36	0.64	1	1.38	2				
1.42	0.056					0.6	0.94	1.27	1.85				
1.45	0.057					0.55	0.87	1.17	1.72				
1.47	0.058					0.51	0.8	1.07	1.56				
1.5	0.059					0.47	0.73	1	1.44	2.18			
1.52	0.06					0.43	0.67	0.93	1.33	2.04			
1.62	0.064					0.32	0.5	0.69	1	1.5	2.07		
1.78	0.07						0.33	0.46	0.67	1	1.37	1.84	
1.9	0.075								0.48	0.73	1	1.37	
2.04	0.08									0.54	0.74	1	1.71
2.16	0.085										0.57	0.76	1.29
2.3	0.09										0.43	0.62	1
2.41	0.095											0.46	0.79
2.54	0.1												0.62
2.67	0.105												0.49



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Pressure Regulating Valve Selection Guide

General Definition

A device for regulating the flow of refrigerant, whether liquid or vapour in refrigeration and air conditioning systems. This Selection Guide briefly describes the main types, their common names and application. It should be remembered that due to the wide variety of control systems in use, one type of regulator/valve may perform several functions, and when coupled with other types of control valves (Solenoid Valves, Check Valves etc.) their application may be extended. Therefore only the more common applications are detailed below.

Capacity Regulator

Also known as: Hot Gas By-Pass Regulator/Valve, Discharge By-Pass Regulator/Valve, Discharge Pressure Regulator/Valve. Often abbreviated to HGBP Regulator/Valve. Description: Used to control the compressor capacity and prevent suction pressure from falling to objectionably low levels. May be used in systems with one or more evaporators where compressor itself has no capacity regulation or can extend compressor capacity reduction below the last step of cylinder unloading.

Application: By-Pass to Suction Line – piped so that discharge gas is admitted to the suction line to flow against the direction of the suction gas. To prevent overheating of the compressor, a liquid injection valve is sometimes required for de-superheating.

By-Pass to Evaporator Inlet – usually fitted between the TX valve and the refrigerant distributor. The advantage of this method is that the artificial load imposed on the evaporator causes the TX valve to respond to the increase in superheat, thus eliminating the need for the liquid injection valve. This type of system must be equipped with a Venturi-Flo Refrigerant Distributor (i.e. no restrictor orifice). It is recommended that a solenoid valve be installed ahead of the by-pass regulator permitting the system to operate on an automatic pump-down cycle and also guarding against leakage during the 'off-cycle'.

Also used for: By-Pass Control Valve for air-cooled condensers.

Crankcase Pressure Regulating Valve

Also known as: Hold Back Valve, Suction Pressure Regulator, Starting Regulator, Outlet Regulator, Downstream Regulator. Often abbreviated to CPRV.

Description: A valve which regulates the suction pressure to a pre-determined maximum in order to prevent the compressor motor overloading, which may be due to any or all of the following: High load on start up, high suction pressure at termination of defrosting cycle, surges in suction pressure, prolonged operation at excessive suction pressures, low voltage and high suction pressure conditions.

Application: Installed in the suction line ahead of the compressor, the valve establishes the maximum pressure at the compressor inlet, thus providing overload protection for the compressor motor. May be used with one or more evaporators, either direct expansion or flooded evaporator designs. Also used for: High to low side by-pass, by-pass control for air cooled condensers.

Evaporator Pressure Regulating Valve

Also known as: Back Pressure Regulator / Valve, Constant Pressure Valve*, Upstream Regulator, Inlet Pressure Regulator, Suction Line Regulator. Often Abbreviated to: EPR or EPRV.

*Sometimes referred to as a Constant Pressure Regulator, but should not be confused with the same 'general' term applied to an automatic expansion valve.

Description: Used to maintain a constant evaporating pressure and hence a constant evaporator temperature plus protection against too low an evaporating pressure since the regulator closes when the pressure in the evaporator falls below the setting.

Application: Installed in the suction line near the evaporator outlet. Available in two main types: Direct operated and pilot operated. Pilot operated regulators may be integral types, or remote pilot actuated either by pressure or temperature. Also used for: Freeze-up or frost protection, maintaining evaporator pressure during a defrost, providing a safety or pressure relief function.

Condenser Pressure Regulator For Water Cooled Condensers

Also known as: Pressure Controlled Water Valve, Temperature Controlled Water Valve.

Description: The water valve is used for regulating the quantity of water in refrigeration systems with water cooled condensers. Use of the water valve results in modulating regulation of the condensing pressure so that it is kept almost constant during operation.

Condenser Pressure Regulator For Air Cooled Condensers

Also known as: Head Pressure Control Valve.

Description: To maintain a constant and sufficiently high condensing pressure in air cooled condensers at low ambient temperatures. The valve must maintain liquid subcooling and prevent liquid line flash-gas and also provide adequate pressure at the inlet side of the TX valve to obtain sufficient pressure drop across the valve port.

Application: Dependent on the type of control circuit employed or recommended by the air cooled condenser manufacturer, the control may be either a single three-way modulating type valve or two separate valves to achieve the same function.

Thermostatic Injection Valve

Also known as: Liquid Injection Valve.

Description: Used to prevent compressor overheating and high discharge temperatures when: An R717 compressor operates either at low suction pressures or at high condensing temperatures. A compressor operates both at low suction pressures and at high condensing temperatures, especially with R22. A compressor operates with By-pass to suction line hot gas by-pass.

Application: Liquid injected into a gas to be de-superheated should be injected in a manner which provides homogeneous mixing of the liquid and superheated gas. Preferred method is to pipe the hot gas and liquid injection into a Tee to permit good mixing before it enters the suction line. A good mix with the suction gas may be gained by injecting the liquid/hot gas mixture into the suction line at approximately a 45° angle against the flow of suction gas to the compressor.



Air Cooled Condenser Selection

The selection of an air cooled condenser is based on the heat rejection capacity at the condenser rather than net refrigeration effect at the evaporator because the refrigerant gas absorbs additional energy in the compressor. This additional energy, the heat of compression, varies appreciably with the operating conditions of the system and with compressor design, whether open or suction cooled hermetic type.

Some compressor manufacturers publish heat rejection figures as part of their compressor ratings. Since heat rejection varies with compressor designs, it is recommended that the compressor manufacturer's data be used whenever available in selecting an air cooled condenser. If the compressor manufacturer does not publish heat rejection ratings, factors from Table A and B may be used to estimate total heat rejection (THR).

Heat Rejection Factors

Open Compressors

TABLE A

Evap. Temp. °C	Condensing Temperature °C						
	30	35	40	45	50	55	60
-35	1.37	1.4	1.44	1.5	*	*	*
-30	1.32	1.36	1.4	1.44	1.5	*	*
-25	1.28	1.31	1.35	1.39	1.44	1.49	*
-20	1.24	1.27	1.31	1.35	1.39	1.44	1.49
-15	1.21	1.24	1.28	1.31	1.35	1.39	1.44
-10	1.18	1.21	1.24	1.27	1.31	1.35	1.39
-5	1.15	1.18	1.21	1.24	1.28	1.31	1.35
0	1.12	1.15	1.18	1.2	1.24	1.27	1.31
5	1.1	1.13	1.15	1.17	1.2	1.24	1.27
10	1.08	1.11	1.13	1.15	1.18	1.2	1.24

*Outside of normal limits for single stage compression application.

Suction Cooled Hermetic Compressors

TABLE B

Evap. Temp. °C	Condensing Temperature °C						
	30	35	40	45	50	55	60
-35	1.56	1.6	1.65	1.71	*	*	*
-30	1.49	1.52	1.56	1.62	1.68	*	*
-25	1.43	1.46	1.49	1.54	1.6	1.68	*
-20	1.37	1.4	1.45	1.48	1.54	1.6	1.65
-15	1.32	1.35	1.39	1.43	1.47	1.53	1.58
-10	1.28	1.31	1.33	1.37	1.42	1.47	1.52
-5	1.24	1.26	1.29	1.33	1.37	1.41	1.46
0	1.2	1.22	1.25	1.28	1.32	1.36	1.41
5	1.16	1.19	1.22	1.24	1.27	1.31	1.35
10	1.13	1.15	1.18	1.21	1.24	1.26	1.29

$$\text{Condenser Capacity (THR)} = \text{Compressor Capacity} \times \text{Heat Rejection Factor}$$

Selection Example:

Given:

- Compressor Capacity 38600 Watts
- Evaporating Temperature 5°C
- Refrigerant R22
- Ambient Air 35°C
- Maximum Condensing Temperature 50°C
- Suction Cooled Hermetic Compressor

Procedure

- Assuming the compressor manufacturers heat rejection data is not available, determine the heat rejection factor for the specified conditions using Table B (Suction Cooled Hermetic Compressors) = 1.27

- Multiply the compressor capacity by the heat rejection factor to estimate the required condenser capacity (Total Heat Rejection, THR)
 $38600 \times 1.27 = 49022 \text{ Watts THR}$

- Divide required THR by the specified temperature difference (KTD) between condensing temperature and the ambient air,
 $50^\circ - 35^\circ\text{C} = 15 \text{ K TD.}$
 $\frac{49022 \text{ Watts}}{15 \text{ K TD}} = 3268 \text{ Watts / K TD}$

- Select condenser from manufacturers capacity tables, based on R22 and 1K temperature difference. Select a model that has this capacity, if the model selected is oversized the condenser will balance the compressor heat rejection at less than the maximum condensing temperature of 50°C.



Motor Types

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SINGLE PHASE MOTORS WITH START WINDING

P.T.C.S.I.R During start-up, the start winding is fed through the P.T.C. which changes the resistance of the P.T.C. with the change in temperature.

ELECTRICAL COMPONENTS:

- 1 P.T.C.
- 1 External overload protector fitted on the compressor.
- 1 Earth connection

R.S.I.R. During start-up, the start winding is energised through an electromagnetic relay.

ELECTRICAL COMPONENTS:

- 1 Electromagnetic relay
- 1 External overload protector fitted on the compressor
- 1 Earth connection

C.S.I.R. During start-up, the start winding is energised through an electromagnetic relay and a start capacitor.

ELECTRICAL COMPONENTS:

- 1 Electromagnetic relay
- 1 External overload protector fitted on the compressor
- 1 Start capacitor
- 1 Earth connection

SINGLE PHASE MOTORS WITH PERMANENT SPLIT CAPACITOR

P.T.C.S.R During start-up, the start winding is fed through the P.T.C. which changes the resistance of the P.T.C. with the change in temperature.

ELECTRICAL COMPONENTS:

- 1 P.T.C.
- 1 External overload protector fitted on the compressor
- 1 Run capacitor
- 1 Earth connection

P.S.C. The start winding of such a motor remains in circuit through a permanent split capacitor.

ELECTRICAL COMPONENTS:

- 1 External overload protector fitted on the compressor
- 1 Run capacitor
- 1 Earth connection

C.S.R. During start-up, the start winding is energised through an electromagnetic potential relay and a start capacitor. This winding remains in circuit and is supplied through a permanent split capacitor.

ELECTRICAL COMPONENTS:

- 1 External overload protector fitted on the compressor
- 1 Electrical box containing:
- 1 Electromagnetic potential relay
- 1 Start capacitor fitted with a discharge pressure
- 1 Terminal block
- 1 Earth connection
- 1 External run capacitor with fixing bracket



Coolroom Design Data

Product Load

Product placed in a refrigerated room at a temperature higher than the storage temperature will lose heat until it reaches the storage temperature. The product load will be affected by one or more of the following factors:

- Specific Heat
- Latent Heat of Fusion
- Heat of Respiration

Specific Heat is the amount of heat required to change the temperature of 1kg of product 1K. It has two values, one above freezing, the other below freezing due to the change in state which occurs.

Latent Heat of Fusion is the amount of heat removal required to freeze 1kg of product. It should be noted that the latent heat has a definite relationship to the water content of a product. Most food products have a freezing temperature in the range of -3°C to -0.5°C . If the exact freezing temperature is unknown, it may be assumed to be -2°C .

Heat of Respiration is the amount of heat given off by products such as fresh fruits and vegetables during storage. Since the products are alive, they continually undergo a change in which energy is released in the form of heat. The amount of heat liberated varies with the type and temperature of the product.

Miscellaneous- All electrical energy dissipated by lights, motors, heaters etc. located in the refrigerated area must be included in the heat load. An item often overlooked is the fan motor on a unit cooler. Heat equivalents of electric motors vary as to size of motor.

Balancing the System

For the general purpose coolroom, holding meats, vegetables and dairy products, it is common procedure to balance the low side to the condensing unit at a 6K to 7K temperature difference; that is, they are balanced to maintain a temperature difference between the refrigerant in the coil and the air of 6K to 7K. It has been learned by experience that, if this is done, one may expect to maintain in a cooler 80% to 85% relative humidity, which is a good range for general storage.

A coil which is selected for a wide temperature difference will maintain a lower relative humidity in service, whereas one which is selected for too close temperature difference will produce relative humidities which are higher than required for practical operation and surface sliming may result on stored meat products during winter periods when loads are reduced and compressor running time falls off. Heat may have to be added to the room for about 6 hours/day compressor operation. On straight vegetable coolers where higher humidities are desired, the coil should be selected to balance the compressor at a 4K to 6K temperature difference, as such will produce an average relative humidity of 90% within the refrigerated space. The same recommendation applies to florists' display rooms and in both cases, the maintenance of a high relative humidity in long term storage is beneficial whereas some exception with reference to meat products is noted above.

On low temperature units, if one stops to consider that the amount of dehumidification is in proportion to the temperature difference, it is obvious that the closer the temperature difference, the less frost accumulation. It is strongly recommended that coils for low temperature work be selected to balance the condensing unit at a 6K temperature difference or less.

Selection of T.X. Valves

The selection and installation of thermostatic expansion (T.X.) valves is of utmost importance for best coil performance. Valve capacity must be at least equal to the coil load rating and never more than twice that value. Any valve which is substantially oversized will tend to be erratic in operation and this will penalise both coil performance and rated capacity output. Liquid line strainers should always be installed ahead of all T.X. valves.

T.X. valves are nominally rated with R22 refrigerant at 4°C evaporator temperature, 5.6K superheat and 690 kPa (100 psi) differential (pressure at valve inlet minus pressure at valve outlet). For capacities at other differentials or when used with other refrigerants, the valve manufacturer's ratings must be consulted and closely followed in reference to Capacity Correction Factors.

Although it is frequently assumed that when thermostatic expansion valves are used in low temperature applications, some increased capacity results due to a higher pressure differential, this is not always true because of variations in valve design. It is always advisable under wide range conditions to secure the valve manufacturer's recommendations.

As a further precautionary note, the power element charges of all T.X. valves must be properly selected for operating temperature ranges and the type of refrigerant used in the system.

T.X. valves should be located as close as possible to evaporator inlet and bulbs attached or inserted at a point where refrigerant will not trap in the suction line. Keep bulbs away from tees in common suction lines so that one valve will not affect any other valve.

Externally equalised valves should be used on all multicircuited evaporators. In general, internally equalised valves are applied with single circuited coils.



