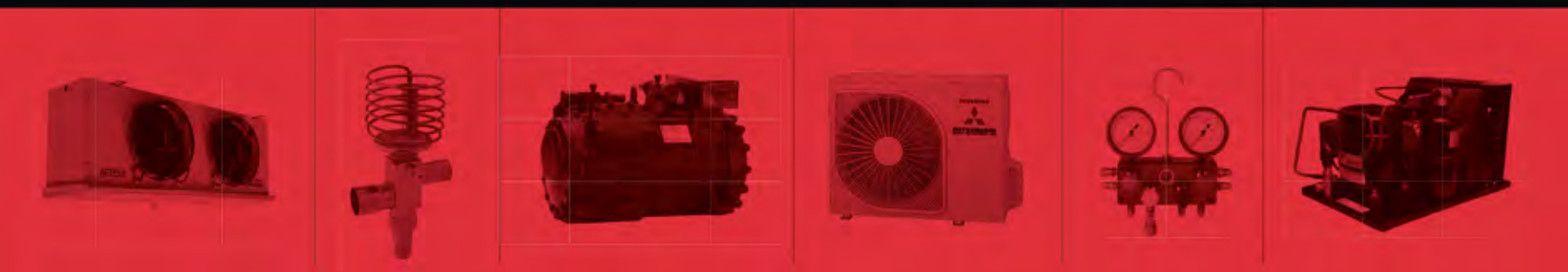
ACTROL™

2017 Technical Resource Product Guide



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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
						Inlet	Outlet	Equaliser	
2707180	TI-HW	802420	R22	-45 to +20	N/A	3/8" MF	1/2" MF	Internal	1500
2707194	TI-MW	802445	R134a						
2707196	TI-SW	802459	R404A R507						
2707200	TI-SW75	802469		-45 to -3	0°C				
2707181	TIE-HW	802421	R22	-45 to +20	N/A			External 1/4" MF	
2707195	TIE-MW	802446	R134a						
2707197	TIE-SW	802460	R404A R507						
2707201	TIE-SW75	802470		-45 to -3	0°C				

Flare Inlet and Solder Outlet

Cat. No.	Model No.	Part No.	Refrigerant	Evaporating Temperature Range °C	MOP (Valve closed)	Connections			Capillary Length mm
						Inlet	Outlet	Equaliser	
2707190	TIS-HW	802424	R22	-45 to +20	N/A	3/8" MF	1/2" OD	Internal	1500
2707192	TIS-MW	802449	R134a						
2707198	TIS-SW	802463	R404A R507						
2707191	TISE-HW	802425	R22	-45 to +20	N/A			External 1/4" MF	
2707193	TISE-MW	802450	R134a						
2707199	TISE-SW	802464	R404A R507						
2707202	TISE-SW75	802472		-45 to -3	0°C				

Connection Adaptor

Cat. No.	Model No.	Part No.	Description
2707203	TIA-038	802503	3/8 FF to 3/8 ODF Adaptor

Orifice Assembly (including Strainer)

Cat. No.	Model No.	Part No.	Nominal Capacity: kW*					
			R22		R134a		R404A/R507	
			M/T	L/T	M/T	L/T	M/T	L/T
2707189	0X	800532	0.5	0.3	0.3	0.2	0.4	0.3
2707182	0	800533	1.3	0.9	0.8	0.5	0.9	0.6
2707183	1	800534	3.3	2.2	1.8	1.2	2.2	1.5
2707184	2	800535	5.4	3.7	2.9	1.9	3.7	2.5
2707185	3	800536	8.7	5.9	4.7	3.1	5.8	4.0
2707186	4	800537	14.3	9.7	7.9	5.2	9.5	6.5
2707187	5	800538	17.4	11.8	9.6	6.3	11.6	8.0
2707188	6	800539	20.0	13.6	11.1	7.3	13.4	9.2

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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Thermostatic Expansion Valves

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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
					Inlet	Outlet	Equaliser	
2707214	BAE 1 HCA	063200	R22	Y	3/8" ODF	1/2" ODF	External 1/4" ODF	760
2707215	BAE 1 1/2 HCA	061954						
2707217	BAE 2 HCA	061955						
2707216	BAE 2 1/2 HCA	061956						
2707218	BAE 3 HCA	065892						
2707219	BAE 4 HCA	061957						
2707220	BAE 5 HCA	061964			1/2" ODF	5/8" ODF		1500
2707221	BAE 6 HCA	062736						

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
					AC	Inlet	Outlet	Equaliser	
2707265	CB18CE	093021	R410A	Y	6.3	3/8" ODF	1/2" ODF	External 1/4" ODF	1500
2707266	CB24CE	093022			8.4				
	NB36CE	095022			12.6				
	NB48CE	095028			16.8				
	NB60EF	095034			21.0	1/2" ODF	5/8" ODF		
	NB72EF	095040			25.2				
	NB84FG	095046			29.4	5/8" ODF	7/8" ODF		

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

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R134a Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length: mm
				Inlet	Outlet	Equaliser	
2707259	BAES 1/2 MC	064244	R134a	3/8" ODF	1/2" ODF	External 1/4" ODF	760
2707260	BAES 3/4 MC	064245					
2707261	BAES 1 MC	064246					
2707262	BAES 1 1/2 MC	064247					
2707263	BAES 2 MC	064248					
2707264	BAES 3 MC	064250					

R404A Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length mm
				Inlet	Outlet	Equaliser	
2707241	BAES 1/4 SC	064137	R404A R507	3/8" ODF	1/2" ODF	External 1/4" MF	760
2707242	BAES 1/2 SC	064138					
2707243	BAES 1 SC	064139					
2707244	BAES 1 1/4 SC	064140					
2707245	BAES 1 1/2 SC	064141					
2707246	BAES 2 SC	064142					
2707247	BAES 2 1/2 SC	064280					
2707248	BAES 3 SC	064281					
2707249	BAES 4 SC	064460					

R404A Balanced Port TX Valve

Cat. No.	Model No.	Part No.	Refrigerant	Connections			Capillary Length mm
				Inlet	Outlet	Equaliser	
2707250	BAES 1/4 SZ	064295	R404A R507	3/8" ODF	1/2" ODF	External 1/4" MF	760
2707251	BAES 1/2 SZ	064144					
2707252	BAES 1 SZ	064145					
2707253	BAES 1 1/4 SZ	064146					
2707254	BAES 1 1/2 SZ	064273					
2707255	BAES 2 SZ	064537					
2707256	BAES 2 1/2 SZ	064434					
2707257	BAES 3 SZ	064538					
2707258	BAES 4 SZ	064780					

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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Thermostatic Expansion Valves

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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

Cat. No.	Model No.	Part No.	Refrigerant	BiFlow	Connections			Capillary Length mm
					Inlet	Outlet	Equaliser	
2707204	HFES 8 HCA	056819	R22	Y	5/8"	7/8"	External 1/4" ODF	1500
2707205	HFES 10 HCA	056820						
2707206	HFES 12 HCA	065762						
2707207	HFES 15 HCA	056825			7/8"	1 1/8"		
2707208	HFES 20 HCA	058490						
2707209	HFES 4 MC	057897	R134a	N	3/8"	1/2"		
2707210	HFES 6 MC	057903			5/8"	7/8"		
2707211	HFES 11 MC	058681			7/8"	1 1/8"		
2707212	HFES 14 MC	064000				1 3/8"		
2707222	HFESC 5 SC	058220	R404A R507		3/8"	1/2"		
2707223	HFESC 10 SC	064219			5/8"	7/8"		
2707224	HFESC 13 SC	065356			7/8"	1 1/8"		

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

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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
					Inlet: ODF	Outlet: ODF	Equaliser	
2707165	TRAE+ 10 HC	062718	R22	N	5/8"	7/8"	External ¼" MF	1500
2707166	TRAE+ 15 HC	062721			7/8"	1 1/8"		3000
2707167	TRAE+ 20 HC	062724						
2707168	TRAE+ 30 HC	062727						
2707169	TRAE+ 40 HC	062733			1 1/8"	1 3/8"		
2707170	TRAE+ 13 MC	063549	R134a		5/8"	7/8"		
2707171	TRAE+ 12 SC	064196	R404A R507		7/8"	1 1/8"	External ¼" ODF	
2707172	TRAE+ 14 SC	064407			1 1/8"	1 3/8"		
2707173	TRAE+ 20 SC	063927						
2707174	TRAE+ 30 SC	064435						
2707175	TRAE 35 SC	064217						

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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Thermostatic Expansion Valves

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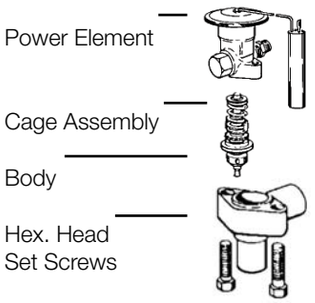
T Series – Component Schedule - Model TCLE and TJLE



Features

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

Refrig.	Valve Series	Power Element		Cage Assembly		Body - Angle Type		Set Screws (2)	
		Cat. No.	Model No.	Cat. No.	Model No.	Cat. No.	Model No.	Cat. No.	Model No.
R134a	TCLE1/4MC	**2707136**	XB1019-MW1B	**2707110**	X22440-B1B	**2707147**	C501-5 3/8" x 5/8" ODF	**2707159**	PS286-5
	TCLE3/4MC			**2707111**	X22440-B2B				
	TCLE11/2MC			**2707112**	X22440-B3B				
	TCLE21/2MC			**2707113**	X22440-B4B				
	TCLE31/2MC			**2707114**	X22440-B5B	**2707148**	C501-7 1/2" x 5/8" ODF		
	TCLE51/2MC			**2707115**	X22440-B6B				
	TCLE71/2MC			**2707116**	X22440-B7B	**2707149**	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	**2707158**	PS168-5
	TCLE9MC			**2707117**	X22440-B8B				
R22	TCLE1/2HC	**2707129**	XB1019-HC1B	**2707110**	X22440-B1B	**2707147**	C501-5 3/8"x 5/8" ODF	**2707159**	PS286-5
	TCLE1HC			**2707111**	X22440-B2B				
	TCLE2HC			**2707112**	X22440-B3B				
	TCLE3HC			**2707113**	X22440-B4B				
	TCLE5HC			**2707114**	X22440-B5B	**2707148**	C501-7 1/2" x 5/8" ODF		
	TCLE71/2HC			**2707115**	X22440-B6B				
	TCLE10HC			**2707116**	X22440–B7B	**2707149**	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	**2707158**	PS168-5
	TCLE12HC			**2707117**	X22440-B8B				
R404A R507	TCLE1/4SC	**2707142**	XB1019-SC1B	**2707110**	X22440-B1B	**2707147**	C501-5 3/8" x 5/8" ODF	**2707159**	PS286-5
	TCLE1/2SC			**2707111**	X22440-B2B				
	TCLE1SC			**2707112**	X22440-B3B				
	TCLE2SC			**2707113**	X22440-B4B				
	TCLE3SC			**2707114**	X22440-B5B	**2707148**	C501-7 1/2" x 5/8" ODF		
	TCLE5SC			**2707115**	X22440-B6B				
	TCLE61/2SC			**2707116**	X22440-B7B	**2707149**	A576 5/8" x 7/8" ODF (7/8" x 1 1/8" ODM)	**2707158**	PS168-5
	TCLE8SC			**2707117**	X22440-B8B				
R134a	TJLE9MC	**2707136**	XB1019-MC1B	**2707118**	XC724-B4B	**2707152**	B504 5/8" x 7/8" ODF (7/8" x 1 1/8 " ODM)	**2707160**	PS514-5
	TJLE11MC			**2707119**	XC724-B5B				
R22	TJLE11HC	**2707129**	XB1019-HC1B	**2707118**	XC724-B4B				
	TJLE14HC			**2707119**	XC724-B5B				
R404A R507	TJLE7SC	**2707142**	XB1019-SC1B	**2707118**	XC724-B4B				
	TJLE9SC			**2707119**	XC724-B5B				

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

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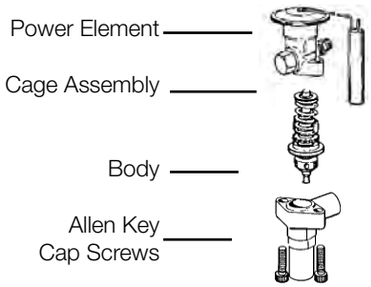
T Series - Component Schedule - Model TJRE, TER, TIR, THR



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.	Cat. No.	Model No.	Cat. No.	Model No.	Cat. No.	Model No.
R134a	TJRE 11MC	**2707136**	XB1019-MW1B	**2700216**	X11873-B4B	**2707146**	10331 $\frac{7}{8}$" x $\frac{7}{8}$" ODF ($1\frac{1}{8}$" x $1\frac{1}{8}$" ODM)	**2707161**	PS259
	TJRE 13MC			**2707106**	X11873-B5B				
R22	TJRE 14HC	**2707129**	XB1019-HC1B	**2700216**	X11873-B4B				
	TJRE 18HC			**2707106**	X11873-B5B				
R404A R507	TJRE 9SC	**2707142**	XB1019-SC1B	**2700216**	X11873-B4B				
	TJRE 11SC			**2707106**	X11873-B5B				
R134a	TER 16MC	**2707139**	XC726-MC2B	**2707120**	X9117-B6B	**2707153**	9153 $\frac{7}{8}$" x $\frac{7}{8}$" ODF ($1\frac{1}{8}$" x $1\frac{1}{8}$" ODM)	**2707161**	PS259
	TER 19MC			**2707109**	X9117-B7B				
	TER 25MC			**2707121**	X9117-B8B				
	TER 31MC			**2707122**	X9117-B9B				
R22	TER 22HC	**2707140**	XC726-HC2B	**2707120**	X9117-B6B				
	TER 26HC			**2707109**	X9117-B7B				
	TER 35HC			**2707121**	X9117-B8B				
	TER 45HC			**2707122**	X9117-B9B				
R404A R507	TER 14SC	**2707107**	XC726-SC2B	**2707120**	X9117-B6B				
	TER 16SC			**2707109**	X9117-B7B				
	TER 22SC			**2707121**	X9117-B8B				
	TER 28SC			**2707122**	X9117-B9B				
R134a	TIR 45MC	**2707139**	XC726-MC2B	**2707123**	X9166-B10B	**2707155**	9151 $\frac{7}{8}$" x $\frac{7}{8}$" ODF ($1\frac{1}{8}$" x $1\frac{1}{8}$" ODM)	**102225**	PS370
R22	TIR 55HC	**2707140**	XC726-HC2B						
R404A R507	TIR 39SC	**2707107**	XC726-SC2B						
R134a	THR 55MC	**2707139**	XC726-MC2B	**2707124**	X9144-B11B	**2707156**	9149 $1\frac{1}{8}$" x $1\frac{1}{8}$" ODM	**102225**	PS370
	THR 68MC			**2707125**	X9144-B13B				
R22	THR 75HC	**2707140**	XC726-HC2B	**2707124**	X9144-B11B				
	THR 100HC			**2707125**	X9144-B13B				
R404A R507	THR 50SC	**2707107**	XC726-SC2B	**2707124**	X9144-B11B				
	THR 60SC			**2707125**	X9144-B13B				

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
2707129	XB1019HC1B	053416	R22	¼" MF	1.5	-30 to +10	None
2707132	XB1019HCA1B*	056039				-30 to +10	
2707137	XB1019HW651B	089445				-45 to -1	65
2707128	XB1019HC2B	054390			3	-30 to +10	None
2707126	XB1019QL1B	058120	R124		1.5		
2707136	XB1019MW1B	057878	R134a			-30 to +20	
2707141	XB1019MZ1B	061946				-45 to -12	
2707108	XB1019MC2B	059548			3	-30 to +10	
2707133	XB1019NW1002B	803483	R407C/R22			-45 to + 14	
2707142	XB1019SC1B	059189	R404A R507		1.5	-30 to +10	
2707144	XB1019SZ1B	062140				-45 to -12	
2707134	XB1019SW401B	059130				-45 to -18	40
2707143	XB1019SC2B	059547			3	-30 to +10	None

*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
2707140	XC726HC2B	802933	R22	¼" MF	3	-30 to +10	None
2707139	XC726MC2B	803384	R134a				
2707138	XC726NW1002B	803485	R407C/R22			-45 to + 14	
2707107	XC726SC2B	803451	R404A R507			-30 to +10	
2707127	XC726SZ2B	063974				-45 to -12	

TLE Series

Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi
2707135	XB1033HCA-1B	049760	R22	Internal	1.5	-30 to +10	None

Rapid Response

Cat. No.	Model No.	Part No.	Refrigerant	Equalizer Type	Capillary Length: m	Temp Range: °C	MOP: psi
2707131	X8019FWS1B	031654	R134a	¼" MF	1.5	-23 to +10	None

Accessories

Cat. No.	Model No.	Part No.	Description
2707157	X13455/1	027579	Gasket Kit
2707162	XA-1728-4	020955	Bulb Strap Kit

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

Valve Style	Body					Screws: 2 required		
	Cat. No.	Model No.	Part No.	Connections		Cat. No.	Model No.	Part No.
				Inlet	Outlet			
TCLE	**2707147**	C501-5	803232	3/8" ODF	5/8" ODF	**2707159**	PS286-5	021057
	2707148	C501-7	803234	1/2" ODF				
	2707149	A576	027764	5/8" ODF Or 7/8" ODM	7/8" ODF Or 1 1/8" ODM	**2707158**	PS168-5	026629
	2707150	9761-4	803350	1/2" ODF	5/8" ODF	**2707159**	PS286-5	021057
	2707151	X6346-17	803330	5/8" ODF	7/8" ODF			
TJLE	**2707152**	B504	044984	5/8" ODF Or 7/8" ODM	7/8" ODF Or 1 1/8" ODM	**2707160**	PS514-5	026639
TJRE	**2707146**	10331	803338	5/8" ODF Or 1 1/8" ODM		**2707161**	PS259	020829
	2707145	10332	803324	7/8" ODF Or 1 1/8" ODM				
TER	**2707153**	9153	803244					
	2707154	9152	803244					
TIR	**2707155**	9151	803286			**102225**	PS370	021064
THR	**2707156**	9149	803284	1 1/8" ODM	1 1/8" ODM			

Nominal Capacities

Valve Style	Cat. No.	Model No.	Part No.	Nominal Capacity: kW							
				R22			R134a			R404A/R507	
				A/C	M/T	L/T	A/C	M/T	L/T	M/T	L/T
TCLE	**2707110**	X22440-B1B	037035	1.8	2.0	1.3	1.4	1.4	1.0	1.2	0.9
	2707111	X22440-B2B	037037	3.6	3.8	2.6	2.6	2.8	1.9	2.4	1.7
	2707112	X22440-B3B	037039	7.6	8.1	5.5	5.5	5.8	3.9	5.3	3.7
	2707113	X22440-B4B	037041	16.7	17.8	12.1	12.3	12.8	8.7	11.5	8.1
	2707114	X22440 B5B	037043	21.5	22.8	15.5	15.7	16.4	11.1	14.8	10.5
	2707115	X22440 B6B	037045	29.4	31.2	21.2	21.4	22.4	15.2	20.2	14.3
	2707116	X22440-B7B	037047	39.7	42.2	28.7	29.1	30.4	20.6	27.3	19.3
	2707117	X22440-B8B	037049	46.2	49.1	33.3	33.8	35.3	24.0	31.8	22.5
TJLE	**2707118**	XC724-B4B	093343	38.6	41.7	33.8	27.7	29.1	20.9	26.9	21.7
	2707119	XC724-B5B	038699	49.2	53.2	43.1	36.7	38.1	26.6	34.3	27.7
TJRE	**2700216**	X11873-B4B	088837	56.0	59.6	40.5	40.9	42.7	29.0	37.6	26.7
	2707106	X11873-B5B	089058	71.5	76.0	51.6	51.8	54.1	36.7	48.0	34.0
TER	**2707120**	X9117-B6B	077896	87.9	93.5	63.5	64.5	67.4	45.7	59.2	42.0
	2707109	X9117-B7B	078117	100.5	106.9	72.5	73.6	76.9	52.2	67.7	48.0
	2707121	X9117-B8B	071155	138.2	146.9	99.8	101.7	106.3	72.2	93.1	66.0
	2707122	X9117-B9B	029429	168.1	178.8	121.4	122.6	128.1	87.0	112.8	80.0
TIR	**2707123**	X9166-B10B	070738	215.5	229.1	155.6	158.0	165.2	112.1	144.8	102.6
THR	**2707124**	X9144-B11B	020846	244.5	260.0	176.5	179.0	187.0	126.9	163.6	113.9
	2707125	X9144-B13B	021067	291.8	310.3	210.7	214.4	224.0	152.0	196.5	139.3

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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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
							Inlet	Outlet	Equaliser	
2701119	TX2	068Z3206	R22	-40 to +10	N	N	⅜" MF	½" MF	Internal	1500
2701118	TN2	068Z3346	R134a							
2701120	TS2	068Z3400	R404A R507							
2701122	TEX2	068Z3209	R22						External ¼"	
2701121	TEN2	068Z3348	R134a							
2701123	TES2	068Z3403	R404A R507							
2706627		068Z3404		-60 to -25	B					
2706623	TS2	068Z3408		-40 to -15	NL	Y			Internal	
2706624	TES2	068Z3409		-40 to -15	NL				External ¼"	

Flare Inlet and Solder Outlet

Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Range Code	MOP	Connections			Capillary Length mm
							Inlet	Outlet	Equaliser	
2701132	TX2	068Z3281	R22	-40 to +10	N	N	⅜" MF	½" OD	Internal	1500
2701133	TN2	068Z3383	R134a							
2701134	TS2	068Z3414	R404A R507							
2701135	TEX2	068Z3284	R22						External ¼"	
2701136	TEN2	068Z3385	R134a							
2701137	TES2	068Z3415	R404A R507							
2706625	TS2	068Z3420		-60 to -25	B	Y			Internal	
2706626	TES2	068Z3430		-40 to -15	NL				External ¼"	

Orifice Assembly (Including Strainer)

Cat. No.	Part No.	Orifice No.	Danfoss TX Valve Nominal Capacities*					
			R22		R134a		R404A	
			M/T	L/T	M/T	L/T	M/T	L/T
2701124	068-2002	0X	0.62	0.56	0.44	0.38	0.39	0.35
2701125	068-2003	00	1.29	1.13	0.81	0.66	0.83	0.70
2701126	068-2010	01	2.90	2.09	1.57	1.03	1.88	1.30
2701127	068-2015	02	4.31	2.94	2.23	1.43	2.80	1.85
2701128	068-2006	03	7.67	5.27	3.99	2.55	4.90	3.30
2701129	068-2007	04	11.40	7.76	5.87	3.73	7.30	4.90
2701130	068-2008	05	14.50	9.84	7.45	4.75	9.30	6.20
2701131	068-2009	06	17.60	11.96	9.09	5.80	11.30	7.60

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

Cat. No.	Model No.	Part No.	Refrig.	Evap. Temp. Range °C	Range Code	MOP	Connections			Capillary Length mm
							Inlet	Outlet	Equaliser	
2706619	TUA	068U2235	R22	-40 to +10	N	N	3/8" OD	1/2" OD	Internal	1500
2706178		068U2205	R134a							
2706176		068U2285	R404A R507							
2706620	TUAE	068U2237	R22						External 1/4"	
2706177		068U2207	R134a							
2706175		068U2287	R404A R507							
2706621		068U2303		-40 to -5	NM	Y				

Orifice Assembly (Including Strainer)

Cat. No.	Orifice No.	Part No.	Danfoss TX Valve Nominal Capacities*					
			R22		R134a		R404A	
			M/T	L/T	M/T	L/T	M/T	L/T
2706179	0	068U1030	0.58	0.37	0.37	0.17	0.40	0.25
2706180	1	068U1031	0.85	0.54	0.54	0.21	0.6	0.37
2706181	2	068U1032	1.0	0.61	0.61	0.32	0.7	0.41
2706182	3	068U1033	1.3	0.82	0.82	0.48	0.93	0.56
2706183	4	068U1034	2.2	1.3	1.4	0.77	1.6	0.9
2706184	5	068U1035	3.0	1.8	1.8	1.0	2.1	1.2
2706185	6	068U1036	4.6	2.8	2.8	1.6	3.3	1.9
2706186	7	068U1037	6.1	3.7	3.7	2.1	4.4	2.5
2706187	8	068U1038	8.9	5.4	5.5	3.1	6.4	3.7
2706188	9	068U1039	12.1	7.3	7.5	4.4	8.7	4.9

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
							Inlet	Outlet	Equaliser	
	TGEX3	067N2150	R22	-40 to +10	10	N	3/8"	5/8"	External 1/4"	1500
	TGEX3	067N2151			10		1/2"			
2706610	TGEX4	067N2152			14			7/8"		
2706611	TGEX6	067N2153			20			5/8"		
2706612	TGEX6	067N2154			20			7/8"		
2707235	TGEX6	067N2155			20		5/8"			
2706613	TGEX7.5	067N2156			27					
2706614	TGEX11	067N2157			38					
	TGEX11	067N2158			38			1 1/8"		
2706615	TGEX12	067N2159			43			7/8"		

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
							Inlet	Outlet	Equaliser	
2706616	TGEZ7	067N4156	R407C	-40 to +10	25	N	5/8"	7/8"	External 1/4"	1500
2706617	TGEZ10	067N4157			36					
2706618	TGEZ12	067N4159			42					

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
2706609	TEX5	067B3250	R22	-40 to +10	N	N	External ¼"	3m
2706602	TEN5	067B3297	R134a					
2706605	TES5	067B3342	R404A R507					
2706606	TEX12	067B3210	R22					
2706600	TEN12	067B3232	R134a					
2706603	TES12	067B3347	R404A R507					
2706607	TEX20	067B3274	R22					
2706601	TEN20	067B3292	R134a					
2706604	TES20	067B3352	R404A R507					
2706608	TEX55	067G3205	R22					
	TEN55	067G3222	R134a					
	TES55	067G3302	R404A R507					

Orifice Assembly

Cat. No.	Model No.	Part No.	Valve Type
	0.5	067B2788	TE5
2706581	1	067B2789	
2706582	2	067B2790	
2706583	3	067B2791	
2706584	4	067B2792	
2706585	5	067B2708	TE12
2706586	6	067B2709	
2706587	7	067B2710	
2706588	8	067B2771	TE20
2706589	9	067B2773	
2707236	10	067G2701	TE55
2707237	11	067G2704	
2707238	12	067G2707	
2707239	13	067G2710	

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		Solder Angle		Solder Straight		Solder Flanges		Connections		Valve Type
Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Inlet	Outlet	
2706595	067B4013	**2706592**	067B4009	**2706590**	067B4007			½"	⅝"	TE5
		2706593	067B4010	**2706591**	067B4008			½"	⅞"	
		2706594	067B4011		067B4032			⅝"	⅞"	
			067B4034		067B4033			⅞"	1 ⅛"	
							067B4025	⅝"	⅞"	TE12
							067B4026	⅞"	1"	
		2706598	067B4023	**2706596**	067B4021			⅞"	1 ⅛"	
										TE20
		2704495	067G4004		067G4003			1 ⅛"	1 ⅜"	TE55

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Thermostatic Expansion Valves

Sporlan SBF Series - Balanced Port with Replaceable Strainer

Sporlan type SBF TX valves are small brass bar body valves with extended ODF solder connections and balanced port construction. SBF have replaceable thermostatic elements. The SBF TX valve has a 100 mesh removable strainer that can be cleaned and/or replaced while the valve is still soldered to the system tubing. The balanced port construction makes these valves ideal for small capacity refrigeration applications which operate over widely varying conditions.

Applications
- Supermarket Cases
- Self-contained Cases
- Walk-in Coolers/Freezers
- Ice Machines
- Salad Bars
- Transport Refrigeration

Features and Benefits
- Balanced port design
- Removable power element
- Removable inlet strainer 100 mesh
- Field adjustable superheat
- 1/4” ODF external equalizer
- Multiple charges available
- Weight: 0.45 kg

						Connections: inches		
Code	**Model No**	**Part No**	**Refrigerant**	**Nominal Capacity: kW**	**Element Size No:**	**Inlet**	**Outlet**	**Equalizer Type**
2704564	SBFJE-AAA-C	108817P	R134a	0.44 thru 0.70	43	3/8 ODF	1/2 ODF	1/4
2704565	SBFJE-AA-C	108958P	R134a	0.88 thru 1.17				
2704561	SBFJE-A-C	108549P	R134a	1.76 thru 3.52				
2704562	SBFJE-B-C	108551P	R134a	4.40 thru 6.15				
2704563	SBFJE-C-C	108552P	R134a	7.03 thru 10.6				
2704572	SBFSE-AAA-Z	108822P	R404A	0.44 thru 0.70				
2704581	SBFSE-AA-Z	108979P	R404A	0.88 thru 1.17				
2704582	SBFSE-AA-Z	109002P	R404A	0.88 thru 1.17				
2704568	SBFSE-AA-C	108621P	R404A	0.88 thru 1.17				
2704567	SBFSE-A-Z	108618P	R404A	1.76 thru 3.52				
2704566	SBFSE-A-C	108617P	R404A	1.76 thru 3.52				
2704569	SBFSE-B-C	108624P	R404A	4.40 thru 7.03				
2704570	SBFSE-B-Z	108625P	R404A	4.40 thru 7.03				
2704580	SBFSE-C-Z	108928P	R404A	7.91 thru 10.6				
2704571	SBFSE-C-C	108628P	R404A	7.91 thru 10.6				

Charge Code: C = Commercial Refrigeration +10C to -25C
Z = Low Temp Refrigeration -25C to -40C

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Thermostatic Expansion Valves

Sporlan O Series - Balanced Port with Permanent Strainer

Sporlan type O TX valves have a brass bar body, externally adjustable superheat and ODF solder connections. The thermostatic element is replaceable, and the inlet connection has a permanent 12 mesh strainer. This valve type features a balanced port construction, and it is designed for both air conditioning and refrigeration applications. A synthetic seating surface provides tight shut-off during system off periods.

Applications
- Air Conditioning
- Process Chillers
- Commercial Refrigeration

Features and Benefits
- Balanced port design
- Removable power element
- Field adjustable superheat
- 1/4" sweat external equalizer

					Connections: inches			
Code	**Model No**	**Part No**	**Refrigerant**	**Nominal Capacity: kW**	**Element Size No:**	**Inlet**	**Outlet**	**Equalizer Type**
2704594	OJE-12-C	125519P	R134a	42.2	83	7/8	1 3/8	1/4
2704592	OJE-16-C	124209P	R134a	56.3	83	1 1/8	1 1/8	
2704595	OJE-16-CP60	125527P	R134a	56.3	83			
2704593	OJE-23-CP60	124647P	R134a	80.9	33			
2704604	OSE-6-Z	125394P	R404A	21.1	83	7/8	1 1/8	
2704599	OSE-9-Z	124216P	R404A	31.6	83			
2704596	OSE-9-C	124213P	R404A	31.6	83			
2704600	OSE-12-Z	124217P	R404A	42.2	83		1 3/8	
2704597	OSE-12-C	124214P	R404A	42.2	83			
2704601	OSE-21-Z	124218P	R404A	73.8	83	1 1/8		
2704598	OSE-21-C	124215P	R404A	73.8	83			
2704603	OSE-30-C	124819P	R404A	105.5	33			
2704602	OSE-35-Z	124351P	R404A	123.0	33			

Charge Code: C = Commercial Refrigeration +10C to -25C
ZP = Low Temp Refrigeration -25C to -40C
CP60 = Airconditioning

Sporlan S Series - with Permanent Strainer

Sporlan type S TX valves feature a brass bar body, externally adjustable superheat and ODF solder connections. The thermostatic element is replaceable, and the inlet connection has a permanent 12 mesh strainer. This valve is designed for both air conditioning and refrigeration applications.

						Connections: inches		
Code	**Model No**	**Part No**	**Refrigerant**	**Nominal Capacity: kW**	**Element Size No:**	**Inlet**	**Outlet**	**Equalizer Type**
2704583	SJE-3-C	128917P	R134a	10.5	83	1/2	7/8	1/4
2704584	SJE-5-C	128918P	R134a	17.6		5/8		
2704676	SJE-5-CP60	128927P	R134a	17.6				
2704585	SJE-6-C	128919P	R134a	21.1				
2704586	SSE-3-C	128934P	R404A	10.5		1/2		
2704589	SSE-3-ZP	128953P	R404A	10.5				
2704587	SSE-4-C	128936P	R404A	14.1				
2704590	SSE-4-ZP	128954P	R404A	14.1				
2704588	SSE-6-C	128937P	R404A	21.1		5/8		
2704591	SSE-6-ZP	128955P	R404A	21.1				

Charge Code: C = Commercial Refrigeration +10C to -25C
ZP = Low Temp Refrigeration -25C to -40C

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Thermostatic Expansion Valves

Sporlan EBS Series - Balanced Port with Permanent Strainer

Sporlan type EBS TX valves have a brass bar body having the same physical size as the type S valve except the type EBS features a balanced port construction and extended ODF connections. The thermostatic element is replaceable, and the inlet connection has a permanent 12 mesh strainer. The balanced port construction makes this valve ideally suited for refrigeration and air conditioning applications which operate over widely varying conditions.

Applications
- Air Conditioning
- Commercial Refrigeration

Features and Benefits
- Balanced port design
- Removable power element
- Field adjustable superheat
- 1/4" sweat external equalizer

						Connections: inches		
Code	**Model No**	**Part No**	**Refrigerant**	**Nominal Capacity: kW**	**Element Size No:**	**Inlet**	**Outlet**	**Equalizer Type**
2704608	EBSSE-6-C	163708P	R404A	21.1	83	5/8	7/8	1/4
2704615	EBSSE-6-ZP	163575P	R404A					
2704605	EBSSE-7.5-C	163507P	R404A	26.4				
2704616	EBSSE-7.5-ZP	163509P	R404A					
2704606	EBSSE-10-C	163877P	R404A	35.2		7/8	1 1/8	
2704613	EBSSE-10-ZP	163752P	R404A					
2704607	EBSSE-13-C	163783P	R404A	45.7				
2704614	EBSSE-13-ZP	163749P	R404A					

Charge Code: C = Commercial Refrigeration +10C to -25C
ZP = Low Temp Refrigeration -25C to -40C

Sporlan Replacement Power Elements

Sporlan replacement power elements are available for all series of valves that have a replacement thermostatic element. Quickly identifiable in the field, simply look at the element number (33, 43, 63, 83) and combine with the charge code to allow for simple and quick ordering.

				Application		
Code	**Element No**	**Part Number**	**Refrigerant**	**Air Conditioning**	**Commercial Refrigeration**	**Low Temp Refrigeration**
2704577	KT33	180051P	R134a	JCP60		
2704576	KT33	180028P	R134a		JC	
2704560	KT33	183384P	R404A		SC	
2704696	KT43	180310P	R134a		JC	
2704697	KT43	180204P	R404A		SC	
2704698	KT43	180318P	R404A			SZ
2704699	KT43	180060P	R404A			SZP
2704559	KT63	180856P	R134a	JCP60		
2704579	KT83	180062P	R404A			SZ
2704575	KT83	181126P	R134a		JC	
2704578	KT83	180053P	R134a	JCP60		
2704573	KT83	183399P	R404A		SC	

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Pressure Control PS1

Electrical Control Valve CX for CO2

The Best Selection For Your Application

Electronic and mechanical controls of highest quality

Emerson Climate Technologies' electronic and mechanical controls offer solutions for the precise and efficient control of commercial refrigeration and air conditioning systems as well heat pumps for all common refrigerants.

We continue to pioneer the control of refrigerant flow with innovative designs, keeping the durability of the components and system performance optimization central to our product development.

Electronic Oil Level Management System OM4/OM5

Thermo™ Expansion Valve TCLE

Alco Controls™

EMERSON™ Climate Technologies

EMERSON. CONSIDER IT SOLVED™.

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						
					R134a	R22		R404A		R410A	
					M/T	A/C	M/T	M/T	L/T	A/C	M/T
2707232	EX4-U31*	800617	5/8" ODF	5/8" ODF	12	16	17	11	11	18	20
2707233	EX5-U31*	800619	5/8" ODF	7/8" ODF	37	48	51	33	33	56	59
2707274	EX6-I31*	800622	7/8" ODF	1 1/8" ODF	89	115	122	80	80	134	143
2707275	EX7-U31*	800626	1 3/8" ODF	1 3/8" ODF	243	316	336	219	220	369	395
2707272	EX8-U21	800630	1 3/8" ODF	1 3/8" ODF	649	842	897	585	585	985	1053

* Suitable for Bi-flow applications

Superheat Controller kits

Cat. No.	Model No.	Part No.	Description	Suits	Kit Contents
2707276	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

Accessories

Cat. No.	Model No.	Part No.	Description
2707273	EXV-M15	804663	Valve Lead 1.5 Metre
2707279	ECD-002	807657	LED Display Unit
2707287	ECC-N10	807860	RJ45 Connection Cable

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

Carel

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						
				R134a	R22		R404A		R410A	
				M/T	A/C	M/T	M/T	L/T	A/C	M/T
2707291	E2V05BSF00	½"	½"	1.2	1.3	1.4	0.9	1	1.5	1.7
2707292	E2V09BSF00			2	1.9	2.4	1.5	1.7	2.6	2.9
2707299	E2V11BSF00			3.5	3.7	4.2	2.7	3	4.6	5.2
2707293	E2V14BSF00			5	6	6.5	4.3	4.7	7.3	8.2
2707300	E2V18BSF00			7	8	9	6	6.4	10	11
2707294	E2V24BSF00			14	16	18	12	12.8	19.6	22
2707295	E2V30BSM00	⅝"	⅝"	20	24	27	18	18.9	29.5	33
2707296	E2V35BSM00			28	35	37	23	26	40	45
2707301	E3V45SWR10	¾"	⅞"	47	60	65	42	45.5	71	80
2707302	E3V55SWR10			70	80	95	62	67	105	117
2707303	E3V65SWS10	⅞"	1⅛"	95	115	130	85	90	140	157
2707304	E4V85BWT00	1⅛"	1⅜"	135	165	180	120	125	200	225
2707305	E4V95BWT00			180	230	250	165	170	270	300
2707306	E5VA5AST00	1⅜"		450	545	600	400	410	655	740
2707307	E6VB2ASV00	1⅝"	1⅝"	900	1080	1200	750	800	1300	1450
	E7VC1ASZ00	2⅛"	2⅛"	1400	1730	2000	1250	1300	2080	2350

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.