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Coolroom Design Data

Storage Requirements of Perishable Products

Product	Storage Temp. °C	Relative Humidity %	Specific Heat kj / kg • K		Latent Heat kj / kg	Approx. Freezing Point °C	Approx. Storage Life	Water Content %
			Above Freezing	Below Freezing				
Fruits and Melons								
Apples	-1 to 4	90 to 95	3.65	1.89	280	-1.1	3 to 8 months	84
Apricots	0	90 to 95	3.68	1.9	284	-1.1	1 to 2 weeks	85
Avocados – Green	7 to 10	85 to 90	3.01	1.65	217	-0.3	2 to 4 weeks	65
Bananas		85 to 95	3.35	1.78	250	-0.8		75
Blackberries	0	90 to 100	3.68	1.9	284	-0.8	2 to 3 days	85
Blueberries	0	90 to 100	3.58	1.86	274	-1.6	2 weeks	82
Cantaloupe (Rock Melon)	2 to 4	90	3.92	1.99	307	-1.2	5 to 15 days	92
Casaba Melons	7 to 10	85 to 95	3.95	2	310	-1.1	4 to 6 weeks	93
Cherries	-1 to 0	95	3.51	1.84	267	-1.8	2 to 3 weeks	80
Coconuts	0 to 2	80 to 85	2.41	1.43	157	-0.9	1 to 2 months	47
Cranberries	2 to 4	90 to 95	3.75	1.93	290	-0.9	2 to 4 months	87
Currents	-0.5 to 0	90 to 95	3.68	1.9	284	-1	10 to 14 days	85
Dates – Cured	-18 or 0	75 or less	1.5	1.09	67	-16	6 to 12 monthly	20
Dew Berries	0	90 to 95	3.68	1.9	284	-1.3	3 days	85
Figs – Dried	0 to 4	50 to 60	1.61	1.12	77		9 to 12 months	23
– Fresh	-1 to 0	85 to 90	3.45	1.81	260	-2.4	7 to 10 days	78
Frozen Fruits	-23 to –18	90 to 95					6 to 12 months	
Gooseberries	0	90 to 95	3.82	1.95	297	-1.1	1 to 2 weeks	89
Grapefruit	14 to 16	85 to 90	3.82	1.95	297	-1.1	4 to 6 weeks	89
Grapes	-1 to 0	95 to 100	3.58	1.86	274	-2	3 to 6 months	82
Honeydew Melons	7 to 10	90	3.95	2	310	-0.9	3 to 4 weeks	93
Lemons	15 to 18	85 to 90	3.82	1.95	297	-1.4	1 to 6 months	89
Limes	9 to 10	85 to 90	3.72	1.92	287	-1.6	6 to 8 weeks	86
Mangoes	13	85 to 90	3.55	1.85	270	-0.9	2 weeks	81
Nectarines	0	90	3.58	1.86	274	-0.9	1 to 2 weeks	82
Olives – Fresh	7 to 10	85 to 90	3.35	1.78	250	-1.4	4 to 6 weeks	75
Oranges	5	85 to 90	3.75	1.93	290	-0.8	3 to 12 weeks	87
Orange Juice	-1 to 2		3.82	1.95	297		3 to 6 weeks	89
Papaw	13	90	3.88	1.98	304	-0.8	1 to 3 weeks	91
Peaches	0	90 to 95	3.82	1.95	297	-0.9	2 to 3 weeks	89
Pears	-1.6 to 0	90 to 95	3.61	1.88	277	-1.6	2 to 6 months	83
Persian Melons	7 to 10	90 to 95	3.95	2	310	-0.8	2 weeks	93
Persimmons	-1	90	3.45	1.81	260	-2.2	3 to 4 months	78
Pineapples	20	85 to 90	3.68	1.9	284	-1	1 to 4 weeks	85
Plums	-0.5 to 0	90 to 95	3.72	1.92	287	-0.8	1 to 4 weeks	86
Pomegranates	0	90	3.58	1.86	274	-3	2 to 4 months	82
Prunes – Fresh	-1 to 0	90 to 95	3.72	1.92	287	-0.8	2 to 4 weeks	86
– Dried	0 to 4	55 to 60	1.77	1.19			5 to 8 months	28
Quinces	-1 to 0	90	3.68	1.9	284	-2	2 to 3 months	85
Raspberries	0	90 to 100	3.55	1.85	270	-1.1	2 to 3 days	81
Strawberries	0	90 to 100	3.85	1.97	300	-0.8	5 to 7 days	90
Tangerines	0	90 to 95	3.75	1.93	290	-1.1	2 to 4 weeks	87
Watermelons	5 to 10	85 to 90	3.95	2	310	-0.4	2 to 3 weeks	93



Coolroom Design Data

Storage Requirements of Perishable Products

Product	Storage Temp. °C	Relative Humidity %	Specific Heat kj / kg • K		Latent Heat kj / kg	Approx. Freezing Point °C	Approx. Storage Life	Water Content %
			Above Freezing	Below Freezing				
Vegetables								
Artichokes – Globe	0	95 to 100	3.65	1.89	280	-1.2	2 weeks	84
– Jerusalem	0	90 to 95	3.47	1.84	267	-2.5	5 months	80
Asparagus	0 to 2	95 to 100	3.95	2	310	-0.6	2 to 3 weeks	93
Beans – Green	7 to 10	95 to 100	3.82	1.95	297	-0.7	7 to 10 days	89
Beetroot – Bunch	0	95 to 100				-0.4	1 to 2 weeks	
– Topped	0	95 to 100	3.78	1.94	294	-0.9	2 to 5 months	88
Broccoli	0	95 to 100	3.85	1.97	300	-0.6	10 to 14 days	90
Brussels Sprouts	0	95 to 100	3.68	1.9	284	-0.8	3 to 5 weeks	85
Cabbage	0	98 to 100	3.92	1.99	307	-0.9	1 to 4 months	92
Carrots – Topped, Immature	0	98 to 100	3.78	1.94	294	-1.4	4 to 6 weeks	88
– Topped, Mature	0	98 to 100	3.78	1.94	294	-1.4	4 to 5 months	88
Cauliflower	0	95 to 100	3.92	1.99	307	-0.8	2 to 4 weeks	92
Celery	0	95 to 100	3.98	2.02	314	-0.5	1 to 2 months	94
Corn – Sweet	0	95 to 98	3.31	1.76	247	-0.6	4 to 8 days	74
Cucumbers	10	95 to 100	4.05	2.04	320	-0.5	10 to 14 days	96
Eggplant	7 to 10	90 to 95	3.95	2	310	-0.8	7 days	93
Endive (Escarole)	0	90 to 100	3.95	2	310	-0.1	2 to 3 weeks	93
Frozen Vegetables	-23 to -18						6 to 12 months	
Garlic – Dry	0	65 to 70	2.88	1.6	203	-0.8	6 to 7 months	61
Horseradish	0	95 to 100	3.35	1.78	250	-1.8	10 to 12 months	75
Kale	0	95	3.75	1.93	290	-0.5	3 to 4 weeks	87
Kohlrabi	0	90 to 100	3.85	1.97	300	-1	2 to 4 weeks	90
Leeks – Green	0	95	3.68	1.9	284	-0.7	1 to 3 months	85
Lettuce – Head	0	95 to 100	4.02	2.03	317	-0.2	2 to 3 weeks	95
Mushrooms	0	95	3.88	1.98	304	-0.9	3 to 4 days	91
Onions – Dry	0	65 to 70	3.78	1.94	294	-0.8	1 to 8 months	88
Parsley	0	95 to 100	3.68	1.9	284	-1.1	1 to 2 months	85
Parsnips	0	98 to 100	3.48	1.83	264	-0.9	2 to 6 months	79
Peas – Green	0	95 to 98	3.31	1.76	247	-0.6	1 to 2 weeks	74
– Dried	10	70	1.24	0.99			6 to 8 months	12
Peppers – Sweet	7 to 13	90 to 95	3.92	1.99	307	-0.7	2 to 3 weeks	92
– Dry, Chilli	0 to 10	60 to 70	1.24	0.99			6 months	12
Potatoes – Cullinary	7	90 to 95	3.45	1.81	260	-0.7		78
– Sweet	13 to 16	85 to 90	3.15	1.7	230	-1.3	4 to 6 months	69
Pumpkins	13	85 to 90	3.88	1.98	304	-0.8	2 to 3 months	91
Radishes – Topped	0	90 to 95	4.02	2.03	317	-0.7	3 to 4 weeks	95
Rhubarb	0	95	4.02	2.03	317	-0.9	2 to 4 weeks	95
Rutabaga	0	90 to 95	3.82	1.95	297	-1.1	2 to 4 months	89
Silverbeet (Spinach)	0	95 to 98	3.95	2	310	-0.3	1 to 2 weeks	93
Squash – Button	7	95 to 100	3.98	2.02	314	-0.5	1 to 3 weeks	94
– Hard Shell	13	85 to 90	3.68	1.9	284	-0.8	1 to 3 months	85
Tomatoes – Firm, Ripe	5 to 7	90 to 95	3.98	2.02	313	-0.5	4 to 7 days	94
– Mature, Green	13	90 to 95	3.95	2	310	-0.6	1 to 2 weeks	93
Turnips	0	95	3.92	1.99	307	-1.1	4 to 5 months	92
Yams	16	85 to 90	3.31	1.76	247		3 to 6 months	74



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Storage Requirements of Perishable Products

Product	Storage Temp. °C	Relative Humidity %	Specific Heat kj / kg • K		Latent Heat kj / kg	Approx. Freezing Point °C	Approx. Storage Life	Water Content %
			Above Freezing	Below Freezing				
Meat - Fish - Shellfish								
Bacon – Medium Fat	3 to 5	80 to 85	1.47	1.07	63		2 to 3 weeks	19
– Frozen	-23 to -18	90 to 95					2 to 4 months	
Beef – Fresh, Average	0 to 1	88 to 92	2.9 to 3.4	1.6 to 1.8	206 to 257	-2.2 to -2.7	1 to 6 weeks	62 to 77
– Liver	0	90	3.18	1.71	233	-1.7	5 days	70
– Veal	0 to 1	90	3.05	1.66	220		1 to 7 days	66
– Frozen	-23 to -18	90 to 95					6 to 12 months	
Ham – 74% Lean	0 to 1	80 to 85	2.71	1.54	187	-1.7	3 to 5 days	56
– Light Cure	3 to 5	80 to 85	2.74	1.55	190		1 to 2 weeks	57
– Country Cure	10 to 15	65 to 70	2.24	1.36	140		3 to 5 months	42
– Frozen	-23 to -18	90 to 95					6 to 8 months	
Lamb – Fresh, Average	0 to 1	85 to 90	2.8 to 3.2	1.6 to 1.7	200 to 233	-2.2 to -1.7	5 to 12 days	60 to 70
– Frozen	-23 to -18	90 to 95					8 to 12 months	
Pork – Fresh, Average	0 to 1	85 to 90	1.9 to 2.3	1.2 to 1.4	107 to 147	-2.2 to -2.7	3 to 7 days	32 to 44
– Frozen	-23 to -18	90 to 95					4 to 8 months	
– Sausage	0 to 1	85	2.11	1.31	127		1 to 7 days	38
Poultry – Fresh, Average	-2 to 0	85 to 90	3.31	1.76	247	-2.8	1 week	74
– Frozen	-23 to -18	90 to 95					8 to 12 months	
Rabbits – Fresh	0 to 1	90 to 95	3.11	1.69	227		1 to 5 days	68
Fish – Fresh, Average	-1 to 1	95 to 100	2.91 to 3.55	1.61 to 1.85	207 to 270	-2.2	5 to 14 days	62 to 81
– Frozen	-29 to -18	90 to 95					6 to 12 months	
Scallops – Meat	0 to 1	95 to 100	3.51	1.84	267	-2.2	12 days	80
Shrimp	-1 to 1	95 to 100	3.38	1.79	254	-2.2	12 to 14 days	76
Oysters, Clams – Meat and Liquid	0 to 2	100	3.75	1.93	290	-2.2	5 to 8 days	87
Oysters – In Shell	5 to 10	95 to 100	3.51	1.84	267	-2.8	5 days	80
Shellfish – Frozen	-29 to -18	90 to 95					3 to 8 months	
Miscellaneous								
Beer – Bottles & Cans	2 to 4	65 or less	3.85	1.97	300	-2.2	3 to 6 months	90
Bread – Frozen	-18		1.99	1.27	106 to 123	-9 to -7	3 to 13 weeks	32 to 37
Butter	0 to 4	75 to 85	1.37	1.04	53	-20 to -0.6	1 month	16
Butter – Frozen	-23	70 to 85					12 Months	
Cheese – Cheddar	0 to 1	65	2.07	1.3	123	-13	12 months	37
– Cheddar	4.4	65	2.07	1.3	123	-13	6 months	37
Chocolate – Milk	-18 to 1	40	0.87	0.85	3.3		6 to 12 months	1
Coffee – Green	2 to 3	80 to 85	1.17 to 1.34	0.96 to 1.03	33 to 50		2 to 4 months	10 to 15
Eggs – Whole	-2 to 0	80 to 85	3.05	1.66	220	-2.2	5 to 6 months	66
– Whole	10 to 13	70 to 75	3.05	1.66	220	-2.2	2 to 3 weeks	66
– Frozen, Whole	-18 or less		3.31	1.76	247		1 year plus	74
Furs and Fabrics	1 to 4	45 to 55					Several years	
Honey	Below 10		1.4	1.05	57		1 year plus	17
Hops	-2 to 0	50 to 60					Several months	
Milk–Whole, Pasteurised	0 to 1		3.75	1.93	290	-0.6		87
Nuts	0 to 10	65 to 75	0.94 to 1.04	0.88 to 0.91	10 to 20		8 to 12 months	3 to 6
Oleomargarine	2	60 to 70	1.37	1.04	53		1 year plus	16
Popcorn – Unpopped	0 to 4	85	1.17	0.96	33		4 to 6 weeks	10



Coolroom Design Data

Heat of Respiration: Watts / Tonne

Product	Storage Temperature : °C				
	0	5	10	15	20
Fruits and Melons					
Apples	6 – 10	13 – 20		35 – 80	45 – 95
Apricots	16 – 17	19 – 27	33 – 56	63 – 102	87 – 155
Avocados – Green		53 – 80		160 – 415	195 – 915
Blackberries	47 – 68	85 – 136	155 – 281	209 – 432	388 – 582
Blueberries	7 – 31	27 – 36		101 – 183	154 – 259
Cantaloupe (Rock Melon)		26 – 30	46	100 – 114	132 – 192
Cherries – Sweet	12 – 16	28 – 42		74 – 133	83 – 95
Cranberries		12 – 14			33 – 54
Figs – Fresh		33 – 39	66 – 68	146 – 188	169 – 282
Gooseberries	20 – 26	36 – 40		65 – 96	
Grapefruit				38	52
Grapes	4 – 6	8 – 16		26 – 31	
Honeydew Melons			24	35 – 47	59 – 71
Lemons				47	67
Limes			8 – 17	17 – 31	20 – 55
Mangoes				133	223 – 449
Olives – Fresh				65 – 116	114 – 145
Oranges	5 – 13	10 – 19		35 – 60	60 – 90
Papaw		11 – 16		40 – 60	
Peaches	12 – 19	19 – 27		98 – 126	176 – 304
Pears	8 – 15	18 – 39	23 – 59	76 – 155	101 – 231
Persimmons		18		35 – 42	59 – 71
Pineapples		4 – 6		35 – 50	65 – 105
Plums	6 – 9	12 – 27	27 – 34	35 – 37	53 – 77
Raspberries	52 – 74	92 – 114	82 – 165	244 – 301	340 – 727
Strawberries	36 – 52	49 – 98	146 – 281	211 – 274	303 – 581
Watermelons			22		51 – 74