THE GAME CHANGING

EVD-ice

EVD-ice is a complete system which includes a carel electronic expansion valve, controller and sensors fitted into quality evaporators. This product is revolutionising the industry.

CAREL
evd ice

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 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.

Powersolution Panels

Cat. No.	Part No.	Description
2707315	EDVPN01007	EEV Driver Panel Kit Without Ultracap (Kit contains all sensors and cables as well)
2707316	EDVPN01008	EEV Driver Panel Kit With Ultracap (Kit contains all sensors and cables as well)
2707317	EDVPN02008	EEV Twin Driver Panel Kit With Ultracap (Kit contains all sensors and cables as well)

Driver Kits

Cat. No.	Part No.	Description	Kit Contents
2707313	EVD00N3E5K	Driver Kit Carel Valve	E2VCABS600 EVD0000E50 SPKT0013R0 SPKC005310 NTC060HF01
2707314	EVD00N3E2K	Driver Kit Universal Valve	E2VCABS60 EVD0000E20 SPKT0013R0 SPKC005310 NTC060HF01

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	
2707308	EVD0000E50	Expansion Valve Driver EVO	Carel Valves
2707310	EVD0000E20		Universal Valve Types
2707309	EVD0000T50	Twin Expansion Valve Driver EVO	Carel Valves
2707311	EVDIS00EN0	Removable Plug In Display for EVO	

Accessories

Cat. No.	Part No.	Description
2707297	E2VCABS600	Connector Cable 6m Shielded
2707298	EEVMAG000	EEV Manual Driving Tool Set of 3
2707853	NTC030HF03	Temperature Sensor - Clamp On
2707832	SPKT0013R3	Pressure Transducer -100kPa to 930kPa
2707748	SPKC002313	Pressure Transducer Cable IP65
2707734	TX60	Transformer 240V - 24V AC 60VA
2707312	EVD0000UC0	Ultracap module: power fail backup device for EVD Evolution
	E2VMAG0000	EEV Manual Driving Tool for E2V valves

Typical ordering package for expansion valve operation (1 of each):
• Electronic Valve • Valve Driver • Transformer • Connector Cable • Pressure Transducer • Transducer Cable • Temperature Sensor
EVDIS00EN0 removable display is used for commissioning & programming.

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Evaporator Pressure Regulators

Sporlan ORIT & SORIT Series – Evaporator Pressure Regulating Valves

Sporlan type EPR valves are designed to provide an accurate and economical means of balancing system capacity and load requirements during low loads and/or while maintaining different evaporator conditions on multi temperature evaporator systems. These valves control evaporator temperature by maintaining evaporator pressure.

Applications

- Commercial Refrigeration

Cat. No.	Part No	Description	Port Size	Connections	MRP (Max Rated Pressure)	Adjustment Range	Coil Required
2704617	901096P	SPORLAN EPR ORIT-6-0/50-5/8 ODF	3/4"	5/8 Solder	450 psi	0 to 50 psig	N/A
2704618	901101P	SPORLAN EPR ORIT-6-30/100-1/2 ODF		1/2 Solder	450 psi	30 to 100 psig	
2704619	901103P	SPORLAN EPR ORIT-6 0/50 7/8 ODF WS		7/8 Solder	450 psi	0 to 50 psig	
2704620	901117P	SPORLAN EPR ORIT-6-0/50-1/2 SAE		1/2 Flare	450 psi	0 to 50 psig	
2704624	901194P	SPORLAN EPR ORIT-6-30/100-1/2 SAE		1/2 Flare	450 psi	30 to 100 psig	
2704621	901131P	SPORLAN EPR ORIT-10-0/50-7/8 ODF WS	1¼"	7/8 Solder	450 psi	0 to 50 psig	
2704622	901138P	SPORLAN EPR ORIT-10 0/50 9 (1-1/8) ODF WS		1 1/8 Solder	450 psi	0 to 50 psig	
2704623	901166P	SPORLAN EPR ORIT-10 0/50 11 ODF WS		1 3/8 Solder	450 psi	0 to 50 psig	
2704625	901208P	SPORLAN EPR ORIT-10-30/100-7/8 ODF		7/8 Solder	450 psi	30 to 100 psig	
2704626	901590P	SPORLAN EPR ORIT-12-0/100 1 1/8 ODF	25/32"	1 1/8 Solder	450 psi	0 to 100 psig	
2704627	901611P	SPORLAN EPR SORIT-12-0/100 1 1/8 ODF		1 1/8 Solder	450 psi	0 to 100 psig	MKC1E
2704628	901618P	SPORLAN EPR ORIT-15-0/100-1 3/8ODF LESS	1"	1 3/8 Solder	450 psi	0 to 100 psig	MKC1E
2704629	901625P	SPORLAN EPR SORIT-20-0/100 1 5/8 ODF	1 5/16"	1 5/8 Solder	450 psi	0 to 100 psig	MKC1E

Evaporator Pressure Regulators

Sporlan CDS Series – Electronic Stepper Motor Control Valve for the Suction Line

Whilst traditionally developed as Electronic Evaporator Pressure Regulating Valves, the CDS series of valves can be applied as Heat Reclaim, Head Pressure Control or Liquid Line Differential Valves. The CDS valves are designed to contribute minimal pressure drop to a system via electronically controlled step motors. Precise control, balanced port construction and low power consumption are just some of the many features of this versatile valve.

Cat. No.	Part No	Description	Connections	Cable Length	MRP (Max Rated Pressure)	Supply Voltage	Max Power
2704630	940033P	CDS-9 7/8 ODF 10'-S	7/8 SOLDER	10 ft	700 psi	12VDC	3W
2704631	940034P	CDS-9 1⅛ ODF 10'-S	1-1/8 SOLDER	10 ft	700 psi	12VDC	3W
2704632	940039P	CDS-17 1⅜ ODF 10'-S	1-3/8 SOLDER	10 ft	700 psi	12VDC	3W

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Evaporator Pressure Regulators

Sporlan 3-Way Heat Reclaim Valves

Sporlan type 3-Way Heat Reclaim valves are designed to divert heat normally rejected at the condenser to an air handler in an area that requires heat. Today more and more applications are utilizing “heat reclaim” as a means of providing a supplementary or even a primary heat source. Heat reclaim can significantly lower energy costs. The energy efficiency of recovered heat will almost always be more efficient than any other purchased heat source.

Applications
- Air Conditioning
- Commercial Refrigeration

Features and Benefits
- Tight synthetic main port seating
- Both vertical and horizontal mounting
- High capacity at minimum pressure drop

Cat. No.	Part No	Description	Port Size	Connections	MRP (Max Rated Pressure)	Coil Required
2704636	377100P	SPORLAN 3-WAY HEAT RECLAIM VALVE 8D7B	3/4”	7/8 Solder	450 psi	MKC1E
2704637	377300P	SPORLAN 3-WAY HEAT RECLAIM VALVE 8D9B		1-1/8 Solder	450 psi	MKC1E
2704638	378000P	SPORLAN 3-WAY HEAT RECLAIM VALVE 12D11B	1¼”	1 3/8 Solder	450 psi	MKC1E
2704639	378100P	SPORLAN SPLIT CONDENSER VALVE 12D11B-SC			450 psi	MKC1E
2704640	378300P	SPORLAN 3-WAY HEAT RECLAIM VALVE 12D13B		1 5/8 Solder	450 psi	MKC1E
2704641	378400P	SPORLAN SPLIT CONDENSER VALVE 12D13B-SC			450 psi	MKC1E
2704642	379000P	SPORLAN SPLIT CONDENSER VALVE 16D17B-SC	2”	2 1/8 Solder	450 psi	MKC1E
2704643	379200P	SPORLAN 3-WAY HEAT RECLAIM VALVE 16D17B			450 psi	MKC1E

Cat. No.	Part No	Description	Voltage
2704634	310675P	SPORLAN SOLENOID COIL MKC-2E 24V/50-60C	24V
2704635	310679P	SPORLAN SOLENOID COIL MKC-1E 220-240/50	220-240V
2711334	310681P	SPORLAN SOLENOID COIL MKC-2E 220-240V/50C	220-240V
2704633	310683P	SPORLAN SOLENOID COIL MKC-1E 24V/50-60C	24V

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Head Pressure Control Valves

Alco

HP Series

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW (Min Capacity: kW)			
				R134a	R22	R404A R507	R407C
2704493	HP8T5-165	803512	5/8"	43.9 (8.8)	47.5 (9.5)	30.6 (6.1)	45.6 (9.1)

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

Cat. No.	Power Assembly			Cage Assembly			Body				
	Valve Style	Model No.	Part No.	Cat. No.	Model No.	Part No.	Cat. No.	Model No.	Part No.	Connections	
										Inlet	Outlet
2704494	CPHE-1	X7118-4	803202	**2707114**	X22440 B5B	037043	**2707148**	C501-7	065861	1/2" ODF	5/8" ODF
	CPHE-2			**2707117**	X22440-B8B	037049	**2707149**	A576	027764	5/8" ODF or 7/8" ODM	7/8" ODF or 1 1/8" ODM
	CPHE-3			**2707106**	X11873-B5B	089058	**2707146**	10331	029411	5/8" ODF or 1 1/8" ODM	
117064	CPHE-3.5	X7428-2	803203	**2707109**	X9117-B7B	078117	**2707153**	9153	027919	7/8" ODF or 1 1/8" ODM	
	CPHE-4			**2707122**	X9117-B9B	029429					
	CPHE-5			**2707123**	X9166-B10B	070738					
	CPHE-6			**2707125**	X9144-B13B	021067	**2707156**	9149	028030	1 1/8" ODM	1 1/8" ODM

Danfoss

KVC Hot Gas Bypass Capacity Regulators

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW			
				R22	R134a	R404A R507	R407C
2706435	KVC12	034L0143	1/2"	7.6	4.8	6.9	8.4
2706436	KVC15	034L0147	5/8"	14.9	9.4	13.6	16.4
2706437	KVC22	034L0144	7/8"	19.1	12.0	17.4	21.0

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			
				R22	R134a	R404A R507	R407C
2706434	CPCE12	034N0082	1/2"	17.4	7.9	16.4	19.0

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			
							R134a	R22	R404A R507	R407C
2711096	PRC-11A	SRJY5QALG1	5/8"	50 to 690	200	60	3.0	4.8	4.5	4.5
2711102	PRC-11B	SRJY7QALG1	7/8"							
2711103	PRC-21D	SRJY9QALG1	1 1/8"			40	7.4	11.9	11.1	11.1
2711104	PRC-21E	SRJY11QALG1	1 3/8"							

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			
				R22	R134a	R404A R507	R407C
2704823	KVL12	034L0043	1/2"	7.1	5.3	6.3	6.4
2704824	KVL15	034L0049	5/8"				6.5
2704825	KVL22	034L0045	7/8"				
2704826	KVL28	034L0046	1 1/8"	17.8	13.2	15.9	16.4
2704827	KVL35	034L0052	1 3/8"				

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

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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			
							R134a	R22	R404A R507	R407C
2711105	PRE-11A	ERJY5QALG1	5/8"	50 to 690	200	60	3.0	4.8	4.5	4.5
2711106	PRE-11B	ERJY7QALG1	7/8"							
2711107	PRE-21D	ERJY9QALG1	1 1/8"			40	7.4	11.9	11.1	11.1

Nominal Capacities based on:

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

Danfoss

KVP Series

Cat. No.	Model No.	Part No.	Connection: ODF	Nominal Capacity: kW			
				R22	R134a	R404A/ R507	R407C
2704816	KVP12	034L0023	1/2"	4.0	2.8	3.6	3.7
2704817	KVP15	034L0029	5/8"				
2704818	KVP22	034L0025	7/8"				
2704819	KVP28	034L0026	1 1/8"	8.6	6.1	7.7	7.9
2704820	KVP35	034L0032	1 3/8"				

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		
				R134a	R22	R404A R507
2711309	M36-118	801421	1 1/8"	28.9	35.1	31.3

Note: Valves are supplied less coil (240V coil to suit: Cat. No. 2711311 & J/Box Cat. No. 2711275)
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.
				R134a		R22		R404A R507		
				Pressure Drop Across Valve: kPa						
				136	272	136	272	136	272	
2711327	200RB4T3T	3/8"	6	15.2	21.5	16.2	22.9	10.7	15.1	Min 14 Max. 2070
2711328	200RB4T4T	1/2"	6	15.2	21.5	16.2	22.9	10.7	15.1	
2711330	200RB7T5T	5/8"	11	42.8	60.6	45.1	63.8	29.8	42.1	

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 diaphram 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		
				R22	R134a	R404A R507
2711300	240RA-9T7-T	7/8"	15	90	85	59.4
2711302	240RA-16T9-T	1 1/8"	25	172	162.7	113.2
2711303	240RA-16T11-T	1 3/8"				
2711304	240RA-20T13-T	1 5/8"	32	285.6	255.6	188

Solenoid Coils

For 200RB, 240RA, 702RA Valves

Cat. No.	Type	Voltage & Frequency
2711312	ASC3	24VAC 50/60Hz
2711311		240VAC 50/60Hz
2711313		120VAC 50/60Hz
2711310	DS2- N15*	Cable Assy 1.5mt with 24VDC Chopper Plug

Type ASC2 have PG9 plug-in junction box

* Converts 2711312 24VAC Coil to 24VDC applications

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Castel®

Quality Range of Valves and Components

Filter Driers

Liquid and Moisture Indicators

Ball Valves

Solenoid Valves

Check Valves

Shut-Off Valves

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
					Min.	Max. (MOPD)			
Normally Closed – Direct Operated – for Liquid and Hot Gas									
2711226	1020/2A7	1/4" Flare	Y	2.5	0	2100	-35 to 110	4500	0.175
2711228	1028/2A7	1/4"ODS		2.2					0.15
Normally Closed – Servo Operated – for Liquid, Suction and Hot Gas									
2711230	1064/3A7	3/8" Flare	Y	7	5	2100	-35 to 110	4500	0.8
2711235	1068/3A7	3/8" ODS							
2711231	1070/4A7	1/2" Flare		12.5					2.2
2711262	1078/4A7	1/2"ODS							
2711233	1070/5A7	5/8" Flare							2.61
2711263	1078/5A7	5/8" ODS							
2711265	1090/6A7	3/4" Flare		16.5					5.7
2711268	1098/6A7	3/4" ODS							
2711267	1098/7A7	7/8" ODS							
2711277	1099/9A7	1 1/8" ODS							
2711278	1078/11A7	1 3/8" ODS		27	7				16
2711279	1079/13A7	1 5/8" ODS							
2711280	1079/17A7	2 1/8" ODS							25

A coil junction box is required- Cat. No.2711275 All Castel solenoid valves are supplied with a mounting bracket

1132 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
					Min.	Max. (MOPD)			
Normally Closed – Servo Operated									
2711216	1132/03	3/8"	Y	12	15	1500	-10 to 130	2500	2.1
2711218	1132/04	1/2"							2.2
2711220	1132/06	3/4"		18		1300			5.5
2711224	1132/08	1"		24		1000			6

A coil junction box is required- Cat. No.2711275. 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
2711293	SM2/9200/RA7	240V, 50/60HZ	1133
2711294	9149/R01	Junction Box	
2711269	HM2/9100/RA7	240V, 50/60 HZ	1020, 1028, 1034, 1038, 1048, 1050, 1058, 1064, 1068, 1070, 1078, 1079, 1090, 1098, 1099, 1132
2711272	HM2/9100/RA2	24V, 50/60 HZ	
2711271	HM3/9120/RD1	12VDC	
2711273	HM3/9120/R22	24VDC	
2711275	9150/R02	Junction Box	

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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: m^3/hr
							Min.	Max. (= MOPD) liquid					
			Size	Type				10W a.c.	12W a.c.	20W d.c.			
	EVR2	032F8056	1/4"	MF	a.c.	N	0.0	25		18	-40 to 105	4520	0.16
		032F1201		ODF									
2704789	EVR3	032F8107		MF	a.c./d.c.			21	25				0.27
2704796		032F1206		ODF									
		032F8116	3/8"	MF									
2706566		032F1204		ODF									
2704791	EVR6	032F8072		MF			0.05					3500	0.8
2704798		032F1212		ODF									
		032F8079	1/2"	MF									
2706567		032F1209		ODF									
2704793	EVR10	032F8095		MF									1.9
2704800		032F1217		ODF									
		032F8098	5/8"	MF									
2704801		032F1214		ODF									
2704795	EVR15	032F8101		MF								3200	2.6
2704802		032F1228		ODF									
		032F8100		MF		Y							
		032F1227		ODF									
2704803		032F1225	7/8"			N							
2706568	EVR20	032F1240			a.c.					13			5.0
		032F1254				Y							
		032F1264			d.c.	N				16			
		032F1274				Y							
		032F1244	1 1/8"		a.c.	N		21	25	13			
	EVR22	032F3267	1 3/8"										6.0
2706569	EVR25	032F2201	1 1/8"		a.c/d.c	N	0.20			18			10.0
		032F2200				Y							
		032F2208	1 3/8"			N							
		032F2207				Y							
	EVR32	042H1106				N							16.0
		042H1105				Y							
		042H1104	1 5/8"			N							
		042H1103				Y							
	EVR40	042H1110				N							25.0
		042H1109				Y							
		042H1112	2 1/8"			N							
		042H1111				Y							

1) The kv is the waterflow in m^3/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
2704806	018F6707	24	50	10	Terminal Box IP67	EVR2 to 40 (NC) EVR6 to 22 (NO) EVRH4 to 40 EVRC EVRA EVRAT EVRS / EVRST PKVD EVM (NC)
2706564	018F6711	115				
2704804	018F6702	240				
2706563	018F6704	420				
2706565	018F6730	110	50/60			

Direct Current - DC

Cat. No.	Part No.	Voltage: v	Watts	Connection	Applications
2704808	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 EVM (NO/NC)
2704807	018F6857	24			
2711151	018F6959	72	28		Compressor Unloading

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.
2711316	SVOM-18	4660507

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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.
2701161	V46AA-9600	3/8" BSP	R12, R134a R22, R502 R404A, R507	2200kPa	480 to 1170	760 mm Length with 1/4" Flare Nut
2701162	V46AB-9600	1/2" BSP				
2701163	V46AC-9600	3/4" BSP				
2701164	V46AD-9600	1" BSP				
2701165	V46AE-9600	1 1/4" BSP				

Cat. No.	Part No.	Connection Ins.	Refrig.	Max. Refrig. Pressure	Refrig.Press. Range: kPa	Pressure Element Conn.
2711335	V246GD1B001C	1" BSP Screw	R410A	4340kPa	1380 to 2760	1/4" MF
2711337	V246GE1B001C	1 1/4" BSP Screw				
2711338	V246GR1B001C	1 1/2" Flange				

Zone Water Valves

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
2711341	MVI 421.15	On/Off control valve with return spring	1/2"	230 VAC
2711343	MVI 421.20		3/4"	

SGS65 Series Actuator

SQS65 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
2711344	SQS65	24VAC	0-10V	5.5mm

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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
		Disch.	Suct. & Coils	Min	Max	Min	Max			
2700135	V2-408064-2IL	3/8"	1/2"	2.64	7.03	3.17	7.74	3030	100	4690
2700136	V3-410084-7IL	1/2"	5/8"	3.52	9.85	4.22	10.9			
2700137	V6-412084-1IL		3/4"	3.52	19.34	4.22	23.56			
2700138	V6-414084-1IL		7/8"							
2700139	V10-414084-2IL			15.83	34.82	19.7	41.85			
2700140	V10-414124-2IL	3/4"								
2700141	V10-418144-2IL	7/8"	1 1/8"	15.83	39.39	19.7	47.48			
2700142	V12-4220T4-2IL	1 1/8"	1 3/8"	21.1	49.24	26.38	59.09			

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
2700149	LDK-41	240V 50Hz	Suits New Series 4 V2, V3, V6, V10 and V12 Valves
2700143	LDK-11	24V 50Hz	

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
2711312	ASC2	24VAC	50/60Hz	Suit old style reversing valves with coil retaining clip
2711311		240VAC		
2711313		120VAC		
2711314	RMF	240VAC		Suit new style reversing valves with coil retaining screw
2711315		24VAC		

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
2707461	F59A-1	DPST Close on Rise (Reversible)	Fixed Mounting Bracket	Two holes with grommets in case for Drop Cord Wiring
2707462	F59A-2		Universal Mounting Bracket and 600mm strap for mounting on the motor, on the pedestal or on the discharge pipe	
2707463	F59H-1		Fixed Mounting Bracket	Conduit Wiring, 22mm Conduit openings in case
2707464	WGT11A-601R		Replacement Weight Kit	

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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
				R to Y Closes Flow Increase	R to Y Opens Flow Decrease			
2502098	F61KD-3	½" FNPT	General Purpose	Min. 0.038 Max. 0.069	Min. 0.019 Max. 0.057	0 to 120	1030 (150)	8 amp 240V AC
2707411	F61KD-4	¾" FNPT						

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
2707442	F61SB-9100	1" MBSP	IP43 Splash Proof	1034 (150)	120	4	-40	8 Amp 240V AC
1320024	F61KB-11	1" MNPT	IP30 General Purpose				-34	
2701143	F61MB-1		IP66 Raintight			-29		
2707459	KIT21A602	3 Piece Set Replacement Stainless Steel Paddle and 6" Paddle						

ALRE

Liquid Flow Switch

Cat. No.	Model No.	Connection	Enclosure	Max Liquid Temp °C	Min Liquid Temp °C	FLA 240VAC
2707441	JSF-IE	1" BSP	IP65	120	-50	8

Siemens

Liquid Flow Switch

Cat. No.	Model No.	Connection	Enclosure	Max Liquid Temp °C	Min Liquid Temp °C	FLA 240VAC
2707460	QVE1901	½" BSP	IP65	110	-20	8

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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
2701145	P32AC-2*	SPDT	12 to 1240	10	Adjust.	Yes	U
2705645	P32AF-2*		12 to 1240	6			U

*Supplied with 1/4"compression fitting. 100mm extension tube, 2 mounting screws, '0' 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)
2707421	F62AA-8	54 x 175	40	10	265 High x 100 Wide x 70 Deep
2707456	F62AA-9	79 x 175			

Carel

Differential Pressure Switch Kit

Cat. No.	Part No.	Switch Action	Range Pa	FLA 240VAC	Differential P	Pressure Connection
2707389	DCPD011100*	SPST	20-200	1	Adjustable	1/8" Nipple

*Complete with installation hoses, terminals and nipples

Siemens

Differential Pressure Switch

Cat. No.	Part No.	Switch Action	Range Pa	FLA 240VAC	Differential P	Pressure Connection: mm
2707374	930.8022252	SPST	20-200	1	Adjustable	6

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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
2708011	815-6102	ACC Anti-condensate Control Kit

ACC Series - Components

Cat. No.	Part No.	Description
2708009	815-6101	ACC Anti-condenstate Control with Temperature Sensor
2708010	814-6115	ACC Anti-condensate Dew Point Sensor

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
2707850	ACC0082100	Anti-sweat control 230V 8A

ACC Series - Accessories

Cat. No.	Part No.	Description
2707851	DPWC115000	Wall mount temperature and humidity probe
2707852	NTC060WG00	Glass temperature probe, 6m

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
2707377	FSM-42S	1310 to 2480	379	1620	3585	3	230 Vac.

Carel

Single Phase Fan Speed Control

Cat. No.	Part No.	Description
2707382	FCPM00A01K	Fan Speed Control Kit 1 PH 8 AMP

Kit includes (1 of each):
- FCP Control
- Pressure Sensor 0 - 3400kpa
- Connector Cable

Three Phase Fan Speed Board

Cat. No.	Part No.	Description	
	FCR3064020	Fan Speed Board 415V 3Ph IP55	6Amp
	FCR3094040		9Amp
	FCR3124020		12Amp
	FCR3204020		20Amp
	FCR3404020		40Amp

Accessories

Cat. No.	Part No.	Description
2707834	TRADR4W024	Transformer Din rail 240V - 24VAC 4VA
2707744	SPKT0031C3	Pressure Transmitter 0-3000 kPa
2707748	SPKC002313	Pressure Transmitter Cable IP65

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
2702969	P215PR-9200	1000 to 2500	450	4000	3A	¼" FF	-20 to 55

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Pressure Controls

Penn

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.
Low Pressure Controls for Non-Corrosive Refrigerants					
2701147	P77AAA-9300	-50 to 700	50 to 300	¼" M. Flare	2200 kPa
2707390	P77BCA-9300		Manual Reset		
Low Pressure Controls for Ammonia and Non-Corrosive Refrigerants					
2707391	P77AAA-9700	-50 to 700	50 to 300	¼" FNPT	1400 kPa
2707392	P77BCA-9700		Manual Reset		
High Pressure Controls for Non-Corrosive Refrigerants					
2701148	P77AAA-9350	300 to 3000	300 to 1200	¼" M. Flare	3300 kPa
2701150	P77BEA-9350		Manual Reset		
Fan Cycling Control for Air Cooled Condensers for Non-Corrosive Refrigerants					
2701149	P77AAA-9351	350 to 2100	210 to 550	¼" M. Flare	3000 kPa
High Pressure Controls for Ammonia and Non-Corrosive Refrigerants					
2707393	P77AAA-9750	300 to 3000	300 to 1200	¼" FNPT	3300 kPa
2707394	P77BEA-9750		Manual Reset		

P78 Series Dual Pressure

Cat. No.	Part No.	Low Pressure		High Pressure		Press. Conn.	Max. Bellows Press. kPa
		Range kPa	Differential kPa	Range kPa	Differential kPa		
Dual Pressure Controls for Non-Corrosive Refrigerants							
2701152	P78LCA-9300	-50 to 700	50 to 300	300 to 3000	300 fixed	¼" M. Flare	2200 L 3300 H
2701154	P78MCA-9300				Manual Reset		
2701155	P78PGA-9300		Manual Reset				
Dual Pressure Controls for Ammonia and Non-Corrosive Refrigerants							
2707396	P78LCA-9700	-50 to 700	50 to 300	300 to 3000	300 fixed	¼" FNPT	1400 L 3300 H
2707397	P78MCA-9700				Manual Reset		
Dual Fan Cycling Control for Air Cooled Condensers for Non-Corrosive Refrigerants							
2701151	P78ALA-9351	350 to 2100	180 fixed	350 to 2100	180 fixed	¼" M. Flare	3000 L 3000 H

Accessories

Cat. No.	Part No.	Description
2707955	290-0404	Capillary Adaptor
2707954	290-0404D	Capillary Adaptor with Depressor
2700122	31696-1	Mounting Bracket

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Pressure Controls

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
2700114	016-8706	Low Pressure Control	-30 to 700	60 to 400	¼" Male Flare
2700115	016-8713	Low Pressure Control			910mm Cap. ¼" Fl. Nut
2700113	016-8705	Low Pressure Control with Manual Reset		60 Fixed	¼" Male Flare
2700116	016-8750	High Pressure Control	700 to 3000	250 to 800	¼" Male Flare
2700117	016-8751	High Pressure Control with Manual Reset		320 Fixed	¼" Male Flare

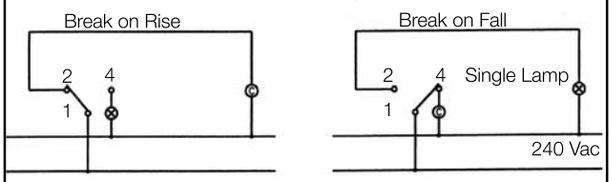
Cat. No.	Part No.	Description	Low Pressure		High Pressure		Pressure Connection
			Adj. Range kPa	Adj. Diff. kPa	Adj. Range kPa	Fixed Diff. kPa	
2700121	017-8711	Dual Pressure Control	-30 to 700	60 to 400	700 to 3000	345	910mm Cap. Fl. Nut ¼"
2700118	017-8701	Dual Pressure Control					¼" Male Flare
2700120	017-8705	Dual Pressure Control with Manual Reset on High Pressure Side					¼" Male Flare
2700119	017-8703	Dual Pressure Control with Manual Reset on High and Low Pressure Sides		Fixed 60			¼" Male Flare

Accessories

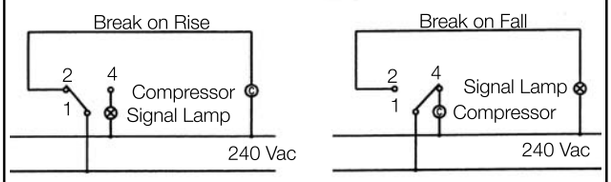
Cat. No.	Part No.	Description	
2707955	290-0404	Capillary Adaptor	
2707954	290-0404D	Capillary Adaptor with Depressor	
2700122	31696-1	Pressure Control Mounting Bracket	
2705276	3600253006	Replacement Cover	016 Series Control
2705279	3600254004		017 Series Control

Electrical Ratings:
Types: 016 – 240 Vac, 12A FLA, 72A LRA, with SPDT contacts
Types: 017 – 240 Vac, 12A FLA, 72A LRA, with SPDT contacts

Wiring Diagrams for 016 Series
Note: Fuse Rating 16 AMPS



Wiring Diagrams for 017 Series
Note: Fuse Rating 16 AMPS



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Pressure Controls

Emerson

PS1/PS2/PS3 Series

PS1 Series Single Pressure

Cat. No.	Model No.	Part No.	Description	Adjustment Range: kPa	Differential: kPa	Connection
2707957	PS1-A3A	4370700	Low Pressure Control	-50 to 700	-50 to 500	¼" MF
2707958	PS1-A5A	4350500	High Pressure Control	600 to 3100	200 to 1500	
2707959	PS1-R5A	4350700	High Pressure Control with Manual Reset		Fixed approx 300 under setpoint	

PS2 Series Dual Pressure

Cat. No.	Model No.	Part No.	Description	Low Pressure		High Pressure		Connection
				Adj.Range: kPa	Diff.: kPa	Adj. Range: kPa	Diff.: kPa	
2707961	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	¼" MF
2707960	PS2-B7A	4360200	Dual Pressure Control with Manual Reset on High & Low Pressure Sides		Fixed approx 100 above setpoint		Fixed approx 400 under setpoint	

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
				Cut Out	Cut In		
2707962	PS3-W6S	0715831	High Pressure Control	1400	1000	Auto	7/16" 20UNF Female with Schrader

Penn

P100 Series Encapsulated Pressure Switches

Cat. No.	Part No.	Switch Action	Application	Pressure Settings: kPa	
				Opens	Closes
2707417	P100LP-3560-L	Open on Fall	Low Cutout	241	414
2707419	P100HP-4232-S	Open on Rise	High Cutout	2854	2240
2701140	P100AP-201D	Open on Fall	Low Cutout	(69)	220
2707424	P100AA-3D			1034	1551
2707425	P100CP-1D	Open on Rise	High Cutout	2758	2068
2705660	P100HP-4100-L			2827	Manual Reset

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Pressure Controls

Danfoss

KP Series Pressure Controls

Single Pressure

Cat. No.	Part No.	Model No.	Description	Reset	Connection
2706496	060-110191	KP1	Low Pressure Control	Auto	1/4"
2706498	060-110566	KP1	Low Pressure Control	Auto	1/4" Capillary
2706497	060-110366	KP1	Low Pressure Control	Manual	1/4"
2706500	060-117191	KP5	High Pressure Control	Auto	1/4"
2706501	060-117391	KP5	High Pressure Control	Manual	1/4"
2706502	060-117466	KPR5	Fan Cycling High Pressure Control	Auto	1/4"

Dual Pressure

Cat. No.	Part No.	Model No.	Description	Reset		Connection
				LP	HP	
2706504	060-124166	KP15	Dual Pressure Control	Auto	Auto	1/4"
2706505	060-124366	KP15	Dual Pressure Control	Auto	Manual	1/4"
2706503	060-119966	KP15	Dual Pressure Control	Auto	Auto	1/4" Capillary
2706506	060-124566	KP15	Dual Pressure Control	Manual	Manual	1/4"
2706499	060-123066	KP15	Dual Pressure Control	Convertible	Convertible	1/4"

Single Pressure-Ammonia

Cat. No.	Part No.	Model No.	Description	Reset	Connection
2707105	060-116066	KP1A	Low Pressure Control	Auto	M10 x 0.75 Capillary
2707318	060-116166	KP1A	Low Pressure Control	Manual	M10 x 0.75 Capillary
2707319	060-2711285	KP5A	High Pressure Control	Auto	M10 x 0.75 Capillary

Accessories

Cat. No.	Part No.	Description
2706637	060-105566	Wall bracket for KP series controls
2706402	060-105666	Angle bracket for KP series controls
2707955	290-0404	Capillary Adaptor
2707954	290-0404D	Capillary Adaptor with Depressor

Replacement Covers

Cat. No.	Part No.	Description
2706481	060-008666	Front Cover for KP Single Pressure Controls
2706482	060-011366	Front Cover for KP Dual Pressure Controls
2706634	060-109766	Top Cover for KP Single Pressure Controls
2706633	060-109866	Top Cover for KP Dual Pressure Controls

KPS Series Pressure Controls

Cat. No.	Model No.	Part No.	Range: kPa	Differential: kPa	Connection
	KPS31	060-311066	0 - 250	10	G 1/4"
	KPS31	060-310966	0 - 250	10	G 3/8" A
	KPS33	060-310466	0 - 350	20	G 1/4"
2707320	KPS33	060-310366	0 - 350	20	G 3/8" A
2707321	KPS35	060-310566	0 - 800	40 - 150	G 1/4"
2707322	KPS35	060-2701757	0 - 800	40 - 150	G 3/8" A
	KPS35	060-310866	0 - 800	40	G 1/4"
2707323	KPS37	060-310666	600 - 1800	85 - 250	G 1/4"
2707324	KPS37	060-310166	600 - 1800	85 - 250	G 3/8" A
2707325	KPS39	060-310766	1000 - 3500	200 - 600	G 1/4"
	KPS39	060-310266	1000 - 3500	200 - 600	G 3/8" A
2707326	KPS43	060-312066	100 - 1000	70 - 280	G 1/4"
2707327	KPS45	060-312166	400 - 4000	220 - 1100	G 1/4"
2707328	KPS47	060-312266	600 - 6000	350 - 1700	G 1/4"

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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
2707471	TSC-093	-30 to 30	15	1.5 Metres

Penn

Series A19

Cat. No.	Part No.	Switch Action	Range °C	Differential K	Bulb and Capillary	Range Adjuster	Max. Bulb Temp. °C
Adjustable Differential							
2705669	A19ABC-66	SPDT	0 to 43	2 to 8	9.5mm x 127mm 1.8m Cap.	Knob	60
2705665	A19ABB-7	SPST Open High	10 to 94	3 to 13	7.5mm x 64mm 3m Cap.		116
2705668	A19ABC-5	SPDT	10 to 55	2 to 8	9.5mm x 127mm 2.4m Cap.		77
2701141	A19ABC-41		-35 to 40	1.7 to 6.7	9.5mm x 102mm 2.4m Cap.	Convertible	60
2705670	A19ABC-67				9.5mm x 102mm 6m Cap.	Convertible	
2705666	A19ABC-26	Open High & Low (Operating and Circulator) SPDT	38 to 121	3 to 13	Well Conn. ½" NPT		143
2705667	A19ABC-27	Remote Mtd. (Operating and Circulator) SPDT			½" NPT 2.4m Cap.		
Fixed Differential							
2705642	A19AAF-49	SPDT	-4 to 107	1.9	9.5mm x 76mm 3m Cap.	Screwdriver Slot	135
2705641	A19AAC-13	SPDT	40 to 120	3	9.5mm x 102mm 1.8m Cap.		143
Manual Reset							
2705672	A19ACA-28	SPST Open Low	-35 to 40	Manual Reset	9.5mm x 102mm 1.8m Cap.	Screwdriver Slot	60
2705673	A19ACA-31				9.5mm x 102mm 3m Cap.		
2705675	A19ADB-26	SPST Open High	40 to 120		9.5mm x 89mm 1.8m Cap.	Knob	143
2705676	A19ADB-27	SPST Open High		Manual Reset (Locks out High)	½" NPT		
2705674	A19ADB-11	SPST Open High	100 to 290	Manual Reset	7.5mm x 38mm 1.8m Cap.		327
For Cooling Towers							
2707467	A19ARC-9105	SPDT	5 to 50	2.5 to 11	10.5mm x 110mm 2m Cap. Neoprene Coated	Concealed	100
Coiled Bulb							
2705677	A19BAC-3	SPDT	0 to 43	1.9 Fixed	35mm x 57mm Coiled	Convertible	60
Hot Water – Strap On							
2707470	A19DAC-9	SPDT	40 to 120	6	Clamp on Strap supplied		143

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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
2704940	A25CN-4	SPDT	-4 to 101	Knob	Set at 52	150

A28 Series – 2 Stage

Cat. No.	Part No.	Switch Action	Range °C	Differential K	Bulb and Capillary	Range Adjuster	Max. Bulb Temp. °C
Coiled Bulb – Fixed Differential							
2705683	A28AA-74	2 x SPDT	0 to 43	1.9 Ea. Stage 1.7 Fixed Int. Stage	35mm x 57mm Coiled	Convertible	60
Adjustable Interstage Differential							
2705680	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
2705681	A28AA-65		-35 to 40	2.8 Ea. Stage 1 to 4 Int. Stage	9.5mm x 102mm 2.4m Cap.*	Convertible	
2707469	A28AA-70		5 to 32	1.7 Ea. Stage 1 to 4 Int. Stage	9.5mm x 152mm 1.8m Cap.*	Knob	110
2705682	A28AA-71		15 to 60	2.8 Ea. Stage 1 to 4 Int. Stage	9.5mm x 102mm 1.8m Cap.		

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

Ranco

Type 016 and 018

Cat. No.	Part No.	Adjust. Range °C	Diff. (High & Low Scale Limits Adj. or Fixed) K	Capillary and Bulb
2700110	016-6950	-35 to -7	1.7 to 12	2m with 9.5mm dia. Coiled Bulb
2700111	016-6951	-18 to 13		
2700112	016-6954	-5 to 25		
2705264	016-6980	-18 to 13		2m with 14.5mm dia. Cross Ambient Bulb
2705265	016-6981	-5 to 25		
2705266	016-6983	10 to 40		
2700206	016-8900	-18 to 13	4 to 31	2m with 4.5mm dia. Bulb
2707970	016-6930	-34 to 32	4 to 25	1.52m with 9.5mm Cross Amb. Bulb
2704890	018-100-080	No Adjustment	Phase Change at 0°C	1.83m with Special Bulb

Accessories

Cat. No.	Part No.	Description
2700123	48129-1	Temperature Control Mounting Bracket
2705276	360025300	Replacement cover to suit 016 series control

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Temperature Controls

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
2708022	VC 1	Compressor Refrig.	-23	-14.5	-	2	-	-	1200
2705273	VA 2	Electric Absorption Refrigerator	-18	-14.5	-	3.5	-	-	2000
2708023	VF 3	Freezer and Ice Cream Cabinet	-34	-	-16.5	-12	-	-	2000
2708024	VP 4	Push Button Compressor Refrig.	-25	-	-10.4	-4	5.5	-	1200
2708025	VS 5	Freezer with Standard Signal	-34	-	-16.5	-12	-	Cut-In 5 Above Cut-In	2000
2708026	VR 6	Freezer with Reverse Signal	-34	-	-16.5	-12	-	Cut-Out 5 Above Cut-In	2000
2708027	VB 7	Bottle or Beverage Cooler	-3	2	-	12.5	-	-	1200
2701488	4000-08	Window Air Conditioner	15	18	-	34	-	-	1200
2708028	VT 9	Two Temperature Refrigerator	-26	-	-11	-	3.5 Con. Cut-In	-	1200
2708029	VX 0	Refrigerator Forced Draft Coil	-15	-	-5	-		-	1500

Danfoss

Service Thermostats

Cat. No.	Part No.	Kit. No.	Application	Cold		Warm		Defrost Term. °C	Signal Pos. Warm °C	Cap. Length mm
				Cut-Out °C	Cut-In °C	Cut-Out °C	Cut-In °C			
2706519	77B7001	1	Refrigerators	-25	-13.5	-5.5	2	-	-	1300
2706520	77B7002	2	Refrigerators Push Button Defrost	-21	-11	-7.5	0	6	-	1300
2706521	77B7003	3	Refrigerators Automatic Defrost	-27.5	3.5	-11	3.5	-	-	1600
2706522	77B7004	4	Absorption Refrig.	-11	-5	-1	3.5	-	-	1500
2706523	77B7005	5	Ice Cream Cabinets & Freezers without Signal	-32.5	-21	-15	-7.5	-	-	2300
2706524	77B7006	6	Freezers with Active Sig.	-34.5	-24	-17	-10	-	-6	2300
2706525	77B7007	7	Freezers with Passive Sig.	-34.5	-24	-17	-10	-	-6	2300
2706526	77B7008	8	Bottle and Liquid Coolers	-8.5	-1	6	11.5	-	-	2000

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Temperature Controls

Ranco

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
			Cold	Normal	Warm		
151080	K59-P4914	1409448	-30	-23	-16	3.4	1100

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
				Cold	Warm	
2706473	77B6138	-	-	-12	-5.2	5
2708016	77B6043	5371269	-	-29.7	-16.4	3.5
2708017	77B6075	PJ1042	KA59882	-28.5	-19	4

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
2708034	A22-2217	15.6	33.3	11.1	2.2	One Side FLA 20, LRA 80 Opp. Side FLA 10, LRA 40	760

A22 - 1129

Ice bin level control on ice-making machines

Cat. No.	Part No.	Range: °C	Differential: K	Capillary Length mm
2705268	A22-1129	1.6 to 10.5	3.4	1200

Type RCR De- Ice Control

Cat. No.	Part No.	Temperature °C		Contacts	Elect. Rating 240 VAC	Capillary Length mm
		Cut-in	Cut-out			
2700134	RCR-4852-2	3.9	-6.1	2-3 Close on Temp. Rise 2-1 Close on Temp. Fall	FLA 20 LRA 80	1220

* Replaces Ranco Model No. K22-L5006

Type C28 Thermostat

Cat. No.	Part No.	Switch Action	Bulb Size mm	Capillary Length mm
2708033	C28-P1316	SPDT	9.5 dia. x 135 long	508

Stokes

DR152 Thermostat

Cat. No.	Part No.	Kelvinator Part No.	Temperature Range °C	
			Open	Close
2708030	DR152	KA55041	10	-4

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Carel

ir33+ Refrigeration Controllers

The ir33+ controllers are now replacing the IR33 controllers for refrigeration.

ir33+ Series – Panel Mount

Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay Amps: Res (Ind) Comp.	Fan	Defrost	Aux.	RTC HACCP*
8001473	IREVM0LN0U	Thermometer	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	12 Vac/dc					
8001474	IREVM0EN0U			240 Vac					
2707935	IREVS0LN0U	Thermostat Med Temp		12 - 24 Vac/dc	12 (2)				
2707936	IREVS0EA0U			240 Vac	8 (4)			8 (4)	
2707937	IREVC0LN0U	Thermostat Low Temp		12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)	
2707938	IREVC0LC0U			12 - 24 Vac/dc	12 (2)	8 (4)	8 (4)	8 (4)	Y
2707939	IREVC0HN0U			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)	
2707940	IREVC0HC0U			240 Vac	12 (2)	8 (4)	8 (4)	8 (4)	Y

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

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 Amps: Res (Ind) Comp.	Fan	Defrost	Aux.	RTC HACCP*
2707950	WE00S1EN00	Thermostat Medium Temp	-50 to +90 (standard probe) or 0 to +150 (high range NTC probe)	230Vac	10 (4)				
2707951	WE00C2HN00	Thermostat Low Temp			10 (10)	8 (4)	10 (4)	8 (4)	

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

CM Retrofit Kit

Replacement of IR32P0LBR0 and S90RDPW controller.

Cat. No.	Part No.	Power supply	Outputs type
2707941	CM00000398	240V	Retrofit Kit consisting of controller, remote display, card and cable

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Carel

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.

DN33 Series – Din Rail Mount

Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay Amps: Res (Ind) Comp.	Fan	Defrost	Aux.	RTC HACCP*
2707815	DN33S0EN00	Thermostat Med Temp	-50 to +90 (standard NTC probe) or 0 to +150 (high range NTC probe)	240 Vac	10 (4)				
2707816	DN33S0HA00			115 - 230 Vac	10 (4)			8 (4)	
2707817	DN33C0LR00	Thermostat Low Temp		12 - 24 Vac/dc	10 (4)	10 (4)	8 (4)	8 (4)	
2707818	DN33C0HR00			240 Vac	10 (4)	10 (4)	8 (4)	8 (4)	
	DN33C0HB00			240 Vac	10 (4)	10 (4)	8 (4)	8 (4)	Y
2707819	DN33H0HB00			240Vac	10 (4)	10 (4)	8 (4)	4 (2 x 8)	Y

* 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 Amps: Res (Ind) Comp.	Fan	Defrost	Aux.	RTC HACCP*
2704937	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)	
2704938	MD33D5EB00	Thermostat Low Temp		240 Vac	12 (10)	8 (4)	10 (4)	8 (4) 10 (10)	Y
2707838	MD33D5FB00			240 Vac	12 (10)	8 (4)	10 (4)	8 (4) 10 (10)	Y

* RTC = Real Time Clock HACCP = Hazard Analysis and Critical Control Point
MD33D5FB00 includes isolator switch

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Get it now!

QuickFinder, the right app for refrigeration professionals.

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.

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Carel

UltraCella Refrigeration Controllers

UltraCellbe 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 Amps: Res (Ind)						RTC HACCP*
				Comp.	Fan	Defrost	Light	Aux1	Aux2	
2707944	WB000DG0F0	Double display controller	240Vac	12 (10)	10 (5)	12 (10)	10 (5)	8 (4)	8 (4)	

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

Accessories - UltraCella

Cat. No.	Part No.	Description
2707945	WM00ENNI0K	EEV module without ultracap
2707946	WM00EUN00K	EEV module with ultracap
2707949	PGDEWB0FZK	UltraCella service pGD with 3m cable S90CONN001
2707947	WM00P0003N	Power module main switch and 3HP relay
2707948	WM00P000NN	Power module main switch

Accessories - ir33+ and IR33 Platform Refrigeration Controllers

NTC Sensors – Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.
2707804	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1
2707805	NTC015HPAP					10
2707806	NTC030HP03				3	1
2707807	NTC030HPAP					10
2707808	NTC060HP03				6	1
2707809	NTC060HPAP					10
2707732	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1
2707722	NTC030WH03				3	
2707723	NTC060WH03				6	
2707831	NTC015HT00	High Temp Plastic Probe IP55	0 to +150	50 kΩ @ 25 °C	1.5	
2707810	NTC030HT00				3	
	NTC060HT00				6	
2707811	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6	

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Electronic Controls

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Accessories - ir33+ and IR33 Platform Refrigeration Controllers

Sensor Pockets

Cat. No.	Part No.	Type	Size	Thread
	NTCSOBS003	Brass	8 x 60 mm	¼" BSP
2707803	NTCSOSS003	Stainless Steel		

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
2707835	IROPZ48500	RS485 Serial Card	IR33, ir33+
2707828	IROPZSER30		DN33, SmartCella
2707839	IROPZSEM30		MD33

Remote Display and Interfaces

Cat. No.	Part No.	Description		Suits
2707829	IR00XGD000	Remote display		IR33, DN33, MD33
	IROPZDSP00	Remote display interface		IR33
2707828	IROPZSER30			DN33
2707839	IROPZSEM30			MD33
	PSTCON01B0	Connector for remote display	1.5m	IR33, DN33, MD33
	PSTCON05B0		5.0m	
2707756	PSTCON0300	Connector for remote display	3.0m	MD33
	PSTCON1000		10.0m	

Other Accessories

Cat. No.	Part No.	Description	Suits
2707824	IROPZKEY00	Programming key	IR33, DN33, MD33
2707953	IROPZKEYA0	240V Programming key	
2707827	IRTRRES000	IR Remote control	
2707720	RLY2402HP	Relay 240V coil 2HP 240V switching	
2707726	TRA12VDE00	Transformer 240-12Vac 3VA	
2707844	STRSIR0012	Strobe siren 12 Vac 100Db	
2707716	IRBOX20000	Large mounting box (with precut hole)	IR33, ir33+

"Easy" Series Refrigeration Controllers

Cat. No.	Part No.	Type	Temp. Range °C	Power Supply	Relay Amps: Res (Ind)				Digital Inputs*	RTC HACCP*
					Comp.	Fan	Defrost	Aux.		
8001478	PJEZMNN0E0	Thermometer	-50° to +90	240 Vac						
2707874	PJEZS0H000	Thermostat Med Temp			10 (10)				1	
2707875	PJEZS0G000							8 (4)	1	
	PJEZS002E0			12 - 24 Vac/dc	8 (4)					
2707876	PJS1Y0V000	Thermostat Milk Vat		240 Vac	12 (2)	8 (4)*		8 (4)		
2707892	PJEZSNH0E0	Thermostat Med Temp Compact			10 (10)					
2707888	PJEZC00000	Thermostat Low Temp			8 (4)	8 (4)	8 (4)		1	

* Stirrer Relay

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Easy Controls for OEM users

Cat. No.	Part No.	Type	Control Model No.	Sensor Model No.
2707860	PJEZS0H0AP	Thermostat Med Temp	10 x PJEZS0H000	10 x NTC015HP00
2707861	PJEZ0IB045		10 x PJS2XOH000	
2707864	PJEZS002E0AP		10 x PJEZS002E00	
2707863	PJEZSNH0E0AP	Thermostat Med Temp Compact	10 x PJEZSNH0E0	
2707862	PJEZC000AP	Thermostat Low Temp	10 x PJEZC00000	20 x NTC015HP00

Accessories – Easy series

NTC Sensors – Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.
2707804	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1
2707805	NTC015HPAP					10
2707806	NTC030HP03				3	1
2707807	NTC030HPAP					10
2707808	NTC060HP03				6	1
2707809	NTC060HPAP					10
2707732	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1
2707722	NTC030WH03				3	
2707723	NTC060WH03				6	

Other Accessories

Cat. No.	Part No.	Description
2707824	IROPZKEY00	Programming key (batteries)
2707953	IROPZKEYA0	Programming key (240V)
2707835	IROPZ48500	RS485 serial card

MPXPRO Modular Supermarket Case Controllers

Cat. No.	Part No.	Description
2707857	MX30M25H00	Master Control 5 Relays (EEV)
2707858	MX30M21H00	Master Control 5 Relays (No EEV)

Accessories- MPXPRO Series

NTC Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.
2707804	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1
2707805	NTC015HPAP					10
2707806	NTC030HP03				3	1
2707807	NTC030HPAP					10
2707808	NTC060HP03				6	1
2707809	NTC060HPAP					10
2707732	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1
2707722	NTC030WH03				3	
2707723	NTC060WH03				6	
2707811	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6	

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Accessories - MPXPRO Series

PTC Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m
2707765	PTC0150000	Bulb sensor IP65	0 to +150	1kΩ @ 25°C	1.5

Sensors - Pressure Transmitters

Cat. No.	Part No.	Type	Pressure Range
2707840	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar
2707745	SPKT0021C3		-0.5 to 7 bar
2707744	SPKT0031C3		0 to 30 bar
2707842	SPKT00B1C3		0 to 45 bar
2707832	SPKT0013R3	0-5V ratiometric pressure transducer	-1 to 9.3 bar
2707833	SPKT0033R3		0 to 34.5 bar
	SPKT0053P0		-1 to 4.2 bar
2707843	SPKT00B6R3		0 to 45 bar

Connection Cables

Cat. No.	Part No.	Description	Length: M
2707748	SPKC002313	Connector for SPKT transmitter, IP65	2
2707749	SPKC005313		5

Other Accessories

Cat. No.	Part No.	Description
	MXOPZKEYA0	Programming key for MPXPRO (240V)
	IRTRMPX000	Remote control for MPXPRO
2707859	IR00UGC300	Remote terminal (green LED, keypad, buzzer, IR)
	IR00XGC300	Display terminal (green LED, buzzer, IR)
	TRADRBE240	Transformer 240/24Vac 20VA Din rail mount with fuse holder
2707855	TRA00BE240	Transformer 240/24Vac 20VA Panel mount with fuse holder

IR33*7 Universal Series

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.

IR33*7 Universal Series – Panel Mount

Cat. No.	Part No.	Power supply	Outputs type
2707893	IR33V7HR20	230 Vac	1 x SPDT Relay
2707894	IR33V7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT Relay
2707895	IR33W7HR20	230 Vac	2 x SPDT Relays
2707896	IR33W7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays
2707897	IR33Z7HR20	230 Vac	3 x SPDT + 1 x SPST Relays
2707898	IR33Z7HB20*	230 Vac	3 x SPDT + 1 x SPST Relays
2707899	IR33Z7LR20	12-24 Vac / 12-30 Vdc	3 x SPDT + 1 x SPST Relays
2707900	IR33D7LR20	12-24 Vac / 12-30 Vdc	1 x 10Vdc SSR Output
2707901	IR33A7LR20	12-24 Vac / 12-30 Vdc	4 x 10Vdc SSR Outputs
2707902	IR33E7HB20*	230 Vac	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs
2707903	IR33E7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs

* Controller has a built-in Real Time Clock

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DN33*7 Universal Series – Din Rail Mount

Cat. No.	Part No.	Power supply	Outputs type
2707904	DN33V7HR20	230 Vac	1 x SPDT Relay
2707905	DN33V7LR20	12-24 Vac / 12-30 Vdc	1 x SPDT Relay
2707906	DN33W7HR20	230 Vac	2 x SPDT Relays
2707907	DN33W7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays
2707908	DN33Z7HR20	230 Vac	4 x SPDT Relays
2707909	DN33Z7HB20*	230 Vac	4 x SPDT Relays
2707910	DN33Z7LR20	12-24 Vac / 12-30 Vdc	4 x SPDT Relays
2707911	DN33A7LR20	12-24 Vac / 12-30 Vdc	4 x 10Vdc SSR Outputs
2707912	DN33E7HR20	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs
2707913	DN33E7HB20*	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs
2707914	DN33E7LR20	12-24 Vac / 12-30 Vdc	2 x SPDT Relays + 2 x 10Vdc Outputs

* Controller has a built-in Real Time Clock

IR33*9 Universal Series – Panel Mount

Cat. No.	Part No.	Power supply	Outputs type
2707915	IR33V9HR20	230 Vac	1 x SPDT Relay
2707916	IR33V9MR20	24 Vac/dc	1 x SPDT Relay
2707917	IR33W9HR20	230 Vac	2 x SPDT Relays
2707918	IR33W9MR20	24 Vac/dc	2 x SPDT Relays
2707919	IR33Z9HR20	230 Vac	3 x SPDT + 1 x SPST Relays
	IR33Z9HB20*	230 Vac	3 x SPDT + 1 x SPST Relays
2707920	IR33Z9MR20	24 Vac/dc	3 x SPDT + 1 x SPST Relays
	IR33A9MR20	24 Vac/dc	4 x 10Vdc SSR Outputs
2707921	IR33E9HR20	230 Vac	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs
2707922	IR33E9MR20	24 Vac/dc	1 x SPDT + 1 x SPST Relays + 2 x 10Vdc Outputs

* Controller has a built-in Real Time Clock

DN33*9 Universal Series – Din Rail Mount

Cat. No.	Part No.	Power supply	Outputs type
2707923	DN33V9HR20	230 Vac	1 x SPDT Relay
2707924	DN33V9MR20	24 Vac/dc	1 x SPDT Relay
2707925	DN33W9HR20	230 Vac	2 x SPDT Relays
2707926	DN33W9MR20	24 Vac/dc	2 x SPDT Relays
2707927	DN33Z9HR20	230 Vac	4 x SPDT Relays
	DN33Z9HB20*	230 Vac	4 x SPDT Relays
2707928	DN33Z9MR20	24 Vac/dc	4 x SPDT Relays
	DN33A9MR20	24 Vac/dc	4 x 10Vdc SSR Outputs
2707929	DN33E9HR20	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs
	DN33E9HB20*	230 Vac	2 x SPDT Relays + 2 x 10Vdc Outputs
2707930	DN33E9MR20	24 Vac/dc	2 x SPDT Relays + 2 x 10Vdc Outputs

* Controller has a built-in Real Time Clock

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Carel

Accessories – IR33 Universal Series Controllers

NTC Sensors – Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m	Pkt Qty.
2707804	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1
2707805	NTC015HPAP					10
2707806	NTC030HP03				3	1
2707807	NTC030HPAP					10
2707808	NTC060HP03				6	1
2707809	NTC060HPAP					10
2707732	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1
2707722	NTC030WH03				3	
2707723	NTC060WH03				6	
2707831	NTC015HT00	High Temp Plastic Probe IP55	0 to +150	50 kΩ @ 25 °C	1.5	
2707810	NTC030HT00				3	
	NTC060HT00				6	
2707811	NTC060PS00	Product Simulation Probe	-50 to +105	10 kΩ @ 25 °C	6	

PTC Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m
2707765	PTC0150000	Bulb sensor IP65	-50 to +150	1kΩ @ 25°C	1.5

PT100 Sensors - Temperature

Cat. No.	Part No.	Type	Temp. Range °C	Specifications	Length: m
2707740	PT100000A1	Inox Steel Sensor	-70 to +250	1kΩ @ 25°C	1.5

Active DP Sensors – Temperature and humidity

Cat. No.	Part No.	Type	Temp. Range °C	Humidity range %RH	Output type
2707730	DPWC111000	Wall mount humidity and temperature sensor	-10 to +60	10 to 90	4 - 20mA + NTC
2707851	DPWC115000				0-10V + NTC
2707733	DPPC110000	Industrial wall mount humidity/ temperature sensor	-20 to +70	10 to 90	2 x 4-20mA
2707736	DPPC210000			0 to 100	
	DPDC110000	Duct mount humidity and temperature sensor		10 to 90	
	DPDC210000			0 to 100	

Sensors- Pressure

Cat. No.	Part No.	Type	Pressure Range
2707840	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar
2707745	SPKT0021C3		-0.5 to 7 bar
2707744	SPKT0031C3		0 to 30 bar
2707842	SPKT00B1C3		0 to 45 bar

Connection Cables

Cat. No.	Part No.	Description	Length: m
2707748	SPKC002313	Connector for SPKT transmitter, IP65	2
2707749	SPKC005313		5

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
2707835	IROPZ48500	RS485 Serial Card	IR33 Universal
2707828	IROPZSER30		DN33 Universal

Converters for PWM controllers

Cat. No.	Part No.	Description
	CONVO/10A0	PWM to 0-10 V or 4-20 mA output converter
	CONVONOFF0	10 Vdc to ON / OFF relay converter

Other Accessories

Cat. No.	Part No.	Description	Suits
2707952	IRTRUES000	IR Remote control	IR33 / DN33 Universal
2707824	IROPZKEY00	Programming key (batteries)	IR33 Platform
2707953	IROPZKEYA0	Programming key (240V)	IR33 Platform
2707716	IRBOX20000	Large mounting box	IR33 with precut hole
2707720	RLY2402HP	Relay 240V coil 2HP 240V switching	

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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
2707866	PRK100X3D0	XXS	Internal	7	1 + 1 PWM	2	2 + 6*
2707867	PRK100X3DK	XXS	Remote	7	1 + 1 PWM	2	2 + 6*
2750440	PRK300S3F0	Small	Internal	8	4	8	5*
2750441	PRK300S3FK	Small	Remote	8	4	8	5*
2750438	PRK300L3F0	Large	Internal	18	6	14 + 4 (230V)	10*
2750439	PRK300L3FK	Large	Remote	18	6	14 + 4 (230V)	10*

* 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.
2707804	NTC015HP03	Plastic Probe IP67	-50 to +50	10 kΩ @ 25 °C	1.5	1
2707805	NTC015HPAP					10
2707806	NTC030HP03				3	1
2707807	NTC030HPAP					10
2707808	NTC060HP03				6	1
2707809	NTC060HPAP					10
2707732	NTC015WH03	Stainless Steel Probe IP68	-50 to +90		1.5	1
2707722	NTC030WH03				3	
2707723	NTC060WH03				6	

Sensors - Pressure Transmitters

Cat. No.	Part No.	Type	Pressure Range
2707840	SPKT0011C3	4-20 mA pressure transmitter	0 to 10 bar
2707745	SPKT0021C3		-0.5 to 7 bar
2707744	SPKT0031C3		0 to 30 bar
2707842	SPKT00B1C3		0 to 45 bar
2707832	SPKT0013R3	0-5V ratiometric pressure transducer	-1 to 9.3 bar
2707833	SPKT0033R3		0 to 34.5 bar
	SPKT0053P0		-1 to 4.2 bar
2707843	SPKT00B6R3		0 to 45 bar

Connection Cables

Cat. No.	Part No.	Description	Length: m
2707748	SPKC002313	Connector for SPKT transducer, IP65	2
2707749	SPKC005313		5

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
2707751	RTPCNFPRK	Pre-configuration of rack controller

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Carel

Supervisory and monitoring systems

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
2707846	CM00006236	Cold Watch Person Trapped Alarm
2707847	KTCWPSENGL	Replacement Push Button Kit

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 also features 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
2707776	PW3P000TP000	PlantWatchPRO Panel Mount for 15 devices max
2707777	PW3W000TSI00	PlantWatchPRO Wall Mount for 30 devices max

Accessories -PlantWatchPRO3

Cat. No.	Part No.	Description
2707779	PW3AGSM000	GSM modem for PlantWatchPRO (to enable SMS function)
2707778	PW3AREL000	I/O board with 2 relays for PWPRO3 panel mount
2704514	8760-1000	Belden 8760, 1 pair, 18 AWG screened cable with drain wire
2707760	IOM0023000	I/O module for RS485 line (does not require a serial card) 230V
	IOM0002400	I/O module for RS485 line (does not require a serial card) 24V

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
2750414	-RTPCNFPWP	Pre-configuration of PlantWatchPRO

PlantVisorPRO2

PlantVisorPRO2 is a 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
2707772	PP2STGSXE0	PlantVisorPRO2 Embedded Box version with internal modem
2707775	PP2STGSTE0	PlantVisorPRO2 Embedded Touch version with internal modem

Accessories -PlantVisorPRO

Cat. No.	Part No.	Description
2707773	PCACCESSPK	Mouse, keyboard and 17” LCD monitor for PVPRO Embedded
2704514	8760-1000	Belden 8760, 1 pair, 18 AWG screened cable with drain wire
2707760	IOM0023000	I/O module for RS485 line (does not require a serial card) 230V
	IOM0002400	I/O module for RS485 line (does not require a serial card) 24V
	PVUPS00000	Uninterruptible power supply with surge and battery backup protection

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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
2706999	-RTPCNFPP2	Pre-configuration of PlantVisorPRO
	FLOORPLAN	Floorplan for PlantVisorPRO

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).

pLoads Energy Management Controller

pLoads is the innovative CAREL controller for intelligent management of energy consumption. The controller can be used to program the on and off times for all the loads connected and also cut off the loads based on thresholds set by the user. The pLoads controller can manage up to 12 power meters in a ModBus network, as well as water or gas meters.

Cat. No.	Part No.	Description
	PLO550X30U000	pLoads compact, built in display

Power Meters and Accessories

Cat. No.	Part No.	Description
	MT100D2100	1 Phase power meter
2707931	MT300W1100	3 Phase power meter (Require terminal display)
2707932	MTOPZD0000	User terminal for 3 phase power meter
2707933	MTOPZT1000	100A Current Transformer
2707934	MTOPZT2000	200A Current Transformer
	MTOPZS1000	10A Solid State Relay DIN Rail Mount

pChrono Lighting and Timed Device Management Controller

pChrono is the innovative CAREL controller for managing supermarket lights as well as other loads that require precise and customised scheduling.

Cat. No.	Part No.	Description
	PCH550S31UB00	pChrono small, built in display

Emerson

EC2 Series - Case Controllers

Cat. No.	Model No.	Part No.	Input
2707963	EC2-371	807689	Pressure
			Temperature
2707964	EC2-391	807691	Temperature
			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	
2707984	834-0410	Control	RX400
2707985	834-0310		RX300
2707986	834-0100		RX100

Control Accessories

Cat. No.	Part No.	Description
2707987	832-4830	Repeater
2707988	637-4890	E2 RS 485 Card
2707989	637-4880	E2 Digital I/O Card

Cards

Cat. No.	Part No.	Description
2707990	810-3064	MultIflex 88 Card
2707991	810-3063	Multiflex 88 AO Card
2707992	810-3066	MultIflex 168 Card
2707993	810-3065	Multiflex 168 AO Card
2707994	810-3067	Multiflex 168 DO Card

Cat. No.	Part No.	Description
2707995	810-3013	Multiflex 16 Card
2707996	810-3199	Multiflex ESR-8 Card
2707997	810-3006	8RO Card
2707998	810-3030	4AO Card

Sensors / Probes

Cat. No.	Part No.	Description	
2707974	804283	Green 20ft Sensor	
2707975	501-1125	Pipe Sensor	Blue
2707976	501-1126		Red
2707977	501-1129		Green
2707978	501-1127		Orange
2707979	201-5000	High Temp. Sensor	RMCC
2707980	201-1191		E2
2707981	203-5751	RH Sensor	Wall
2707982	203-5754		Outside
2707983	508-9101	Product Simulator	Black

Transformers

Cat. No.	Part No.	Description	
2707999	640-0080	Transformer	ESR 8
2707289	804421		E2
2708000	640-0048		10 Board

Transducers

Cat. No.	Part No.	Description	
2708006	800-2200	Transducer	Suction
2708007	800-2500		Discharge
2708008	800-2650		CO^2

Case Controllers

Cat. No.	Part No.	Description	
2708001	810-3161	Case Controller with Probes	CC-100
2708002	335-3258	Power Lead	
2708003	335-3263	Valve Lead	
2708004	510-3131	2nd Valve Kit	
2708005	814-3110	Hand Held Terminal	

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Electronic Controls

Danfoss

Controls

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

Case Controllers

Cat. No.	Part No.	Model No.	Description
3413017	080G3263	ERC 211 Kit	Temperature Controller
3413018	080G3265	ERC 213 Kit	Temperature Controller
2707332	084B8523	EKC 202C	Refrigeration Controller
2707333	084B8543	EKC 202C-MS	Refrigeration Controller
2707334	084B4162	EKC 302A	Refrigeration Controller
2707335	084B8528	AK-CC 250A	Refrigeration Controller
2707338	084B4165	AK-CC 350	Refrigeration Controller
2707339	084B8030	AK-CC 550A	Refrigeration Controller
3413024	080Z0125	AK-CC 750	Evaporator Controller

Superheat Controllers

Cat. No.	Part No.	Model No.	Description
2707341	084B7086	EKC 315A	Superheat Controller
2707342	084B7088	EKC 316A	Superheat Controller

Liquid Level Controllers

Cat. No.	Part No.	Model No.	Description
3413025	080G5000	EKE 347	Liquid Level Controller

Capacity Controllers

Cat. No.	Part No.	Model No.	Description
	080G0289	AK-PC 351	Capacity Controller
	080G0281	AK-PC 551	Capacity Controller

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Electronic Controls

Danfoss

Temperature Sensors

Cat. No.	Part No.	Model No.	Description	Signal	Temperature Range °C
2707347	084N1007	AK-HS 1000	Product Temperature Sensor	PT1000	-30 to 50
2707348	084N1178	EKS 111	Temperature Sensor	PT1000	-55 to 100
2707349	084B4404	EKS 211	Temperature Sensor	PT5000	-40 to 80
2707350	084N0036	AKS 12	Temperature Sensor	PT1000	-40 to 80
2707351	084N0003	AKS 11	Temperature Sensor	PT1000	-50 to 100
2707352	084N0005	AKS 11	Temperature Sensor	PT1000	-50 to 100
2707353	084N0008	AKS 11	Temperature Sensor	PT1000	-50 to 100
2707354	084N2007	AKS 21 M	Temperature Sensor	PT1000	-70 to 180
2707355	084N2017	AKS 21 W	Temperature Sensor	PT1000	-70 to 180

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
2707357	060G0090	AKS 32R	Pressure Transmitter	10 to 90% Supply Voltage	-100 to 3400	5500	¼" Flare
2707359	060G1036	AKS 32R	Pressure Transmitter	10 to 90% Supply Voltage	-100 to 1200	3300	
2707360	060G1034		5M Cable With Plug For AKS32R				
2707361	060G2069	AKS 32	Pressure Transmitter	1 to 5 volts	-100 to 1200	3300	
2707362	060G2071	AKS 32	Pressure Transmitter	1 to 5 volts	-100 to 3400	5500	
2707363	060G2049	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300	
2707364	060G2045	AKS 33	Pressure Transmitter	4 to 20 mA	0 to 2500	3300	
2707336	060G2051	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 3400	5500	
2707344	060G2104	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 600	3300	⅜" BSP
2707358	060G2105	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300	
2707365	060G2107	AKS 33	Pressure Transmitter	4 to 20 mA	-100 to 3400	5500	
2707366	060G1323	AKS 3000	Pressure Transmitter	4 to 20 mA	-100 to 1200	3300	¼" Flare
2707367	060G1327	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 3000	5500	
2707368	060G1041	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 2500	4000	⅜" BSP
2707369	060G1066	AKS 3000	Pressure Transmitter	4 to 20 mA	0 to 4000	10000	

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Electronic Controls

Phasefale

TACm Room Controller

Cat. No.	Model No.	Description
2700201	TACMV2	Room Controller with 6m sensor

Joule Temperature Room Controller

Cat. No.	Model No.	Description
2707473	JOULET	Room Controller with 6m Sensor and Ethernet

VatPac Milk Vat Controller

Cat. No.	Model No.	Description
2703170	VATPAC	Milk Vat Controller with 6m Sensor

TA-1 Alarm Thermostat

Cat. No.	Model No.	Description
2707472	TA-1	Alarm Thermostat less Sensor

Control Accessories

Cat. No.	Model No.	Description
2704895	MPROBE/6	6m Temperature Sensor
2700209	TACM/PCB	Defrost Option Kit
2700202	TACm - L240V	Warning Light 240Vac
2700203	TACm - B12V	Warning Buzzer 12Vdc

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Humidistats

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
2701168	W42AA-1	SPDT	10 to 90	4	Line or Low

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					
						Switch 'A'			Switch 'B'		
						Terms	Cut-in °C	Cut-out °C	Terms	Cut-in °C	Cut-out °C
2705269	C17-334	9.4	3.6	915	Varifix	2 & 1	18.3	20.3	4 & 5	17.5	21.1
2700130	C17-177	16.7	2	660	16	2 & 3	19.7	17.8	4 & 5	19.7	21.7

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
			Cold Out	Cold In	Warm In			
2700144	A22-2453	SPDT	15	17.8	33.3	2.2 Fixed	9.5mm x 100mm 990mm Cap. Cross Ambient	Air Conditioner

Type C12 Thermostat

Cat. No.	Part No.	Range °C	Diff. K	Contacts	Bulb and Capillary	Electrical Rating 240 VAC
2708032	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

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	
					Heating	Cooling
Heating and Cooling – Line or Low Voltage						
2701159	T26S-22	Knob	SPDT	5 to 30	1	1.3

T25 Series

Cat. No.	Part No.	Type of Adjustment	Application	Range °C	Differential Approx. K	
					Heating	Cooling
Two Stage – Line or Low Voltage						
2701157	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	
2701158	T25B-9102	Concealed				

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Honeywell

Non Programmable Thermostats

Xe60 Series Line Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches
					Res.	Ind.	
1319745	T4360G1006	Heat (or Cool)	1H	10 - 30	16		On-Off
2500334	T6360D1008	Cool (or Heat)	1C		10	3	
1606691	T6360E1005	Heat Pump	1H/1C		10	3	Heat-Off-Cool

Xe70 Series Line Voltage Fan Coil Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches
					Res.	Ind.	
2707667	T6375C1003	4 Pipe Fan Coil	1H/1C 2H or 2C	10 - 30	6	4	On-Off Fan: 1-2-3
1606693	T6376B1004	Heat Pump Systems	1H/1C	10 - 30	6	4	Heat-Off-Cool Fan: Auto-Cont

DT90 Series Digital Dual Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C	Amps		Switches
					Res.	Ind.	
1319154	DT90A1008	Heat (or Cool)	1H	5 - 35	8	3	On-Off
2707678	DT90E1012						On-Off Eco

TH5000 FocusPRO™ Series Low Voltage Thermostat

Cat. No.	Part No.	Application	Stages	Range °C
1319157	TH5110D1022/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37
2707697	TH5220D1029/U		2H/2C 2H/1C	

Programmable Thermostats

TH6000 FocusPRO™ Series Thermostat

Cat. No.	Part No.	Application	Stages	Range °C
1319158	TH6110D1021/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37
2707698	TH6220D1028/U		2H/2C 2H/1C	