Coolroom Design Data

Heat of Respiration: Watts / Tonne

Product	Storage Temperature : °C				
	0	5	10	15	20
Vegetables					
Artichokes – Globe	67 – 133	95 – 178	162 – 292	229 – 430	404 – 692
Asparagus	81 – 238	162 – 404	318 – 904	472 – 971	809 – 1484
Beans – Green		101 – 104	162 – 173	252 – 276	351 – 386
Beetroot – Topped	16 – 21	27 – 28	35 – 40	50 – 69	
Broccoli	55 – 64	102 – 475		515 – 1008	825 – 1011
Brussels Sprouts	46 – 71	96 – 144	187 – 251	283 – 317	267 – 564
Cabbage - White	15 – 40	22 – 64	36 – 98	58 – 170	
Carrots – Topped	46	58	93	117	209
Cauliflower	53	61	100	137	238
Celery	20	30		100	170
Corn – Sweet	126	230	332	483	855
Cucumbers			68 – 86	71 – 98	92 – 143
Garlic – Dry	9 – 32	18 – 29	27 – 29	33 – 81	30 – 54
Horseradish	24	32	78	97	132
Kohlrabi	30	49	93	146	
Leeks – Green	28 – 49	58 – 86	159 – 202	245 – 347	
Lettuce – Head	27 – 50	40 – 59	81 – 119	114 – 121	178
Mushrooms	83 – 130	210			782 – 939
Onions – Dry	9	10	21	33	50
Parsley	98 – 137	196 – 252	389 – 487	427 – 662	582 – 757
Parsnips	34 – 46	26 – 52	61 – 78	96 – 127	
Peas – Green	90 – 139	163 – 227		530 – 600	728 – 1072
Peppers – Sweet			43	68	130
Potatoes – Immature		35	42 – 62	42 – 92	54 – 134
– Mature		18 – 20	20 – 30	20 – 35	20 – 47
Radishes – Topped	16 – 18	23 – 24	45	82 – 97	142 – 146
Rhubarb – Topped	24 – 39	33 – 54		92 – 135	119 – 169
Rutabaga	6 – 8	14 – 15		32 – 47	
Silverbeet (Spinach)		136	328	531	682
Tomatoes – Coloured and Ripe		16		65 – 75	65 – 115
– Mature, Green		13 – 22		43 – 75	75 – 110
Turnips – Roots	26	28 – 30		64 – 71	71 – 74



Coolroom Design Data

Heat Load Tables

2°C Coolrooms

Based on:

- 35°C Ambient Temperature
- 75mm Polystyrene Insulation
- Product Specific Heat: 3.4 kJ/kg K
- Product Pull Down Time: 24 hours
- 16 hours/day Compressor Operation
- Heavy Usage = Average Air Changes x 2

External Dimensions : m		Volume m3	Heat Load – Watts					
			Product Load Per Day (Product Entering at 12°C)					
Height = 2.4			150 kg		350 kg		700 kg	
Length	Width		Average Usage	Heavy Usage	Average Usage	Heavy Usage	Average Usage	Heavy Usage
1.8	1.2	3.9	930	1280	1070	1420		
1.8	1.8	6.13	1120	1560	1260	1690		
1.8	2.4	8.35	1300	1800	1440	2010		
1.8	3	10.58	1470	2100	1610	2240		
2.4	2.4	11.39	1510	2150	1650	2290	1890	2530
2.4	3	14.43	1710	2420	1840	2550	2080	2800
2.4	3.6	17.47	1900	2660	2030	2800	2270	3040
2.4	4.2	20.5			2220	3040	2460	3280
3	3	18.28			2060	2850	2310	3090
3	3.6	22.12			2280	3130	2520	3370
3	4.2	25.97			2490	3390	2730	3630
3.6	3.6	26.78			2520	3440	2760	3680
3.6	4.2	31.44			2750	3730	3060	4040
4.2	4.2	36.91			3070	4120	3310	4370

-18°C Freezers

Based on:

- 35°C Ambient Temperature
- 150mm Polystyrene Insulation
- Heavy Usage = Average Air Changes x 2
- Product Specific Heat above freezing: 3.3 kJ/kg K
- Product Specific Heat below freezing: 1.5 kJ/kg K
- Product Latent Heat: 247 kJ/kg
- Product pull down time: 24 hours
- 18 hours/day compressor operation

External Dimensions : m		Volume m3	Storage Only – No Product Freezing	Heat Load - Watts		
				Product Freezing Load Per Day (Product Entering at 5°C)		
Length	Width			150 kg	350 kg	700 kg
1.8	1.2	2.84	740	1480	2550	
1.8	1.8	4.72	930	1660	2730	
1.8	2.4	6.61	1100	1820	2900	
1.8	3	8.51	1250	2040	3050	
2.4	2.4	9.26	1300	2080	3090	4910
2.4	3	11.91	1490	2260	3260	5090
2.4	3.6	14.55	1670	2430	3430	5260
2.4	4.2	17.2	1840	2590	3600	5420
3	3	15.31	1710	2460	3470	5290
3	3.6	18.71	1910	2650	3660	5480
3	4.2	22.11	2170	2840	3840	5670
3.6	3.6	22.87	2200	2870	3870	5700
3.6	4.2	27.03	2420	3080	4150	5910
4.2	4.2	31.94	2650	3310	4380	6140

We recommend that the above information be used as a guide only and that each particular application be referred to Actrol for selection advice. See Page 409.



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Thermostatic Expansion Valve

Superheat

A vapour is superheated whenever its temperature is higher than the saturation temperature corresponding to its pressure. The amount of the superheat equals the amount of temperature increase above the saturation temperature at the existing pressure.

For example, a refrigeration evaporator is operating with Refrigerant 134a at 236 kPa suction pressure (See Figure 1). The Refrigerant 134a saturation temperature at 236 kPa is 4°C. As long as any liquid exists at this pressure, the refrigerant temperature will remain 4°C as it evaporates or boils off in the evaporator.

As the refrigerant moves along in the coil, the liquid boils off into a vapour, causing the amount of liquid present to decrease. All of the liquid is finally evaporated at point B because it has absorbed sufficient heat from the surrounding atmosphere to change the refrigerant liquid to a vapour. The refrigerant gas continues along the coil and remains at the same pressure (236 kPa) however, its temperature increases due to continued absorption of heat from the surrounding atmosphere. When the refrigerant gas reaches the end of the evaporator (Point C), its temperature is 10°C. This refrigerant gas is now superheated and the amount of superheat is 6°C or 6K ($10^{\circ} - 4^{\circ}$). The degree to which the refrigerant gas is superheated depends on the amount of refrigerant being fed to the evaporator by the T.X. valve and the heat load to which the evaporator is exposed.

Adjustment of Superheat

The function of a T.X. valve is to control the superheat of the suction gas leaving the evaporator in accordance with the valve setting. A T.X. valve which is performing this function within reasonable limits can be said to be operating in a satisfactory manner.

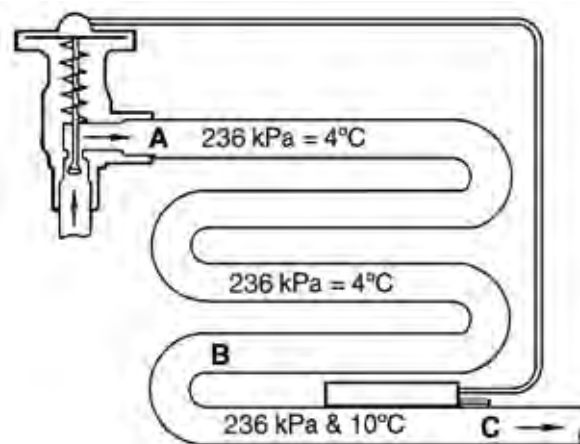
Good superheat control is the criterion of T.X. valve performance. It is important that this function be measured as accurately as possible, or in the absence of accuracy, to be aware of the magnitude and direction of whatever error is present.

Superheat has been previously defined as the temperature increase of the refrigerant gas above the saturation temperature at the existing pressure. Based on this definition, the pressure and temperature of the refrigerant suction gas passing the T.X. valve remote bulb are required for an accurate determination of superheat.

Thus, when measuring superheat, the recommended practice is to install a calibrated pressure gauge in a gauge connection at the evaporator outlet. In the absence of a gauge connection, a tee installed in the T.X. valve external equaliser line can be used just as effectively.

A refrigeration type pocket thermometer with appropriate bulb clamp may be used, or more effective is the use of a service type potentiometer (electric thermometer) with thermocouples (leads and probes).

The temperature element from your temperature meter should be clamped to the suction line at the point of remote bulb location and must be insulated against the ambient. Temperature elements of this type, as well as thermometers, will give an average reading of suction line and ambient if not insulated. Assuming an accurate gauge and temperature meter, this method will provide sufficiently accurate superheat readings for all practical purposes.



**Thermostatic Expansion Valve with internal equaliser
on evaporator with no pressure drop**

On installations where a gauge connection is not available and the valve is internally equalised there are two alternate methods possible. Both of these methods are approximations only and their use is definitely not recommended. The first of these is the two temperature method which utilises the difference in temperature between the evaporator inlet and outlet as the superheat. This method is in error by the temperature equivalent of the pressure drop between the two points of temperature.

Where the pressure drop between the evaporator inlet and outlet is 7 kPa or less, the two temperature method will yield fairly accurate results. However, evaporator pressure drop is usually an unknown and will vary with the load. For this reason, the two temperature method cannot be relied on for absolute superheat readings. It should be noted that the error in the two temperature method is negative and always indicates a superheat lower than the actual figure.

The other method commonly used to check superheat involves taking the temperature at the evaporator outlet and utilising the compressor suction pressure as the evaporator saturation pressure. The error here is obviously due to the pressure drop in the suction line between the evaporator outlet and the compressor suction gauge.

On self-contained equipment, the pressure drop and resulting error are usually small. However, on large built-up systems or systems with long runs of suction line, considerable discrepancies will usually result.

Since estimates of suction line pressure drop are usually not accurate enough to give a true picture of the superheat, this method cannot be relied on for absolute values. It should be noted that the error in this instance will always be positive and the superheat resulting will be higher than the actual value.

Restating, the only method of checking superheat that will yield an absolute value involves a pressure and temperature reading at the evaporator outlet.

Other methods employed will yield a fictitious superheat that can prove misleading when used to analyse T.X. valve performance. By realising the limitations of these approximate methods and the direction of the error, it is often possible to determine that the cause of a trouble call is due to the use of improper methods of instrumentation rather than any malfunction of the valve.



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Technical Tips

Trouble Shooting Tips - A list of Do's and Dont's for Commercial Refrigeration

Do	Don't
• Check suction gas superheat at the compressor. High superheats cause high discharge temperatures and shorten compressor life. • Check expansion valve superheat using the temperature pressure method (refer to Page 388). Set to equipment manufacturer's specification. • Replace filter-driers or drier cores when opening the system for service. • Maintain test instruments in workable calibrated condition. • Use an accurate liquid line moisture indicator to ensure system dryness. • Read and observe installation and safety instructions included with a product. • Familiarise yourself with the operation of a control before attempting to make adjustments or repairs. • Remember that a thermostatic expansion valve is not a temperature or pressure control.	• Select solenoid valves by line size or port size. Select based on valve capacity. • Rely on sight or touch for temperature measurements. Use an accurate thermometer. • Be a 'parts changer'. Analyse the problem and determine the cause of failure before making adjustments or repairs. • Attempt to re-use driers or drier blocks once they have been removed from the system. • Energise a solenoid coil with it removed from a valve. It will burn out in a matter of minutes.

Silver Brazing and High Purity Nitrogen

High purity nitrogen must be injected through pipe-work when silver soldering to stop the formation of copper oxide inside the pipe-work. In order for brazing alloys to melt and flow properly, 620°C to 790°C is required. Copper will react with the oxygen in air at these temperatures to form a scale of copper oxide on the inner walls of tubing, pipe and fittings. The scale is broken off into flakes by the turbulence of flowing liquid refrigerant. The flakes quickly break up into a fine powder which blocks filter driers, strainers and capillary tubes. If the air in the line being brazed is replaced with an inert gas such as high purity nitrogen, the formation of copper oxide can be eliminated.

The line should be purged thoroughly and a slow steady flow of nitrogen maintained by means of a pressure reducing valve.

Always use the correct pressure reducing valves for the protection of the user as high purity nitrogen is stored at very high pressures.

Evaporator and System Superheat

Superheat varies within the system depending on where it is measured. The superheat that the thermal expansion valve is controlling is the evaporator superheat. This is measured at the outlet of the evaporator.

The refrigerant gains superheat as it travels through the evaporator, basically starting at 0K as it enters the evaporator and reaching its maximum at the outlet as the refrigerant travels through the evaporator absorbing heat.

System superheat refers to the superheat entering the suction of the compressor. Compressor manufacturers usually like to see a minimum 20°C of superheat at the compressor inlet to ensure that no liquid refrigerant enters the compressor.

Liquid Flooding

Liquid flooding also known as flood back is the term used to describe the condition when liquid refrigerant reaches the compressor. This occurs when the amount of liquid refrigerant fed into the evaporator is more than can be evaporated. There are a number of causes of liquid flooding including:

- TXV oversized for the application
- TXV misadjusted (superheat too low)
- TXV bulb not properly attached
- System overcharged with refrigerant
- Insufficient air flow through the evaporator
- Dirty evaporator or air filters
- Evaporator fan or fans not operating

Migration

Migration is the term used to describe when refrigerant moves some place in the system where it is not supposed to be, such as when liquid migrates to the compressor sump. This phenomenon occurs because refrigerant will always migrate to the coldest part of a system.

As an example, in a split air conditioning system with the compressor/condenser outside, the liquid refrigerant from the evaporator will migrate to the compressor during the winter months due to the compressor being colder than the indoor (evaporator) temperature. If migration is not prevented the liquid refrigerant in the sump will cause liquid slugging when the compressor starts up.

Migration can be eliminated by the use of either a crank case heater or a pump down cycle.

A crank case heater elevates the crank case temperature above that of the evaporator.

A pump down cycle will store the refrigerant in the liquid receiver and or condenser so it cannot migrate to the compressor.

Sub-cooling

Sub-cooling is the condition where the liquid refrigerant is colder than the minimum temperature (saturation temperature) required to keep it from boiling and, hence, change from a liquid to a gas/vapour phase.

The amount of sub-cooling, at a given condition, is the difference between saturation temperature and the actual liquid refrigerant temperature. Sub-cooling is desirable for several reasons. Sub-cooling increases the efficiency of the system since the amount of heat removed per kg of refrigerant circulated is greater. In other words, you pump less refrigerant through the system to maintain the refrigerated temperature you want. This reduces the amount of time the compressor must run to maintain the temperature.

Sub-cooling is also beneficial because it prevents the liquid refrigerant from changing to a gas / vapour before it gets to the evaporator. Pressure drops in the liquid line piping and vertical risers can reduce the refrigerant pressure to the point where it will boil or "flash" in the liquid line. This change of phase is caused by the refrigerant absorbing heat before it reaches the evaporator. Inadequate sub-cooling prevents the expansion valve from properly metering liquid refrigerant into the evaporator resulting in poor system performance.