TH8000 VisionPRO™ Series Touch-Screen Thermostat

Cat. No.	Part No.	Application	Stages	Range °C
1319159	TH8110U1003/U	Conventional or Heat Pump	1H/1C	Heat: 4.5 - 32 Cool: 10 - 37
2707699	TH8320U1008/U		3H/2C 2H/2C	

TB8000 Commercial VisionPRO™ Series Thermostat

Cat. No.	Part No.	Application	Stages	Range °C
2707700	TB8220U1003/U	Conventional or Heat Pump	3H/2C 2H/2C	Heat: 4.5 - 32 Cool: 10 - 37

Low Voltage to Line Voltage Interface

Cat. No.	Part No.	Description
2707634	R4611G2010	Interface Module

TG Series Lockable Thermostat Guards

Cat. No.	Part No.	Dimensions mm	
		Internal	External
2501763	TG511A1000	130 H x 154 W	165 H x 191 W x 75 D
2501764	TG512A1009	149 H x 213 W	184 H x 284 W x 86 D
2707505	191990A	Replacement Key	

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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
1609192	M447B1005	240Vac 9.2VA	Drive Open Spring Return	0.34	27 drive / 25 return	Female 8mm shaft	-
2704525	M447C1004			0.50	38 drive / 25 return		Gold colour casing
1609193	M847B1014	24Vac 6VA		0.34	27 drive / 25 return		Silver colour casing
2708080	DM2000F1024	24Vac 5VA	Drive Open Drive Closed	2	24		RJ12 connection
2708081	DM2000F1240	240Vac 5VA					Flying lead
2708082	DM3000M1024	24Vac 5VA				Male 6x6mm Shaft	RJ12 connection
2708083	DM3000M1240	240Vac 5VA					Flying lead

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:
2708116	CN7505A2001	24Vac 6VA	Modulating 0/2 - 10Vdc Floating 2 Position	5	Runtime 90-110s 0-10Vdc Feedback Signal	<0.75m2	Round: 8-16mm Square: 6-13mm
2708135	CN7510A2001			10		< 1.5m2	
2708136	CN7220A2007			20		<4m2	Round: 10-27mm Square: 10-18mm
2708137	CN6120A1002		Floating	20	Runtime 110s	< 3m2	
2708139	CN4620A1001	230Vac 6VA		20			
2708140	CN4634A1001	230Vac 7VA		34	Runtime 110s	< 6m2	
2708141	CN7234A2008	24Vac 8VA	Modulating 0/2 - 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
2708142	CS8110A1206	24Vac 30VA-Run 8VA-Hold	2 position	10	Drive Open 45s Spring Close 20s	< 1.5m2	2 Aux.Switches
2708143	CS4110A1002	230Vac 45VA-Run 13VA-Hold					-
2708144	CS7510A2206	24Vac 14VA-Run 5VA-Hold	Modulating 0/2 - 10Vdc & Floating		Drive Open 90s Spring Close 20s		2 Aux. Switches
2708145	CS4120A1001	230Vac 60VA-Run 13VA-Hold	2 position	20	Drive Open 45s Spring Close 20s	<3m2	-
2708151	CS7520A2205	24Vac 16VA-Run	Modulating 0/2 - 10Vdc & Floating		Drive Open 90s Spring Close 20s		2 Aux. Switches Position feeback signal

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SIEMENS

Siemens

RAA Series Mechanical Room Thermostat

Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications
2707568	RAA11	Heat or Cool Only	24V or 240V	2A SPDT	Tamperproof	8 to 30	1	Heating or Cooling
1606697	RAA21				Adj. Setpoint			
1606698	RAA31				Off/On			
2707582	RAA41				Off/H/C			

RCC Series Electronic Room Thermostat

Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications
2707574	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

RDG Series Electronic Room Thermostat

Cat. No.	Model No.	Description	Voltage	Contacts Amps	Switches	Setpoint Range °C	Diff. K	Applications
2707575	RDG100	Digital T/Stat with Fan Control	230V	1	On/Off or 3 Position Outputs	5 to 40	1 to 2	Heating + Cooling
2707601	RDG110	Digital T/Stat with Fan Control			On/Off Output			

Remote Sensors

Cat. No.	Model No.	Description
2708077	QAH11	Remote Sensor suit RCC/RDF/RDY Controller

Electronic Universal Controller

Cat. No.	Model No.	Description	Voltage	Features
2706036	SMT920	Digital Heatpump Controller	24 or 230 Vac	1 to 4 stage compressor control, 365 day clock, fan speed control, after hours timer
2708069	RWD82		24 Vac	2 x Digital output or 1 x 3 position output
2708070	RWD62			2 x Analogue output (0-10V DC)

Cat. No.	Model No.	Description	Range °C
2708065	QAA25/AP	Room Temperature Setpoint Adjuster	5 to 35
2708066	QAA24	Wall mounted temp sensor w/o set point	
2708067	QAM2120.040	Duct mounted temp sensor	-30 to 80

Cat. No.	Model No.	Description	Voltage
2708076	SEM62.2	Transformer with on/off switch and fuse	240 - 24 Vac 40 Va

Domestic Air Damper Actuator

Cat. No.	Model No.	Voltage	Drive Conn: size	Torque Rating	Action
2708079	GSD321.1A	240 Vac	8-15mm Round 6-11mm Square	2Nm	2 Position, Non spring return

Air Damper Actuator

Cat. No.	Model No.	Voltage	Drive Conn: size	Torque Rating	Action
2708071	GDB131.1E	24 Vac	8 to 10mm	5Nm	3 Position, Non spring return
2708072	GDB331.1E	240 Vac			3 Position, Non spring return
2708073	GDB161.1E	24 Vac			Modulating, Non spring return

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HVAC Controls

Micro Air MIG-Series

Cat. No.	Model No.	Description	Relay Output	Control Inputs	Analogue Outputs
2707493	MIG-C2	2 Stage Programmable Controller	1 X NO/NC	Resistive 0-10v, 4-20mA, 0-20mA	2 X 0-10V @ 100mA
2707494	MIG-C4	4 Stage Programmable Controller	2 X NO/NC		
2707496	MIG-CT5	4 Stage Programmable Controller with Time Switch	2 X NO/NC & 3 NO		

Cat. No.	Model No.	Description
2707500	MIG-PS	Plain faced sensor
2707498	MIG-RO	Sensor with remote offset
2707499	MIG-DS	Duct Sensor

Eberle

Room Thermostats

Cat. No.	Part No.	Appl.	Volt.: v	Range °C	Diff.	Neutral Zone	Switches	LED
2705257	RTRE6747	Cool	24 or 240	5 to 30	0.5K	-	-	-
2705256	RTRE6722	Cool (or Heat)				-	-	-
2705250	KLRE7203	4 Pipe Fan Coil Unit or A/C w/out R/Valve	240			2K	Mains: On-Off Fan: High-Med-Low	-
2705246	KLRE7007		24 or 240			-	Mains: On-Off Fan: Continuous-Automatic Heat-Fan-Cool	-
2705252	KLRE7603	Heat Pump	240			2K	-	-
2705253	KLRE7611					2K	Mains: On-Off	-
2705245	KLRE52552HP					0.5 to 8.5K	Mains: On-Off Fan: High-Med-Low	On-Off

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HVAC Controls

Hanwest

HAN-L62 Series

Cat. No.	Part No.	Description	
2703493	HAN-L62/PCB-132HP/10	Controller Kit	2 Stage - Heat Pump
2707783	HAN-L62/PCB-132EH/10		2 Stage - Cool Only with 2 Stage Element Heat
2707784	HAN-L62/WC		Wall Controller Only

Control Upgrade Kits

Cat. No.	Part No.	Description
2703496	HAN-L5 TO HAN-L62	HAN-L5 to HAN-L62 Upgrade Kit

Zone Relay Boards

Cat. No.	Part No.	Description
2703667	PCB-086	6 Zone Relay Board
2703495	PCB-086E	6 Zone Relay Board with Enclosure

Outdoor Unit Defrost Controllers

Cat. No.	Part No.	Description
2703494	HDC-203	Outdoor Unit Defrost Controller

Remote Sensors

Cat. No.	Part No.	Description		Cable Length: m
2707785	RSP100/05	Remote Sensor	Wall Mount	5
2707786	RES-05		Duct Mount	
2707788	RES-10			10

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	
2707787	DES201S/092HPS-1010E	Controller Kit	Without zone control
2707789	DES201Z/092HPZ-1010E		With 2 zone control

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
2707790	WCS-201HS	Wall Control Without Zone Control
2707791	WCS-201HZ	Wall Control With 2 Zone Control

Relay Boards

Cat. No.	Part No.	Description	Type	Relays: A
2707792	PCB-079EH/S-3025	Relay Board	Cool Only / Element Heat	30 and 25
2707793	PCB-079EH/S-3010	Relay Board	Cool Only / Element Heat	30 and 10
2707794	PCB-079EH/S-1025	Relay Board	Cool Only / Element Heat	10 and 25
2707795	PCB-079EH/S-1010	Relay Board	Cool Only / Element Heat	10 and 10
2707796	PCB-079HP/S-3010	Relay Board	Heat Pump Reverse Cycle	30 and 10
2707797	PCB-079HP/S-1010	Relay Board	Heat Pump Reverse Cycle	10 and 10

Interface Cables

Cat. No.	Part No.	Description	Length: m
2707798	IC-5/8	Interface Cable	5
2707799	IC-10/8	Interface Cable	10

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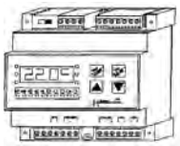
Hevac

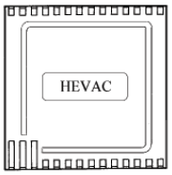
Digital Series



HE-DIGITAL

Cat. No.	Part No.	Relays	Outputs	Operating Voltage	Temperature Range °C	Time Clock
2708054	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	–
2708055	HE-DIGITAL-TC					2 Channel, 365 Day & Optimiser

Sensors

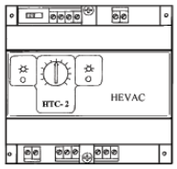


SRT

Cat. No.	Part No.	Description	
2705689	HE-SRT-D	Room Sensor	Non Adjustable
2708056	HE-SRT-DSP		Adjustable Setpoint
2708057	HE-SRTA-D	Averaging Room Sensor	Non Adjustable
2708058	HE-SRTA-DSP		Adjustable Setpoint

HTC Series

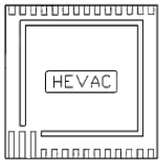
Analog Temperature Controllers



HTC-2

Cat. No.	Part No.	Stages	Relay Outputs	Operating Voltage	Temperature Range °C
2702000	HE-HTC-2	1 Heat / 1 Cool	10 Amp. (res) 240 Vac	24 Vac or 240 Vac	16 to 28
2702001	HE-HTC-4	2 Heat / 2 Cool			
2708053	*HE-HTC-3	1 Heat/1 Cool			
2708052	*HE-HTC-5	2 Heat/2 Cool			

Sensors



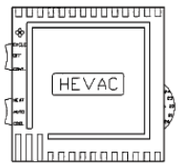
Cat. No.	Part No.	Description	
2702002	HE-SRT-H	Room Sensor	Non Adjustable
2702003	HE-SRT-HSP		Adjustable
2708062	HE-SRTHSPSW		Adjustable with On/Off Switch
2702006	HE-SRTA-H	Averaging Room Sensor	Non Adjustable
2708063	HE-SDT-H	Duct Sensor	
2708064	HE-SPA	Remote Setpoint Adjuster	

*Have Digital temperature display and fan delay

Surface Mount Enclosure

Cat. No.	Part No.	Description
2708059	LP-HTC-ENCL	Suits Digital and HTC Series Controllers

RTC3 Series Electronic Room Thermostats



RTC3

Cat. No.	Part No.	Outputs	Operating Voltage	Switches		Temperature Range °C
				Fan	Mode	
2702004	HE-RTC3-C	1 Heat/1 Cool with Dead	24 Vac or 240 Vac	Cycle/Off/Cont	Heat/Auto/ Cool	16 to 28
2702005	HE-RTC3-V			On/Off/Vent		

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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
2705810	TC5044	Universal Controller

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
2706212	ET46	Temperature Controller

Remote Sensors - Concealed Adjustment

Cat. No.	Part No.	Description	Temperature Range °C
2705816	TR2100W	Concealed Setpoint Room Sensor	
2707781	TR2104W	Concealed Setpoint Room Sensor	18 to 28

Remote Sensors - Exposed Adjustment

Cat. No.	Part No.	Description	Temperature Range °C
2705817	TR2114W	Exposed Setpoint Room Sensor	18 to 28
2707782	TR2113W	Exposed Setpoint Room Sensor	20 to 25

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
2705813	TR3840	Smart Sensor	10 to 40

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Tekelek

Evaporative Cooler Parts

200 Series

Cat. No.	Part No.	Model No.	Description
2708155	16-1201	TEK285	Variable Speed Wall Switch
2708156	502-0005-00-S	TEK287	2 Speed Wall Switch
2708157	502-0029-00-S	TEK297	Speed Control Box 240V 9A

400 Series

Cat. No.	Part No.	Model No.	Description
2708158	502-0030-00	TEK400WL	Low Voltage Wiring Loom 20m
2708159	502-0014-00-S	TEK467	Low Voltage Speed Control Box 240V 9A
2708160	16-1253	TEK485	Wall Control Manual Type

600 Series

Cat. No.	Part No.	Model No.	Description
2708161	502-0026-00S	TEK632	Series 600 Cooler Control

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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
		Adjustable Cut-out	Factory Setting	Fixed Cut-in Above Cut-out			
2707885	FD113-ZU	30 - 450	70	20 Over Off	80 - 1200	-10 & 2300	¼" Flare M

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
For Fluorinated Refrigerants							
2706515	MP55	060B017166	60	-100 - 1200	30 - 450	20	¼" Flare M
2706516	MP55	060B017260	90				
For Ammonia (R717) and Fluorinated Refrigerants							
2707880	MP55A	060B017560	60	-100 - 1200	30 - 450	20	6.5/10mm Weld Nipple
2707881	MP55A	060B017666	90				

Johnson

P28 Series

Cat. No.	Part No.	Time Delay Sec	Heater Circuit Volts	Type of Reset	Range* kPa	Refrig.	Pressure Connection
2701144	P28AA-41	90	120/240 AC	Manual	55 - 483	Non-Corrosive	900mm Cap. with ¼" Fl. Nut
2705661	P28AA-42	60					
2705662	P28AA-43	120					
2707887	P28AA-44	45					
2705663	P28AN-22	90				Ammonia	¼" FNPT

P45 Series

For Copeland Application

Cat. No.	Part No.	Time Delay Seconds	Heater Circuit Volts AC	Type of Reset	Factory Setting*		Refrig.	Pressure Connection
					kPa	(psig)		
2707886	P45NCA-12	120	120/240	Manual	62	(9)	Non-Corrosive	900mm Cap. with Fl. Nut ¼"

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
2707883	3164918	OPS2 Oil Pressure Switch	All Copeland Semi-Hermetic Compressors with Oil Pumps
2707884	3168329	OPS2 Oil Pressure Switch and Sensor Kit	

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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
2708392	D-48	Standard Block	445	115
2708394	UK-48	High Capacity POE Block		
2708389	H-100	High Capacity Block	710	150
2708390	W-48	Burnout Block	445	115
2708393	F-48	Suction Filter Core	677	

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
			R134a		R22		R404A, R507		
			Liquid Temperature °C						
2708391	RH-48*	Recycling Block	1399	1001	877	653	962	753	35,450

*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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Replaceable Filter-Drier Cores/Blocks

Castel

Filter Drier Cores/Blocks

The filter drier cores/blocks must be ordered separately from the filter drier shells. The 4490/A filter drier cores are molded from a blend of dehydrating charge, totally made of 3 Å molecular sieves, and a special binding agent in appropriate proportions. The 4490/A cores are designed for maximum moisture adsorbtion. The 4490/AA filter drier cores are molded from a blend of dehydrating charge, 80% of 3 Å molecular sieves and 20 % of activated alumina, and a special binding agent in appropriate proportions. The 4490/AA cores are designed for moisture and acid adsorbtion.

Cat. No.	Part No.	Description	Filter Area cm^2
8002815	4490/A	Filter Drier Core 100% Molecular Sieve w Gasket Kit	420
8002816	4490/AA	Filter Drier Core 80 MS /20 AA w Gasket Kit	
8002817	4495/C	Castel Suction Line Filter Core	820

Part No.	Water Capacity: Grams							
	R134a		R22		R404A, R507		R410A	
	Liquid Temperature: °C							
	24	52	24	52	24	52	24	52
4490/A	82	71	75	60	84	78	73	59
4490/AA	70	60	64	51	71	66	62	50

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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		
				R134a	R22, R410A	R404A, R507
2708401	060009	EK032	1/4"	7	7.7	5.3
2708404	060013	EK033	3/8"	10.6	11.3	7.4
2708406	047601	EK052	1/4"	7.4	8.1	5.3
2708408	047603	EK053	3/8"	12.3	13.4	8.8
2708411	047605	EK082	1/4"	8.1	8.8	6
2708413	047607	EK083	3/8"	14	15.1	10.2
2708415	047609	EK084	1/2"	23.5	25.7	17.2
2708417	047611	EK162	1/4"	8.1	8.4	5.6
2708418	047613	EK163	3/8"	13.7	15.1	10.2
2708420	047615	EK164	1/2"	25.3	27.4	18.3
2708422	047617	EK165	5/8"	34.1	36.9	24.6
2708425	048210	EK303	3/8"	15.1	16.5	10.9
2708426	048212	EK304	1/2"	28.5	30.9	20.7
2708428	048214	EK305	5/8"	37.3	40.4	27
2708432	048668	EK306	3/4"	51.8	56	37.5
2708439	048219	EK413	3/8"	15.1	16.5	10.9
2708434	048220	EK414	1/2"	36.5	39.7	26.4
2708436	048222	EK415	5/8"	42.2	45.7	30.6
2708433	065355	EK416	3/4"			

Solder

Cat. No.	Part No.	Model No.	Solder Connection	Liquid Flow Capacity: kW		
				R134a	R22, R410A	R404A, R507
2708402	060012	EK032S	1/4"	9.5	10.2	6.7
2708405	060014	EK033S	3/8"	10.6	11.6	7.7
2708407	047602	EK052S	1/4"	11.6	12.7	8.4
2708409	047604	EK053S	3/8"	15.5	16.9	11.3
2708412	047606	EK082S	1/4"	10.9	12	8.1
2708414	047608	EK083S	3/8"	15.8	17.2	11.6
2708410	047610	EK084S	1/2"	25	27	18.3
2708416	047612	EK162S	1/4"	10.9	12	8.1
2708419	047614	EK163S	3/8"	15.5	16.9	11.2
2708421	047616	EK164S	1/2"	30	32.3	21.8
2708423	047618	EK165S	5/8"	35.5	38.3	25.7
2708424	048211	EK303S	3/8"	22.1	23.9	15.8
2708427	048213	EK304S	1/2"	35.2	38	25.3
2708429	048215	EK305S	5/8"	44	47.5	31.6
2708430	048216	EK306S	3/4"	52	56.3	37.6
2708431	048217	EK307S	7/8"	59	64	42.9
2708435	048221	EK414S	1/2"	38	41.1	27.4
2708437	048223	EK415S	5/8"	59.8	64.7	43.2
2708438	048224	EK417S	7/8"	71	77	51.5
2708440	048228	EK757S	7/8"	77.7	84.4	56.4
2708441	048229	EK759S	1 1/8"	114.5	123.9	83

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Filter Driers

Castel

D3 Series - Liquid Line Filter Driers

The D3 liquid line filter driers are a solid core 100% molecular sieve design and are suitable for HFC and HCFC refrigerants. The D3 series provide superlative water capacity while providing good de-acidifying characteristics. The shape of the block maximises the surface area to the incoming fluid. The design pressure is 45 bar.

Features

- Solid core 100% molecular sieve design
- Extremely high water capacity
- Filter's to 40 microns
- Block design minimises pressure drop

Cat. No.	Part No.	Model No.	Flare Connection	Water Capacity @ +24°C : grams			Liquid Flow Capacity @ 7 kPa Pressure Drop : kW		
				R134a	R404A, R507	R410A	R134a	R404A	R410A
2708660	D303/2	032	¼"	5.2	5.3	4.6	7.1	5.1	7.6
2708662	D303/3	033	⅜"				16.7	12.1	17.7
2708665	D305/2	052	¼"	13.4	13.6	11.9	7.5	5.4	7.9
2708667	D305/3	053	⅜"				17.5	12.6	18.5
2708670	D308/2	082	¼"	22.8	23.3	20.3	7.3	5.3	7.8
2708672	D308/3	083	⅜"				19.4	14	20.5
2708674	D308/4	084	½"				23.5	16.9	24.9
2708676	D316/2	162	¼"	30.4	31	27.1	8.2	5.9	8.7
2708677	D316/3	163	⅜"				19.5	14	20.6
2708679	D316/4	164	½"				25.2	18.1	26.6
2708681	D316/5	165	⅝"				33.6	24.2	35.6
2708686	D330/3	303	⅜"	71.3	72.9	63.6	20.4	14.7	21.6
2708689	D330/4	304	½"				28.6	20.6	30.3
2708691	D330/5	305	⅝"				37.1	26.7	39.2
2708696	D341/4	414	½"	98.7	100	87.9	36.4	26.2	38.6
2708698	D341/5	415	⅝"				42.1	30.3	44.6
2708700	D341/6	416	¾"				66.4	47.8	70.3

Cat. No.	Part No.	Model No.	Solder Connection	Water Capacity @ +24°C : grams			Liquid Flow Capacity @ 7 kPa Pressure Drop : kW		
				R134a	R404A, R507	R410A	R134a	R404A	R410A
2708661	D303/2S	032S	¼"	5.2	5.3	4.6	9.2	6.7	9.8
2708663	D303/3S	033S	⅜"				17.1	12.3	18.1
2708666	D305/2S	052S	¼"	13.4	13.6	11.9	11.6	8.4	12.3
2708668	D305/3S	053S	⅜"				18.1	13	19.2
2708671	D308/2S	082S	¼"	22.8	23.3	20.3	11.2	8	11.8
2708673	D308/3S	083S	⅜"				19.9	14.3	21
2708675	D308/4S	084S	½"				24.9	17.9	26.4
2708678	D316/3S	163S	⅜"	30.4	31	27.1	21.4	15.4	22.7
2708680	D316/4S	164S	½"				29.6	21.4	31.4
2708682	D316/5S	165S	⅝"				35.2	25.4	37.3
2708683	D316/7S	167S	⅞"				45.3	32.6	48
2708687	D330/3S	303S	⅜"	71.3	72.9	63.6	22.1	15.9	23.4
2708690	D330/4S	304S	½"				37.1	26.7	39.2
2708692	D330/5S	305S	⅝"				43.5	31.3	46
2708694	D330/7S	307S	⅞"				50	36	52.9
2708695	D330/9S	309S	1 ⅛"				50	36	52.9
2708697	D341/4S	414S	½"	98.7	100	87.9	37.8	27.2	40
2708699	D341/5S	415S	⅝"				59	42.5	62.5
2708701	D341/6S	416S	¾"				66.4	47.8	70.3
2708606	D341/7S	417S	⅞"				70.9	51.1	75.1

Water capacity: ARI Standard 710-2004 and DIN 8949:2000

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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		
				R134a	R404A, R507	R22, R407C, R410A
2704700	023Z5035	DML032	1/4"	7	5	7
2704701	023Z5036	DML033	3/8"	17	13	19
2706390	023Z5037	DML052	1/4"	7	5	8
2704703	023Z5038	DML053	3/8"	18	14	19
2704704	023Z5039	DML082	1/4"	7	5	8
2704705	023Z5040	DML083	3/8"	19	14	21
2704706	023Z5041	DML084	1/2"	26	20	29
2706392	023Z5042	DML162	1/4"	7	5	8
2704707	023Z5043	DML163	3/8"	22	16	24
2704708	023Z5044	DML164	1/2"	30	22	33
2704709	023Z5045	DML165	5/8"	43	30	47
2704710	023Z0049	DML303	3/8"	21	15	23
2704711	023Z0050	DML304	1/2"	31	22	34
2704712	023Z0051	DML305	5/8"	45	33	49
2706395	023Z0193	DML306	3/4"	62	45	68
2704713	023Z0108	DML413	3/8"			
2704714	023Z0109	DML414	1/2"	32	23	35
2704715	023Z0110	DML415	5/8"	53	37	58

Solder

Cat. No.	Part No.	Model No.	Solder Connection	Liquid Capacity: kW		
				R134a	R404A, R507	R22, R407C, R410A
2704716	023Z5048	DML032S	1/4"	7	5	7
2704717	023Z5050	DML033S	3/8"	17	13	19
2704718	023Z5053	DML052S	1/4"	7	5	8
2704719	023Z5054	DML053S	3/8"	18	14	19
2706391	023Z5057	DML082S	1/4"	7	5	8
2704721	023Z5058	DML083S	3/8"	19	14	21
2704722	023Z5061	DML084S	1/2"	26	20	29
2706393	023Z5063	DML162S	1/4"	7	5	8
2704723	023Z5064	DML163S	3/8"	22	16	24
2704724	023Z5067	DML164S	1/2"	30	22	33
2704725	023Z5068	DML165S	5/8"	43	30	47
2704727	023Z0068	DML304S	1/2"	31	22	34
2704728	023Z0069	DML305S	5/8"	45	33	49
2704729	023Z0070	DML306S	3/4"	62	45	68
2704730	023Z0071	DML307S	7/8"	62	45	68

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					
							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
2708458	BOK 082	1/4"		4.9	5.6	3.5	1.8	1.8	1.8	2.6	3.5	2.6
2708459	BOK 83	3/8"		13.7	14.8	9.8	4	3.5	3.5	7	7	7
2708460	BOK 162	1/4"		4.9	5.6	3.5	4	5.3	2.6	3.5	5.3	3.5
2708461	BOK 163	3/8"		15.1	16.5	10.9	7	7	7	10.6	10.6	7
2708465	BOK 163S		3/8"	20.4	22.2	14.8						
2708462	BOK 164	1/2"		29.9	32.7	21.8		10.6			17.6	10.6
2708466	BOK 164S		1/2"	35.9	39	26						
2708463	BOK 165	5/8"		45.4	48.9	32.7				17.6		14
2708467	BOK 165S		5/8"	45.4	48.9	32.7						
2708464	BOK 305	5/8"		47.5	51.3	34.5	14	17.6	17.6	26.4	26.4	17.6
2708468	BOK 417S		7/8"	69.6	75.6	50.6	35	35	26.4	35	35	26.4

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	
							Liquid Temperature					
		M. Flare	Solder	R22	R410A	R407C	24°C	52°C	24°C	52°C	24°C	52°C
2708442	BFK 052	1/4"		5.6	5.6	5.6	73	66	39	35	58	42
2708443	BFK 053	3/8"		10.5	10.5	10.2						
2708447	BFK 083	3/8"		15.8	15.8	15.5	159	144	85	75	106	79
2708448	BFK 083S		3/8"	17.9	17.9	17.6						
2708449	BFK 084	1/2"		22.5	22.5	22.2						
2708445	BFK 084S		1/2"	23.6	23.6	23.2						
2708450	BFK 085	5/8"		27.4	27.4	27.1						
2708446	BFK 085S		5/8"	28.5	28.5	27.8						
2708451	BFK 163	3/8"		16.2	16.2	15.8	323	294	179	160	237	179
2708455	BFK 163S		3/8"	18.3	18.3	17.9						
2708452	BFK 164	1/2"		27.1	27.1	26.7						
2708456	BFK 164S		1/2"	28.5	28.5	27.8						
2708453	BFK 165	5/8"		29.2	29.2	28.5						
2708454	BFK 165S		5/8"	30.6	30.6	29.9						
2708457	BFK 167S		7/8"	37.1	37.6	36.4						
2708469	BFK 303	3/8"		20.1	20.1	19.9	585	532	415	293	452	345
2708470	BFK 304	1/2"		26.6	26.6	26.3						
2708471	BFK 305	5/8"		36.0	36.0	35.4						
2708444	BFK 307S		7/8"	58.7	58.7	57.7						

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Filter Driers

Castel

Solid Core Bi-Flow Liquid Line Filter Drier

The 46 series Bi-Flow liquid line filter driers are designed for installation in liquid lines of heat pumps and reverse cycle systems. The solid core 100% molecular sieve design offers maximum moisture removal and is suitable for HFC and HCFC refrigerants. Two built -in check valves ensure the refrigerant liquid always flows through the drier from the outer side of the solid core regardless of the flow direction.

Cat. No.	Part No.	Model No.	Solder Connection	Design Pressure	Refrigerant Capacity @ +24°C: grams			Liquid Flow Capacity @ 7kPa Pressure Drop: kW		
					R22	R134a	R410A	R22	R134a	R410A
2708600	4608/3S	083S	3/8"	45 BAR	12.8	14	12.4	12.5	1.4	12.1
2708601	4608/4S	084S	1/2"					17.3	15.8	16.8
2708602	4616/3S	163S	3/8"		20.8	22.8	20.3	18.2	16.7	17.6
2708603	4616/4S	164S	1/2"					30.4	27.8	29.5
2708604	4616/5S	165S	5/8"					39.6	36.2	38.4
2708605	4616/7S	167S	7/8"					47.5	43.5	46.0

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		
				R134a	R404A, R507	R22, R407C, R410A
2704749	023Z1442	DMB083S	3/8"	7.4	5.3	8.2
2704750	023Z1441	DMB084S	1/2"	8.3	6	9.2
2704751	023Z1446	DMB163S	3/8"	18	13	20
2704752	023Z1445	DMB164S	1/2"	28	20	32
2704753	023Z1444	DMB165S	5/8"	37	29	40
2708400	023Z1449	DMB304S	1/2"	28	20	31
2706394	023Z1448	DMB305S	5/8"	38	28	42

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: ½" to ⅞" 3447 kPa, 1 ⅛" 2757 kPa

Cat. No.	Part No.	Solder Connection	Suction Line Flow Capacity: kW													
			R134a				R22					R404,R507				
			Evaporating Temperature: °C													
			4	-7	-18	-29	4	-7	-18	-29	-40	4	-7	-18	-29	-40
2708513	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
2708514	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
2708515	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
2708516	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
2708517	CSFD14S9V V	1⅛"	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

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													
				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
2708501	SFD 13F3-V V	⅜"		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
2708502	SFD 13S3-V V		⅜"	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
2708503	SFD 13F4-V V	½"		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
2708504	SFD 13S4-V V		½"	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
2708505	SFD 13F5-V V	⅝"		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
2708506	SFD 13S5-V V		⅝"	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
2708507	SFD 13S6-V V		¾"	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
2708508	SFD 13S7-V V		⅞"	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
2708509	SFD 27S7-V V		⅞"	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
2708510	SFD 27S9-V V		1⅛"	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
2708511	SFD 54S11-V V		1⅜"	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
2708512	SFD 54S13-V V		1⅝"	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

All ratings in accordance with ARI Standard 730-86

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Filter Driers

Emerson

AOFD Oil Filter-Drier

Cat. No.	Part No.
2708519	AOFD 553

ASF Oil Filter / Suction Line Filter

Cat. No.	Part No.
2708518	ASF 45F 3-W

AOFD High Efficiency Take-Apart Oil Filter

Cat. No.	Part No.	Description
2708520	AOF023S	3/8" Solder - Oil filter demountable
2708395	FO23	AOF Oil filter cartridge

STDS Series - Drier Shells

Shell Only			Filter-Drier Blocks	
Cat. No.	Part No.	Solder Connection	No. and Size of Blocks Reqd.	Desiccant Volume Cubic Inches
2708521	STAS487TSS	7/8"	1 x 48	48
2708522	STAS489TSS	1 1/8"		
2708523	STAS4811TSS	1 3/8"		
2708524	STAS4813TSS	1 5/8"		
2708525	STAS4817TSS	2 1/8"		
2708526	STAS967TSS	7/8"	2 x 48	96
2708527	STAS969TSS	1 1/8"		
2708528	STAS9611TSS	1 3/8"		
2708529	STAS9613TSS	1 5/8"		
2708530	STAS9617TSS	2 1/8"		
2708531	STAS1449TSS	1 1/8"	3 x 48	144
2708532	STAS14411TSS	1 3/8"		
2708533	STAS14413TSS	1 5/8"		
2708534	STAS14417TSS	2 1/8"		
2708535	STAS19211TSS	1 3/8"	4 x 48	192
2708536	STAS19213TSS	1 5/8"		
2708537	STAS19217TSS	2 1/8"		

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
2708538	061715	Demountable Drier Bracket

Internal Assemblies

Cat. No.	Model No.	Part No.	Description	
2708539	X-27548-1	060274	Replacement Internal Assembly Suits STAS Shells	1 Core
2708540	X-27548-2	060275		2 Core
2708541	X-27548-3	060276		3 Core
2708542	X-27548-4	060277		4 Core

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Filter Driers

Castel

Drier Shells

Castel type 4410 Drier Shells are manufactured with a steel body and copper tube solder connections. The filter drier shells are complete with an internal mesh sieve, spring and top and bottom covers. The filter drier cores/blocks are ordered separately.

Shell Only				Cover Type	Filter Drier Cores	
Cat. No.	Part No.	Solder Connection	Design Pressure		No. x Size if Blocks Reqd.	Dessicant Volume Cubic Inches
8002818	4411/7B	7/8"	45 BAR	Blank	1 x 48	48
8002819	4411/9B	1 1/8"				
8002820	4411/11B	1 3/8"				
8002821	4411/13B	1 5/8"				
8002822	4411/17B	2 1/8"				
8002823	4412/9B	1 1/8"			2 x 48	96
8002824	4412/11B	1 3/8"				
8002837	441213B	1 5/8"				
8002838	4412/17B	2 1/8"				
8002839	4413/9B	1 1/8"			3 x 48	144
8002829	4413/13B	1 3/8"				
8002830	4413/17B	1 5/8"				
8002840	4413/17B	2 1/8"				
8002834	4414/11B	1 3/8"	35 BAR		4 x 48	192
8002835	4414/13B	1 5/8"				
8002836	4414/17B	2 1/8"				
8002825	4411E/7AF	7/8"	62 BAR	1/4' NPT Thread for Schrader Valve	1 x 48	48
8002826	4411E/9AF	1 1/8"				
8002827	4411E/11AF	1 3/8"				
8002828	4411E/M42AF	42mm				
8002831	4412E/9AF	1 1/8"			2 x 48	96
8002832	4412E/11AF	1 3/8"				
8002833	4412E/M42AF	42mm				

Drier Shell Accessories

Cat. No.	Part No.
8002810	Castel Spring For Drier Shell
8002811	Castel Core Bottom For Drier Core/Block
8002812	Castel Core Top For Drier Core/Block
8002813	Castel Top + Bottom For Drier Core/Block
8002814	Castel Filtering Tube For One Drier Core/Block

Oil Filter

The 45 series filter is completely manufactured from steel with a nickel-plated flare connection.
Inside the filter there is a screen basket, with a wide filtering surface made of austenitic 304 stainless steel.

These filters may not be cleaned.

Cat. No.	Part No.			
8002858	4510/3	3/8"	45	58

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Oil Test Kits

Refco

Copper Spun Filter-Driers

Cat. No.	Part No.	Capacity: Grams	Connections		Body Dim.: mm		Overall Length: mm	Tails
			Inlet	Outlet	Diameter	Length		
2708583	SF2-15-2.5X6.5	15	¼"	Capillary	19	141	-	N
2708585	SF2-30-6.5X6.5	30		¼"	24	140		
2708591	STU-10	10		¼-3/16"	19	105	225	Y
2708592	STU-15	15			19	125	250	
2708593	STU-30	30		¼-3/16"	24	142	235	

Refrigeration Technologies

Checkmate

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

Kits

Cat. No.	Part No.	Description
2708742	RT700K	Checkmate Contamination Detector Kit

Detector Tubes

Cat. No.	Part No.	Description	Application	Quantity per Pack
2708743	RT750A	Checkmate Detector Tubes	Acid	3
2708744	RT751M	Checkmate Detector Tubes	Moisture	3
2708745	RT752C	Checkmate Detector Tubes	Oil	3

Virginia

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

Fast 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
2708620	TKO	Mineral Oil Acid Test Kit

ETK - Refrigeration Oil Acid Test Kit For Polyolester Oils

One bottle test is the fast 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
2708624	ETK	Polyester Oil Acid Test Kit

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
2701644	RCKIT	Oil Sample Kit with Stick On Labels

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
2708607	540	8-20	680 grams

Highside

Thawzone Liquid Dehydrant

Cat. No.	Part No.	Container Size
2708608	17004	113 grams

Acid Neutralizer

Cat. No.	Part No.	Container Size
2708609	18004	118 ml

Trace Internal Leak Detector

Cat. No.	Part No.	Container Size
2708610	20004	113 grams

Refrigeration Technologies

Viper Starter Kit

Cat. No.	Part No.	Description	Kit Contents
2708781	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

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
2704320	RT375A	532 ml

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
2704336	RT350G	3.78 Litres
2708746	RT3505	Remote Sprayer

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
2704337	RT300G	Viper Bite Cleaner	3.78 Litres
2708790	RT300S	Viper Foam Gun	-
2708791	RT301X	Viper Flex Wand	-
2708792	RT302F	Viper Foam Funnel	-

Viper HD Detergent Cleaner

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

Cat. No.	Part No.	Container Size
2706115	RT390G	3.78 Litres

Viper Eco Solv Industrial Solvent

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

Cat. No.	Part No.	Container Size
2708789	RT380G	3.78 Litres

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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
2708778	RT800S	946 ml

Nylog

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

Cat. No.	Part No.	Container Size
2701827	RT200R	30 ml
2701828	RT200B	30 ml

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
2708766	RT630A	500 grams

Viper Ice Machine Cleaner

Cat. No.	Part No.	Description	Container Size
2708748	RT500N	Nickel Safe Ice Machine Cleaner	473 ml
2708749	RT500G		3.78 Litres

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
2700529	RT900B	230 grams

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
2708767	RT910T	85 grams

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
2708772	RT610A	480 grams

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
2701829	RT100S	Big Blu Spray On	+1.7 to +80	23	985 ml
2708764	RT175B	Big Blu Brush On	-18 to +85	22	230 ml
2701830	RT100G	Big Blu Bottle	+1.7 to +80	23	3.78 Litres
2700528	RT150S	Super Blu Spray On	-34 to +95	23	985 ml

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
2708750	RT620A	675 grams

Defender Coil Coat

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

Cat. No.	Part No.	Container Size
2708751	RT640A	432 grams

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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 Tubs

Cat. No.	Part No.	Description	Type
2708841	CA1500	Odour Neutraliser Gel 227gram	Neutral
2708842	CA1300		Orange
2708843	CA1800		Cherry

Odour Blocks

Cat. No.	Part No.	Description	Size
2708844	CA1502	Odour Neutraliser Block	900 g
2708845	CA1015		2.9 kg

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 affective 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
2708846	CA1600D	Deodourising Liquid Spray 473ml	Unscented
2708847	CA1700D		Citrus
2708848	CA1900D		Cherry

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
2708849	CA26832	Spray Nine Cleaner & Disinfectant	900 ml

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
2708850	CAPC200	PurCool Pan Treatment Tablets	400 grams

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
2708851	CADS1	Condensate Drain Sucker Kit

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Service Aids

Clenair

Clenhands Hand Cleaner

Cat. No.	Part No.	Description	Container Size
2708852	CA2215	Clenhands Orange Crush Hand Cleaner	425ml

Dyna Wipes

Hand Cleaner Towels

Cat. No.	Part No.	Description	Contents
2708853	RT600S	Dyna Wipes Hand Cleaner Towels	80 towels

Extol

Extol Anti Bacterial Spray

Cat. No.	Part No.	Container Size
2708635	1601620	200 grams

Hills

Pressure Spray Bottle

Cat. No.	Part No.	Description
2708741	FH220872	Press. sprayer 2 Litres

Jayair

Spray Oil

Cat. No.	Part No.	Container Size
2708630	OG6012	300 ml

Watsco

Zoom Spout Oiler

Cat. No.	Part No.	Container Size
2701224	DO 1	118 ml

Sterile-Air

Ice Machine Cleaner

Cat. No.	Part No.	Container Size
2701598	IMC-1	1 Litre
2708658	IMC-4	4 Litres
2708659	IMC-200	200 Litres

Clean Air Home & Office

Cat. No.	Part No.	Container Size
2701854	CA	250gm

Fresh Air Sponge

Cat. No.	Part No.	Container Size
2701855	FAS-1	500 ml
2701856	FAS-4	2 Litres

Coil and Filter Cleaner (Alkali)

Cat. No.	Part No.	Container Size
2701857	AK-1	1 Litre
2701858	AK-4	4 Litres

Coil Cleaner (Acid)

Cat. No.	Part No.	Container Size
2701859	AB-1	1 Litre
2701860	AB-4	4 Litres

Grease Away

Cat. No.	Part No.	Container Size
2701862	GA-4	4 Litres

Easy Dose Cartridges

Cat. No.	Part No.	Container Size
2701955	EDC-M	Mini
2708688	EDC-L	Large

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Service Aids

HydroBalance

Clean-Ice - Ice Machine Cleaner

Cat. No.	Part No.	Container Size
2708800	Clean-Ice	1 Litre

Coilkleen - Detergent Coil Cleaner (Acidic)

Cat. No.	Part No.	Container Size
2701592	Coilkleen	5 Litres

Finsaver Air Cooled Condenser Protectant

Cat. No.	Part No.	Container Size
2700527	Fin Saver	510grm Aerosol

Wanda Wash - Multi Purpose Concentrated Detergent

Cat. No.	Part No.	Container Size
2701594	Wanda-Wash	1 Litre

Virginia KMP

Blast-A-Coil

Cat. No.	Part No.
2703391	BAC- 20

CRC

Zinc-It

Cat. No.	Part No.	Container Size
4901956	2085	350 grams

La-Co

Cool Gel Heat Dissipating Spray

Cat. No.	Part No.	Container Size
1907003	Cool Gel	947 ml
1907007		473 ml

Coilox - Coil Cleaning Detergent

Cat. No.	Part No.	Container Size
2701593	Coilox	5 Litres

4X - Coil Cleaner Concentrate (Alkaline)

Cat. No.	Part No.	Container Size
2701595	4X	1 Litre

Sta-Clean - Bacterial Control Agent

Cat. No.	Part No.	Container Size
2708803	Sta-Clean	1 Litre

No More Grease - Concentrated Degreaser

Cat. No.	Part No.	Container Size
2701617	No More Grease	5 Litres

Thermal Block Heat Paste

Cat. No.	Part No.	Container Size
2708629	TB11	11 oz

Freeze Spray 75

Cat. No.	Part No.	Container Size
2708637	2039	300 grams

Inox

Lubricant

Cat. No.	Part No.	Container Size
4902220	Inox	300 grams

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Service Aids

Errecom

Flushing Agents

Cat. No.	Part No.	Description	High Flushing Pressure	Flammable
2708854	TR1009.M0	Belnet Fast Flushing Agent. 600ml Aerosol, c/w Rubber Cone	8-9 bar	Yes
2708855	TR1009.M1	Belnet Fast Flushing Agent. 600ml Aerosol, c/w Threaded Connection		
2708856	RP1048.01	Flushing Gun Kit for Threaded Aerosol. Comes with Hose, Gun and Adaptor	N/A	N/A
	TR1009.01	Belnet Flushing Fluid for Air Drawn Application. 1L can		Yes
	TR1055.01	Belnet Flushing Fluid for Air Drawn Application. 5L can		
	TR1125.K	Super Flush Flushing Fluid for Electric Drawn Application (Non Flammable). 1L can		No
	TR1125.P	Super Flush Flushing Fluid for Electric Drawn Application (Non Flammable). 5L can		
	RP1027.01	Flushing Bottle and Gun. 1L with 60cm Hose, Ball Valve and Gun		N/A

Extreme Leak Stop

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708857	TR1062.C.M2	Extreme Leak Stop with 30ml Cartridge. Polymer free. Comes with Adaptors 1/4" & 5/16" SAE	5.5 bar	No
	TR1062.L6.J9	Extreme Leak Stop with 6 × 12ml Cartidges. Polymer free		

Super Dry Dehydrator

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708858	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

No Acid Neutraliser

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708859	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

Cool Shot Performance Enhancer

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708860	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

CLIPLIGHT

CAN'T FIND THE LEAK? USE SUPER SEAL™

971KIT 972KIT 947KIT 944KIT 948KIT 981 973KIT 980

- 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

cliplight.com

FOR MORE INFORMATION, CONTACT GO DISTRIBUTION: TEL. 03 5768 2488 E-MAIL. SALES@GODISTRIBUTION.COM.AU

Service Aids

Errecom

Ice Free De-Icing Additive

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
	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

Leak Dyes and Foam

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708863	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
2708861	TR1133.E.J5	Trace Brilliant Dye in bright red dye. 60ml Cartridge. Comes with adaptors 1/4" & 5/16" SAE		
2708862	TR1134.E.J9	Mineral Trace Brilliant Bright Red Dye. 60ml Cartridge. Comes with Flexible One Way 60mm Hose Adaptors 1/4" & 5/16" SAE		
	TR1112.01	Flourescent Foam Leak Spray and Dye. 400ml Trigger Pack Working Temperature is -50 to 95°C	N/A	
2708864	TR1108.01	Brilliant Dye Remover. 400ml Trigger Pack		
2708865	TR1109.01	Brilliant Dye Remover. 100ml Trigger Pack		

Leak Detection Kits

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708868	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

Oil & Acid Detection Kits

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708869	RK1349	Accurate Acid Test Kit 4 Per Unit. Works with all Lubricants and Provides Contamination Levels	N/A	N/A
2708870	RK1055	Accurate Oil Test Kit 2 Per Unit. Quick, Easy and Accurate Identification of POE, ABZ or Mineral Oil	N/A	N/A

UV Torches

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
2708866	RK1294	Adjustable Aluminium Focus Bright Torch with Safety Goggles 100% UV Protection	N/A	N/A
	RK1267	5 UV LED Aluminium Bright Torch with Flexible Head and Safety Goggles 100% UV Protection	N/A	N/A

Sanitising Tablets

Cat. No.	Part No.	Description	Suitable for System Pressure	Flammable
	AB1064.01	Sanitising Tablets for Split and Fan Coils Collection Trays.	N/A	N/A

Accessories

Cat. No.	Part No.	Description
2708867	IN1028.01	Booster - Mechanical Amplifier Allows Introduction of Additive when System Pressure is Over 5.5 bar and Below 9 bar
	RK1228	Proflex Metal Adaptors with One Way Valve. Length is 120mm 1/4" & 5/16" SAE
	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

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Service Aids

Cliplight

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
2700591	947KIT	Super Seal ACR Sealant Kit

Super Seal HVACR

Cat. No.	Part No.	Description
2700595	944KIT	Super Seal HVACR Sealant Kit

Super Seal Commercial

Cat. No.	Part No.	Description
2700596	948KIT	Super Seal Commercial Sealant Kit

Super Seal Premium, seals leaks in mobile R134a and R12

Cat. No.	Part No.	Description
2708628	946KIT	Super Seal Premium Sealant Kit

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
2702886	971KIT	Super Seal Total 1 Kit	67W to 5.3kW - one can
2702887	972KIT	Super Seal Total 2 Kit	5.3kW to 17.6kW - one can 17.6kW & up - two cans

Flash UV Dye

Flash is an easy to use universal UV dye for refrigeration & air conditioning systems and is compatible with all common refrigerants and 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
2706030	9802KIT	Flash UV Dye Kit	67W to 17.6kW - one can

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

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Service Aids

Cliplight

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
2702888	973KIT	Dry R Kit	67W to 17.8kW - one can 17.8kW & up - two cans

UV Leak Detection System

Cat. No.	Part No.	Description
8001766	9928 KIT	Kit includes, Vector7 UV LED light. Clipinject dye injector, 2 x 14 shot dye cartridges, Swivel injector hose, ¼" adaptor, service stickers, UV enhancing safety glasses, dye cleaner and drip guards.
2700605	9528 KIT	Clipinject dye injector kit with 2 x 14 shot cartridges.
2706034	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.
8001781	955028	2 x replacement 14 shot cartridges to suit Clipinject dye injector.
8001782	900008	240ml squeeze measure and pour bottle of UV dye. Required ratio to system lubricant is 40:1.
8001784	805CLN	500ml spray bottle of industrial strength, bio-degradable dye cleaner.

Halide Lamp Leak Detector Accessories

Cat. No.	Part No.	Brand	Description
8001825	BG 1001	Blue Gaz	Gas Cartridge – Screw Type
8001826	"J" Jet		Replacement Jet
8001830	C206	Halogaz	Gas Cartridge

Accessories

Cat. No.	Part No.	Description
2708627	20128	Super Seal R410A Adaptor

RECTORSEAL AUSTRALIA

Desolv™

MINI-SPLIT EVAPORATOR COIL/BLOWER FAN CLEANER KIT

Restores efficiency. Protects walls & floors.

Desolv™ Cleaning Kit - Deep clean indoor evaporators of mini-split A/C units that are located in areas where wall and floor protection are necessary. Kit is reusable. Desolv Solution and single use Funnels Bags are sold separately.

3209145

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
2708652	EXTOL 32 1L	32	1 Litre
2708653	EXTOL 32 4L		4 Litres
2708654	EXTOL 32 20L		20 Litres
2708655	EXTOL 46 1L	46	1 Litre
2708656	EXTOL 46 4L		4 Litres
2708657	EXTOL 46 20L	46	20 Litres
2708631	EXTPSR-1	68	1 Litre
2708632	EXTPSR-4		4 Litres
2708633	EXTPSR-20		20 Litres
	EXTPSR-208		208 Litres

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
2708716	SRO 32 (01)	Polyolester Oil	32	1 Litre
2708717	SRO 32 (04)	Polyolester Oil		4 Litres
2708718	SRO 32 (20)	Polyolester Oil		20 Litres
2708719	SRO 46 (01)	Polyolester Oil	46	1 Litre
2708720	SRO 46 (04)	Polyolester Oil		4 Litres
2708722	SRO 46 (20)	Polyolester Oil		20 Litres
2708723	SRO 68 (01)	Polyolester Oil	68	1 Litre
2708724	SRO 68 (04)	Polyolester Oil		4 Litres
2708725	SRO 68 (20)	Polyolester Oil		20 Litres
2708726	SRO100 (20)	Polyolester Oil	100	20 Litres

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
2708729	HDT 32 (04)	Hydrotreated Mineral Oil	32	4 Litres
2708730	HDT 68 (04)	Hydrotreated Mineral Oil	68	4 Litres
2708731	HDT 68 (20)	Hydrotreated Mineral Oil	68	20 Litres

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
2708732	TB 3 (04)	Mineral Oil	4 Litres
2708733	TB 3 (20)	Mineral Oil	20 Litres
2708734	TB 4 (04)	Mineral Oil	4 Litres
2708735	TB 4 (20)	Mineral Oil	20 Litres

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
2708737	AB 46 (04)	Hydrotreated Mineral Oil	46	4 Litres
2708738	AB 68 (04)	Hydrotreated Mineral Oil	68	4 Litres

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Oils

Suniso

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

Suniso Grade	4 Litre Container Cat. No.	20 Litre Drum Cat. No.	205 Litre Drum Cat. No.
3GS	2700002	2700000	2700001
4GS	2700004	2700003	2700018
4SA		2700005	2700006

Polyolester Oil

Suniso Grade	1 Litre Container Cat. No.	4 Litre Container Cat. No.	20 Litre Container Cat. No.
SL32S	2708710	2708711	2708712
SL685	2708713	2708714	2708715

Bitzer

Refrigeration Oils

Cat. No.	Part No.	Type	Description	Container Size
2708639	I06-004	B5	B5 Reciprocating Compressor Oil	4 Litres
2708640	I06-005			20 Litres
2708642	I06-018	BSE 32	Polyolester Compressor Oil	1 Litre
2708643	I06-019			2 Litres
2708644	I06-015			5 Litres
2708645	I06-012			20 Litres
2708647	I06-027	BSE 170	Polyolester Screw Compressor Oil	5 Litres
2708646	I06-028			20 Litres
2708648	I06-033	BSE 60K	Polyolester CO^2 Compressor Oil	1 Litre

Maneurop

Refrigeration Oils

Cat. No.	Part No.	Description	Suits	Container Size
2706638	7754001	160P Mineral Oil	MT & SM with R22	2 Litres
2706639	7754002	160P Mineral Oil	MT & SM with R22	5 Litres
2706640	120Z0573	160PZ Polyolester Oil	MTZ, NTZ & MPZ with R404A, R507, R134a & R407C	2.5 Litres
2706641	120Z0571	160SZ Polyolester Oil	SZ with R407C, R134a & R404A & SH with R410A	2.5 Litres

Actrol

Vacuum Pump Oil

Cat. No.	Type	Container Size
2708612	Vacuum Pump Oil Standard	1 Litre
2708613		4 Litres
2708618	Vacuum Pump Oil Suits Shark	1 Litre

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
2708838	TZMGLN	3.78 Litre Synthetic Vacuum Pump Oil
2708839	TZM1PK	Oil Cartridge With Vacuum Pump Oil

Shell

Gadus Grease

Cat. No.	Part No.	Description
2704532	S2V1002	General Purpose Grease

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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
2708834	ESC	Oil Absorbent 500 grams

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
2708835	4.9kg	Cleaning Rags

Glycol

Extol

Propylene Glycol Food Grade

Cat. No.	Container Size
2706172	5 Litres
2704340	20 Litres
2704341	215 kg

Flushing Solvents

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 product's 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
2700536	EXTUFA-5	5 Litres
2700533	EXTUFA-20	20 Litres

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FlexiTrak

FlexiTrak is your solution to refrigerant and cylinder management.

Refrigerant

Refrigerant purchases are an integral part of your daily business. Summary reports can be generated which simply show the amount of refrigerant purchased in a given period. Date ranges can be altered to meet your requirements. This type of report is perfect for meeting your ARC requirements.

Detailed reports can also be generated.

This report shows the:

date of transaction
refrigerant type and volume
invoice number
order number
job number/name
trades person
Solutions Card user

Importantly FlexiTrak also records the amount of reclaim refrigerant returned.

Cylinders

Controlling your cylinder fleet will minimise the costs associated with lost refrigerant and cylinders.

Summary and detailed reports are available. A summary report simply shows the amount of each type of refrigerant cylinder currently out whereas a detailed report shows the:

date of transaction
cylinder serial number
cylinder description including refrigerant type and volume
invoice number
order number
job number/name
trades person
Solutions Card name and number

Reports are easily generated via My Account and can be downloaded to CSV or PDF. Reports can also be obtained from any Actrol branch.

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
2800107	R22	12
2800004		22
2800005		65
2800002		480
2800003		820
2800025	R408A	8
2800026		18
2800015	R409A	10
2800016		20
2800017		65
2800049	R123	91*
2800048	R124	10

HFC

Cat. No.	Refrig.	Cyl. Contents kg
2800106	R134a	12
2800104		22
2800012		65
2800009		480
2800010		810
2800110	R404A	10
2800032		18
2800033		57
2800030		380
2800031		770
2800108	R407C	11
2800043		20
2800102		65
2800042		660
2800063	R407F	9
2800064		20
2800065		60
2800053	R413A	10

HFC

Cat. No.	Refrig.	Cyl. Contents kg
2800109	R410A	10
2800105		18
2800103		60
2800020		380
2800021		610
2800059	R427A	9
2800060		20
2800061		60
2800101		12
2800100		22
2800067	R438A	9
2800068		20
2800069		60
2800111	R507	10
2800037		18
2800038		57
2800036		770
2750131	R23	9

Ammonia

Cat. No.	Refrigerant	Cylinder Contents kg
2800050	R717	34
2800051		385

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Refrigerants

Carbon Dioxide

R744 (CO2) is refrigerant grade CO2. With an Ozone Depleting Potential (ODP) of 0 and a Global Warming Potential (GWP) of 1, R744 (CO2) is a natural refrigerant. CO2 refrigeration systems work at very high operating pressures. Refrigeration systems that contain R744 (CO2) require strict controls on moisture, oil and other contaminants. The moisture content is ultra low, less than 5 ppm. Vapour R744 (CO2) cylinders are available for initial pressurisation of systems, whilst liquid R744 (CO2) provides the required charge your system needs to operate efficiently

Cat. No.	Description	Cylinder Size
2800076	R744 CO2 Liquid	E
2800077	R744 CO2 Vapour	E
2800078	R744 CO2 Liquid	G
2800079	R744 CO2 Vapour	G

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 R410Aw

Cat. No.	Water Fill Capacity kg	Max Fill kg
2712677	20	17
2712678	65	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.	Water Fill Capacity kg	Max Fill kg
2712679	20	17
2712680	65	52

Refrigerant Trading Authorisation AU06444

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SEE THE DIFFERENCE WITH FORANE® 427A

It's easy to see why Forane® 427A refrigerant is the clear choice for R-22 retrofits. Forane® 427A is a better match to R-22 than other retrofits over a wide range of applications, offering close capacity and pressures to R-22. See the difference with Forane® 427A - The Easy Retrofit™.

See the benefits at ark.ma/husky

Forane is a registered trademark and
The Easy Retrofit is a trademark of Arkema.

FORANE® REFRIGERANTS BY ARKEMA

kylie.farrelley@arkema.com

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
2800074	Nitrogen D	Dry Nitrogen	D	1.5	13.8	12
2800075	Nitrogen E		E	3.5	27	22

Trace A Gas

Trace A Gas is a premium leak detection solution. It is comprised of a 5% Hydrogen and 95% Nitrogen mixture which is non-flammable, non-toxic and safe for the environment.
When put into a closed system, leak detectors capable of sensing hydrogen are used to detect leaks. It is considered the most sensitive leak detection method.

Cat. No.	Description	Cylinder Size	Volume
2800090	Trace A Gas	D size	10 litre

Tesuco

Nitrogen Regulator

Cat. No.	Part No.	Description
7001751	RI1SNI60	Nitrogen Regulator 6000kPa, 1/4" SAE Flare Outlet with 5/16" SAE Flare Adaptor

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

Cat. No.	Part No.	Description	Cylinder size	Contents M^3 @ 20C	Average weight (Full) kg	Average weight (Empty) kg
7001851	GTNI2	Disposable Dry Nitrogen	2.2 Litres	0.22	2.15	1.72

Regulator for Disposable Nitrogen Cylinders

Cat. No.	Part No.	Description
8000072	RG1MNI15	Nitrogen Regulator 1500kPa, 1/4" SAE Flare Outlet

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Line Fittings - Brass

Acpar

Flare Nuts - Short Barrel

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2712628	201-0404	1/4"	5200	5
2701569	501-0505	5/16"	4200	1
2711954	201-0504	5/16" FF x 1/4" Tube	5200	2
2711955	201-0606	3/8"		5

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711956	201-0808	1/2"	5200	2
2711957	201-1010	5/8"		
2711958	201-1212	3/4"		

* Note for use with R410A Refrigerant

Flare Nuts - Frost Proof

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711959	202-0404	1/4"	5200	5
2711951	502-0505	5/16"	4200	1
2711961	202-0606	3/8"	5200	5

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711962	202-0808	1/2"	5200	2
2711963	202-1010	5/8"		
2711964	202-1212	3/4"		

Flare Nuts - Frost Proof Reducing

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711960	202-0604	3/8" FF x 1/4" Tube	5200	2
2701498	502-0806	1/2" FF x 3/8" Tube	4200	5

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711953	502-1006	5/8" FF x 3/8" Tube	4200	2
2701500	502-1008	5/8" FF x 1/2" Tube		

Flare Copper Bonnets

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711980	RCB006-410A	1/4" SAE	4500	5
2711981	RCB010-410A	3/8" SAE		
2711982	RCB013-410A	1/2" SAE		3

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711983	RCB016-410A	5/8" SAE	4500	3
2701907	1105-12	3/4" SAE		1

Flare Copper Washers

Use on brass to brass flare connections to prevent leaks

Cat. No.	Part No.	Size	Pack Qty
2711984	109-04	1/4"	10
2711985	109-06	3/8"	
2711986	109-08	1/2"	

Cat. No.	Part No.	Size	Pack Qty
2711987	109-10	5/8"	5
2711988	109-12	3/4"	

Flare Seal Cap Nuts

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711965	275-04	1/4"	5200	1
2711966	275-06	3/8"		
2711967	275-08	1/2"		

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2711968	275-10	5/8"	5200	1
2711969	275-12	3/4"		

Flare Seal Plugs

Cat. No.	Part No.	Size	Pack Qty
2711970	270-04	1/4"	1
2711971	270-06	3/8"	
2711972	270-08	1/2"	

Cat. No.	Part No.	Size	Pack Qty
2711973	270-10	5/8"	1
2711974	270-12	3/4"	

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Line Fittings - Brass

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Pipe Plugs - Male BSP

Cat. No.	Part No.	Size	Pack Qty
2711975	280-02	1/8"	1
2711976	280-04	1/4"	
2711977	280-06	3/8"	

Cat. No.	Part No.	Size	Pack Qty
2711978	280-08	1/2"	1
2711979	280-12	3/4"	

Unions - Male Flare to Male Flare

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	M Flare		
2711989	240-0404	1/4"	1/4"	5200	1
2711990	240-0505	5/16"	5/16"		
2711991	240-0606	3/8"	3/8"		

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	M Flare		
2711992	240-0808	1/2"	1/2"	4200	1
2711993	240-1010	5/8"	5/8"		
2711994	240-1212	3/4"	3/4"		

Unions - Male Flare to Male Flare - Reducing

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	M Flare		
2712016	240-0504	5/16"	1/4"	5200	1
2712017	240-0604	3/8"			
2712018	240-0804	1/2"			
2712019	240-0806		3/8"		

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	M Flare		
2712020	200-1004	5/8"	1/4"	4200	1
2712021	200-1006		3/8"		
2712022	240-1008		1/2"	5200	
2712023	200-1210	3/4"	5/8"	4200	

Unions - Male Flare to Female Flare

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	F Flare		
2711996	245-0404	1/4"	1/4"	5200	1
2711997	245-0406		3/8"		
2711998	245-0408		1/2"		
2711999	205-0410		5/8"	4200	
2712000	245-0504	5/16"	1/4"	5200	
2712001	245-0604	3/8"			
2712002	245-0606		3/8"		
2712003	245-0608		1/2"		
2712004	205-0610		5/8"	4200	

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	F Flare		
2712005	245-0804	1/2"	1/4"	5200	1
2712006	245-0806		3/8"		
2712007	205-0808		1/2"	4200	
2712008	245-0810		5/8"	5200	
2712009	205-0812		3/4"	4200	
2712010	245-1008	5/8"	1/2"	5200	
2712011	245-1012		3/4"		
2712012	245-1210	3/4"	5/8"		

Unions - Female Flare to Female Flare

Cat. No.	Part No.	Size		Pack Qty
		F Flare	F Flare	
2712013	226-0404	1/4"	1/4"	1
2712014	226-0606	3/8"	3/8"	
2712015	226-0808	1/2"	1/2"	

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Conex | Bänninger

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REFRIGERATION

Introducing the coolest press fitting ever.

Secure, permanent leak-proof joint | Temperature range -40˚C to 121˚C | Maximum operating pressure 4800 kPa

Line Fittings - Brass

Acpar

Unions – Male Flare to Male BSP

Cat. No.	Part No.	Size		Pack Qty
		M Flare	M BSP	
2712034	221-0402	¼"	⅛"	1
2712035	221-0402L		⅛" Long Taper	
2712036	221-0404		¼"	
2712037	221-0406		⅜"	
2712038	221-0408		½"	
2712039	221-0602	⅜"	⅛"	
2712040	221-0604		¼"	
2712041	221-0606		⅜"	
2712042	221-0608		½"	
2712043	221-0612		¾"	

Cat. No.	Part No.	Size		Pack Qty
		M Flare	M BSP	
2712044	221-0804	½"	¼"	1
2712045	221-0806		⅜"	
2712046	221-0808		½"	
2712047	221-0812		¾"	
2712048	221-1008	⅝"	½"	
2712049	221-1012		¾"	
2712050	221-1208	¾"	½"	
2712051	221-1212		¾"	

Unions – Male Flare to Female NPT

Cat. No.	Part No.	Size		Pack Qty
		M Flare	F NPT	
2712025	247-0402	¼"	⅛"	1

Unions – Male Flare to Female BSP

Cat. No.	Part No.	Size		Pack Qty
		M Flare	F BSP	
2712024	246-0402	¼"	⅛"	1
2712026	246-0404		¼"	
2712027	246-0406		⅜"	
2712028	206-0408		½"	

Cat. No.	Part No.	Size		Pack Qty
		M Flare	F BSP	
2712029	246-0604	⅜"	¼"	1
2712030	246-0606		⅜"	
2712031	246-0608		½"	
2712032	246-0806	½"	⅜"	
2712033	246-0808		½"	

Unions – Male BSP to Male BSP

Cat. No.	Part No.	Size		Pack Qty
		M BSP	M BSP	
2712052	251-0202	⅛"	⅛"	1
2712053	251-0404	¼"	¼"	
2712054	251-0606	⅜"	⅜"	
2712055	251-0808	½"	½"	
2712056	251-1212	¾"	¾"	

Reducing

Cat. No.	Part No.	Size		Pack Qty
		M BSP	M BSP	
2712057	251-0402	¼"	⅛"	1
2712058	251-0604	⅜"	¼"	
2712059	251-0806	½"	⅜"	

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Line Fittings - Brass

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Unions - Male BSP to Female Flare

Cat. No.	Part No.	Size		Pack Qty
		M BSP	F Flare	
2712074	214-0204	1/8"	1/4"	1
2712078	214-0404	1/4"		

Unions - Female BSP to Female BSP (Gas Couplings)

Cat. No.	Part No.	Size		Pack Qty
		F BSP	F BSP	
2712081	228-0202	1/8"	1/8"	1
2712082	228-0404	1/4"	1/4"	
2712083	228-0606	3/8"	3/8"	
2712084	228-0808	1/2"	1/2"	
2712085	228-1212	3/4"	3/4"	

Unions - Male BSP to Female BSP (Gas Bushes)

Cat. No.	Part No.	Size		Pack Qty
		M BSP	F BSP	
2712060	216-0402	1/4"	1/8"	1
2712061	216-0406		3/8"	
2712062	216-0604	3/8"	1/4"	
2712063	216-0804	1/2"		
2712064	216-0806		3/8"	
2712065	216-1208	3/4"	1/2"	
2712066	216-1612	1"	3/4"	

Unions - Male Flare to Solder

Cat. No.	Part No.	Size		Pack Qty
		M Flare	Solder	
2712067	218-0404	1/4"	1/4"	1
2712068	218-0406		3/8"	
2712069	218-0606	3/8"		
2712070	218-0608		1/2"	
2712071	218-0806	1/2"	3/8"	
2712072	218-0808		1/2"	
2712073	208-0810		5/8"	
2712075	218-1008	5/8"	1/2"	
2712076	218-1010		5/8"	
2712077	218-1212	3/4"	3/4"	

Unions - Male ACME

Cat. No.	Part No.	Size	Pack Qty
2701385	275-0408	1/2" F ACME x 1/4" M Flare	1
2701384	272-0804	1/2" M ACME x 1/4" F Flare	

Unions - Male BSP to Solder

Cat. No.	Part No.	Size		Pack Qty
		M BSP	Solder	
2712079	219-0808	1/2"	1/2"	1
2712080	219-1212	3/4"	3/4"	

Unions - Female BSP to Solder

Cat. No.	Part No.	Size		PackQty
		M BSP	Solder	
2712086	233-0808	1/2"	1/2"	1
2712087	233-0606	3/8"	3/8"	

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Line Fittings - Brass

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Elbows - Male Flare to Male Flare

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	M Flare		
2712088	261-0404	1/4"	1/4"	5200	1
2712089	261-0606	3/8"	3/8"	5200	
2712090	261-0808	1/2"	1/2"	5200	
2712091	261-1010	5/8"	5/8"	5200	

Elbows - Male Flare to Female Flare

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare	F Flare		
2712092	260-0404	1/4"	1/4"	5200	1

Elbows - Male Flare to Male BSP

Cat. No.	Part No.	Size		Pack Qty
		M Flare	M BSP	
2712093	222-0402	1/4"	1/8"	1
2712094	222-0404		1/4"	
2712095	222-0406		3/8"	
2712096	222-0604	3/8"	1/4"	
2712097	222-0606		3/8"	
2712098	222-0608		1/2"	

Cat. No.	Part No.	Size		Pack Qty
		M Flare	M BSP	
2712099	222-0808	1/2"	1/2"	1
2712100	222-1008		5/8"	
2712101	222-1212	3/4"	3/4"	

Tees - 3 Way Male Flare

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare Line	M Flare Branch		
2712102	230-040404	1/4" x 1/4"	1/4"	5200	1
2712103	230-060606	3/8" x 3/8"	3/8"		
2712104	230-080808	1/2" x 1/2"	1/2"		
2712105	230-101010	5/8" x 5/8"	5/8"		
2712106	230-121212	3/4" x 3/4"	3/4"		

Tees - Male Flare Line to Female Flare Branch

Cat. No.	Part No.	Size		SWP kPa	Pack Qty
		M Flare Line	F Flare Branch		
2712107	232-040404	1/4" x 1/4"	1/4"	5200	1

Tees - Male Flare Line to Male BSP Branch

Cat. No.	Part No.	Size		Pack Qty
		M Flare Line	M BSP Branch	
2712108	233-040402	1/4" x 1/4"	1/8"	1
2712109	233-040404		1/4"	

Tees - Male Flare Line to Female BSP Branch

Cat. No.	Part No.	Size		Pack Qty
		M Flare Line	F BSP Branch	
2712110	409-040402	1/4" x 1/4"	1/8"	1
2712111	409-040404		1/4"	

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Hand Valves

Castel

6210 Series - 2 Way Line - Male Flare

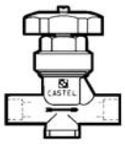
Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa
2712113	6210/2	Flare Hand Shut Off Valve	1/4"	2800
2712114	6210/3		3/8"	
2712115	6210/4		1/2"	
2712116	6210/5		5/8"	
2712117	6210/6		3/4"	

Heldon

2100 Series - 2 Way Line - Male Flare

Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa
2701320	2100-0404	Flare Hand Shut Off Valve	1/4"	2800
2701321	2100-0606		3/8"	
2701322	2100-0808		1/2"	
2701323	2100-1010		5/8"	
	2100-1212		3/4"	

Castel



6220 Series - 2 Way Line - Female Solder

Cat. No.	Model No.	Description	Connection	Max. Working Press. kPa
2712118	6220/2	Solder Hand Shut Off Valve	1/4"	2800
2712119	6220/3		3/8"	
2712120	6220/4		1/2"	
2712121	6220/5		5/8"	
2712122	6220/6		3/4"	

Packed Cap Valves

Castel

6410 Series - 2 Way Line - Male Flare

Cat. No.	Model No.	Size: Flare	Max.Working Press. kPa
2712128	6410/2	1/4"	4500
2712134	6410/3	3/8"	
2712135	6410/4	1/2"	
2712136	6410/5	5/8"	
2712137	6410/6	3/4"	

6420 Series - 2 Way Line - Female Solder

Cat. No.	Model No.	Size: ODF Solder	Max.Working Press. kPa
2712138	6420/2	1/4"	4500
2712139	6420/3	3/8"	
2712140	6420/4	1/2"	
2712141	6420/5	5/8"	
2712142	6420/6	3/4"	
2712143	6420/7	7/8"	

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Packed Cap Valves

Castel

6512 Series - 2 Way Line - Backseating

Female Solder with 'T' Handle

Cat. No.	Model No.	Size: ODF Solder	Max.Working Press. kPa
2712167	6512/7	7/8"	4500
2712168	6512/9	1 1/8"	
2712169	6512/11	1 3/8"	
2712170	6512/13	1 5/8"	
2712171	6512/17	2 1/8"	

6532 Series - 2 Way Angle - Backseating

Female Solder with 'T' Handle

Cat. No.	Model No.	Size: ODF Solder	Max.Working Press. kPa
2712172	6532/9	1 1/8"	4500
2712173	6532/11	1 3/8"	
2712174	6532/13	1 5/8"	

6110 Series - 2 Way Angle

Male Flare Side to Male Pipe Thread Bottom

Cat. No.	Part No.	Size		Max. Working Press. kPa
		Flare	NPT*	
2712175	6110/22	1/4"	1/4"	4500
2712176	6110/23		3/8"	
2712182	6110/32	3/8"	1/4"	
2712177	6110/33		3/8"	
2712178	6110/43	1/2"		
2712179	6110/44		1/2"	
2712180	6110/54	5/8"		
2712181	6110/66	3/4"	3/4"	

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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
		Flare	NPT*	
2701345	2201-0404	1/4"	1/4"	4500
2701346	2201-0406		3/8"	
2712154	2201-0408		1/2"	
2701347	2201-0604	3/8"	1/4"	
2701348	2201-0606		3/8"	
2705184	2201-0608		1/2"	
2712155	2201-0806	1/2"	3/8"	
2705185	2201-0808		1/2"	

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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
2712203	BVS-014	806750	1/4"	120
2712204	BVS-038	806752	3/8"	118
2712205	BVS-012	806754	1/2"	127
2712206	BVS-058	806756	5/8"	
2712207	BVS-034	806757	3/4"	157
2712208	BVS-078	806758	7/8"	
2712209	BVS-118	806759	1 1/8"	169
2712210	BVS-138	806761	1 3/8"	231
2712211	BVS-158	806762	1 5/8"	277
2712212	BVS-218	806764	2 1/8"	297
2712213	BVS-258	806765	2 5/8"	
2712214	BVS-318	806766	3 1/8"	

BVE Series - Ball Valves without Access Port

Cat. No.	Model No.	Part No.	Connection	Overall Length: mm
2712215	BVE-014	806730	1/4"	120
2712216	BVE-038	806732	3/8"	118
2712217	BVE-012	806734	1/2"	127
2712218	BVE-058	806736	5/8"	
2712219	BVE-034	806737	3/4"	157
2712220	BVE-078	806738	7/8"	
2712221	BVE-118	806739	1 1/8"	169
2712222	BVE-138	806741	1 3/8"	231
2712223	BVE-158	806742	1 5/8"	277
2712224	BVE-218	806744	2 1/8"	297
2712225	BVE-258	806745	2 5/8"	
2712226	BVE-318	806746	3 1/8"	