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Refrigeration Terminology

Temperature

Indicates level of heat energy

Centigrade Scale °C (Celsius)

Absolute Temperature °K (Kelvin) = °C + 273°

Measurement

The quantity of heat energy is measured in kilojoules (kJ). The heat required to raise or lower the temperature of 1kg of water 1K is 4.19 kilojoules. (kJ/sec = kw)

States of Matter

Solid, liquid and gas

Change of State

The change from one state of matter to another by the addition or the removal of heat at constant temperature. Change of state can also be referred to as change of phase.

Sensible Heat

Heat added to or subtracted from a substance without a change of state (only a change in temperature).

Specific Heat

The amount of sensible heat required to raise the temperature of 1kg of a substance 1K or the ratio of the heat capacity of the substance to that of water. (kJ/kg K)

Latent Heat

Quantity of heat added or removed from a unit weight of a substance during change of state or phase at constant temperature. (kJ/kg.K)

1. Latent Heat of Fusion: Melting of a solid or freezing of a liquid.
2. Latent Heat of Evaporation: Change from a liquid to a gas.
3. Latent Heat of Condensation: Change from a gas to a liquid.

Total Heat (Enthalpy) Heat Capacity

The sum total of sensible and latent heat quantities. kJ/kg.K, usually referenced to -40° at which point the Total Heat (Enthalpy) is taken as 0 kJ/kg.K with negative values below -40°. When all heat has been extracted from a substance, it is said to be at Absolute Zero 0°K (Kelvin).

Note: Enthalpy referenced to 0°C for air.

Pressure

Expressed in Pascals (Pa) or Kilopascals (kPa) Gauge or absolute.

1. Atmospheric Pressure: At sea level is 101.325 kPa absolute (deduct approx. 3.447 kPa or 25.4mm of mercury for every 304.8 metres increase in elevation above sea level).
2. Gauge Pressure: = Calibrated Gauge to read zero at atmospheric pressure.
3. Absolute Pressure: = true or total pressure. Therefore if the pressure is greater than the atmospheric pressure the atmospheric pressure must be added to the gauge pressure. But if the pressure is less than atmospheric pressure the atmospheric pressure must be subtracted from the gauge pressure.
4. Vacuum: Pressures below atmospheric pressure are measured in millimetres of mercury (vacuum) (50.8 millimetres of mercury can be equal to 6.89 kPa). A perfect vacuum (0 kPa) being equal to 25.4 millimetres of mercury (mmHg) or 760mm, at sea level. Measurements are sometimes expressed in microns (1,000,000 microns in a metre).
5. Vapour Pressure: Equilibrium Pressure between a liquid and its saturated vapour. As long as vapour and liquid are both present there will be only one vapour pressure for each level of temperature.
6. Gas Pressure: In the absence of liquid the pressure of a gas is proportional to Absolute gas temperature and to gas density (perfect gas laws).

Saturated Vapour and Liquid

When gas and liquid exist in equilibrium there will be only one vapour pressure for each level of temperature.

1. Subcooled Liquid: If additional heat is removed from saturated liquid in the absence of vapour, its temperature is reduced at constant pressure and it becomes subcooled.
2. Superheated Gas: If additional heat is added to saturated vapour in the absence of liquid, it becomes superheated vapour or gas.



Refrigeration Terminology

Bubble Point (Saturated Liquid Temperature)

The temperature (for a given pressure) at which the liquid of a refrigerant blend (any 400 or 500 series refrigerant) begins to evaporate or boil. This is similar to the saturated liquid temperature of a single component refrigerant.

Dew Point (Saturated Vapor Temperature)

The temperature (for a given pressure) at which the vapour of a given refrigerant blend (any 400 or 500 series refrigerant) begins to condense or liquefy. This is similar to the saturated vapour temperature of a single component refrigerant.

Fractionation

Fractionation is the change in composition of a refrigerant blend (any 400 or 500 series refrigerant) when it changes phase from liquid to vapour (evaporating) or from vapour to liquid (condensing). This behaviour in blends explains the permanent changes to refrigerant composition due to vapour charging or leaks in a refrigerant system causing the blend to deviate outside the tolerances of the designed composition.

Glide

The difference in temperature between the evaporator inlet and outlet due to fractionation of the blend.

Theoretically, this can be calculated by finding the difference between the dew and bubble temperatures at constant pressure. Actual measurements may differ slightly depending on the state of the liquid refrigerant at either end of the evaporator (or condenser). Pressure losses through the evaporator may also affect glide.

Normal Boiling Point (NBP)

The temperature at which a given refrigerant begins to boil while at atmospheric pressure (101.325kPa absolute).

Abbreviations

AB - alkyl benzene

GWP - global warming potential

MO - mineral oil

ODP - ozone depletion potential

OEM - original equipment manufacturer

POE - Polyolester

PAG - polyalkylene glycol



Fundamentals of Dehydrating a Refrigeration System

Moisture in a Refrigeration System

A single drop of moisture may look harmless, but to a refrigeration system it is extremely damaging. Moisture enters a system easily but can be difficult to remove. Moisture causes two main problems within a refrigeration system, freeze up and acid production. Moisture will be picked up by the refrigerant and transported through the refrigerant line in a fine mist from which ice crystals form at the point of expansion (expansion valve). Ice crystals stop or retard the flow of refrigerant causing a reduction or complete loss of cooling. As the expansion valve warms due to the lack of refrigerant flow, the ice melts and passes through the expansion valve and once more builds a formation of ice crystals. The result is intermittent cooling. Moisture when mixed with refrigeration oils will produce acid which will damage components including the electric windings of compressors. The Polyolester oils used with HFC refrigerants are manufactured from water and acid using a reversible process. If moisture enters the refrigeration system it will mix with the Polyolester oil to produce acid.

Effects of Pressure and Temperature on the Boiling Point of Water

The pressure exerted on the earth at sea level is 101.325kPa absolute pressure. This is called atmospheric pressure. Any pressure measured above atmospheric pressure is referred to as gauge pressure and pressure below is referred to as vacuum. Water will boil when the vapour pressure is equal to the atmospheric pressure surrounding the water. At atmospheric pressure of 101.325kPa absolute pressure a gauge will read 0kPa gauge pressure; at this pressure water will boil at 100°C. The boiling point of water rises as pressure increases and falls as pressure decreases. Australia's highest mountain is Mt. Kosciusko with its summit at 2228 metres above sea level where water will boil at 92.6°C.

Boiling Temperature of Water at Altitude

Temperature [°C]	Altitude [m]
82.82	5000
93.38	2000
96.73	1000
98.38	500
100	0

Boiling Temperature of Water in a Vacuum

Temperature [°C]	KiloPascal [kPa]	Micron [millitorr]
100	101.325	760000
1 atmosphere	1 atmosphere	1 atmosphere
96.1	84.66	535000
90	70.064	525526
80	47.339	355092
70	31.157	233680
60	19.91	149352
50	12.327	92456
40	7.349	55118
30	4.233	31750
26.7	3.385	25400
24.4	3.047	22860
22.2	2.709	20320
20.6	2.371	17780
17.8	2.033	15240
15	1.696	12700
11.7	1.351	10160
7.2	1.013	7620
0	0.606	4572
-6.1	0.337	2540
-14.4	0.168	1270
-31.1	0.033	254
-37.2	0.016	127
-51.1	0.003	25
-56.7	0.001	13
-67.8	0.0003	2.54



Fundamentals of Dehydrating a Refrigeration System

Removing Moisture from a Refrigeration System

There are two ways to remove moisture from a refrigeration system,

1. Employ a high vacuum pump to reduce the pressure and therefore the boiling point of water.
2. Install a high quality liquid line filter drier to entrap the moisture as it enters the filter drier.

It is recommended that both these methods be employed together to remove moisture from a refrigeration system as a vacuum pump alone will not remove the moisture entrapped within the oil. The only way to remove the moisture entrapped within Polyolester oil is to circulate the refrigerant oil mixture through a good quality filter drier.

Vacuum Pumps

Two stage vacuum pumps are recommended for refrigeration and air conditioning technicians as the second chamber allows the pump to achieve a higher vacuum. In a two stage vacuum pump the exhaust from the first pumping stage is discharged into the intake of the second pumping stage, rather than to atmospheric pressure. The second stage begins pumping at a lower pressure and therefore pulls a higher vacuum on the system than the first stage is capable of on its own. Two stage vacuum pumps are capable of achieving vacuums as low as 20 microns for a prolonged period of time in field conditions. A gas ballast or vented exhaust feature is a valving arrangement which permits relatively dry air from the atmosphere to enter the second stage of the pump. This air reduces compression in the final stage, which helps to prevent the moisture from condensing into a liquid and mixing with the vacuum pump oil. Moisture in the vacuum pump oil will increase the time taken to achieve a vacuum and reduce the ultimate vacuum achieved. It is therefore essential to change the vacuum pump oil on a regular basis, please refer to the pump manufacturers recommendations.

Factors affecting the speed at which a vacuum pump can dehydrate a refrigeration or Air Conditioning system

Several factors influence the pumping speed of a high vacuum pump and thus the time required to remove the moisture from a refrigeration system. Some of the most important are the cubic capacity of the refrigeration system itself; the amount of moisture contained within the system; the ambient temperature; internal and external restrictions and the size of the vacuum pump. The refrigeration or air conditioning system manufacturer determines the internal system cubic capacity and Mother Nature the ambient temperature so the only factors under the control of the service technician are the external restrictions between the system and the vacuum pump. Laboratory tests show the pumping time can be significantly reduced by the use of large diameter hoses. For optimum pumping speed keep the access lines as short in length and large in diameter as possible.

This chart provides a reasonable idea of the minimum vacuum pump capacity required for various sized refrigeration or air conditioning systems. Larger pumps can easily be used on smaller systems.

System Size	Suggested High Vacuum Pump Size
Up to 30kW	35 l/min
Up to 75kW	85 l/min
Up to 123kW	140 l/min
Up to 246kW	280 l/min
Up to 370kW	425 l/min

How vacuum can be measured

A compound gauge is not accurate enough to measure a high vacuum. An electronic vacuum meter or dedicated vacuum gauge is recommended to determine the actual vacuum in the refrigeration or Air Conditioning system. When reading the vacuum created in a refrigeration or Air Conditioning system, the vacuum pump should be isolated with a good vacuum valve or gauge manifold and time allowed for the vacuum pressure to equalize before taking a final reading. If the pressure does not equalize, it is an indication of a leak. If the vacuum equalizes at a pressure which is too high, it is an indication of moisture within the system and more pumping time is required.

Removing moisture using a liquid line filter drier

High quality filter driers are essential in all refrigeration and air conditioning systems especially systems containing Polyolester oil. A vacuum alone will not remove all the moisture from Polyolester oils. A high quality liquid line filter drier will entrap moisture as it is carried through the system by the refrigerant. When selecting a liquid line filter drier be sure to follow the appropriate "field replacement" size recommendations which are based on the refrigeration capacity of the system to ensure the cubic capacity of the filter drier is sufficient to entrap all the moisture. Whenever a system has been opened or moisture is suspected to be present the liquid line filter drier should be replaced.



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Noise and Vibration

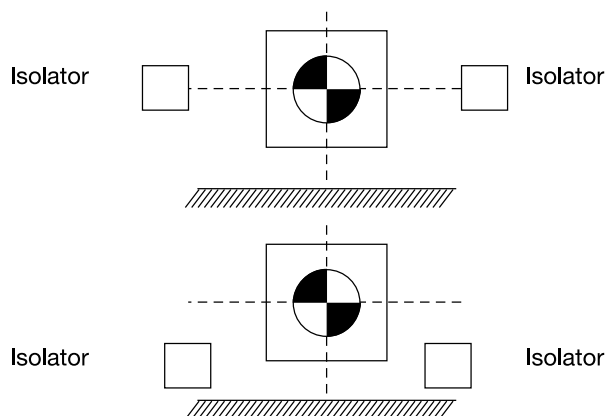
Selection Principles:

Temperature

Extremes of temperature can affect the service life of rubber isolators. Generally, operating temperature should not exceed 60°C but occasional temperatures of up to 80°C can be accommodated.

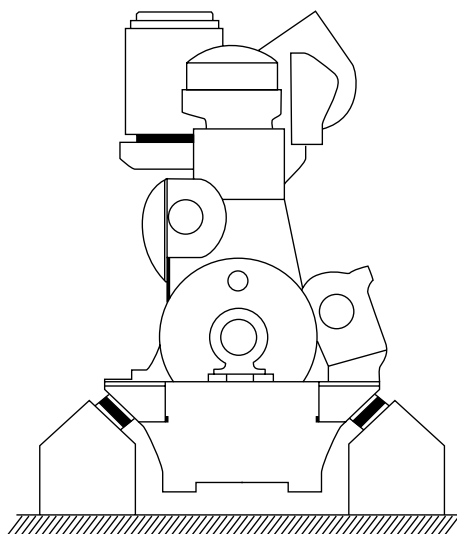
Protection

While most rubber compounds deteriorate if in constant contact with oil or grease, experience has shown that small amounts of oil will not cause a reduction in the mechanical properties of elastomers. It is advisable where oil or grease is prevalent to install isolators so that contact is avoided.



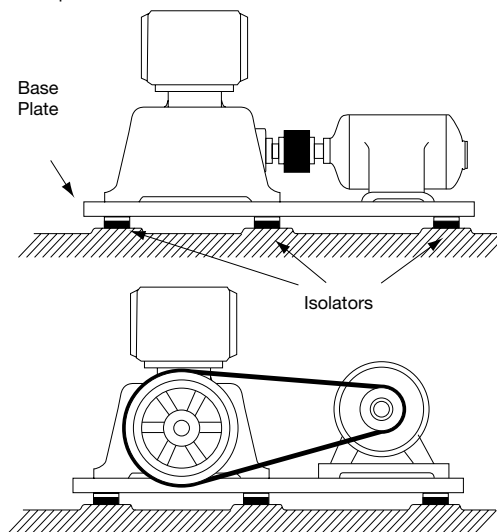
Mount Positioning

The stability of a resiliently supported mechanism is greatest when the isolators are in a horizontal plane passing through the centre of gravity of the mechanism or where the isolators are placed far away from the centre of gravity. Most machines, because of their design, require mounting below the centre of gravity which tends towards instability. For this reason, a small percentage of the isolators efficiency must be sacrificed for the sake of mechanical stability.



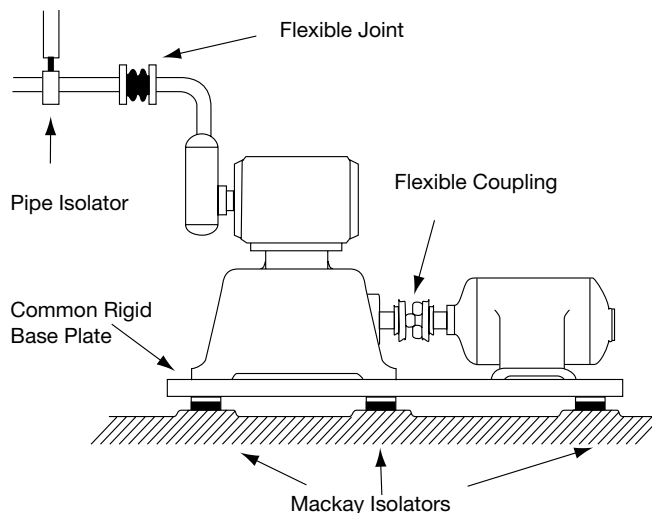
Stability

To maintain stability and relative positions between the drive and belt driven units, install both on a common rigid baseplate and then resiliently support the baseplate.



Flexible Couplings

The efficiency of a resilient isolator under a mechanism can be seriously impaired by the rigidity of the connecting members, such as water and steam pipes, conduit etc. For best performance, it is essential all connecting members be joined as flexibly as possible using Mackay flexible couplings and flexible joints.



Selection

The main consideration is to select the isolator to carry the load as shown in the load rating charts, giving preference to the top end of the ratings, and then choosing the one to suit your specific fitting requirements. Mackay isolators have each been engineered to specific requirements of deflections under working conditions and providing the disturbing or forced frequencies above 15Hz, selection is simple.

Courtesy of Mackay Consolidated Industries Pty Ltd



Noise and Vibration

Low Frequency Selection

When frequencies under 15Hz are encountered or when there are HEAVY impact loads imposed on the isolator, consult with Mackay's technical division for advice. For normal purposes, the disturbing frequency can be considered as the revolutions per second of the offending item:

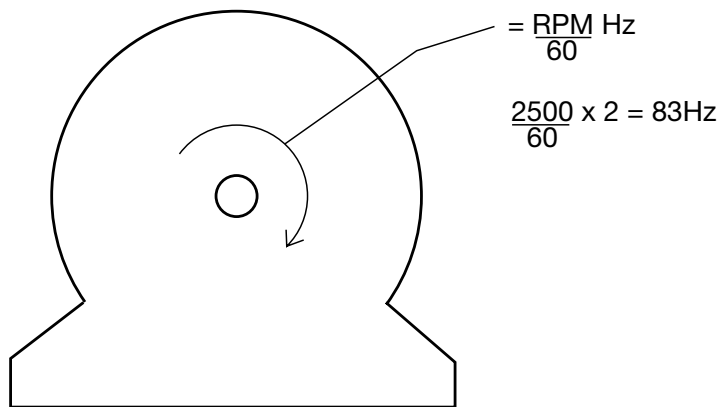
i.e. $\frac{R.P.M}{60}$

60

Multi-cylinder Engines

In multi-cylinder engines it is usually the number of working impulses per revolution which constitutes the disturbing frequency.

e.g. Two cylinder engine direct drive operating at 2500 r.p.m. = Disturbing Frequency of 83 Hz.b



Calculating Deflections

If the isolator selected has a higher load carrying rating than required, the deflection of your actual loading can be calculated approximately by using this formula:

$$\frac{\text{Rated Deflection} \times \text{Actual Load}}{\text{Rated Load}}$$

and then referring to the graph illustrated on the next page, the isolation efficiency can be ascertained (should always exceed 70% under normal operating conditions).

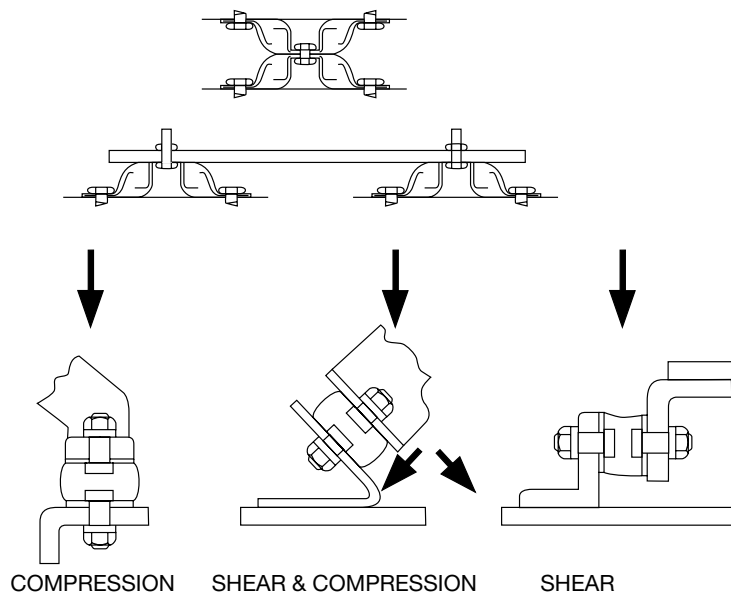
Disturbing Frequencies and Deflections

The graph illustrates the percentage of vibration isolation that is possible to obtain for simple linear vibration in a resiliently mounted assembly with various combinations of static deflection and disturbing frequencies.

The area (shaded) below the resonance line indicates the region of magnification of the vibration that occurs when the ratio of the disturbing frequency to the natural frequency of the mounted assembly is less than the square root of 2. The area above the resonance line shows the percentage of the vibratory forces that are prevented from reaching the supporting structure when correct isolators are selected. For example; with a disturbing frequency of 5Hz and a deflection of 30mm you will obtain an isolating efficiency of 50%, while with a deflection of 3mm your vibration will magnify by a factor of 1.5.

Series and Parallel Assemblies

The isolation efficiency of low disturbing frequencies can be increased by using two isolators in series. This effectively doubles the deflection obtained with one isolator of the same load carrying capacity - by placing them in parallel, you double the load rating at the same deflection.



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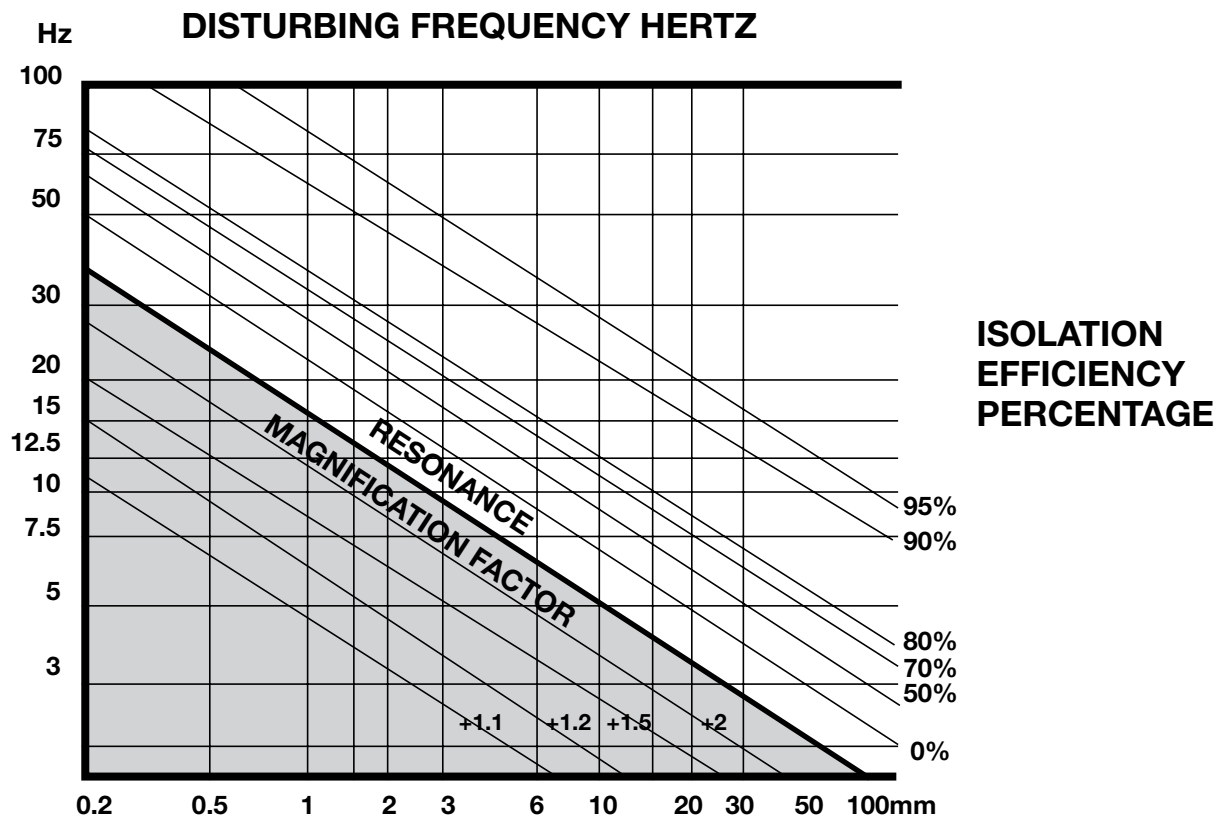
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Noise and Vibration



To assist you in selecting the correct isolator from the Mackay range we have listed the isolation efficiency that should be used under normal conditions of operation. The isolation efficiency at any given deflection and disturbing frequencies can be obtained by using the simple graph above.

Suggested Isolation Efficiency Guide			
	Factories, Schools, Dept. Stores Isolation Efficiency		Hospitals, Theatres, Libraries Isolation Efficiency
Air Handling Units		80%	94%
Axial Flow Fans	Up to 8kW	70%	90%
	8kW to 38kW	75%	94%
	More than 38kW	80%	96%
Centrifugal Compressors		94%	99.5%
Centrifugal Fans	Up to 4kW	70%	94%
	4kW to 18kW	80%	96%
	More than 18kW	90%	98%
Fan Coil Units	Hung Supported	80%	90%
		90%	96%
Pipes	Hung	70%	90%
Pumps	Up to 2 kW	70%	94%
	2kW to 4kW	80%	96%
	More than 4kW	90%	98%
Reciprocating Compressors	Up to 8kW	70%	94%
	8kW to 38kW	80%	96%
	More than 38kW	90%	98%
Unit Air Conditioners	Hung Supported	80%	90%
		90%	96%

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Noise and Vibration

Sound, Noise and Refrigeration Equipment

Sound is vital in everyday life for communication, safety and enjoyment. Noise is usually defined as unwanted sound, and this includes noise from mechanical plant such as refrigeration equipment, air conditioners, pumps and various other items of equipment.

The type and location of equipment can influence the noise impact and annoyance to owners, adjacent properties and neighbours.

This brochure is a guide to some of the DO's and DON'T's and helps explain the noise impact of refrigeration equipment installations. This brochure is a guide only and advice should be sought from a qualified acoustic consultant for more detailed advice and assessments.

Noise Limits and Regulations

The acceptable or allowable noise limits from refrigeration and other equipment from one property to a neighbouring property is generally enforced by local councils or police based on State or Territory legislation. The Reference List at the end of this brochure is a starting point for identifying the appropriate noise legislation for each State and Territory.

The guideline limits may depend on the zoning of the surrounding area, whether the noise is intermittent or tonal, time of day etc. A typical requirement is that the equipment noise should not exceed the background noise by more than 5 dBA. In most cases nuisance and annoyance may be avoided if a noise goal of 35 to 40 dBA at the boundary is achieved.

Item	Typical Sound Pressure Level (dBA)	Subjective Evaluation
Threshold of Pain	130	Intolerable
Heavy Rock Concert / Grinding on Steel / Ambulance Sirens / Chainsaw	110 - 120	Extremely Noisy
Loud Car Horn / Jackhammer / Construction Site with Pneumatic Hammering	90 - 100	Very Noisy
Curbside of a Busy Street / Loud Radio or TV / Lawn Mower / Electric Drill	70 - 80	Loud
Normal Conversation / Department Store / General Office	50 - 60	Moderate to Quiet
Inside a Private Office / Inside a Quiet House	30 - 40	Quiet to Very Quiet
Unoccupied Recording Studio / Quiet Day in the Country	20	Almost Silent
Threshold of Hearing	0	Completely Silent

Measurement of Sound - the dBA

The human ear responds to changes in sound pressure over a very wide range. The loudest sound pressure which the ear responds to is ten million times greater than the softest. In order to simplify and reduce such a large range, a logarithmic scale, called the decibel, or dBA is used.

The human ear also responds differently to the frequency of sound. For example, the human ear is more sensitive at mid frequencies (500 to 1000 Hz), and less sensitive at very high and very low frequencies, hence, sound level meters incorporate a filter which approximately corresponds to that of human hearing. This filter is the 'A-Weighted' filter.

So the 'dBA' or 'dB(A)' is the A-Weighted sound level in decibels. This is the most commonly used measurement parameter for sound.

Sound Pressure Level (SPL) and Sound Power Level (SWL)

Refrigeration equipment and items of plant sometimes have a label displaying the total Sound Power Level (referred to as SWL or Lw), or the Sound Pressure Level (referred to as SPL or Lp), in dBA. If the equipment does not have a label indicating the noise level then the supplier should be able to provide this data.

The SPL or SWL indicate how noisy the equipment is, the lower the number, the quieter the equipment.

The SWL is a measure of how much acoustic power is produced by the equipment. The SPL is the resulting noise level from the operation of the equipment. The SPL depends on the location of the sound source, how many reflecting surfaces are nearby (how reverberant the space is) and the distance between the equipment and the receiver.

The SWL is an intrinsic property of the equipment where as the SPL depends on the SWL and the environment. For example, the SWL maybe thought of as the Watts of a light bulb, while the SPL is similar to the overall brightness - it depends on the environment (e.g. size of room, colour of walls) as well as the power of the light bulb.

Generally, the SPL is lower than the SWL. In a 'Free Field' with no reflecting surfaces such as walls nearby, the SPL is approximately 8 dBA lower than the SWL at one metre from the equipment (assuming source is on a hard surface).

Reduction of Sound Pressure Level (SPL)									
Distance (m)	1	2	3	4	5	6	7	8	10
Reduction (dBA)	8	14	17	20	22	23	25	26	28



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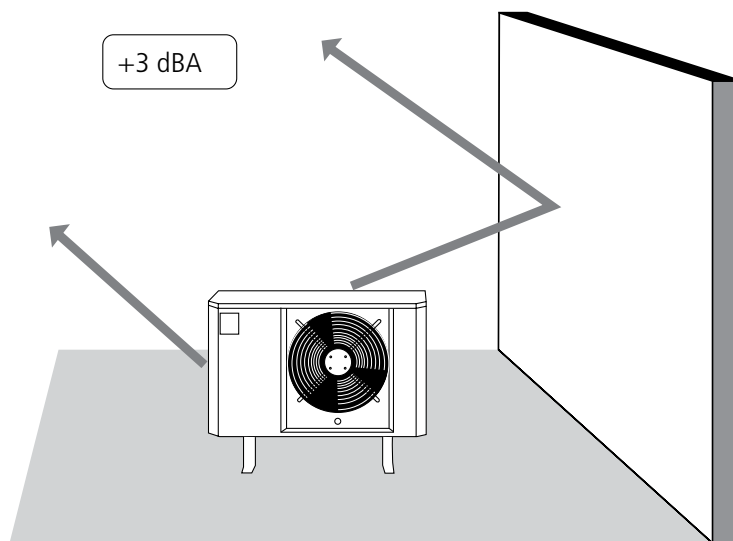
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Noise and Vibration

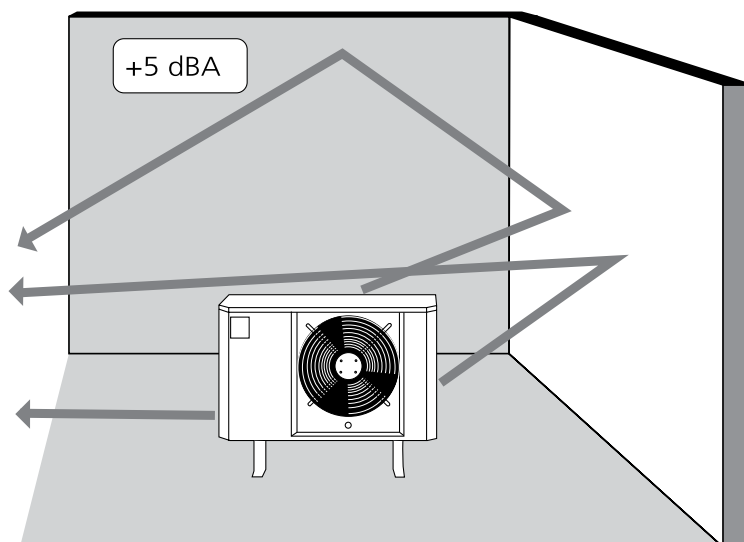
Sound Pressure Level and Reflective Surfaces

Reflective surfaces such as walls or a ceiling near the noise source can increase the resulting Sound Pressure Level (SPL). The following diagrams illustrate the effect of reflective surfaces.