Castel

6590A Series - Ball Valves with Access Port

Cat. No.	Model No.	Connection ODF	Port Size: mm	Overall Length: mm
		1/4"	10	121
2712157	6570/3A	3/8"	10	
2712158	6590/4A	1/2"	10	
2712159	6590/5A	5/8"	15	138
2712160	6570/6A	3/4"	15	141
2712161	6590/7A	7/8"	19	175
2712162	6590/9A	1 1/8"	25	206
2712163	6590/11A	1 3/8"	32	262
2712164	6590/13A	1 5/8"	38	
2712165	6590/17A	2 1/8"	50	303
2712166	6591/21A	2 5/8"	50	

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Ball Valves

Danfoss

GBC Access Series - Ball Valves with Access Port

Cat. No.	Part No.	Model No.	Connection ODF
2706414	009G7050	GBC6S	1/4"
2706415	009G7051	GBC10S	3/8"
2706416	009G7052	GBC12S	1/2"
2706417	009G7053	GBC16S	5/8"
2706418	009G7054	GBC18S	3/4"
2706419	009G7055	GBC22S	7/8"
2706420	009G7056	GBC28S	1 1/8"
2706421	009G7057	GBC35S	1 3/8"
2706422	009G7058	GBC42S	1 5/8"
2706423	009G7059	GBC54S	2 1/8"
2706424	009G7066	GBC67S RP	2 5/8"

GBC Series - Ball Valves without Access Port

Cat. No.	Part No.	Model No.	Connection ODF
2706413	009G7020	GBC6S	1/4"
2706403	009G7021	GBC10S	3/8"
2706404	009G7022	GBC12S	1/2"
2706405	009G7023	GBC16S	5/8"
2706406	009G7024	GBC18S	3/4"
2706407	009G7025	GBC22S	7/8"
2706408	009G7026	GBC28S	1 1/8"
2706409	009G7027	GBC35S	1 3/8"
2706410	009G7028	GBC42S	1 5/8"
2706411	009G7029	GBC54S	2 1/8"
2706412	009G7036	GBC67S RP	2 5/8"

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Acpar

Cylinder Adaptors – with Washer

Cat. No.	Part No.	Size		Pack Qty
2712233	203-0412	1/4" Male Flare	3/4" Female BSP	1
2712234	203-0612	3/8" Male Flare		
2712235	20-0812	1/2" Male Flare		
2712236	203-0512	5/16" Male Flare		
2701329	21-0812	1/2" ACME		

Cylinder Valve Seal Cap

Cat. No.	Part No.	Size	PackQty
2712231	203-0012	3/4" Female BSP Brass Cylinder Cap	1
2712240	5612354	3/4" Female BSP Plastic Cylinder Cap	

Washers

Cat. No.	Part No.	Size	Pack Qty
2712237	20-WASH	Fibre Washer To Suit 3/4" Female BSP	2

Swivel Connectors

Cat. No.	Part No.	Size	SWP kPa	Pack Qty
2712299	295-04	1/4" Female Flare	4500	1
2712300	295-06	3/8" Female Flare		
2712301	295-08	1/2" Female Flare		
2712302	295-10	5/8" Female Flare		
2701550	95-12	3/4" Female flare		

Swivel Tail Adaptors

Cat. No.	Part No.	Size		Pack Qty
		Female Flare	Solder	
2712305	210-0404	1/4"	1/4"	1
2712306	210-0606	3/8"	3/8"	
2712307	210-0808	1/2"	1/2"	
2712308	210-1010	5/8"	5/8"	
2712309	210-1212	3/4"	3/4"	

Supco

Bullet Line Piercing Valve

Cat. No.	Part No.	Size: OD Tube
2712303	BPV-31	1/4", 5/16", 3/8"
2712304	BPV-21	1/2", 5/8"

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Valves and Fittings

Acpar

Rotalock Valves - including seal ring

Cat. No.	Part No.	Connections		Pack Qty
		Rotalock Ring	Tube Size: Solder	
2712249	401-061220	¾"	⅜"	1
2712250	401-081220		½"	
2712251	401-061620	1"	⅜"	
2712252	401-081620		½"	
2712253	401-101620		⅝"	
2712254	401-102030	1 ¼"		
2712255	401-122030		¾"	

Cat. No.	Part No.	Connections		Pack Qty
		Rotalock Ring	Tube Size: Solder	
2712256	401-142030	1 ¼"	⅞"	1
2712257	401-182030			
2712258	401-142830	1 ¾"	1 ⅛"	
2712259	401-182835			
2712260	401-222835		1 ⅜"	
2712261	401-262835		1 ⅝"	
2712262	401-263650	2 ¼"		

* 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
2712263	400-12	Rotalock Seal	¾" RL	1
2712264	400-16	Rotalock Seal	1" RL	
2712265	400-20	Rotalock Seal	1 ¼" RL	
2712266	400-28	Rotalock Seal	1 ¾" RL	
2712267	400-36	Rotalock Seal	2 ¼" RL	
2712268	400-Multi Pack	Assorted Rotalock Seals	¾" - 2 ¼" RL	5

Rotalock Valve Caps

Cat. No.	Part No.	Description	Suits	Pack Qty
2712269	411-203035	Rotalock Valve Caps	20mm, 30mm & 35mm Rotalock Valve Bodies	3

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Valves and Fittings

Acpar

Rotalock Straight Connector

Cat. No.	Part No.	Connections		Pack Qty
		Rotalock Ring	Tube Size: Solder	
2712270	402-0612	3/4"	3/8"	1
2712271	402-0416	1"	1/4"	
2712272	402-0816		1/2"	
2712273	402-1016		5/8"	
2712274	402-1420	1 1/4"	7/8"	
2712275	402-1820		1 1/8"	
2712276	402-1828	1 3/4"		

Rotalock Elbow Connector

Cat. No.	Part No.	Connections		Pack Qty
		Rotalock Ring	Tube Size: Solder	
2712277	403-0612	3/4"	3/8"	1
2712278	403-0816	1"	1/2"	
2712279	403-1016		5/8"	
2712280	403-1216		3/4"	
2712281	403-1416		7/8"	
2712282	403-1420	1 1/4"		
2712283	403-1820		1 1/8"	
2712284	403-1828	1 3/4"		

Line Fittings - Copper

Ardent

Couplings/Unions - Female to Female - Solder

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty
2712330	RCC006-410A	1/4"	4500	5
2712331	RCC010-410A	3/8"		
2712332	RCC013-410A	1/2"		
2712333	RCC016-410A	5/8"		
2712334	RCC019-410A	3/4"		2
2712335	RCC022-410A	7/8"		

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty
2712336	RCC025-410A	1"	4300	2
2712337	RCC029-410A	1 1/8"		
2712338	RCC035-410A	1 3/8"		1
2712339	RCC041-410A	1 5/8"		
2712340	RCC054-410A	2 1/8"	4000	
2712341	RCC067-410A	2 5/8"	3800	
2712342	RCC076	3"	3500	

Reducing Couplings/Unions - Female to Female - Solder

Cat. No.	Part No.	ID x ID:	SWP*: kPa	Pack Qty
2712343	RRR01310-410A	1/2" x 3/8"	4800	2
2712344	RRR01610-410A	5/8" x 3/8"		
2712345	RRR01613-410A	5/8" x 1/2"		
2712346	RRR01910-410A	3/4" x 3/8"		
2712347	RRR01913-410A	3/4" x 1/2"		
2712348	RRR01916-410A	3/4" x 5/8"		
2712349	RRR02213-410A	7/8" x 1/2"		
2712350	RRR02216-410A	7/8" x 5/8"		
2712351	RRR02219-410A	7/8" x 3/4"		
2712352	RRR02916-410A	1 1/8" x 5/8"	4600	1
2712353	RRR02919-410A	1 1/8" x 3/4"		
2712354	RRR02922-410A	1 1/8" x 7/8"		

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712355	RRR03516-410A	1 3/8" x 5/8"	4600	1
2712356	RRR03522-410A	1 3/8" x 7/8"		
2712357	RRR03529-410A	1 3/8" x 1 1/8"		
2712358	RRR04129-410A	1 5/8" x 1 1/8"	4500	
2712359	RRR04135-410A	1 5/8" x 1 3/8"		
2712360	RRR05429-410A	2 1/8" x 1 1/8"	4000	
2712361	RRR05435-410A	2 1/8" x 1 3/8"		
2712362	RRR05441-410A	2 1/8" x 1 5/8"		
2712363	RRR06735-410A	2 5/8" x 1 3/8"	3800	
2712364	RRR06741-410A	2 5/8" x 1 5/8"		
2712365	RRR06754-410A	2 5/8" x 2 1/8"		

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

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty
2712366	RNN01310-410A	1/2" x 3/8"	4700	2
2712367	RNN01610-410A	5/8" x 3/8"		
2712368	RNN01613-410A	5/8" x 1/2"		
2712369	RNN01913-410A	3/4" x 1/2"		
2712370	RNN01916-410A	3/4" x 5/8"		
2712371	RNN02213-410A	7/8" x 1/2"		
2712372	RNN02216-410A	7/8" x 5/8"		
2712373	RNN02219-410A	7/8" x 3/4"		
2712374	RNN02913-410A	1 1/8" x 1/2"	4500	1

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty
2712375	RNN02916-410A	1 1/8" x 5/8"	4500	1
2712376	RNN02919-410A	1 1/8" x 3/4"		
2712377	RNN02922-410A	1 1/8" x 7/8"		
2712378	RNN03516-410A	1 3/8" x 5/8"		
2712379	RNN03522-410A	1 3/8" x 7/8"		
2712380	RNN03529-410A	1 3/8" x 1 1/8"	4200	
2712381	RNN04129-410A	1 5/8" x 1 3/8"	4000	
2712382	RNN05435-410A	2 1/8" x 1 3/8"	3800	
2712383	RNN05441-410A	2 1/8" x 1 5/8"		

* SWP = Safe working pressure @ 59°C

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Line Fittings - Copper

Ardent

90º Copper Elbows - Female to Female - Solder

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712396	REN006-410A	1/4"	4300	5
2712397	REN010-410A	3/8"		
2712398	REN013-410A	1/2"		3
2712399	REN016-410A	5/8"		
2712400	REN019-410A	3/4"		
2712401	REN022-410A	7/8"		
2712402	REN025-410A	1"	4200	2
2712403	REN029-410A	1 1/8"	4000	

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712404	REN032-410A	1 1/4"	4000	2
2712405	REN035-410A	1 3/8"	3800	
2712406	REN041	1 5/8"	3500	
2712407	103-2626-410A	1 5/8"	4200	
2712408	REN050	2"	3000	1
2712409	REN054	2 1/8"	2800	
2712410	REN067	2 5/8"	2500	
2712411	REN076	3"	2100	

45º Copper Elbows - Female to Female - Solder

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712412	REF010-410A	3/8"	4300	3
2712413	REF013-410A	1/2"		
2712414	REF016-410A	5/8"		
2712415	REF019-410A	3/4"		
2712416	REF022-410A	7/8"		
2712417	REF025-410A	1"	4200	2

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712418	REF029-410A	1 1/8"	4000	2
2712419	REF032-410A	1 1/4"		
2712420	REF035-410A	1 3/8"	3800	
2712421	REF041	1 5/8"	3500	
2712422	105-2626-410A	1 5/8"	4200	
2712423	REF054	2 1/8"	2800	1
2712424	REF067	2 5/8"	2500	

90º Copper Elbows - Male to Female - Solder

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty
2712425	RBN010-410A	3/8" x 3/8"	4300	3
2712426	RBN013-410A	1/2" x 1/2"		
2712427	RBN016-410A	5/8" x 5/8"		
2712428	RBN019-410A	3/4" x 3/4"	4200	
2712429	RBN022-410A	7/8" x 7/8"	4000	

Cat. No.	Part No.	OD x ID	SWP*: kPa	Pack Qty
2712430	RBN029-410A	1 1/8" x 1 1/8	3800	2
2712431	RBN035	1 3/8" x 1 3/8"	3500	
2712432	RBN041	1 5/8" x 1 5/8"		
2712433	RBN054	2 1/8" x 2 1/8"	3000	1
2712434	RBN067	2 5/8" x 2 5/8 "	2800	

Copper 'P' Traps

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712435	RPT016-410A	5/8"	4300	1
2712436	RPT019-410A	3/4"		
2712437	RPT022-410A	7/8"		
2712438	RPT029-410A	1 1/8"	4200	

Cat. No.	Part No.	ID x ID	SWP*: kPa	Pack Qty
2712439	RPT035-410A	1 3/8"	4200	1
2712440	RPT041-410A	1 5/8"	4000	
2712441	RPT054-410A	2 1/8"	3800	

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Line Fittings - Copper

Ardent

Copper Tube End Caps (Stop Ends)

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty
704485	1120-08	1/2"		1
704481	1120-10	5/8"		
704490	1120-12	3/4"		
2712446	REC022-410A	7/8"	4600	2
704495	1120-16	1"		1
2712447	REC029-410A	1 1/8"	4600	
704496	1120-20	1 1/4"		
2712448	REC035-410A	1 3/8"	4600	

Cat. No.	Part No.	ID	SWP*: kPa	Pack Qty
704497	1120-24	1 1/2"		1
2712449	REC041-410A	1 5/8"	4600	
2712442	1120-32	2"		
2712450	REC054-410A	2 1/8"	4300	
2712451	REC067-410A	2 5/8"	4000	
2712443	1120-48	3"		
2712452	REC102	4"	3500	
2712445	1120-80	5"		

Copper Tees

Cat. No.	Part No.	ID x ID x ID	SWP*: kPa	Pack Qty
2712465	RTE006-410A	1/4"	4500	3
2712466	RTE010-410A	3/8"		
2712467	RTE013-410A	1/2"		2
2712468	RTE016-410A	5/8"		
2712469	RTE019-410A	3/4"		
2712470	RTE022-410A	7/8"		
2712471	RTE025-410A	1"	4400	1

Cat. No.	Part No.	ID x ID x ID	SWP*: kPa	Pack Qty
2712472	RTE029-410A	1 1/8"	4300	1
2712473	RTE032-410A	1 1/4"		
2712474	RTE035-410A	1 3/8"	4000	
2712475	RTE041-410A	1 5/8"		
2712476	RTE054-410A	2 1/8"	3800	
2712477	RTE067-410A	2 5/8"		
2712478	RTE076	3"	3500	

* SWP = Safe working pressure @ 59°C

Copper Tube Clips

Cat. No.	Part No.	Size	Pack Qty
2712453	RTC006	1/4"	10
8002247	1115-05	5/16"	1
2712454	RTC010	3/8"	10
2712455	RTC013	1/2"	5
2712456	RTC016	5/8"	
2701257	115-12	3/4"	1
2712457	RTC022	7/8"	5
2701259	1115-16	1"	1
2712458	RTC029	1 1/8"	3

Cat. No.	Part No.	Size	Pack Qty
2701261	1115-20	1 1/4"	1
2712459	RTC035	1 3/8"	3
2701263	1115-24	1 1/2"	1
2701264	1115-26	1 5/8"	
2701265	1115-28	1 3/4"	
2701266	1115-32	2"	
2701267	1115-34	2 1/8"	
2701268	1115-40	2 1/2"	

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Press Systems

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Conex Bänniger >B< MaxiPro is a robust press sysem, which is quick and simple to use, providing a secure and permanent joint suiable for air conditioning and refrigeration applications. Used in conjunction with a custom press tool from Rothenberger, the new MaxiPro fittings benefit from a 3-point press, two presses both sides of the bead and one press compressing the O-ring, providing a permanent and secure join.

Technical Data

Cat. No.	Part No.
Applications	High pressure air-conditioning and refrigeration
Connections	Copper to Copper
Approved tube: Copper tube conforming to	AS/NZS 1571*
Fitting / Pipe Range (inches)	1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8
Fitting Material	Refrigerant grade Copper (C12200 min 99.9% pure)
O-ring	HNBR
Approved Oils	POE, PAO, AB, mineral oil
Maximum operating pressure	48 bar / 4,800 kPa / 700 PSI
O-ring temperature range	-40°C to 140°C
UL listing continuous operating temperature	-40°C to 121°C
Compatible refrigerants	R1234yf, R1234ze, R32, R134a, R404A, R407C, R407F, R410A, and R507
Approvals fitting	Ul 207 certified, certificate no. SA44668. UL 109 - 7 Pull Test, compliant. UL 1963 - 79 Tests of Gaskets and Seals Used in Refrigerant Systems, compliant. ISO 5149-2, compliant. ASTM G85, compliant.

* Please refer to >B< MaxiPro Technical Manual - Tube Compatibility Table.

Press Fittings - Copper

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90 Degree Elbows

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
405955	MPA5002 0020000	>B< MAXIPRO ELBOW 1/4" X 90D	1/4"	4800	5
405956	MPA5002 0030000	>B< MAXIPRO ELBOW 3/8" X 90D	3/8"		
405957	MPA5002 0040000	>B< MAXIPRO ELBOW 1/2" X 90D	1/2"		3
405958	MPA5002 0050000	>B< MAXIPRO ELBOW 5/8" X 90D	5/8"		
405959	MPA5002 0060000	>B< MAXIPRO ELBOW 3/4" X 90D	3/4"		
405960	MPA5002 0070000	>B< MAXIPRO ELBOW 7/8" X 90D	7/8"		
405961	MPA5002 0080000	>B< MAXIPRO ELBOW 1" X 90D	1"		2
405962	MPA5002 0090000	>B< MAXIPRO ELBOW 1 1/8" X 90D	1 1/8"		
405963		>B< MAXIPRO ELBOW 1 1/4" X 90D	1 1/4"		3
405964		>B< MAXIPRO ELBOW 1 3/8" X 90D	1 3/8"		
405965		>B< MAXIPRO ELBOW 1 5/8" X 90D	1 5/8"		

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45 Degree Elbows

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
406038	MPA5041 0020000	>B< MAXIPRO ELBOW 1/4" X 45D	1/4"	4800	3
405966	MPA5041 0030000	>B< MAXIPRO ELBOW 3/8" X 45D	3/8"		
405967	MPA5041 0040000	>B< MAXIPRO ELBOW 1/2" X 45D	1/2"		
405968	MPA5041 0050000	>B< MAXIPRO ELBOW 5/8" X 45D	5/8"		
405969	MPA5041 0060000	>B< MAXIPRO ELBOW 3/4" X 45D	3/4"		
405970	MPA5041 0070000	>B< MAXIPRO ELBOW 7/8" X 45D	7/8"		
405971	MPA5041 0080000	>B< MAXIPRO ELBOW 1" X 45D	1"		2
405972	MPA5041 0090000	>B< MAXIPRO ELBOW 1 1/8" X 45D	1 1/8"		
405973		>B< MAXIPRO ELBOW 1 1/4" X 45D	1 1/4"		3
405974		>B< MAXIPRO ELBOW 1 3/8" X 45D	1 3/8"		
405975		>B< MAXIPRO ELBOW 1 5/8" X 45D	1 5/8"		

90 Degree Elbows - Male to Female - Solder

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
405976	MPA5001 0030000	>B< MAXIPRO ELBOW 3/8D X 3/8ID X 90D	3/8" x 3/8"	4800	3
405977	MPA5001 0040000	>B< MAXIPRO ELBOW 1/2OD X 1/2ID X 90D	1/2" x 1/2"		
405978	MPA5001 0050000	>B< MAXIPRO ELBOW 5/8OD X 5/8ID X 90D	5/8" x 5/8"		
405979	MPA5001 0060000	>B< MAXIPRO ELBOW 3/4OD X 3/4ID X 90D	3/4" x 3/4"		
405980	MPA5001 0070000	>B< MAXIPRO ELBOW 7/8OD X 7/8ID X 90D	7/8" x 7/8"		
405981	MPA5001 0090000	>B< MAXIPRO ELB 1 1/8OD X 1 1/8ID X90D	1 1/8" x 1 1/8"		2
405982		>B< MAXIPRO ELB 1 3/8OD X 1 3/8ID X90D	1 3/8" x 1 3/8"		
405983		>B< MAXIPRO ELB 1 5/8OD X 1 5/8ID X90D	1 5/8" x 1 5/8"		

Copper Tee

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
405984	MPA5130 0020202	>B< MAXIPRO TEE 1/4"	1/4"	4800	3
405985	MPA5130 0030303	>B< MAXIPRO TEE 3/8"	3/8"		
405986	MPA5130 0040404	>B< MAXIPRO TEE 1/2"	1/2"		
405987	MPA5130 0050505	>B< MAXIPRO TEE 5/8"	5/8"		2
405988	MPA5130 0060606	>B< MAXIPRO TEE 3/4"	3/4"		
405989	MPA5130 0070707	>B< MAXIPRO TEE 7/8"	7/8"		
405990	MPA5130 0080808	>B< MAXIPRO TEE 1"	1"		1
405991	MPA5130 0090909	>B< MAXIPRO TEE 1 1/8"	1 1/8"		
405992		>B< MAXIPRO TEE 1 1/4"	1 1/4"		2
405993		>B< MAXIPRO TEE 1 3/8"	1 3/8"		
405994		>B< MAXIPRO TEE 1 5/8"	1 5/8"		

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Press Fittings - Copper

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Reducer

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
405995	MPA5240 0040300	>B< MAXIPRO REDUCER 1/2" X 3/8"	1/2" x 3/8"	4800	2
405996	MPA5240 0050300	>B< MAXIPRO REDUCER 5/8" X 3/8"	5/8" x 3/8"		
405997	MPA5240 0050400	>B< MAXIPRO REDUCER 5/8" X 1/2"	5/8" x 1/2"		
405998	MPA5240 0060300	>B< MAXIPRO REDUCER 3/4" X 3/8"	3/4" x 3/8"		
405999	MPA5240 0060400	>B< MAXIPRO REDUCER 3/4" X 1/2"	3/4" x 1/2"		
406000	MPA5240 0060500	>B< MAXIPRO REDUCER 3/4" X 5/8"	3/4" x 5/8"		
406001	MPA5240 0070400	>B< MAXIPRO REDUCER 7/8" X 1/2"	7/8" x 1/2"		
406002	MPA5240 0070500	>B< MAXIPRO REDUCER 7/8" X 5/8"	7/8" x 5/8"		
406003	MPA5240 0070600	>B< MAXIPRO REDUCER 7/8" X 3/4"	7/8" x 3/4"		
406004	MPA5240 0090500	>B< MAXIPRO REDUCER 1 1/8" X 5/8"	1 1/8" x 5/8"		1
406005	MPA5240 0090600	>B< MAXIPRO REDUCER 1 1/8" X 3/4"	1 1/8" x 3/4"		
406006	MPA5240 0090700	>B< MAXIPRO REDUCER 1 1/8" X 7/8"	1 1/8" x 3/4"		
406007		>B< MAXIPRO REDUCER 1 3/8" X 5/8"	1 3/8" x 5/8"		2
406008		>B< MAXIPRO REDUCER 1 3/8" X 7/8"	1 3/8" x 7/8"		
406009		>B< MAXIPRO REDUCER 1 3/8" X 1 1/8"	1 3/8" x 1/8"		
406010		>B< MAXIPRO REDUCER 1 5/8" X 1 1/8"	1 5/8" x 1/8"		

Bush

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
406037	MPA5243 0030200	>B< MAXIPRO BUSH 3/8" X 1/4"	3/8" x 1/4"	4800	2
406011	MPA5243 0040300	>B< MAXIPRO BUSH 1/2" X 3/8"	1/2" x 3/8"		
406012	MPA5243 0050300	>B< MAXIPRO BUSH 5/8" X 3/8"	5/8" x 3/8"		
406013	MPA5243 0050400	>B< MAXIPRO BUSH 5/8" X 1/2"	5/8" x 1/2"		
406014	MPA5243 0060400	>B< MAXIPRO BUSH 3/4" X 1/2"	3/4" x 1/2"		
406015	MPA5243 0060500	>B< MAXIPRO BUSH 3/4" X 5/8"	3/4" x 5/8"		
406016	MPA5243 0070400	>B< MAXIPRO BUSH 7/8" X 1/2"	7/8" x 1/2"		
406017	MPA5243 0070500	>B< MAXIPRO BUSH 7/8" X 5/8"	7/8" x 5/8"		
406018	MPA5243 0070600	>B< MAXIPRO BUSH 7/8" X 3/4"	7/8" x 3/4"		
406019	MPA5243 0090400	>B< MAXIPRO BUSH 1 1/8" X 1/2"	1 1/8" x 1/2"		1
406020	MPA5243 0090500	>B< MAXIPRO BUSH 1 1/8" X 5/8"	1 1/8" x 5/8"		
406021	MPA5243 0090600	>B< MAXIPRO BUSH 1 1/8" X 3/4"	1 1/8" x 3/4"		
406022	MPA5243 0090700	>B< MAXIPRO BUSH 1 1/8" X 7/8"	1 1/8" x 7/8"		
406023		>B< MAXIPRO BUSH 1 3/8" X 5/8"	1 3/8" x 5/8"		
406024		>B< MAXIPRO BUSH 1 3/8" X 7/8"	1 3/8" x 7/8"		
406025		>B< MAXIPRO BUSH 1 3/8" X1 1/8"	1 3/8" x 1 1/8"		
406026		>B< MAXIPRO BUSH 1 5/8" X1 3/8"	1 5/8 x 1 3/8"		

* SWP = Safe working pressure

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Press Fittings - Copper

>B<Press MaxiPro

Conex | Bänninger >B< MaxiPro

Unions

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
406027	MPA5270 0020000	>B< MAXIPRO UNION 1/4 "	1/4"	4800	5
406028	MPA5270 0030000	>B< MAXIPRO UNION 3/8"	3/8"		
406029	MPA5270 0040000	>B< MAXIPRO UNION 1/2"	1/2"		
406030	MPA5270 0050000	>B< MAXIPRO UNION 5/8"	5/8"		
406031	MPA5270 0060000	>B< MAXIPRO UNION 3/4"	3/4"		2
406032	MPA5270 0070000	>B< MAXIPRO UNION 7/8"	7/8"		
406033	MPA5270 0080000	>B< MAXIPRO UNION 1"	1"		
406034	MPA5270 0090000	>B< MAXIPRO UNION 1 1/8"	1 1/8"		
406035		>B< MAXIPRO UNION 1 3/8"	1 3/8"		
406036		>B< MAXIPRO UNION 1 5/8"	1 5/8"		

Stop Ends

Cat. No.	Part No.	Interim Description	ID	SWP*: kPa	Pack Qty
406039	MPA5301 0020000	>B< MAXIPRO STOP END 1/4"	1/4"	4800	3
406040	MPA5301 0030000	>B< MAXIPRO STOP END 3/8"	3/8"		
406041	MPA5301 0040000	>B< MAXIPRO STOP END 1/2"	1/2"		
406042	MPA5301 0050000	>B< MAXIPRO STOP END 5/8"	5/8"		2
406043	MPA5301 0060000	>B< MAXIPRO STOP END 3/4"	3/4"		
406044	MPA5301 0070000	>B< MAXIPRO STOP END 7/8"	7/8"		
406045	MPA5301 0080000	>B< MAXIPRO STOP END 1"	1"		1
406046	MPA5301 0090000	>B< MAXIPRO STOP END 1 1/8"	1 1/8"		

* SWP = Safe working pressure

Press Tools

ROTHENBERGER

Rothenberger MaxiPro Jaws

Tools

Cat. No.	Part No.	Interim Description
77011769	1000000161	ROMAX COMPACT B PRESS TOOL
9506648	1000001749	R/BERG COMPACT MAXIPRO JAW 1/4"
9506649	1000001750	R/BERG COMPACT MAXIPRO JAW 3/8"
9506650	1000001751	R/BERG COMPACT MAXIPRO JAW 1/2"
9506651	1000001752	R/BERG COMPACT MAXIPRO JAW 5/8"
9506652	1000001753	R/BERG COMPACT MAXIPRO JAW 3/4"
9506653	1000001754	R/BERG COMPACT MAXIPRO JAW 7/8"
9506654	1000001755	R/BERG COMPACT MAXIPRO JAW 1"
9506655	1000001756	R/BERG COMPACT MAXIPRO JAW 1 1/8"
9506664	1000001766	R/BERG COMPACT MAXIPRO JAW SET 1/4-3/4" WITH CASE

Accessories

Cat. No.	Part No.	Interim Description
2131548	PS5301 0540000	>B< MAXIPRO MARKING TOOL & PEN
9506687	R/BERG ROCASE SUIT MAXIPRO JAWS	R/BERG ROCASE SUIT MAXIPRO JAWS
7701521	MAIN KIT	ROTHENBERGER ROMAX TOOL MAINTENANCE KIT
9506687	1000001786	R/BERG ROCASE SUIT MAXIPRO JAWS

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Schrader/Access Valves and Fittings

Half Union Type

Cat. No.	Brand	Part No.	Description
2712509	Refco	A31482	1/8" NPT
2712508	Refco	A31484/10	1/4" NPT

Multi-Size Solder Union

Cat. No.	Brand	Part No.	Description
2-Way			
2712507	Refco	A31724	1/4" or 3/8" OD Solder
3-Way			
2712511	Refco	A31720	3/16", 1/4" or 3/8" OD Solder
9-Way			
2712510	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

Female Flare Coupling with Copper Gasket

Cat. No.	Brand	Part No.	Description
2712499	Robinair	40410	1/4" Female Flare Connection

Schrader Access Valve with Copper Tube Extension

Cat. No.	Part No.	Description	SWP kPa	Qty
2712487	A31003	3/16" OD Schrader Access Valve		1
2712488	A31004	1/4" OD Schrader Access Valve	2000	
2712503	208-0504	5/16" OD Schrader Access Valve	4200	2
2712516	A31006	3/8" OD Schrader Access Valve		1

Solder and Flare Tees

Cat. No.	Brand	Part No.	Description
2712512	Refco	A31134	1/4" OD Tube or 3/8" Solder on Run 1/4" Male Flare Access on Branch
2712513	Refco	A31512	1/4" Male Flare and 1/4" Male Flare Access on Run 1/8" Male NPT on Branch

Swivel Tee - 1/4" Flare

Cat. No.	Brand	Part No.	Description
2712482	Refco	A31851	Access on Branch Female Swivel on One End of Run
2712506		A31852	Access on One End of Run with permanent depressor on Female Swivel Branch

Schrader Valve Cores

Cat. No.	Part No.	Description	Qty
2712505	204-1	Schrader Valve Core R410A Rated	5
2712515	A31999	Schrader Valve Core	1

Quick Seal Caps

Cat. No.	Part No.	Description	Qty
2712514	NFT5-4	Quick Seal Cap	1
2701521	205-2	Schrader Cap And O-Ring R410A Rated	

* Suitable for R410A refrigerants

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Schrader/Access Valve Tools

Refco

Valve Core Tool

Cat. No.	Part No.	Description
2712496	A32000	Valve Core Tool, contains 6 extra Cores

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.

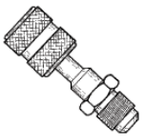
A valve core left in place considerably restricts flow during evacuation and charging. By removing the core, the restriction is eliminated and maximum flow results, greatly reducing the time required for pulldown and recharging.

Cat. No.	Part No.	Size	Description
2712493	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.
2712494	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.
2712495	32520-1/2"-20UNF	5/16"	

Access Control Valve

Cat. No.	Part No.	Description	
2712491	A33010	1/4" FF x 1/4" MF	Access Control Valve
2712492	A-33410	5/16" FF x 1/4" MF	

Quick Coupler Adaptors



Cat. No.	Brand	Part No.	Size	Description
2712485	Robinair	10468A	1/4" Male Flare x 3/16" Female Flare	Straight Connection
2712486		40560A	1/4" Male Flare x 1/4" Female Flare	
2700056	Robinair	40563A		90 degree Elbow Connection
2712502		10234		Straight Connection Quick Seal Auto Shut Off
2712501		10296	1/4" Male Flare x 3/16" Female Flare	
8001644	Refco	R509/10	Packet of 10 Replacement Gaskets	

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Copper Tubing

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 SuperIonFR 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
	Outside Diameter: mm	Outside Diameter	Wall Thickness: mm		
800000	6.35	1/4"	0.8	10 mm	18 mt
	9.52	3/8"			
800010	6.35	1/4"			
	12.7	1/2"			
800011	6.35	1/4"			
	15.88	5/8"	1		
800012	9.52	3/8"	0.8		
	15.88	5/8"	1		
800013	9.52	3/8"	0.8		
	19.05	3/4"	1.15		
800014	12.7	1/2"	0.8		
	19.05	3/4"	1.15		
800007	6.35	1/4"	0.8	13 mm	
	9.52	3/8"			
800008	6.35	1/4"			
	12.7	1/2"			
800021	6.35	1/4"			
	15.88	5/8"	1		
800022	9.52	3/8"	0.8		
	15.88	5/8"	1		
800023	6.35	1/4"	0.8	19 mm	
	9.52	3/8"			
800024	6.35	1/4"			
	12.7	1/2"			
800025	6.35	1/4"			
	15.88	5/8"	1		
800026	9.52	3/8"	0.8		
	15.88	5/8"	1		
800027	9.52	3/8"	0.8		
	19.05	3/4"	1.15		

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Copper Tubing

SuperPairFR

Cat. No.	Copper Tube Sizes			Insulation Wall Thickness	Straight Length	No. of Lengths Per Outer Carton
	Outside Diameter: mm	Outside Diameter	Wall Thickness: mm			
800019	6.35	1/4"	0.8	10 mm	3 mt	6
	9.52	3/8"	0.8			
800020	6.35	1/4"	0.8			
	12.7	1/2"	0.8			
800003	6.35	1/4"	0.8			
	15.88	5/8"	1			
800004	9.52	3/8"	0.8			
	15.88	5/8"	1			
800005	9.52	3/8"	0.8			
	19.05	3/4"	1.15			
800006	12.7	1/2"	0.8			
	19.05	3/4"	1.15			

Pre-insulated Pair Coil Copper Tube R410A Rated

Cat. No.	Size		Outside Diameter	Coil Length
	Outside Diameter: mm	Wall Thickness: mm		
9800005	6.35 9.52	0.81	1/4" 3/8"	20 Metre Coils
9800006	6.35 12.7		1/4" 1/2"	
9800007	6.35 15.88	0.81 1.02	1/4" 5/8"	
9800008	9.52 15.88	0.81 1.02	3/8" 5/8"	
9800009	9.52 19.05	0.81 1.22	3/8" 3/4"	

Kembla

Soft Annealed Copper Tubing - Refrigeration Quality

Cat. No.	Size				Length
	Outside Diameter: mm	Wall Thickness: mm	Outside Diameter	Wall Gauge	
802515	4.8	0.91*	3/16"	20	30 Metre Coils
802767	6.4	0.81*	1/4"	21	
802540	7.9		5/16"		
802544	9.5		3/8"		18 Metre Coils
802543	12.7		1/2"		
802585	15.9	0.91	5/8"	20	
802580		1.02*		19	
802595	19.1	0.91	3/4"	20	
802581		1.14*			
802605	22.2	0.91	7/8"	20	

* 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
	Outside Diameter: mm	Wall Thickness: mm	Outside Diameter	Wall Gauge	
802717	6.4	0.81*	1/4"	21	6 Metre Lengths
802718	9.5		3/8"		
802719	12.7		1/2"		
802720	15.9	0.91	5/8"	20	
802741		1.02*		19	
802730	19.1	0.91	3/4"	20	
802742		1.14*		18.5	
802740	22.2	0.91	7/8"	20	
802735		1.22		18	
802743		1.40*		17	
802750	25.4	0.91	1"	20	
802745		1.22		18	
802744		1.63*		16	
802760	28.6	0.91	1 1/8"	20	
802755		1.22		18	
802753		1.63		16	
802752		1.83*		15	
802770	31.8	0.91	1 1/4"	20	
802765		1.22		18	
802764		2.03*		14	
802780	34.9	0.91	1 3/8"	20	
802775		1.22		18	
802761		2.03*		14	
800001	38.1	0.91	1 1/2"	20	
802785		1.22		18	
802800	41.3	0.91	1 5/8"	20	
802795		1.22		18	
800028		1.63		16	
802762		2.41*		12.5	
208134	50.8	0.91	2"	20	
802807		1.22		18	
802771	54	0.91	2 1/8"	20	
802825		1.22		18	
802820		1.6		16	
800002	63.5	1.22	2 1/2"	18	
802840	66.7		2 5/8"	18	
802768		1.6		16	
802766		2.03		14	
802845	76.2	1.63	3"	16	
802851	101.6	1.63	4"		

* 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

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

Burgaclip 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 Burgaclip 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
2711928	ACT-002	Burgaflex Hose for 1/4" Fittings 15m Roll	1/4"	3
2711935	3090-06	Burgaflex Hose for 3/8" Fittings 15m Roll	3/8"	15
2711936	3090-08	Burgaflex Hose for 1/2" Fittings 15m Roll	1/2"	15
2711937	3090-10	Burgaflex Hose for 5/8" Fittings 15m Roll	5/8"	15
2711938	3090-12	Burgaflex Hose for 3/4" Fittings 15m Roll	3/4"	15