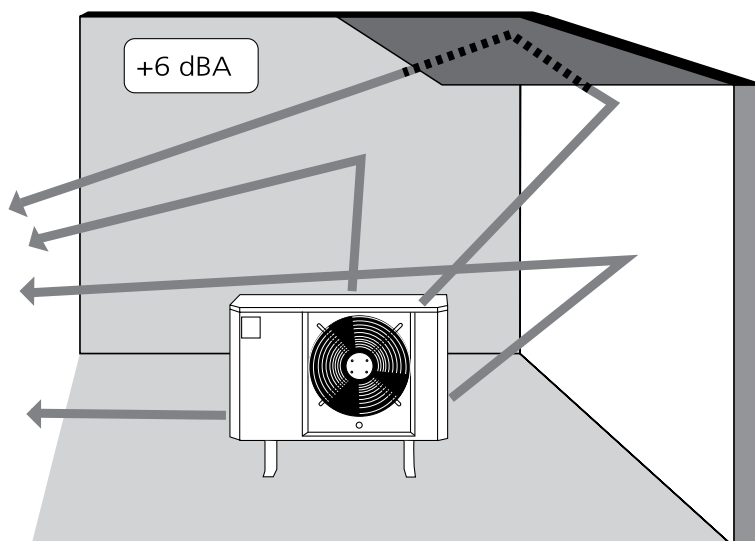
+3 dBA if unit is within 3 metres of 1 wall/ceiling



+5 dBA if unit is within 3 metres of 2 walls/ceiling



+6 dBA if unit is within 3 metres of 3 walls/ceiling



Noise and Vibration

Addition of dB Levels

The decibel scale is a logarithmic scale so $2 + 2$ does not equal 4. A doubling of the sound pressure levels results in an increase of 3 dBA. The following table shows the result of adding two SPL's or SWL's together. The first column shows the difference between the two SPL's and the second column shows resulting dBA increase - the level that should be added to the higher of the two SPL's to obtain your result.

Example: Two units both at 50 dBA. The difference is zero, so 3 dBA is added to the noisier unit (either one in this case) to give an overall noise level of 53 dBA.

Example: One unit is 50 dBA, the other is 46 dBA. The difference is 4 dBA - the table says you should add 1.5 dBA to the noisier unit - so the overall level is 51.5 dBA.

As you can see, because the addition of dBA levels is logarithmic, the level may not increase very much but it is always controlled by the noisier item of equipment - the best approach is to use the quietest equipment possible to begin with!

Difference between SPL's (dB)	Result - amount to add to the higher SPL
0	3
1	2.5
2	2.1
3	1.8
4	1.5
5	1.2
6	1
7	0.8
8	0.6
9	0.5
10	0.4

Vibration

Vibration from plant and equipment may result in regenerated noise and you could end up with more noise than you expected. In addition, the vibration may adversely affect the owner / user of the equipment. The vibration from the equipment may be transmitted through various support structures and end up in a lightweight structure which could radiate noise.

The following provides some guidance with regard to vibration control:

- Use at least 1 layer of waffle pad, not less than 8mm thick, under equipment in all areas
- Ensure that the waffle pad is not bypassed by a rigid connection. The units should be sitting on the waffle pad under their own weight, not bolted to the structure through the pad. If the unit must be bolted then ensure that a rubber isolating washer and sleeve is used.
- Install equipment on a concrete slab at ground level if possible
- Install equipment on a platform above lightweight structures if possible
- Do not locate equipment above particularly sensitive spaces (e.g. bedrooms or private offices in commercial situations), also try to keep the equipment as far away as possible from all adjacent receivers.
- When units are installed on a lightweight structure or over (or near) a sensitive area, the use of waffle rubber may not be sufficient - consider a double thickness of rubber pads or the use of springs. It is best to obtain professional advice in this situation as the extent of vibration isolation required depends on a number of factors such as the rpm of the equipment, the weight of the equipment, the structure construction etc.



Noise and Vibration

Barriers

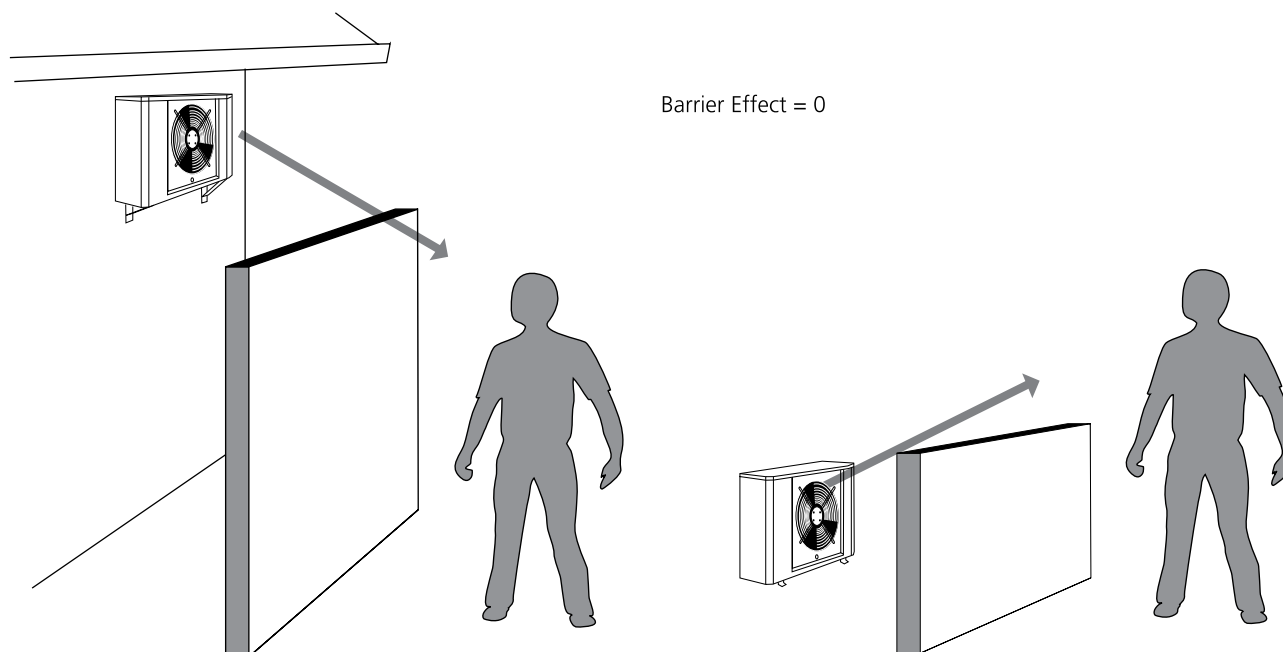
Barriers can be an effective method for reducing noise, however, the barrier must be a solid material with no gaps or penetrations. The material should have a surface density of not less than 5 kg/m.

Effective Barriers

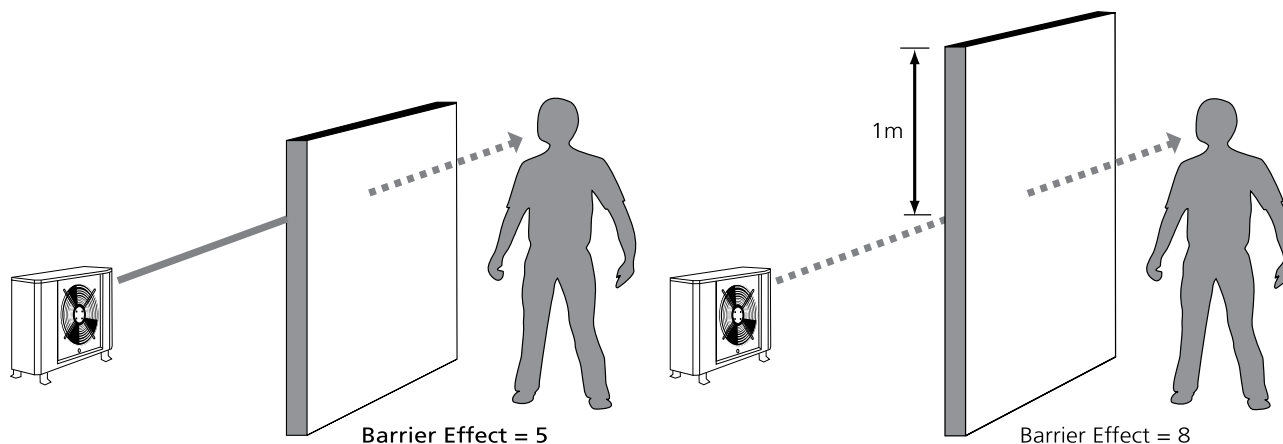
- Solid timber fence (e.g. double lapped fence)
- Solid masonry fence (brick, concrete block, aerated concrete)
- Solid colourbond, sheetmetal, or corrugated iron fence
- Other solid material (e.g. plywood, cement sheet, particleboard)

Ineffective Barriers

- Trees, bushes or shrubs
- Fences with holes in them (e.g. missing planks, decorative openings, picket fences, lattices etc.)



A barrier, even an effective barrier, can only work if it screens the noise source from the receiver. If the barrier is too short and the receiver can see the noise source, then the Barrier Effect is insignificant. If the barrier screens the line of sight so the receiver cannot see the noise source then the Barrier Effect is approximately 5 dBA. If the barrier is very high (e.g. higher than 1m above the line of sight) then the Barrier Effect is 8 dBA.



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Noise and Vibration

A Guide to Calculating Noise Levels

Step 1 - SWL of Unit

Enter the sound Power Level (SWL) of the proposed equipment at the top of the table.

Step 2 - Distance Factor

Determine the shortest distance between the location of the proposed unit and the receiver position (e.g. neighbour). For simplicity the distance between the unit and the boundary may be acceptable. Circle the corresponding Distance Factor in Column 1.

Step 3 - Barrier Effect

Determine the type of barrier - if any between the proposed unit and the receiver position. Check the section on 'Barriers' to determine the situation you have. Remember that an 'Ineffective Barrier' is one where there is no barrier or the barrier or fence has holes in it which allows the noise to pass through it (e.g. picket fences, missing planks, decorative openings etc.). Circle the corresponding Barrier Factor in Column 2.

Step 4 - Reflection Factor

Determine the number of reflective surfaces that are within 3 metres of the proposed unit, such as walls and large eaves (do not include the ground). Circle the corresponding Reflection Factor in Column 3.

Step 5 - Resultant Noise Level

Determine the estimated Resultant Noise Level by:

Sound Power Level (SWL) of Proposed Unit - dBA

dBA

Column 1		Column 2		Column 3		
Shortest straight line distance from Unit to Receiver position: m	Distance factor	Barrier	Barrier Effect	Reflection	Reflection Factor	
1	8	Ineffective Barrier	0	No reflecting surfaces within 3m	0	
2	14			One reflecting surface within 3m (one wall)	3	
3	17	Effective Barrier		Two reflecting surfaces within 3m (two walls)	5	
4	20			Three reflecting surfaces within 3m (two walls and large eaves)	6	
5	22	Line of sight to unit not blocked	0			
6	23	Blocks line of sight to unit	5			
7	25	High barrier blocks line of sight of unit by more than 1m	8			
8	26					
10	28					

$$\begin{array}{ccccccc}
 \boxed{} & - & \boxed{} & - & \boxed{} & + & \boxed{} \\
 \text{SWL} & & \text{Distance factor} & & \text{Barrier Effect} & & \text{Reflection Factor} \\
 & & = \text{Resultant Sound Pressure Level (SPL)} & & \boxed{} & &
 \end{array}$$



Noise and Vibration

Do's and Dont's

As you can see from the Guide to Calculating Noise Levels, one of the most important factors is the Sound Power Level (SWL) of the proposed unit.

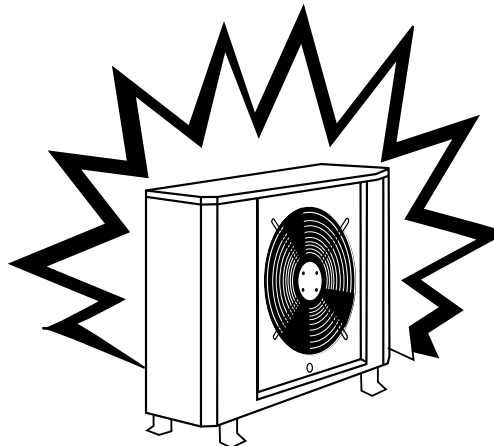
DO

Use the quietest unit to begin with - it may be the difference between an acceptable or unacceptable noise level for a given location.



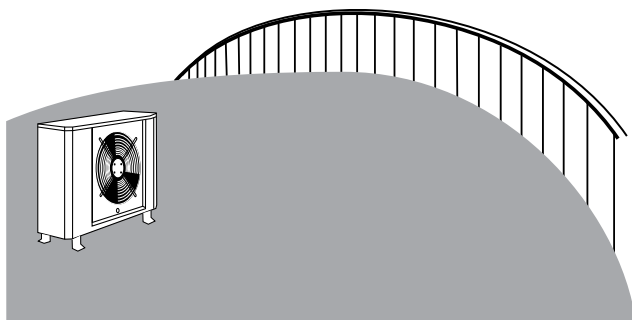
DON'T

Don't necessarily use the cheapest unit - it may be the noisiest - check the SWL.



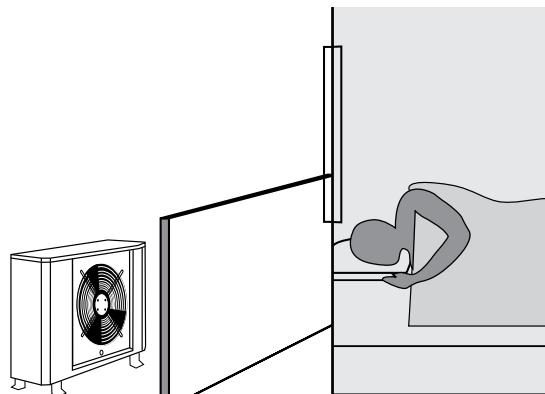
DO

Install the unit as far from the boundary as possible - the further it is from neighbours, the lower the noise level. Place the unit facing the back fence or the furthest fence if possible.



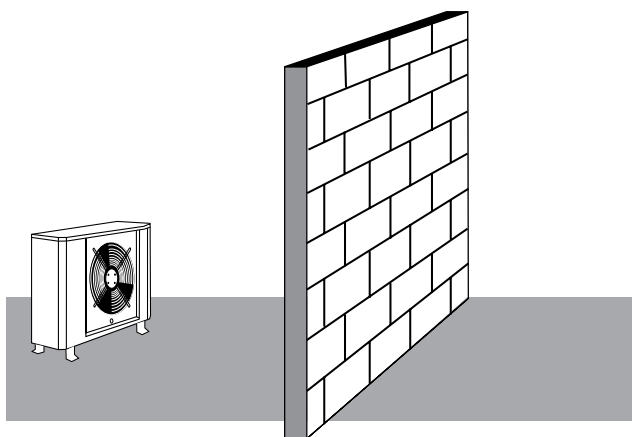
DON'T

Don't install the unit near a boundary, especially if it is near a window or worst of all - near a bedroom window!



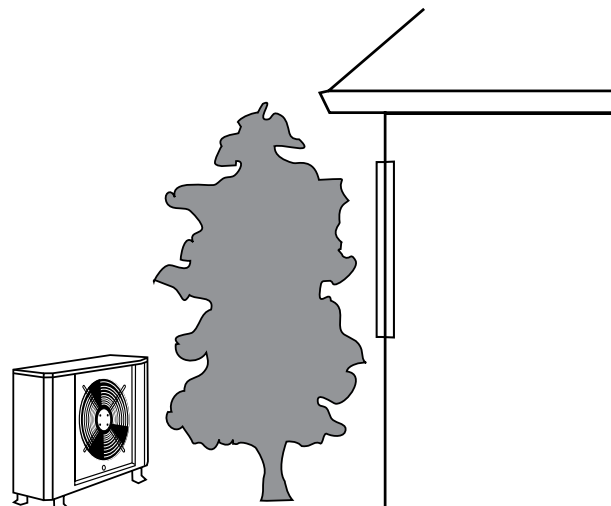
DO

Make sure that any fences or barriers are Effective Barriers, with no holes, gaps or missing planks.



DON'T

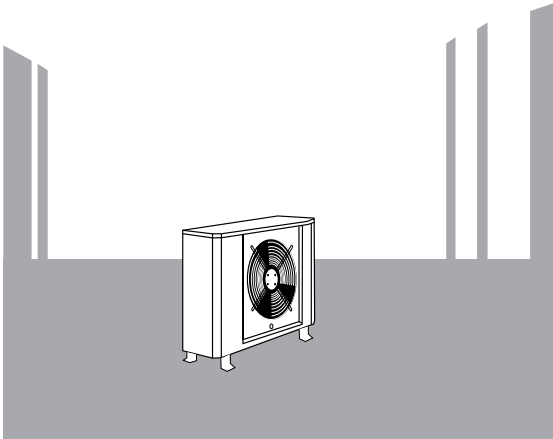
Don't assume any tree or bush is an Effective Barrier - it is not and it won't provide any protection from the noise. Continued on the following page



Noise and Vibration

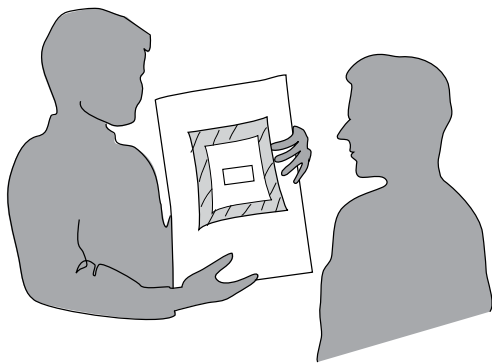
DO

Try and locate the unit away from any reflecting surfaces.



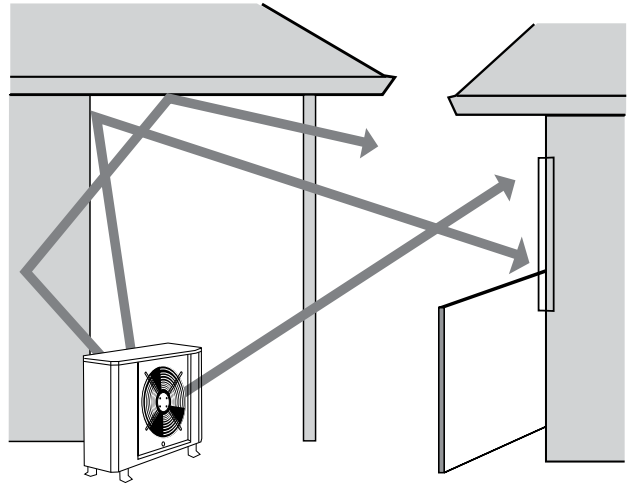
DO

Ask for acoustic advice from a professional qualified acoustic consultant. Even if the expected noise level is too high a consultant will be able to design an enclosure or advise on how to reduce the noise level.



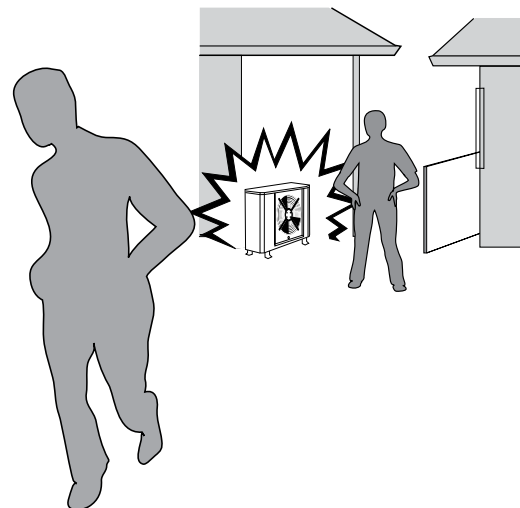
DON'T

Don't place the unit near corners or in very reverberant spaces such as carports or alcoves.



DON'T

Don't assume the problem will go away - it won't. Act now before it is a problem and you will have a happy client, not an ongoing and possibly expensive complaint.



State Acts, Regulations and Guidelines

The following Acts, Regulations and Guidelines are applicable for the respective States and Territories, but may not be limited to these.

If a detailed assessment is required or the expected noise level is excessive, you should consult a qualified Acoustic Consultant.

New South Wales:
Protection of the Environment Operations (Noise Control) Regulations 2000 (Section 52)
Noise Control (Miscellaneous Articles) Regulation 1995

Victoria:
Environment Protection (Residential Noise) Regulations 1997

Queensland:
Environment Protection (Noise) Policy 1997
Environment Protection Act 1994
Environment Protection Regulation 1998

South Australia:
Environment Protection (Machine Noise) Policy 1994
Environment Protection Act 1995

Western Australia:
Environment Protection (Noise) Regulations 1997
Environment Protection Act 1986
Noise Abatement (Noise Labeling of Equipment) Regulations (No. 2) 1985

Tasmania:
Environment Protection (Noise) Amendment Regulations 2000, Statutory Rules 2000, No. 186

Australian Capital Territory:
Environment Protection Policy 1998 (Noise)
Environment Protection Act 2000



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Field Service Instructions for Reversing Valves

These Field Service Instructions will aid recognition of a malfunctioning Heat Pump System equipped with a reversing valve

Field Problems Simplified

Heat pump equipment usually includes a reversing valve (added to a refrigerating system to create an "all season" heat pump) which is easily identified and blamed for many failures of the system. Valves have been needlessly replaced without correcting the original trouble in the system, principally due to inadequate testing and erroneous quick decisions. A tabulated chart follows these instructions on Valve troubles which are so listed to be quickly analysed by "Touch" testing for "possible causes" with suggested "corrections", to simplify testing procedures and cut testing time.

Operation of the Valve

The Solenoid Coil on the 3-WAY PILOT VALVE forces the needles of the pilot valve to OPEN and CLOSE two port openings at the INSTANT of reversing operations for the 4-WAY MAIN VALVE.

Operating Sequence

1. An ENERGISED COIL (in the heating phase) forces two opposing pilot valve needles, "back needle" and "plunger needle", separated with stainless steel pins, to simultaneously CLOSE the "back" port and to KEEP OPEN the "front" port.

Notes:

- (a) The "outlet" port is the center bleeder tube (called "common capillary") which is brazed into the suction line tube and is a common bleed path for each outside port ("front" and "back" capillaries).
- (b) The "inlet" tubes, called "back" and "front capillary" and each from its pilot port, are operating paths to the opposite end chambers of the main valve cylinder. These paths conduct the gas which bleeds through a monel screen from "bleeder holes" located in each piston as gas pressure changes occur within the end chambers.

2. Gas flows out of the RIGHT end chamber, decreasing in pressure there. High pressure gas from the system immediately builds up within the LEFT end chamber since no path is open for escape which was first closed by the needle valve at the pilot "back port".

Note: At the end of each stroke, one of the operating gas paths is closed to the pilot valve.

3. Difference in pressures between the two end chambers aids the "slide bracket" assembly to move instantly to the RIGHT by the pistons from the pressure differential of the system.

Note:

In reversing operation, the "slide" port straddles one or the other of two openings (in section views "E" and "C" tubing schematically piped through the illustrated circled figures 3 and 4 respectively) as directed. The "suction tube" between "E" and "C" is always OPEN to the low pressure side of the system.

4. While in and during the operating phase of heating, both end chambers EQUALISE in pressure until the "solenoid coil" is DE-ENERGISED (into cooling or deicing phase) when the opposite operation in reversing takes place within the PILOT and MAIN VALVES.

Notes:

- (a) During the transfer period, there is sufficient by-pass to prevent overloading the compressor due to an excessive head pressure.
- (b) The valve reverses against running pressures with no mechanical or impact noises from the "slide", "slide bracket" or pistons; however, there is an instant of hissing gas as pressures equalise in both end chambers.

System troubles that affect the reversing valve

Any trouble in a heat pump, which will materially affect the normal operating pressures, may prevent the valve from shifting properly. For example, (1) a leak in the system resulting in a loss of charge, (2) a compressor which is not pumping properly, (3) a leaking check valve, (4) defective electrical system or (5) mechanical damage to the valve itself, each will indicate an apparent malfunction of the valve. Make the following checks on the system and its components before attempting to diagnose any valve trouble by making the "Touch Test" method of analysis.

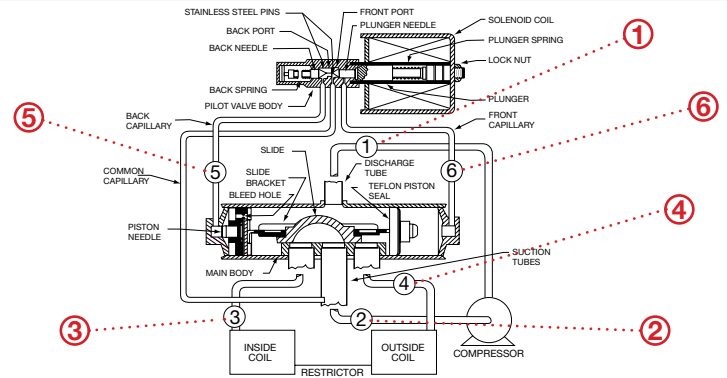
1. Make a physical inspection of the valve and solenoid coil for dents, deep scratches and cracks.

2. Check the electrical system. This is readily done by having the electrical system in operation so that the solenoid coil is energised. In this condition, remove the lock nut to free the solenoid coil. Slide it partly off the stem and notice a magnetic force attempting to hold the coil in its normal position. By moving the coil farther off the stem, a clicking noise will indicate the return of the "plunger" to its non-energised position. When returning the coil to its normal position on the stem, another clicking noise indicates that the "plunger" responded to the energised coil. If these conditions have not been satisfied, other components of the electrical system are to be checked for possible trouble.

3. Check the heat pump refrigeration system for proper operation as recommended by the manufacturer of the equipment. After all of the previous inspections and checks have been made and determined correct, then perform the "Touch Test" on the reversing valve according to chart on the following page. This test is simply performed by feeling the temperature relationships of the six (6) tubes on the valve and compare the temperature differences. Refer to the chart after the comparative temperatures have been determined for the "possible cause" and suggested "corrective action" to be taken.



Touch Test Chart



Valve Operating Condition	Disch. Tube Compr.	Suction Tube to Compr.	Tube to Inside Coil	Tube to Outside Coil	LEFT Pilot Back Capill. Tube	Right Pilot Back Capill. Tube		
	1	2	3	4	5	6		
Normal Operation of Valve								
Normal Cooling	Hot	Cool	Cool as (2)	Hot at (1)	*TVB	*TVB	Possible Causes	Corrections
Normal Heating			Hot as (1)	Cool at (2)				
Malfunction of Valve								
Valve will not shift from Cool to Heat	Check electrical curcuit and coil						No voltage to coil	Repair electrical circuit
							Defective coil	Replace coil
	Check refrigeration charge						Low charge	Repair leak, recharge system
							Pressure differential too high	Recheck system.
	Hot	Cool	Cool as (2)	Hot as (1)	*TVB	Hot	Pilot valve OK. Dirt in one bleeder hole	De-energise solenoid, raise head pressure, re-energise solenoid to break dirt loose. If unsuccessful, remove valve, wash out. Check on air before installing. If no movement, replace valve, add strainer to discharge tube, mount valve horizontally
						*TVB	Piston cup leak	Stop unit. After pressures equalize, restart with solenoid energized. If valve shifts, re-attempt with compressor running. If still no shift, replace valve
						Hot	Hot	Clogged pilot tubes
							Both ports of pilot open. (Back seat port did not close)	Raise head pressure, operate solenoid to free partially clogged port. If still no shift, replace valve
	Warm			Warm as (1)	*TVB	Warm	Defective Compressor	
	Start to shift but does not complete reversal	Hot	Warm	Warm	Hot	*TVB	Hot	Not enough pressure differential at start of stroke or not enough flow to maintain pressure differential
Hot						Body damage		Replace valve
Hot			Hot	Hot	*TVB	Both ports of Pilot open		Raise head pressure, operate solenoid. If no shift, replace valve
						Body damage		Replace valve
						Valve hung up at mid-stroke. Pumping volume of compressor not sufficient to maintain reversal		Raise head pressure, operate solenoid. If no shift, use valve with smaller ports.
						Both ports of Pilot open		Raise head pressure, operate solenoid. If no shift, replace valve.
Apparent leak in heating	Hot	Cool	Hot as (1)	Cool as (2)	*TVB	*WVB	Piston needle on end of slide leaking	Operate valve several times then recheck. If excessive lek, replace valve.
					*WVB		Pilot needle and piston needle leaking	Operate valve several times then recheck. If exessive leak, replace valve.
Will not shift from heat to cool	Hot	Cool	Hot as (1)	Cool as (2)	*TVB	Hot	Pressure differential too high	Stop unit. Will reverse uring equalization period. Recheck system.
							Clogged Pilot tube	Raise head pressure, operate solenoid to free dirt. If still no shift, replace valve.
							Dirt in bleeder hole	Raise head pressure, operate solenoid. Remove valve and wash out. Check on air before reinstalling if no movement, replace valve. Add strainer to discharge tube. Mount valve horizontally.
							Piston cup leak	Stop unit, after pressures equalise, restart with solenoid de-energised. If valve shifts, re-attempt with compressor running. If it still will not reverse while running, replace valve.
					Hot	Hot	Defective Pilot	Replace Valve
	Warm		Warm as (1)		Warm	*TVB	Defective Compressor	

Diagram illustrating the valve assembly and its connection to the compressor and coils. The diagram shows the main body, piston needle, bleed hole, seal, and the connections to the inside coil, outside coil, and compressor. Red dotted lines with circled numbers 2, 3, and 4 indicate specific components or flow paths.