Fitting Kits

Cat. No.	Part No.	Description	Kit Contents	Suits Fitting Size
2711939	ACT-001	1/4" Female Flare Burgaclip Fitting Kit	2 x straight 2 x 90 degree angle	1/4"

Straight Fittings

Cat. No.	Part No.	Description	Suits Fitting Size
2711930	54701-06-06S-K	3/8" Female Flare Straight Burgaclip Fitting	3/8"
2711940	54701-08-08S-K	1/2" Female Flare Straight Burgaclip Fitting	1/2"
2711941	54701-10-10S-K	5/8" Female Flare Straight Burgaclip Fitting	5/8"
2711942	54701-12-12S-K	3/4" Female Flare Straight Burgaclip Fitting	3/4"

Angle Fittings

Cat. No.	Part No.	Description	Suits Fitting Size
2711943	54703-06-06S-K	3/8" Female Flare 90 Degree Angle Burgaclip Fitting	3/8"
2711944	54703-08-08S-K	1/2" Female Flare 90 Degree Angle Burgaclip Fitting	1/2"
2711945	54703-10-10S-K	5/8" Female Flare 90 Degree Angle Burgaclip Fitting	5/8"
2711946	54703-12-12S-K	3/4" Female Flare 90 Degree Angle Burgaclip Fitting	3/4"

Pliers

Cat. No.	Part No.	Description
8001902	8766	Burgaclip Pliers

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Capillary Tubing

Key

Capillary Tubing Service Packs

Cat. No.	Part No.	Inside Diameter		Length: mm
		mm	Inches	
2701841	SP-1	0.66	0.026	3660
2701844	SP-2	0.8	0.0315	
2701845	SP-3	0.9	0.0335	
2701846	SP-4	1.1	0.0435	4270
2701847	SP-4.5	1.2	0.0472	
2701848	SP-5	1.3	0.051	

Cat. No.	Part No.	Inside Diameter		Length: mm
		mm	Inches	
2701849	SP-6	1.4	0.055	3660
2701850	SP-6.5	1.5	0.0591	3660
2701851	SP-7	1.62	0.064	3050
2701852	SP-8	1.78	0.07	3660
2701853	SP-9	1.9	0.075	2750
2701842	SP-10	2.04	0.08	3050
2701843	SP-11	2.24	0.088	3660

Roof Flashing

Aztec

Pipe Flashing

Standard

Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C
8002289	MFSMIDDYB	0-50mm	100 x 100	Black EPDM	-55°C to 135°C
8002290	MFS1B	6-70mm	115 x 115		
8002291	MFS2B	50-70mm	152 x 152		
8002292	MFS3B	6-146mm	203 x 203		

Multiport

Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C
8002293	MFMPMINIB	1 port 0-49mm	115 x 115	Black EPDM	-55°C to 135°C
		2 ports 20mm			
		2 ports 10mm			

Retrofit

Cat. No.	Part No.	Suit Pipe OD: mm	Base Size: mm	Compound	Temp. Range °C
8002294	MFRF1B	19 to 69mm	160	Black EPDM	-55 to 135
8002295	MFRF2B	50 to 184mm	273		

Top Hat

Roof Penetration Kit

Cat. No.	Part No.	Description
1228881	RF-PN-65	65mm Roof Penetration Kit
8002270	TTRF-PN-65	65mm Roof Penetration Kit Twin Entry

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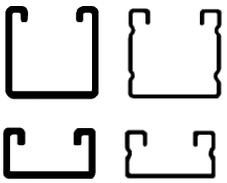
Pipe Supports

BBJ

BBJ ENGINEERING LTD



Channels - Slotted

Cat. No.	Part No.	Nom Section Dim: mm	Thickness: mm	Material*	Length
8002529	PE1000SH2	41 x 41	2.5	HDG	2
8002530	PE3300SH2	41 x 21			
8002531	PE2000SG2	41 x 41	1.6	GB	
8002532	PE4000SG2	41 x 21			

*HDG = Hot Dipped Galvanised GB = Galvabond

Rod, Fittings and Accessories

Cat. No.	Part No.	Description	Pack Qty
8002533	PTR10Z	M10 Threaded Rod Zinc Plated 3m	1
8002534	PHN10Z	M10 Hex Nuts Zinc Plated	25
8002535	PFW10Z	M10 Flat Washer Zinc Plated	
8002539	PLD10M	M10 x 40mm Masonry Anchor	4
8002540	PEVMP10	M10 Wall Plate Hanger Vertical	
8002541	PECMP10	M10 Wall Plate Hanger Centre	
8002542	PEHMP10	M10 Wall Plate Hanger Horizontal	
8002543	PRC10Z	M10 Hex Nut Coupler	
8002536	PHS1040Z	Hex Screw M10 x 40mm Zinc Plated	
8002537	PE1008Z	Channel Nut With Spring M10 Zinc Plated	
8002538	PE2600	Isolation Strip	20m

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
500022	B6814P	M10 Stud Clip	1/4"	5
500023	B6816P		3/8"	
500024	B6815P		1/2"	
500025	B6817P		5/8"	
500026	B6818P		3/4"	
500027	B6819P		7/8"	
500028	B6820P		1"	

Cat. No.	Part No.	Description	Pipe OD	Pack Qty
500029	B6821P	M10 Stud Clip	1 1/8"	5
500030	B6822P		1 1/4"	3
500031	B6823P		1 3/8"	
500032	B6824P		1 1/2"	
500033	B6825P		1 5/8"	
500034	B6826P		2"	
500035	B6827P		2 1/8"	

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
8002520	B6842P	Channel Clip	1/4"	5
8002515	B6844P		3/8"	
8002516	B6843P		1/2"	
8002517	B6845P		5/8"	
8002518	B6846P		3/4"	
8002519	B6847P		7/8"	
8002521	B6848P		1"	

Cat. No.	Part No.	Description	Pipe OD	Pack Qty
8002522	B6849P	Channel Clip	1 1/8"	5
8002523	B6850P		1 1/4"	3
8002524	B6851P		1 3/8"	
8002525	B6852P		1 1/2"	
8002526	B6853P		1 5/8"	
8002527	B6854P		2"	
8002528	B6855P		2 1/8"	

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Pipe Supports

BBJ

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:

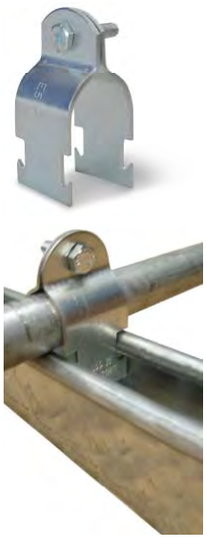
- Insulates against heat loss and reduces vibration
- Plastic inserts designed to withstand temperatures from -25°C to +125°C
- Quick to install with integral lock nuts
- All metal parts are zinc plated and colour passivated to resist corrosion

Cat. No.	Part No.	Pipe OD	Pack Qty
8002511	B6268P	1/4"	5
500010	B6274P	3/8"	
500011	B6267P	1/2"	3
500012	B6276P	5/8"	
500013	B6273P	3/4"	
500014	B6277P	7/8"	

Cat. No.	Part No.	Pipe OD	Pack Qty
500015	B6264P	1 1/8"	2
500016	B6265P	1 3/8"	
500017	B6266P	1 5/8"	
8002512	B6269P	2 1/8"	1
8002513	B6270P	2 5/8"	
8002514	B6271P	3 1/8"	

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
8002712	PE5-11P	11	32 x 2.0	0.038	M6	5
8002713	PE5-14P	14		0.042		
8002714	PE5-17P	17		0.046		
8002715	PE5-19P	19		0.048		
8002716	PE5-21P	21		0.052		
8002717	PE5-25P	25		0.056		
8002718	PE5-27P	27		0.060		3
8002719	PE5-29P	29		0.062		
8002720	PE5-32P	32		0.066		
8002721	PE5-34P	34		0.068		
8002722	PE5-38P	38		0.074		
8002723	PE5-43P	43		0.080		
8002724	PE5-48P	48	32 x 2.5	0.108		2
8002725	PE5-51P	51		0.114		
8002726	PE5-54P	54		0.118		
8002727	PE5-57P	57		0.122		
8002728	PE5-60P	60		0.128		
8002729	PE5-64P	64		0.134		
8002730	PE5-67P	67		0.140		
8002731	PE5-70P	70		0.144		
8002732	PE5-73P	73		0.148		
8002733	PE5-76P	76		0.154		
8002734	PE5-79P	79		0.158		
8002735	PE5-83P	83		0.164		
8002736	PE5-86P	86		0.170		
8002737	PE5-89P	89		0.174		

Cat. No.	Part No.	Pipe OD: mm	W x T: mm	Mass: kg	Thread	Pack Qty
8002738	PE5-92P	92	32 x 2.5	0.180	M6	2
8002739	PE5-95P	95		0.184		
8002740	PE5-98P	98		0.190		1
8002741	PE5-102P	102		0.202		
8002742	PE5-105P	105		0.206	M8	
8002743	PE5-108P	108		0.212		
8002744	PE5-111P	111		0.216		
8002745	PE5-114P	114		0.222		
8002746	PE5-117P	117		0.226		
8002747	PE5-121P	121		0.232		
8002748	PE5-127P	127		0.242		
8002749	PE5-133P	133		0.252		
8002750	PE5-140P	140		0.264		
8002751	PE5-146P	146		0.274		
8002752	PE5-152P	152		0.282		
8002753	PE5-160P	160		0.296		
8002754	PE5-165P	165		0.304		
8002755	PE5-171P	171		0.314		
8002756	PE5-178P	178		0.324		
8002757	PE5-191P	191		0.348		
8002758	PE5-203P	203		0.366		
8002759	PE5-216P	216		0.386		
8002760	PE5-230P	230		0.400		
8002761	PE5-241P	241		0.428		
8002762	PE5-254P	254		0.448		

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Features:

- Quick assembly and installation
- Adjustable polypropylene feet
- Supplied with inbuilt level
- Adjustable brackets to suit various sizes and applications
- Supplied with mounting accessories

Rodigas SRL

Lifting the standard in unit support

Pipe Supports

BBJ

Griplocks

Cat. No.	Part No.	Description	Size	Suits Approx. Pipe Sizes (allowing for insulation)	Pack Qty.
500018	B6186P	Griplock Pipe Clip	1	1/4" & 1/2"	4
500019	B6187P		2	3/8" & 5/8"	3
500020	B6188P		3	1/2" & 7/8"	3
500021	B6189P		4	5/8" & 1 1/8"	2

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
8002478	MT650	A/C Bracket Adjustable Sloping Roof Kit	520	800	140
8002479	MS230	A/C Bracket Adjustable Wall Mount Kit Powder Coated	420		100
8002481	MS253		465		140
8002480	MS257		550		
8002483	MS213				200
8002482	MS263	A/C Bracket Adjustable Wall Mount Kit 304 Stainless Steel	420		140

Galvanised Brackets

Supplied as a pair

Cat. No.	Part No.	Mounting Depth: mm	Load Rating: kg
8002484	MS102SCI	420	120
8002485	MS110SCI	520	140
8002486	MS107SCI	620	160

Propipe

Cantilever Bracket Kits - Hot Dipped Galvanised

Supplied with strut mounting kit

Cat. No.	Part No.	Mounting Depth: mm
8002544	CB450	450
8002545	CB600	600
8002546	CB750	750

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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			30mm Wall			40mm Wall			50mm Wall		
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"	8002551	56	1.04									
10	3/8"	8002552	60	0.9									
13	1/2"	8002553	63	0.83	8002572	73	1.05	8002591	93	1.52			
16	5/8"	8002554	66	0.78	8002573	76	0.99	8002592	96	1.43			
20	3/4"	8002555	70	0.73	8002574	80	0.92	8002593	100	1.34	8002610	120	1.79
22	7/8"	8002556	72	0.71	8002575	82	0.9	8002594	102	1.3	8002611	122	1.74
25	1"	8002557	75	0.69	8002576	85	0.87	8002595	105	1.26	8002612	125	1.68
27	1 1/8"	8002558	77	0.67	8002577	87	0.85	8002596	107	1.23	8002613	127	1.64
32	1 1/4"	8002559	82	0.64	8002578	92	0.81	8002597	112	1.17	8002614	132	1.56
34	1 3/8"	8002560	84	0.63	8002579	94	0.8	8002598	114	1.15	8002615	134	1.53
38	1 1/2"	8002561	88	0.62	8002580	98	0.77	8002599	118	1.11	8002616	138	1.48
42	1 5/8"	8002562	92	0.6	8002581	102	0.75	8002600	122	1.08	8002617	142	1.44
48	1 7/8"	8002563	98	0.58	8002582	108	0.73	8002601	128	1.05	8002618	148	1.39
51	2"	8002564	101	0.58	8002583	111	0.72	8002602	131	1.03	8002619	151	1.37
54	2 1/8"	8002565	104	0.57	8002584	114	0.71	8002603	134	1.01	8002620	154	1.34
60	2 3/8"	8002566	110	0.56	8002585	120	0.69	8002604	140	0.99	8002621	160	1.31
64	2 1/2"	8002567	114	0.55	8002586	124	0.68	8002605	144	0.97	8002622	164	1.29
67	2 5/8"	8002568	117	0.54	8002587	127	0.68	8002606	147	0.96	8002623	167	1.27
76	3"	8002569	126	0.53	8002588	136	0.66	8002607	156	0.93	8002624	176	1.23
89	3 1/2"	8002570	139	0.52	8002589	149	0.64	8002608	169	0.9	8002625	189	1.19
102	4"	8002571	152	0.51	8002590	162	0.62	8002609	182	0.88	8002626	202	1.15
115	4 1/2"		165	0.5		175	0.61		195	0.86	8002627	215	1.12
127	5"		177	0.49		187	0.6		207	0.84	8002628	227	1.1
140	5 1/2"		190	0.48		200	0.59		220	0.83	8002629	240	1.08
152	6"		202	0.48		212	0.59		232	0.82		252	1.06
168	6 1/2"		218	0.47		228	0.58		248	0.8		268	1.04
204	8"		254	0.46		264	0.57		284	0.78		304	1.01

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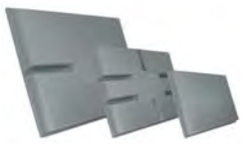
Unit Mounts

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
2700598	PSAC	885 x 465	160kg	1
8002476	PSACMED-BB50			50
8002477	PSACMED-BB100			100

Cat. No.	Part No.	Size: mm	Max Load
2700602	PSAC-SML	639 x 339	120kg
2700603	PSAC-LGE	1130 x 650	160kg
8002475	PSHWS	650 x 650	500kg

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
903182	EVO-ACB	450 x 80 x 110	2 x Evo-Crete Blocks 4 x Rubber Vibration Mounts 4 x Evo-Crete Screws & Washers

Rubber Mounts

Supplied in sets of 4, rubber mounts are easily fixed to the mounting holes of an air conditioner's out door unit using the integral stud and nut supplied.

Cat. No.	Part No.	Size: mm
8002490	VM1	1" Small
8002491	VM2	2" Small

Cat. No.	Part No.	Size: mm
8002492	VM3	3" Medium
8002493	VM4	4" Large

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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
8002364	0812-BC	Straight 2m Duct
8002366	0812-GC	Cover Join
8002368	0812-A1	Internal Corner
8002369	0820-IR	Internal Corner Adj. 80˚ to 105˚
8002371	0806-AE	External Corner
8002372	0821-ER	External Corner Adj. 70˚ to 120˚
8002374	0807-CP	Plane Curve
8002375	0822-PR	Plane Curve Adj. 65˚ to 130˚
8002377	0809-CM	Corner Wall Elbow
8002394	0814-VS	Left Vertical Angle
8002395	0815-VD	Right Vertical Angle
8002379	0808-TT	End Cap
8002380	0810-PM	Wall Passage
8002382	0811-GF	Flexible Joint
8002383	0813-DT	"T" Shunt
8002386	0803-ST	Fast Block

110mm

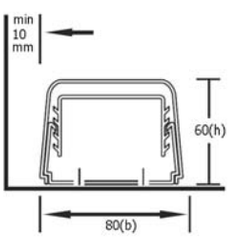
Cat. No.	Part No.	Description
8002365	1212-BC	Straight 2m Duct
8002367	1204-GC	Cover Joint
8002370	1205-AI	Internal Corner
8002373	1206-AE	External Corner
8002376	1207-CP	Plane Curve
8002378	1209-CM	Corner Wall Elbow
8002381	1210-PM	Wall Passage
8002384	1213-DT	"T" Shunt
8002385	1280-RI	Reduction 110mm to 80mm
8002387	1203-ST	Fast Block

Accessories

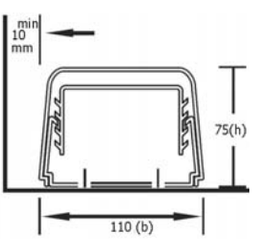
8002388	0341-TS	Cap for Floor Support
8002397	0016-TU	Drain Pipe 16mm
8002393	1000-SP	Drain "Y" Joint
8002389	0350-SP	Floor Support 350mm
8002390	0450-SP	Floor Support 450mm
8002391	1000-SP	Floor Support 1000mm

Technical Data: mm

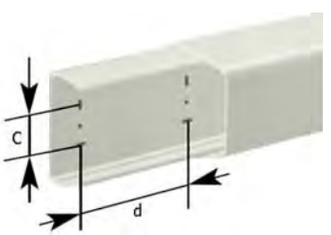
Type 08



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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smart DUCT™ Genius.

UV resistant
Cost efficient
Long lasting

1. Affix base
2. Secure pipe & drains with Fast Block
3. Snap on cover

Pipe Duct

Pacific Duct

Interchangeable with most types of Japanese duct and fittings.

Duct

Cat. No.	Part No.	Description	Size: mm	Carton Quantity	Pallet Quantity
2701957	PSD7	2m Pipe Duct	75	5	245
8002296	PSD10	2m Pipe Duct	100	5	180

Wall Inlets

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
2701959	PSW7	Wall Inlet	75	10	60
8002297	PSW10	Wall Inlet	100	10	40
2701963	PSWA7	Single Piece Wall Inlet	75	10	60
2701966	PSWA10	Single Piece Wall Inlet	100	10	40

90 Degree Flat Elbows

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
2701958	PSK7	90 Degree Flat Elbow	75	10	60
8002300	PSK10	90 Degree Flat Elbow	100	10	40

45 Degree Flat Elbows

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
8002302	PSKF7	45 Degree Flat Elbow	75	10	60
8002303	PSKF10	45 Degree Flat Elbow	100	10	40

90 Degree Corner Elbows

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
2701961	PSC7	90 Degree Corner Elbow	75	10	60
8002301	PSC10	90 Degree Corner Elbow	100	10	40

Ceiling Plates

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
2701960	PSP7	Ceiling Plate	75	10	60
8002299	PSP10	Ceiling Plate	100	10	40

End Covers

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
8002307	PSE7	End Cover	75	10	60
8002308	PSE10	End Cover	100	10	40

Joiners

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
8002311	PSJ7	Duct Joiner	75	10	60
8002312	PSJ10	Duct Joiner	100	10	40

Flexible Joint

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
8002304	PSF75	500mm Flexible Joint	75	20	60
8002305	PSF710	1000mm Flexible Joint	75	20	N/A
8002309	PSF108	800mm Flexible Joint	100	20	

Reducer

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner
8002306	PSDR107	Reducer	75 to 100	10

Tee

Cat. No.	Part No.	Description	Size: mm	Carton Quantity: Inner	Carton Quantity: Outer
8002310	PST10	Tee	100	5	20

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PVC Plastic Pipe and Fittings

ProPipe

PVC Pipe

Cat. No.	Part No.	Diameter: mm	Length: Mtrs	Pack Qty
8002400	15XDP21	15	2.1	10
8002401	20XDP21	20		
8002392	15XCE	15	3.9	1
8002396	20XCE	20		
8002405	25XCE	25		

Drain Pan Adaptor

Cat. No.	Part No.	Diameter: mm
2700204	2114015NS	15

Fittings

90˚ Elbows

Cat. No.	Part No.	Diameter: mm
8002406	2103015	15
8002407	2103020	20
8002408	2103025	25

45˚ Elbows

Cat. No.	Part No.	Diameter: mm
8002409	2117015	15
8002410	2117020	20
8002411	2117025	25

Tees

Cat. No.	Part No.	Diameter: mm
8002412	2106015	15
8002413	2106020	20
8002414	2106025	25

Double End Socket

Cat. No.	Part No.	Diameter: mm
8002415	2108015	15
8002416	2108020	20
8002417	2108025	25

Reducing Socket

Cat. No.	Part No.	Diameter: mm	Diameter: mm
8002418	2109020015	20	15
8002419	2109025015	25	
8002420	2109025020		20

Reducing Bush

Cat. No.	Part No.	Diameter: mm	Diameter: mm
8002421	2110020015	20	15
8002422	2110025015	25	
8002423	2110025020		20

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PVC Plastic Pipe and Fittings

ProPipe

Fittings

Pig Tail

Cat. No.	Part No.	Diameter: mm	Description
1503180	PIG15	15	Pig Tail Adaptor

PVC Solvent Cement (Clear)

Cat. No.	Part No.	Size: grams
8002402	NO70100	100
8002403	NO70500	500

Male Socket

Cat. No.	Part No.	Diameter: mm
8002424	2112015	15
8002425	2112020	20
8002426	2112025	25

P/T Female Socket

Cat. No.	Part No.	Diameter: mm
8002427	2111015	15
8002428	2111020	20
8002429	2111025	25

Barrel Unions

Cat. No.	Part No.	Diameter: mm
8002434	2122015	15
8002435	2122020	20
8002436	2122025	25

Red Cap

Cat. No.	Part No.	Description	Size: mm
8002430	REDCAP	Red Cap	20

Pipe Fixings

Full Pipe Saddle (White)

Cat. No.	Part No.	Diameter: mm
505636	PPS084	15
505637	PPS106	20
505638	PPS143	25

Single Sided Saddle (Zinc)

Cat. No.	Part No.	Pipe Diam: mm
3501167	ZPC075	15
3501168	ZPC100	20

Stand Off Bracket (White)

Cat. No.	Part No.	Diameter: mm
8002431	PPSB075	15
8002432	PPSB100	20
8002433	PPSB125	25

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Condensate Traps and Accessories

Propipe & Smartduct

Clear Flexible PVC Tubing

Ideal for use with condensate pumps.

Cat. No.	Part No.	Size: mm	Roll Size: m
3801210	4188504	6	30
3801220	4188805	10	

Flexible Drain Pipe

Flexible drain pipe is particularly ideal for use in domestic air conditioning condensate drain applications.

Cat. No.	Part No.	Description	Brand
8002397	0016-TU	Flexible Drain 16mm x 30m	Smartduct
2700611	FDPI19	Insulated Flexible Drain 19mm x 20m	Propipe

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
2702343	CPK6	Drain Tube Adaptor Kit	6 to 15/20	1
2702344	CPK10	Drain Tube Adaptor Kit	10 to 15/20	

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
8002437	HC1016	Stainless Steel Hose Clamp	10 to 16
8002438	HC1625		16 to 25
8002439	HC2335		23 to 35

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 visably seen.

Cat. No.	Part No.	Description	Size: mm
2702388	JTRAP	Clear J Trap	20

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
2702410	EZT150	Waterless Trap	20 or 25

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
1402228	EZT113	Clear Cross Trap	20

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
2702386	EZT225	Overflow Switch	20 or 25

Flexible Brush

Allows easy cleaning of condensate traps in seconds.

Cat. No.	Part No.	Description
8002404	EZT406	Flexible Brush

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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
8002464	7690/3	3/8"	3500
8002465	7690/4	1/2"	
8002466	7690/5	5/8"	
8002467	7690/6	3/4"	
8002468	7690/7	7/8"	
8002469	7690/9	1 1/8"	3500
8002470	7690/11	1 3/8"	
8002471	7690/13	1 5/8"	
8002472	7690/17	2 1/8"	
8002473	7690/21	2 5/8"	2500
8002474	7690/25	3 1/8"	

RECTORSEAL
AUSTRALIA

EZ TRAP®

CLEAR, CLEANABLE CONDENSATE TRAPS & OVERFLOW SWITCHES

Promotes cleaning. Prevents backup.

Clear Trap™
Transparent trap with cleaning brush.

Smart Trap™
Transparent trap, cleaning brush and overflow switch.

Ultra Trap™
Transparent trap with cleaning brush.
Eliminates standing water and freezing problems.

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
			mm	Inch			
1904656	9F090007	Fire Rated Sheet Insulation	9	3/8"	1 x 1.5	20	0.25
1904657	9F130007		13	1/2"		15	0.36
1904658	9F2711932		19	3/4"		10	0.53
1904659	9F250007		25	1"		8	0.69

Sheet Insulation Rolls

Cat. No.	Part No.	Description	Nominal Thickness		Roll Size: m	R Value
			mm	Inch		
1904660	9F1300CS	Fire Rated Sheet Insulation	13	1/2"	1 x 8	0.25
1904661	9F1900CS		19	3/4"	1 x 6	0.36
1904773	9F2500CS		25	1"	1 x 4	0.53

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Flexible Insulation

SuperlonFR.

Superlon FR

Pipe & Sheet Insulation – Fire Rated

Pipe Insulation

Insulation ID		9mm Wall			13mm Wall			19mm Wall		
mm	Inch	Cat. No.	Lengths Per Carton	R Value	Cat. No.	Lengths Per Carton	R Value	Cat. No.	Lengths Per Carton	R Value
6	¼”	1904199	105	0.46	1904299	50	0.74	1904379	54	1.22
10	⅜”	1904200	84	0.40	1904300		0.64	1904380	50	1.05
12	½”	1904205	60	0.38	1904305	40	0.61	1904381	42	0.99
15	⅝”	1904210	50	0.36	1904310	36	0.57	1904382	36	0.93
20	¾”	1904215	44	0.34	1904315	32	0.53	1904383		0.86
22	⅞”	1904220	40	0.33	1904320	28	0.52	1904384	30	0.84
25	1”	1904225	35	0.32	1904325	23	0.51	1904385		0.81
28	1 ⅛”	1904231	28		1904331	43	0.49	1904386	25	0.79
32	1 ¼”	1904240	25	0.31	1904340	35	0.48	1904387	20	0.76
35	1 ⅜”	1904245	45		1904345	33	0.47	1904388		0.75
40	1 ½”	1904248	40	0.30	1904350	30	0.46	1904422	18	0.72
42	1 ⅝”	1904250	36		1904355	24		1904389	16	
50	2”	1904255	25	0.29	1904365	20	0.44	1904390		0.69
54	2 ⅛”	1904251			1904366			1904391	12	0.68
60	2 ⅜”	1904258	20	0.28	1904370	16	0.43	1904392	9	0.67
67	2 ⅝”	1904256			1904371	15	0.42	1904393		0.66
76	3”	1904257	16		1904372	14		1904394	8	0.64
80	3 ⅛”	1904259	18		1904369	12	0.41	1904395	7	
89	3 ½”				1904373			1904483		0.63
101	3 ⅞”				1904375	8	0.40	1904396	6	0.62
114	4 ½”				1904376	6		1904397		0.61

Insulation ID		25mm Wall			32mm Wall			38mm Wall		
mm	Inch	Cat. No.	Lengths Per Carton	R Value	Cat. No.	Lengths Per Carton	R Value	Cat. No.	Lengths Per Carton	R Value
6	¼”									
10	⅜”	1904398	30	1.49						
12	½”	1904399		1.41	1904311	16	1.90			
15	⅝”	1904402	25	1.32	1904312		1.80	1904336	10	2.30
20	¾”	1904403		1.22	1904313	15	1.70	1904337		2.10
22	⅞”	1904404	20	1.19	1904314		1.60	1904338		2.00
25	1”	1904407		1.14	1904316			1904339		
28	1 ⅛”	1900000	16	1.11	1904317	12	1.50	1904341		1.90
32	1 ¼”	1904409		1.07	1904318			1904342		1.80
35	1 ⅜”	1904401		1.05	1904319		1.40	1904343		
40	1 ½”	1904423	15	1.01	1904321			1904344	8	1.70
42	1 ⅝”	1904405	12	1.00	1904322	11		1904346		
50	2”	1904429	9	0.96	1904323	8	1.30	1904347		1.60
54	2 ⅛”	1904410		0.95	1904324			1904348		
60	2 ⅜”	1904470		0.93	1904326			1904349	6	1.50
67	2 ⅝”	1904415	8	0.91	1904327	7	1.20	1904351	5	
76	3”	1904472	5	0.88	1904328	5		1904352		
80	3 ⅛”	1904473			1904329			1904353		1.40
89	3 ½”	1904474	4	0.86	1904332			1904354	4	
101	3 ⅞”	1904475		0.84	1904333		1.10	1904356		
114	4 ½”	1904476		0.83	1904334	4		1904357	3	1.30

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			30mm Wall			40mm Wall			50mm Wall		
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"	1901101	60	1.95									
10	3/8"	1901102		1.73									
13	1/2"	1904910		1.59	1901072	40	2.02	1901103	25	2.93			
16	5/8"	1904911	50	1.49	1901073		1.89	1904952		2.74			
20	3/4"	1904912		1.39	1901074	30	1.76	1904953		2.55	1904969	20	3.41
22	7/8"	1904913	40	1.33	1901075		1.69	1904954		2.44	1901111	15	3.27
25	1"	1904914		1.29	1901076		1.63	1904955	20	2.35	1904970		3.14
27	1 1/8"	1904915		1.26	1901077		1.59	1904956		2.3	1901112		3.07
32	1 1/4"	1904916	35	1.21	1901078	25	1.52	1904957		2.19	1904971		2.92
34	1 3/8"	1904917		1.19	1901079		1.49	1904958		2.16	1901113		2.87
38	1 1/2"	1904918	30	1.15	1901080	20	1.45	1904959	15	2.09	1904972	12	2.78
42	1 5/8"	1904919		1.13	1901081	15	1.41	1904960		2.03	1901114		2.7
48	1 7/8"	1904920	25	1.09	1901082		1.37	1901104		1.96			
51	2"	1904921		1.08	1901083		1.36	1904961		1.94	1904973	12	2.57
54	2 1/8"	1904949		1.07	1901084		1.33	1904962		1.9	1901115	10	2.52
60	2 3/8"	1904922	20	1.04	1901085		1.3	1901105	12	1.85	1901116		2.45
64	2 1/2"	1904923		1.03	1901086		1.28	1904963		1.82	1904974		2.41
67	2 5/8"	1904924		1.02	1901087	14	1.27	1901106		1.8	1901117		2.38
76	3"	1904925	15	1	1901088	12	1.24	1904964	10	1.75	1904975		2.31
89	3 1/2"	1904926	12	0.97	1901089		1.2	1901107		1.69	1901118	7	2.22
102	4"	1904927	10	0.95	1901090	8	1.17	1904965	7	1.65	1904976	6	2.16
115	4 1/2"	1901097		0.93	1901091		1.15	1901108		1.61	1901119	5	2.11
127	5"	1904950	7	0.92	1901092	6	1.13	1904966	6	1.58	1904977	4	2.06
140	5 1/2"	1901098	6	0.91	1901093		1.11	1901109		1.55	1901120		2.02
152	6"	1904951		0.9	1901094	5	1.1	1904967	4	1.53	1904978		1.99
168	6 1/2"	1901099		0.89	1901095		1.09	1901110		1.51	1901121		1.96
204	8"	1901100		0.87	1901096	4	1.06	1904968		1.47	1904979		1.9

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
1904489	IESAA00716500	Armaflex 520 Adhesive	500ml
1904496	IESAA00714500	Armaflex 520 Adhesive	1 litre
1904488	IESAA00714505	Armaflex 520 Adhesive	5 litre

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
4902956	500ml Tin
4902958	1 Litre Tin
1901064	4 Litre Tin
4801940	25mm Plastic Handled Brush for Adhesive Application

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
1901062	3mm thick x 50mm wide 9.14m long roll

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
1901061	VCT2	3mm thick x 50mm wide 9.14m long roll

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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
2708146	3112/2	1/4"	0.4	10	-40 to 120	4500
2708147	3112/3	3/8"	1.6			
2708148	3112/4	1/2"	1.8			
2708149	3112/5	5/8"	3.3			
2708150	3112/6	3/4"	3.3			

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
2708167	3132/2	1/4"	0.5	10	-40 to 120	4500
2708168	3132/3	3/8"	1.6			
2708169	3132/4	1/2"	1.8			
2708170	3132/5	5/8"	3.3			

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
2708152	3122/7	7/8"	6.6	10	-40 to 120	4500
2708153	3122/9	1 1/8"	8.8			
2708154	3122/11	1 3/8"	15.2			
2708165	3122/13	1 5/8"	25			
2708166	3122/17	2 1/8"	40			

(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
2704770	NRV6	020-1040	1/4"	Straight	0.56	7	-50 to 140	4600
2704771	NRV10	020-1041	3/8"		1.43			
2704772	NRV12	020-1042	1/2"		2.05	5		
2704773	NRV16	020-1043	5/8"		3.6			

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
2704775	NRV6S	020-1010	1/4"	Straight	0.56	7	-50 to 140	4600
2704776	NRV10S	020-1011	3/8"		1.43			
2704777	NRV12S	020-1012	1/2"		2.05	5		
2704778	NRV16S	020-1018	5/8"		3.6			
2704780	NRV22S	020-1020	7/8"	Angle	8.5	4		
2706527	NRV28S	020-1021	1 1/8"		19			
2706529	NRV35S	020-1026	1 3/8"		29			

(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
2708096	3910-22	Male Flare Sight Glass	1/4"
2708097	3910-33		3/8"
2708098	3910-44		1/2"
2708099	3910-55		5/8"
2708100	3910-66		3/4"

Male x Female Flare

Cat. No.	Part No.	Description	Connections
2708101	3950-22	Male x Female Flare Sight Glass	1/4"
2708102	3950-33		3/8"
2708103	3950-44		1/2"
2708104	3950-55		5/8"

Solder

Cat. No.	Part No.	Description	Connections: ODF
2708106	3940-2	Solder Sight Glass	1/4"
2708107	3940-3		3/8"
2708108	3940-4		1/2"
2708109	3940-5		5/8"
2708110	3940-6		3/4"
2708111	3940-7		7/8"
2708112	3940-9		1 1/8"

Danfoss

Male Flare

Cat. No.	Part No.	Model No.	Description	Connections
2704754	014L0161	SGPN6	Male Flare Sight Glass	1/4"
2704755	014L0162	SGPN10		3/8"
2704756	014L0163	SGPN12		1/2"
2704757	014L0165	SGPN16		5/8"
	014L0166	SGPN19		3/4"

Male x Female Flare

Cat. No.	Part No.	Model No.	Description	Connections
2704765	014L0171	SGPN6	Male x Female Flare Sight Glass	1/4"
2704766	014L0172	SGPN10		3/8"
2704767	014L0173	SGPN12		1/2"
2704768	014L0174	SGPN16		5/8"
	014L0175	SGPN19		3/4"

Solder

Cat. No.	Part No.	Model No.	Description	Connections: ODF
2704759	014L0181	SGPN6S	Solder Sight Glass	1/4"
2704760	014L0182	SGPN10S		3/8"
2704761	014L0183	SGPN12S		1/2"
2704762	014L0184	SGPN16S		5/8"
2704763	014L0185	SGPN19S		3/4"
2704764	014L0186	SGPN22S		7/8"
2706668	014L0187	SGPN22S		1 1/8"

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Liquid and Moisture Indicators

Alco

Male Flare

Cat. No.	Part No.	Model No.	Description	Connections
2708117	65391	HMI-1-MM2	Male Flare Sight Glass	1/4"
2708118	65392	HMI-1-MM3		3/8"
2708119	65393	HMI-1-MM4		1/2"
2708120	65394	HMI-1-MM5		5/8"
2708121	65395	HMI-1-MM6		3/4"

Male x Female Flare

Cat. No.	Part No.	Model No.	Description	Connections
2708129	65396	HMI-1-FM2	Male x Female Flare Sight Glass	1/4"
2708130	65397	HMI-1-FM3		3/8"
2708131	65398	HMI-1-FM4		1/2"

Male x Female Swivel Flare

Cat. No.	Part No.	Model No.	Description	Connections
217315	65399	HMI-1-MU2	Male x Female Swivel Flare Sight Glass	1/4"
217316	65400	HMI-1-MU3		3/8"
2708132	65401	HMI-1-MU4		1/2"
217318	65402	HMI-1-MU5		5/8"

Solder

Cat. No.	Part No.	Model No.	Description	Connections: ODF
2708122	65405	HMI-1-TT2	Solder Sight Glass	1/4"
2708123	65406	HMI-1-TT3		3/8"
2708124	65407	HMI-1-TT4		1/2"
2708125	65408	HMI-1-TT5		5/8"
2708126	65409	HMI-1-TT6		3/4"
2708127	65410	HMI-1-TT7		7/8"
2708128	65411	HMI-1-TT9		1 1/8"

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Sealants

Bostik

Silicones

Z Bond 7E is a DIY grade roof & gutter silicone.

Cat. No.	Part No.	Description	Size	Colour
2708938	762440	DIY Grade Silicone	300g Cartridge	Translucent

Plumfix is a trade quality industrial grade roof & gutter silicone.