NOTES: *Temperature of Valve Body. **Warmer than Valve Body.

VALVE OPERATED SATISFACTORILY PRIOR TO COMPRESSOR MOTOR BURN OUT - caused by dirt and small greasy particles inside the valve.

To CORRECT: Remove valve, thoroughly wash it out. Check on air before reinstalling, or replace valve. Add strainer and filter-dryer to discharge tube between valve and compressor.



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Air Filter Selection & Service Guide

Introduction

This guide provides practical information to building owners, managers and consultants with the selection and application of air filters in commercial, retail, institutional and industrial buildings. In addition, it will assist OH&S administrators meet work place safety laws by ensuring air cleaning standards are maintained within their facilities.¹

The level of air cleaning required in a building will vary depending on the occupants and/or process needs. Schools, office buildings and shopping centres protect occupants, retail goods and architectural features. Of most concern to building owners today is OH&S risk minimisation. Atmospheric contaminants are identified in OHS Regulation 2001 as a health hazard so ensuring appropriate filtration standards are applied is critical. Finally, maintaining clean air handling plant and heat exchangers will ensure ongoing energy costs are kept to a minimum.

Effects of airborne particles

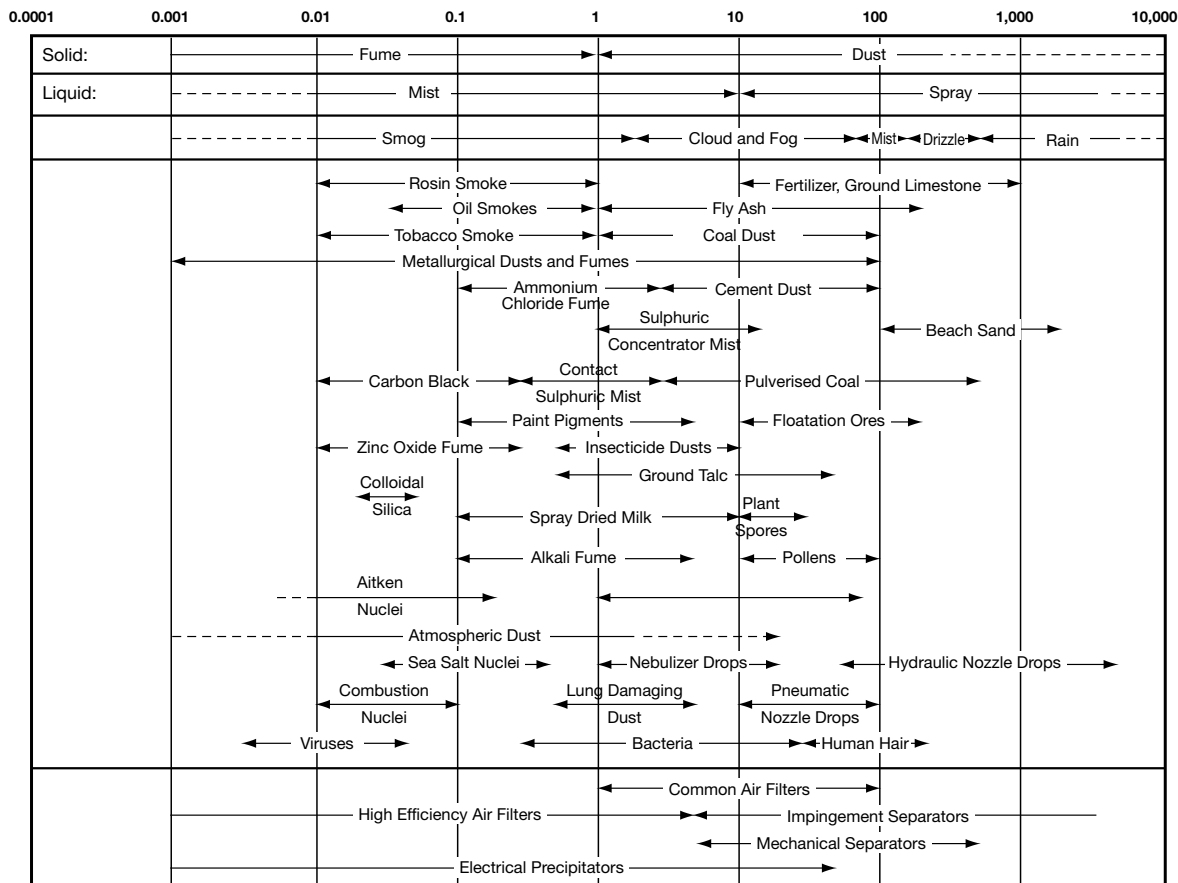
Health effects resulting from poor indoor air quality vary with individual cases, however minimising the levels of airborne particulates will minimise the risk to health. Some well known ailments exacerbated by poor air quality include itchy and watery eyes, sneezing, itchy throat, wheezing, asthma, as well as the spread of infections such as influenza, colds, measles and mumps. Reducing the number of airborne particles through the use of high efficiency air filtration will minimise this risk.

Poor air filtration will also affect the ventilation system itself. High levels of dust contamination will lead to increased duct cleaning costs, increase the risk of corrosion and accelerate refurbishment costs to architectural features. Poor air filtration also reduces heat exchanger efficiency resulting in higher energy inputs and therefore greater operating costs.

What's in the Air?

Solid particles of soot, carbon matter, ashes, earth, sand and silica materials, fibres, road dirt and other animal, vegetable and mineral substances. Mould spores, bacteria, viruses, pollens and Volatile Organic Compounds may also be present. Some of these substances are known carcinogens and asthma triggers.²

**LOGARITHMIC SCALE OF
PARTICLE DIAMETRES
IN MICRONS**



¹ This guide does not deal with the removal of odours and gaseous substances or high volume product dust from industrial processes, which require specialised equipment.

² The Australian Institute of Refrigeration Air-Conditioning & Heating – Air Filters Application Manual.

Information courtesy of AREMA



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Air Filter Selection & Service Guide

Air Filter Standards

As a general guide, Australian Standards are useful information tools that provide minimum performance standards. Care should be taken when applying minimum standards that may not adequately service the air quality needs of the building.

Relevant Australian standards and specifications commonly referred to are:

- AS1324 (Air Filters for use in general ventilation and air-conditioning)
- AS1668 (The use of mechanical ventilation and air-conditioning in buildings), and
- AS3666 (Air Handling and Water Systems of Buildings)

Filter Classification - Performance Ratings

The following performance table is commonly used internationally. It classifies the filter by efficiency from test results carried out in an appropriate air filter-testing laboratory. The following table is found in AS1324 Part 1.2001

For most air-handling and air conditioning applications, testing with Test Dusts No.1 and No.4 is to be used to define the performance of an air filter. These test requirements are consistent with tests carried out to US and European standards ASHRAE 52.1 and EN779.

The benefit of using No.1 dust is to determine the efficiency of the air filter to catch particles of submicrometre nature. The benefit of No.4 dust is to evaluate the arrestance and likely service life of an air filter. ASHRAE 52.2 Removal Efficiency by Particle Size standard provides a useful method of evaluating filtering applications given the particle size of the contaminant.

Air Filter Selection Chart

Filter Class	Average Arrestance AS1324.2 Dust No.4 ASHRAE 52.1 Eurovent 4/5 EN779 Gravimetric	Average Efficiency AS1324.2 Dust No.1 ASHRAE 52.1 Eurovent 4/5 EN779 Atmospheric	Maximum Final Resistance Pa
G1	$A < 65$		250
G2	$65 \leq A < 80$		
G3	$80 \leq A < 90$		
G4	$90 \leq A$		
F5		$40 \leq E < 60$	450
F6		$60 \leq E < 80$	
F7		$80 \leq E < 90$	
F8		$90 \leq E < 95$	
F9		$90 \leq E$	

*Note: Filters which are tested with a minimum efficiency of less than 20% shall only be rated as G type arrestance filters.

Air-handling systems with airflow rates equal to or greater than 1500l/s require air filtration with the following efficiencies:

- Test dust No. 1: 20% (minimum) @ 250Pa.
- Test dust No. 1: 20% to 40% (average) @ 250Pa.

AS1324 Filter Types

- Type 1 - Dry, eg. Woven or non-woven fabrics, which when unused feel dry.
 - Type 2 - Viscous impingement, eg. Woven or non-woven oil or gel coated fabrics, including metalviscous filters.
 - Type 3 - Electrostatic precipitators AS1324 Filter Classes
 - Class A - Fully disposable (entire cell replaced, including frame)
 - Class B - Reusable media (reusable frame)
 - Class C - Reusable media and frame (after cleaning)
 - Class D - Self-renewable (in respect of media advancement and cleaning)
- Example: Supply Type 1, Class B multi pocket bag filter.

Labelling

It is a requirement of AS1324 that all air filters are labelled with a filter performance rating together with the manufacturers/distributors details.

Testing

In order to ensure compliance to the filter performance rating of any product AS1324 recommended that all products are tested at least every five years and that the air filter media used be tested at least every year. No laboratory test older than five years should be accepted as proof of filter performance rating.

Filter Selection

The following table is the AREMA recommended filter classification for building grades to match Property Council of Australia 1999 Benchmarks Handbook. The table sets the benchmark air cleaning standard.

BOMA Grade*	A.R.E.M.A. Min. recommended filter classification
Premium	F7
A	
B	F6
C	F5
D	G4

* Property Council of Australia Benchmarks Handbook



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Air Filter Selection & Service Guide

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Filter Selection Steps

When selecting air filters using the above classification table, you should also consider:

- Air flow capacity of system
- Clean and final resistance of your filter system
- Arrestance dust holding capacity
- Filter life
- Comparison of filters should be made at the same final pressure drop ie 250, 375 or 450 pascals.

Other important considerations when selecting your air filter system include:

- Use of prefilters to extend final filter life
- Optimising the surface area of the filter system
- Access for filter replacement and routine service
- Suitability of filter materials and construction for conditions encountered

Installation

Filter banks should be sealed between filters and frames to prevent leakage and should be suitably stiffened to prevent flexing.

When filters are installed in a slide access, filter and service doors need to be sealed to prevent air leakage and fitted with sash clamp type catches.

General: Provide a permanent notice fixed to the wall identifying the filter type and performance rating.

Plinth: Where possible, provide a 100mm high plinth below the filter bank.

Manometers

Provide a measure of differential pressure across each filter bank. Differential pressure gauge unit - 100mm dial type diaphragm gauge including pipework, termination and fittings necessary for correct operation and maintenance.

Gauge scale - Mark in suitable divisions with full-scale deflection no more than twice the maximum dirty filter condition. Locate gauge outside unit casing in a readily readable location.

Maintenance

Servicing

- Ensure suitable and safe access is provided for air filter inspection & replacement
- All food preparation areas should be located away from filter service points
- Air conditioning plant located at height require Work Cover approved ladders, platforms and harness points.
- Only licensed companies with a registered waste water treatment facility are to service washable filters. A copy of the Trade Waste Agreement should be kept on file to mitigate off site liability under the Environment Operations Act 1997.

Cleaning

Before start-up, ensure that the installation is clean, and inspect filter banks and plenums to ensure integrity of the installation.

Temporary pre-filters

Remove temporary media at completion of commissioning.

Operation and maintenance manual

Each different filter bank should have an operation and maintenance manual which includes information on performance ratings, replacement filter part numbers and sizes.

Washing of Filters on Site

The Clean Waters Act (Part 4) prohibits anyone from washing a filter in a manner that could pollute a waterway. Filters can only be washed by someone who holds a licence to operate an approved washing facility. Many filter service companies are licenced and will remove the filters from site and wash them in their premises.



Electrical IP Ratings

The IP rating system is used to indicate the ingress protection level of electrical equipment against the intrusion of foreign bodies such as fingers, tools, dust and moisture.

The IP rating consists of two numbers, the first indicates protection from solid objects and the second protection from water.

Description of first number	1st Number
No special protection	0
Protection from objects > 50mm	1
Protection from objects < 80mm in length and 12mm diameter	2
Protection from objects > 2.5mm	3
Protection from objects > 1mm	4
Protection from an amount of dust that would interfere with the operation of the equipment	5
Protection from all dust	6
Description of second number	2nd Number
No special protection	0
Protection from vertically dripping water	1
Protection from dripping water when tilted up to 15°	2
Protection from sprayed water	3
Protection from splashed water	4
Protection from water projected from a nozzle	5
Protection against heavy seas or powerful jets of water	6
Protection against temporary immersion	7
Protection against complete continuous submersion in water of 1 metre depth for 15 minutes	8

E.g. An electrical component with an IP rating of IP56 has protection from an amount of dust that would interfere with the operation of the equipment and protection against heavy seas or powerful jets of water.





Selection of **Cool Room/Freezer Equipment**

When requesting quotations for coolroom equipment, please supply the following information to assist Actrol Technical Staff to advise on the selection of suitable equipment for your particular application. Tick boxes where applicable. All * **highlighted** fields must be filled in before we can proceed.

*Client: _____ *Date: _____ / _____ / _____
 *Contact Name: _____ *Phone No: _____
 Address: _____ *Fax No: _____
 Account No: _____ Email: _____

Product Details

*Product Type: _____ eg. Beef, Vegetables...
 *Weight of Product Entering Room per Day _____ kg Weight per 24 Hours
 *Temperature of Entering Product _____ °C
 *Room Storage Temperature _____ °C Room Design Temperature
 Approximate Room Relative Humidity _____ %RH Usually Dictated by Product
 Product Pull Down Time Required _____ Hours Usually 24 Hours

Room Location, Dimensions and Construction

City/town _____

State _____

*Width _____ *Length _____ *Height _____

Internal ☐ External ☐

Construction Insulation Thickness and Type

*Walls _____ mm Polyurethane Polystyrene ☐

*Ceiling _____ mm

Floor *Concrete _____ mm *Insulation _____ mm Floor Heating ☐ None ☐

*Solid Door/s _____ Width _____ mm Height _____ mm

*Glass Door/s _____ Width _____ mm Height _____ mm

Door Usage Heavy ☐ Average ☐ Long ☐ Glazing Type ☐ Double ☐ Triple ☐

Miscellaneous Loads

Number of Occupants _____ Hours/Day _____ Lighting _____ Watts

Forklift Yes ☐ No ☐ Standard lighting 10 Watts per m²

Forklift Type Electric ☐ Internal Combustion ☐ Hours per Day _____

Ventilation Yes ☐ No ☐ Any outside air added to the room

Other Loads _____



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Selection of *Cool Room/Freezer Equipment*

Other Information

*Power Supply 240V 1PH 50Hz ☐ 415V 3PH 50Hz ☐ *Preferred Refrigerant _____

Equivalent Line Length	Horizontal	Vertical
Liquid	_____ m	_____ m
Suction Line	_____ m	
Discharge Line	_____ m	

Any additional data available _____

Equipment Preferences

Conventional ☐	Packaged ☐	Remote ☐
Punchbowl ☐	Buffalo ☐	Cabero ☐

Other _____
Other _____

Actrol can only base equipment selections on the information supplied above and are not responsible if this information is incorrect, changed without notice or if assumptions need to be made due to lack of information.

*Form Completed By: _____

*Client's Signature: _____

These forms can also be found:
<http://www.actrol.com.au/Services/Services-Applications-Engineering/>



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