Cat. No.	Part No.	Description	Size	Colour
2708939	306932	Industrial Grade Silicone	300g Cartridge	Translucent

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
4902982	2708003	No More Nails	320g Cartridge	Beige

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
1903636	245410	Firecaulk	480g Cartridge	White

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
4903061	205990	Flex-E-Duct	450g Cartridge	Grey

Heat Transfer Sealant is designed specifically for the refrigeration industry, as an odourless, non-staining sealing compound.

Cat. No.	Part No.	Description	Size	Colour
4903804	042951	1128 Heat Transfer Sealant	480g Cartridge	Grey
2708965	131504	5603 Heat Transfer Sealant	20kg Drum	

Non Skinning Mastic 5612 is specifically formulated as a bedding or gasket style sealant.

Cat. No.	Part No.	Description	Size	Colour
4930536	170526	5612 Non Skinning Coolroom Mastic	450g Cartridge	White

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
1906095	257753	Handi-Clean Towels 90 pack

Caulking Guns

Cat. No.	Part No.	Description
4903957	174882	Trade Skeleton Gun

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
2700450	10001	39ml tube

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
2701802	11575	11g

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Sealants

La-Co

PTFE Pipe Thread Tape

Cat. No.	Size
1903724	13mm x 10 metre roll

Virginia

Permagum Sealing Compound

Cat. No.	Part No.	Size
2708955	PP22	900 gram (2 lb.)
2708956	PP36	3/8" Cords - 6 metre (20') roll

Tapes

204E Duct Tape

Cat. No.	Part No.	Description	Width: mm	Length: Metres	Colour	Qty: Sleeve	Qty: Carton
1906014	204E BLACK	Duct Tape	48	30	Black	4	64
1906000	204				Silver		
1905995	204E WHITE				White		

288EFR Flame Retardant Duct Tape

Cat. No.	Part No.	Description	Width: mm	Length: Metres	Colour	Qty: Sleeve	Qty: Carton
2708944	288EFR BLACK	Flame Retardant Duct Tape	48	30	Black	4	64
2708945	288EFR SILVER				Silver		

Asset PVC Duct Tape

Cat. No.	Width	Length	Colour
1906009	50 mm	30 m	Black
2701726			White
1906007			Grey
2708950	72 mm		

Electrical Insulation Tape

Cat. No.	Colour	Pack Qty
4103200	Black	1
2708958	Red	10
2708959	Blue	
2708960	Black	
2708961	White	
2708962	Green/ Yellow	
2708963	Mixed	

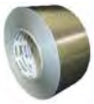
Abrasive Cloth Tape

Cat. No.	Grit No.	Width	Length
2750298	100	25mm	50 meters (sold per meter or by roll)
2750297	180		

Precision

Aluminium Foil Tape

Cat. No.	Width	Length
2708953	24mm	45 metres
3900838	48mm	50 metres
3900839	72mm	
2708954	96mm	



Reinforced Foil Tape

Cat. No.	Width	Length
2708948	48mm	50 metres
2708947	72mm	

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Refrigeration Hardware

CRH

Evaporator Mounting Kits

Cat. No.	Part No.	Description	Material	Suits Panel Thickness	Kit Contents
2708936	CRH-600K	Evaporator Mounting Kit	6.6 Nylon	50-100mm	4 x Mushroom Bolts 8 x Nuts 4 x Washers
2708937	CRH-610K			50-200mm	

Nylon M6 Bolt, Nut & Washer Set

Cat. No.	Part No.	Description	Material	Suits Panel Thickness	Kit Contents
2709075	NM6BNW	Nylon M6 Bolt, Nut & Washer	Nylon	50-180mm	1x Nylon Bolt 1x Nuts & Washer

Shelf Support Strip and Clips

Cat. No.	Part No.	Description	LENGTH
2708927	SS3	Adjustable Shelf Support Strip	914mm (3')
2708928	SS4		1219mm (4')
2708929	SS5		1524mm (5')
2708930	SS6		1829mm (6')
2708931	SC	Plain Clips	
2708932	SCL	Clips with Lug	

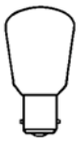
Allthread Brass Rod, Nuts and Washers

Cat. No.	Description	Size
2708933	Threaded Brass Rod (Whitworth)	3/8" Dia. x 914 mm (3') long
2708934	Brass Nuts (Whitworth)	3/8"
2708935	Brass Washers	

Mushroom Caps

Cat. No.	Description	Size
2712820	CSD-10	Mushroom Cap. 10mm Thread. 62mm Washer Embedded
2709065	CSD-12	Mushroom Cap. 12mm Thread. 62mm Washer Embedded

Interior Light Globes



Cat. No.	Connection	Watts	Volts	Type
2708940	Bayonet	15	240	Pilot
2708941	Screw			
2708942	Small Bayonet			
2708943	Small Screw			

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Kason

Safety Latches & Strikes

K56 Series

Cat. No.	Part No.	Description		Finish
2702459	K56L05020	Safety Latch		Chrome Plated
2709069	K56CL5020	Safety Latch with Cylinder Lock		
2709046	K565002	Offset Adjustable Strike	-3.2mm to 6.4mm	
2702460	K565003		19.0mm to 38.1mm	
2702458	K565005		44.5mm to 63.5mm	
2709045	K565008		76.2mm to 101.6mm	

K77 Series

Cat. No.	Part No.	Description		Finish
2709091	K778L06020	Safety Latch		316 Stainless Steel
2709090	K778CL6020	Safety Latch with Cylinder Lock		
2709089	K778002	Offset Adjustable Strike	-3.0mm to 19.0mm	
	K77804		44mm to 63mm	

K56 Series

Cat. No.	Part No.	Description		Finish
2709071	K56L0T21	Safety Latch		TuffKote
2709070	K56CLT108	Safety Latch with Cylinder Lock		
2709072	K56T002	Adjustable Strike	-3.2mm TO 6.4mm	
2709073	K56T003		19.0mm to 38.1mm	
2709074	K56T005		44.5mm to 63.5mm	

K58 Series

Cat. No.	Part No.	Description		Finish
2709048	K58L05021	Safety Latch		Chrome Plated
2709050	K585001	Offset Adjustable Strike	-3.2mm to 6.4mm	
2709051	K585002		19.0mm to 38.1mm	
2709049	K585003		44.5mm to 63.5mm	

K78 Series

Cat. No.	Part No.	Description	Finish
2709093	K78L05020	Safety Latch with Radial Tongue	Chrome Plated
2709092	K78CL05020	Safety Latch with Radial Tongue with Cylinder Lock	Chrome Plated

CRH

Safety Latch Sets

L02 Series

Cat. No.	Part No.	Description	Finish
2709078	L02	Magnet Assy.	Perspex backing, aluminium spacer, pot magnet zinc plated, striker aluminium.

Safety Latch Sets

AH-1178 Series

Cat. No.	Part No.	Description	Contents	Finish
2703996	AH-1178-05	Safety Latch Set	Latch Strike - Flush Internal Release	Chrome Plated
2709076	AH-1178		Latch Strike - 44mm to 60mm Adjust. Internal Release	

AH-838 Series

Cat. No.	Part No.	Description	Contents	Finish
2702462	AH-838	Safety Latch Set	Latch Strike 16mm to 32mm Adjust. Internal Release	Chrome Plated

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Kason

Inside Release Handles

Cat. No.	Part No.	Brand	Description	Material	Mounting Holes	Suits Latch
2702461	K481	Kason	Nylon Push Handle with Luminous Knob	Steel Rod & Flange	Drilled for 5mm screws	K56, K58, W38
2709060	K483		Paddle Handle with Rod	Zinc Plated Steel		K56, R5612
2709061	K486		Recessed Push Handle - max 6" Panel	Plastic Housing & Steel Rod		K56
2709067	K481SA600		S/S Push Handle Knob Offset 85mm	Stainless Steel Rod		
2709068	K481SC600		S/S Push Handle Knob Offset 80mm			
2709062	AH-1178C	CRH	Nylon Push Handle with Luminous Knob	Nylon		AH-1178
2709063	A320		Mushroom Bolt M16 x 200mm		-	-

Inside Release Instructions

Cat. No.	Part No.	Description		Message*
2709066	K1229	Luminous Sign - 'Push' Panel		a
2709008	P07-PW	Luminous Instructions For Operating Emergency Inside Release Mechanism	120mm x 75mm	b
2709010	P07-SW			c
2709009	P07-SK			d
2709064	Arrow Label	Non luminous Direction Label	145mm x 150mm	
2709094	Label-01	Luminous Push Sticker Black on White	130mm x 70mm	
2709095	Label-05	Luminous Push Sticker on Green	150mm x 245mm	
2709096	Label-06	Luminous Running Man Exit Sticker	70mm x 150mm	

*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
2709014	K109304	Hydraulic Door Closer	Flush	Steel with Chrome Finish - Plastic Cover
2709015	K109308		28.6mm	

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CRH Australia

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CRH

European Latches & Strikes

Cat. No.	Part No.	Description	Finish
2709129	CRH-266	Cool Room Latch Set with Key Lock	Composite

Latches

Cat. No.	Part No.	Description		Finish
	F420		No Lock	
2708979	F430CRH-115	Coolroom & Freezer Latch Set to suit Doors up to 115mm Thick		
2708981	F430CRH-165	Coolroom & Freezer Latch Set to suit Doors up to 165mm Thick		
2708983	F431CRH-115	Coolroom & Freezer Latch Set to suit Doors up to 115mm Thick	Lock	
2708984	F431CRH-165	Coolroom & Freezer Latch Set to suit Doors up to 165mm Thick		
2708982	F430P	Packer for F430/F431- 20mm		
2708990	F521	Cool Room Latch Set	Lock	
2708989	F520		No Lock	
2708991	F5211	Adjustable Strike to Suit F521 & F520	27mm to 43mm	
2708992	F5212		44mm to 60mm	
2708993	F5213		61mm to 77mm	
2708994	F521SHIM	Strike Packer 17mm		

Cabinet Latches & Strikes

CRH 5710 Series

Cat. No.	Part No.	Description		Finish
2708998	CRH5710X	Cabinet Latch		Chrome Plated
2708999	CRH5722X	Offset Adjustable Strike 19 to 25mm	60°	
2709000	CRH5723X		90°	

DL Series

Cat. No.	Part No.	Description	Strike Adjustment	Finish
2709001	C-DLC/LHB	Cabinet Latch with Strike	40mm	Chrome Plated
2709002	C-DLB/LHA		19 to 30mm	
2709003	C-DLA/LHC		Flush	

1961 Series

Cat. No.	Part No.	Description	Spring Tension Adjustment	Finish
2709004	CRH1961X	Cabinet Latch with Strike	6.8 to 16.3kg	Chrome Plated

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Kason

Security Locks

50mm x 22mm x 25mm. Keyed alike.

Cat. No.	Part No.	Description	Finish
	100SL	Security Block Lock	Chrome Plated
2709009	100SLB		Black Powder Coated

CRH

Edge Mount Latches & Strikes

6188 Series - Mechanical

Cat. No.	Part No.	Description	Finish
2705833	CRH6188NX	Edge Mount Latch with Strike	Chrome Plated
2708966	CRH6188LX	Edge Mount Latch with Strike & Key Lock	

1200 Series - Mechanical

Cat. No.	Part No.	Description	Finish
2708967	AH-1200	Edge Mount Latch with Adjustable Strike & Key Lock	Chrome Plated

Kason

Edge Mount Latches & Strikes

K533 Series - Mechanical

Cat. No.	Part No.	Description	Finish
2709100	K533D	Edge Mount Latch with Adjustable Strike	Chrome Plated

K174 Series – Mechanical

Cat. No.	Part No.	Description	Strike Adj.	Handle	Locking	Finish
2709101	K17404	Edge Mount Latch with Adjustable Strike	10.3 to 18.3mm	Straight	No	Chrome Plated
2709102	K174B04			Offset		
2709103	K174B014					
2709104	K174C04			Straight	Yes	
2709105	K174BC04			Offset		

K171 Series – Magnetic

Cat. No.	Part No.	Description	Handle	Locking	Finish
2709044	K17104	Edge Mount Latch with Strike	Straight	No	Chrome Plated
2709106	K171B024		Offset		
2709107	K171BC08			Yes	Chrome Plated with Glass Reinforced Black Composite Handle
2709108	K171B08			No	Chrome Plated

K172 Series – Mechanical/Magnetic

Cat. No.	Part No.	Description	Handle	Locking	Finish
2709110	K17206	Edge Mount Latch with 2 Way Adjustable Strike	Straight	No	Chrome Plated
2709111	K172B06		Offset		
2709112	K172C06		Straight	Yes	
2709113	K172BC06		Offset		

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Kason

Cool Room Hinges

K1377 Series – Reversible

Cat. No.	Part No.	Description	Mounting	Offset	Finish
2709118	K1377S00004	Heavy Duty Stainless Steel Self Closing Strap Hinge	Reversible	Flush	Polished 316 Stainless Steel Flange, Strap & Cam Pins
2709119	K1377S00008			29mm	
2709120	K1377S00018			45mm	

K1245 Series – Reversible

Cat. No.	Part No.	Description	Mounting	Offset	Finish
2709052	K1245000028	Self Closing Cam Lift Hinge	Reversible	Flush	Chrome Plated
2709053	K1245000040			28mm	
2709055	K1245000044			32mm	
2709056	K1245000068			38mm	
2709054	K1245000080			48mm	

K1245 Series - Reversible

Cat. No.	Part No.	Description	Offset	Finish
2709057	K1245T00004	Self Closing Cam Rise Hinge	Flush	Tuffkote
2709058	K1245T00016		28.6mm	
	K1245T00020		31.8mm	
2709059	K1245T00064		47.6mm	

K1248 Series – Reversible

Cat. No.	Part No.	Description	Mounting	Offset	Finish
2709122	K1248000004	Self Closing Spring Assisted Hinge	Reversible	Flush	Chrome Plated
2709123	K1248000016			28.6mm	
2709047	K1248000020			31.8mm	
2709124	K1248000027			47.6mm	

K1256 Series - Pacesetter Hinges

Cat. No.	Part No.	Description	Offset	Finish
2709039	K1255V00004C	Cam Rise Hinge	Flush	Chrome plated
2709040	K1256V00004C		Flush extended strap 184.9mm	
2709038	K1255000003	Spring Kit		

CRH

AH-1400 Series

Mounting Holes: Drilled and countersunk for 6mm screws.

Cat. No.	Part No.	Description	Offset	Finish
2709126	AH-1450	Cool Room Hinge with Adjustable Offset	32 to 46mm	Chrome Plated
2709127	AH-1460		42 to 60mm	
2709128	AH-1470		54 to 70mm	

Cool Room Hinges

R1080 Series

Cat. No.	Part No.	Description	Mounting	Finish
2709021	R1080G	Rota-cam Cool Room Hinge	Left or Right	Mill Finish Die Cast Aluminium
2709022	R1080W	Rota-cam Cool Room Hinge	Left or Right	White Powder Coat

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Refrigeration Hardware

CRH

Hinges

HG01 Series

Cat. No.	Part No.	Description	Finish
2709020	HG01	Spring Loaded Self Rising Cool Room Hinge	Die Cast Aluminum

I34 Series -Adjustable Height

Cat. No.	Part No.	Description	Finish
2709125	I-34-I-01	Cam Rise Cool Room Hinge	Composite

Fermod

Fermod Series

Adjustable Cam Rise

Cat. No.	Part No.	Description	Door Thickness Including Gasket	Max. Weight	Finish
2708985	F473	Cam Rise Cool Room Hinge	48mm - 80mm	40kg per pair	Composite

Heavy Duty Adjustable Cam Rise

Cat. No.	Part No.	Description	Offset	Max. Weight	Finish
2708973	F1573-40	Heavy Duty Cam Rise Cool Room Hinge	40mm	F1573 Series 80kg per pair F1671 Series 120kg per pair	Composite with stainless steel pin
2708974	F1573-47		47mm		
2708975	F1573-55		55mm		
2708977	F1671HP				

Hinge Packers

Cat. No.	Part No.	Description	Finish
2708986	F473SHIM	9mm suits F473	Composite
2708978	F1671SHIM	5mm suits F1671HP	

Packers

Cat. No.	Part No.	Description	Contents	Finish
2709006	CRH-PHP10	Packer Handy Pack 10mm	4 x 40mm x 100mm 1 x 60mm x 150mm 1 x 80mm x 200mm	White Polyethylene
2709007	CRH-PHP25	Packer Handy Pack 25mm		

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CRH

Cabinet Hinges

Medium Duty Series

Cat. No.	Part No.	Description	Offset	Finish
2708968	CRH40X	Medium Duty Cabinet Hinge	19 to 25mm	Chrome Plated
2708969	C-DHE		32mm	

Self Closing Rising Series

Cat. No.	Part No.	Description		Finish
2709018	P11ZLHMSPINK	Self Closing Hinge Packet of 2 Mild Steel Pin	Left Hand	Chrome Plated
2709019	P11ZRHMSPINK		Right Hand	
2701727	P11ZLHSSPINK	Self Closing Hinge Packet of 2 Mild Stainless Steel Pin	Left Hand	
2701728	P11ZRHSSPINK	Self Closing Hinge Packet of 2 Stainless Steel Pin	Right Hand	
2709005	HP SILVER	Packing Strip- Nylon to Suit P11 Hinges		
2709012	P-12-LHS	Spring Loaded Self Rising Hinge Left Hand		Composite Body Stainless Steel Pin
2709013	P-12-RHS	Spring Loaded Self Rising Hinge Right Hand		
	P-12-HP	Hinge Packer 3mm		

Edge Mount Self Closing Rising Series

Cat. No.	Part No.	Brand	Description	Offset	Finish
2709016	AH-1132	CRH	Edge Mount Self Closing Hinge	32mm	Polished Chrome
2709037	K1367R016	Kason	Edge Mount Self Closing Hinge with Self Zytle Cam for self closing or to stay open at 120 Degree's	41mm	Die Cast Zinc Flange, Strap & Adjustment. Brass Cover, Chrome Plate

Pivot Hinges

Cat. No.	Part No.	Brand	Description	Finish
2708971	R183	CRH	Pivot Hinge	Chrome Plated
2708972	K7305-76	Kason		Stainless Steel

K1216 Series

Cat. No.	Part No.	Description	Finish
2709023	K1216	Spring Cartridge Hinge 29mm Offset	Die Cast Zinc, Stainless Steel Cover
2709024	K1216SK	Spring Cartridge to suit K1216	

Kason

Non Rise Hinge

Cat. No.	Part No.	Description	Finish
2709121	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

K1257 Series

Cat. No.	Part No.	Description	Finish
2709036	K1257008	Edgemount Spring Hinge	Die-cast zinc flange, strap & adjustment plate. Chrome plated brass cover, steel pin.

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Kason

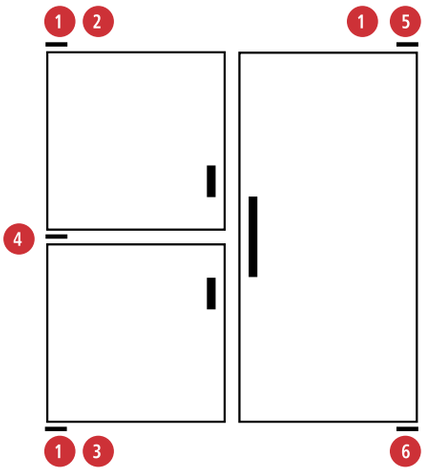
K1556 Series

Kason Cartridge assembly. Standard clearance, 120º 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 CartridgeBracket, RH
6. Bottom Pivot Bracket



Cat. No.	Part No.	Description	Diagram Location
2709025	K155604	Spring Cartridge Assembly	1

Brackets

Cat. No.	Part No.	Description	Position (Hand)		Diagram Location	Finish
2709026	K1556011	Cartridge Bracket	Top	Left	2	High Strength Steel, Chrome Plated
2709027	K1556012			Right	5	
2709028	K1556013		Bottom	Left	3	
2709029	K1556014			Right		
2709030	K1556021	Pivot Bracket	Top	Left		
2709031	K1556022			Right		
2709032	K1556023		Bottom	Left		
2709033	K1556024			Right	6	
2709034	K1556035		Double	Left	4	
2709035	K1556036			Right		

CRH

Door Handles

Cat. No.	Part No.	Description	Overall Length: mm	Finish
2709130	RH251	Pull Handle	251	Die Cast Chrome Plate with Black Plastic Cover
2709131	RH260		310	Stainless Steel with Brass Base, Chrome Plated Finish
	K573		149.2	Die Cast Zinc, Chrome Plated Finish
2709132	AH-1500	Pull Handle	290	Die Cast Zinc, Chrome Plated Finish
2709137	H01	Pull Handle on S/S Backing Plate	225mm Handle on 300mm x 75mm Backing Plate	Stainless Steel
2709143	I-147	Pull Handle	250	Composite Body with Silver Colour Insert
2709144	I-149	Pull Handle	280	Composite Body with Aluminium Colour Insert

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Refrigeration Hardware

CRH

Sliding Door Track

Cat. No.	Part No.	Description	Length: m	Roller Assemblies Series to Suit
2712810	D TRACK 3.25	Door Track	3.25	A120 & A130 (75mm Wheel)
2712812	D TRACK 6.5		6.5	
2712811	J TRACK 3.25		3.25	A110 & A150 (50mm Wheel)
2712813	J TRACK 6.5		6.5	

Hanging Roller Assemblies

A120 Series - Locking

Unique locking mechanism to prevent slipping.

Cat. No.	Part No.	Description		Finish
2709215	A120GLHLOCK-75	Large Hanging Roller Assembly with 75mm Delrin Wheel	Left Hand	Powder Coat Grey
2709216	A120GRHLOCK-75		Right Hand	
2709217	A120WLHLOCK-75		Left Hand	Powder Coat Surf Mist
2709218	A120WRHLOCK-75		Right Hand	
	A120GLHLOCK-55	Large Hanging Roller Assembly with 55mm Delrin Wheel	Left Hand	Powder Coat Grey
	A120GRHLOCK-55		Right Hand	
	A120WRHLOCK-55		Left Hand	Powder Coat Surf Mist
	A120WLHLOCK-55		Right Hand	
	A120GLHLOCK-70	Large Hanging Roller Assembly with 70mm Delrin Wheel	Left Hand	Powder Coat Grey
2709219	A120GRHLOCK-70		Right Hand	
2709220	A120WLHLOCK-70		Left Hand	Powder Coat Surf Mist
2709221	A120WRHLOCK-70		Right Hand	

A130 Series

Cat. No.	Part No.	Description		Finish
2709205	A130GLH	Large Hanging Double Wheel Roller Assembly with 75mm Delrin Wheel	Left Hand	Powder Coat Grey
2709206	A130GRH		Right Hand	
2709207	A130WLH		Left Hand	Powder Coat Surf Mist
2709208	A130WRH		Right Hand	Powder Coat Surf Mist
2709209	A130GLH-55	Double Wheel Hanging Roller Assembly with 55mm Delrin Wheel	Left Hand	Powder Coat Grey
2709210	A130GRH-55		Right Hand	
2709211	A130WLH-55		Left Hand	Powder Coat Surf Mist
2709212	A130WRH-55		Right Hand	
2709203	A134G-55	Double Wheel Bogey	55mm Delrin wheel	Powder Coat Grey
2709204	A134W-55			Powder Coat Surf Mist
2709201	A134		75mm Delrin wheel	Mill Finish

A150 Series

Cat. No.	Part No.	Description		Finish
2709224	A150GLH	Small Hanging Roller Assembly with 55mm Delrin Wheel	Left Hand	Powder Coat Grey
2709225	A150GRH		Right Hand	
2709222	A150WLH		Left Hand	Powder Coat Surf Mist
2709223	A150WRH		Right Hand	

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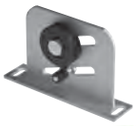
CRH

Hanging Roller Assemblies

W18 Series

Cat. No.	Part No.	Description		Finish
2709226	W18	Small Hanging Roller Assembly with 50mm Delrin Wheel	To Suit Commercial Track	Stainless Steel Hanger

SC4 Series



Cat. No.	Part No.	Description		Finish
2709227	SC4-050	Universal Hanging Roller Assembly suit J Track. 250kg Pair rated	Nylon 50mm Wheel	Aluminium bracket
2709228	SC4-051	Roller complete with axle & nut		
2703499	W21	Eccentric Wheel Assembly 50mm Nylon Wheel		

A110 Series

Cat. No.	Part No.	Description	Finish
2709213	A110G	Small Hanging Roller Assembly with 55mm Delrin Wheel	Powder Coat Grey
2709214	A110W		Powder Coat Surf Mist

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Refrigeration Hardware

CRH

Wheels

Cat. No.	Part No.	Description	Dia: mm	ID: mm	Material
2709233	A113X	Delrin Wheel, Bearing & Circlip	55	12	Delrin & Stainless Steel
2709229	A114X	Delrin Wheel, Bearing & Circlip. Square Track Moulding to suit D Track or Bondor Track			White Powder Coat
2709230	A117	A113x Delrin Wheel, Bearing & Circlip with Zinc Plated Axle Assembly & Stainless Steel Anti-jump Bracket			Delrin & Stainless Steel, Zinc Bolt
2709232	A129	Delrin Wheel and Stainless Steel Axle Assembly	75	15	Delrin Wheel, Stainless Steel Axel, Nuts & Washers
2709238	A119		55	15	
2709237	A118X		70	15	
2709231	A127X	Delrin Wheel, Bearing & Circlip	75	15	Delrin & Stainless Steel
2709236	A115X		70	15	

Track Mounted Stops

A220 Series

Cat. No.	Part No.	Description		Finish
2709250	A220GLH	Adjustable Offset Track Mounted Stop	Left Hand	Powder Coat Grey
2709251	A220GRH		Right Hand	
2709252	A220WLH		Left Hand	Powder Coat Surf Mist
2709253	A220WRH		Right Hand	

A225 Series

Cat. No.	Part No.	Description		Finish
2709254	A225GLH	Inline Adjustable Track Mounted Stop	Left Hand	Mill Finish
2709255	A225GRH		Right Hand	
2709256	A225WLH		Left Hand	White Powder Coat
2709257	A225WRH		Right Hand	

A230 Series

Cat. No.	Part No.	Description		Finish
2709258	A230GLH	Fixed Offset Track Mounted Stop	Left Hand	Powder Coat Grey
2709259	A230GRH		Right Hand	
2709260	A230WLH		Left Hand	Powder Coat Surf Mist
2709261	A230WRH		Right Hand	

SO1 Series

Cat. No.	Part No.	Description		Finish
2709247	S01RH	J Track Mounted Door Stop. 50mm x 70mm	Right Hand	Mill Finish
2709246	S01LH		Left Hand	

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Refrigeration Hardware

CRH

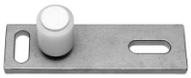
Block Track Stops

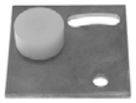
Cat. No.	Part No.	Description	Finish
2709248	S10-C	J Track Block Stop	Black Rubber
2709249	S10-I	D Track Block Stop	

Floor Mounted Stops

Cat. No.	Part No.	Description	Finish
2702492	A240G	Large Floor Stop	Powder Coat Grey
2709262	A240W		Powder Coat Surf Mist
2709263	A250G	Small Floor Stop	Powder Coat Grey
2709264	A250W		Powder Coat Surf Mist
2709265	A242A	Replacement Rubber Stop includes S/S Bolt & Locknut 38mm x 26mm	
	A242LX	Replacement Rubber Stop includes S/S Bolt & Locknut 38mm x 62mm	

Floor Guides





Cat. No.	Part No.	Description	Finish
2702494	A280G	H Type Floor Guide	Powder Coat Grey
2709234	A280W		Powder Coat Surf Mist
2709235	A260	Square Floor Guide	Stainless Steel Base, Nylon Roller
2705803	G02	S/S Silless Door Guide, 40mm Roller	304 Stainless Steel
2709239	G03	Silless Door Guide, H Type	
2705807	G09	Silless Guide	304 Stainless Steel

Cone & Locator Sets

Cat. No.	Part No.	Description	Finish
2709267	A210G	Cone & Locator Set	Powder Coat Grey
2709268	A210W		Powder Coat Surf Mist

Hasp & Release Pins

Cat. No.	Part No.	Description	Finish
2709269	A310G	Large Hasp	Powder Coat Grey
2709270	A310W		Powder Coat Surf Mist
2709271	A390G	Inside Release Pin and Swivel	Powder Coat Grey
2709272	A390W		Powder Coat Surf Mist

Hasp & Staple

Cat. No.	Part No.	Description	Finish
2709245	L07-75	Hasp & Staple with Mounting Block & 75mm Brass plated Rod	Chrome Plated
2709242	L07-100	Hasp & Staple with Mounting Block & 100mm Brass plated Rod	
2709243	L07-150	Hasp & Staple with Mounting Block & 150mm Brass plated Rod	
2709244	L07-200	Hasp & Staple with Mounting Block & 200mm Brass plated Rod	

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Refrigeration Hardware

CRH

Sliding Door Locking Systems

Cat. No.	Part No.	Description		Material
2709079	A10W	Sliding Door Locking System	White	High pressure die cast zinc with nylon internal release
2709080	RC01K	Roller Catch	75-150mm panel	Main body aluminium. Remainder high pressure die cast, nylon & stainless steel
2709088	CRH-268-R-75K	Sliding Door Lock With Inside Release	75mm panel	Composite
2709085	CRH-268-R-100K		100mm panel	
2709086	CRH268-R-150K		150mm panel	

Sliding Door Handles

Recessed Sliding Door Handles

Cat. No.	Part No.	Description	Overall Size: mm	Finish
2709134	A07W	Recessed Sliding Door Handle		White Powder Coat
2709133	A07G			Grey Powder Coat
2709135	SDHI BLACK		120 x 220	Black Nylon
2709136	SDHI WHITE			White Nylon

Sliding Door Tube Handles - Aluminium

Cat. No.	Part No.	Description	Finish
2709133	A370G	Tube Handle End Bracket	Grey Powder Coat
2709134	A370W		Powder coated
2709280	A380G	Tube Handle Centre Bracket	Powder Coated Surf Mist
2709281	380W		
2709145	I-SKA-11	Edge Mount Coolroom Handle	Composite Body with Aluminium Handle

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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	
				Width: mm	Height: mm	Width: mm	Height: mm
2709327	KSDC10152285AC	Strip Door Curtain Kit	Cool Rooms	900	2240	1015	2285
2709328	KSDC10152285AF		Freezer Rooms				

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CRH

Cool Room Shelving

Shelf Units - 1900mm High

Cat. No.	Part No.	Description	Shelf Size: mm
2709284	AC1824PEW4	455mm Deep 4 Tier Cool Room Shelf Unit	455 x 610
2709285	AC1830PEW4		455 x 760
2709286	AC1836PEW4		455 x 910
2709287	AC1842PEW4		455 x 1060
2709288	AC1848PEW4		455 x 1220
2709289	AC1854PEW4		455 x 1370
2709290	AC1860PEW4		455 x 1525
2709291	AC1872PEW4		455 x 1825
2709292	AC2424PEW4	610mm Deep 4 Tier Cool Room Shelf Unit	610 x 610
2709293	AC2430PEW4		610 x 760
2709294	AC2436PEW4		610 x 910
2709295	AC2442PEW4		610 x 1060
2709296	AC2448PEW4		610 x 1220
2709297	AC2454PEW4		610 x 1370
2709298	AC2460PEW4		610 x 1525
2709299	AC2472PEW4		610 x 1825

Individual Shelves

Cat. No.	Part No.	Description	Shelf Size: mm
2709300	C1824PEW	455mm Deep Individual Shelf	455 x 610
2709301	C1830PEW		455 x 760
2709302	C1836PEW		455 x 910
2709303	C1842PEW		455 x 1060
2709304	C1848PEW		455 x 1220
2709305	C1854PEW		455 x 1370
2709306	C1860PEW		455 x 1525
2709307	C1872PEW		455 x 1825
2709308	C2424PEW	610mm Deep Individual Shelf	610 x 610
2709309	C2430PEW		610 x 760
2709310	C2436PEW		610 x 910
2709311	C2442PEW		610 x 1060
2709312	C2448PEW		610 x 1220
2709313	C2454PEW		610 x 1370
2709314	C2460PEW		610 x 1525
2709315	C2472PEW		610 x 1825

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CRH

Door Bells

Cat. No.	Part No.	Description	Finish
2703447	ANM-001	95db Warning Bell with 150mm Keyway	Mild Steel with Chrome Plate
2709273	ANM-002		Brass
2702495	A375G	Bell Recess	Powder Coat Grey
2702496	A375W		Powder Coat Surf Mist

DorWatcher Alarm

The DorWatcher is a simple solution to stop refrigerated hinged and 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
2709277	DW304	DorWatcher Alarm Kit

Personnel Safety Alarms

Cat. No.	Part No.	Description	Kit Contents
2709274	CRH-PSA01	Personnel Safety Alarm Kit	Siren & Strobe Weatherproof Box Illuminated Emergency Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker
2709275	CRH-PSA02		Siren & Strobe Weatherproof Box Illuminated Emergency Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker
2709276	CRH-PSA03		Siren & Strobe Weather Proof Controller & Push Button Power Supply AC Adapter Lumitac 'PUSH' Sticker

Kason

Pressure Relief Valves

Cat. No.	Part No.	Description	Mounting Hole Size: mm
2709138	CRH-500	Pressure Relief Valve with Heater 70-150mm	100
2709139	CRH-500A	Extension sleeve 150 to 250mm panel.	
2709140	CRH-1000 150-250	Freezer & Blast Freezer Heated Pressure Relief Valve Suitable for 150mm-250mm Panel	

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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 Evaporating Temperature: °C							Oil Charge cm^3	Connections	
							-15	-10	-5	0	5	10	15		Suct.	Disch.
2708777	AE4425YFZ1A	1/5	6.69	CSIR	2.4	F	193	265	348	443	552	676	819	280	1/4"	3/16"
9507020	AE4430YFZ1A	1/4	8.02	CSIR	3.1	F	270	352	450	566	702	861	1045	280	1/4"	3/16"
9507022	AE4440YFZ1A	1/3	10.33	CSIR	3.7	F	369	471	591	733	899	1093	1317	280	5/16"	1/4"
9507021	AE4450YFZ1C	3/8	13.24	CSIR	4.6	F	482	619	779	964	1180	1429	1716	280	3/8"	1/4"
9507023	AE4456YFZ1C	1/2	14.51	CSIR	8	F	534	682	854	1052	1282	1547	1853	280	3/8"	1/4"
2708780	AE4460YFZ3C	1/2	15.09	CSR	4.7	F	548	707	889	1098	1338	1614	1931	280	3/8"	1/4"

R404A - Medium High SST

Cat. No.	Model No.	Nominal HP	Displ. cm^3/rev	Motor Type	MOC: Amps	Cooling	Capacity: Watts Evaporating Temperature: °C							Oil Charge cm^3	Connections	
							-15	-10	-5	0	5	10	15		Suct.	Disch.
2708765	AE4425Z-FZ1A	1/5	4.24	CSIR	2.8	F	228	290	362	446	545	659	792	280	1/4"	3/16"
9507031	AE4430Z-FZ1A	1/4	5.16	CSIR	2.9	F	285	361	447	547	661	793	945	280	1/4"	3/16"
9507032	AE4440Z-FZ1A	1/3	6.69	CSIR	3.7	F	383	486	603	737	892	1071	1275	280	3/8"	1/4"
9507000	AE4450Z-FZ1A	3/8	8.85	CSIR	5.1	F	510	642	791	959	1151	1369	1617	280	3/8"	1/4"
9507001	AE4460Z-FZ1C	1/2	10.33	CSIR	5.9	F	636	784	952	1144	1363	1614	1900	280	3/8"	1/4"
9507002	AE4470Z-FZ3C	1/2	12.01	CSR	5.3	F	759	934	1129	1349	1598	1881	2203	280	3/8"	1/4"

R404A - Low Temperature

Cat. No.	Model No.	Nominal HP	Displ. cm^3/rev	Motor Type	MOC: Amps	Cooling	Capacity: Watts Evaporating Temperature: °C						Oil Charge cm^3	Connections	
							-35	-30	-25	-20	-15	-10		Suct.	Disch.
	AE2415Z-FZ1B	3/8	7.33	CSIR	3	F	151	207	272	348	437	539	280	1/4"	3/16"
2708762	AE2420Z-FZ1B	1/2	9.35	CSIR	4.4	F	188	260	345	445	563	699	380	3/8"	1/4"
2708763	AE2425Z-FZ3C	5/8	12.01	CSR	4.2	F	255	351	461	588	734	902	380	3/8"	1/4"

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 – Evaporating Temperature: °C -35	-30	-23.3	-20	-15	-10	Oil Charge cm^3	Connections Suct.	Connections Disch.
2708747	AEZ 1370Y	1/5	8.1	PTCSIR	2.1	N	82	115	177	215	282	361	450"	1/4" Tube	3/16"T.
2708383	AEZ1380Y	1/4	9.4		2.7		94	144	223	267	338	417			
2708752	AEZ 1380YRH	1/4	9.4		2.7	O.C.	94	144	223	267	338	417			
2708753	AE 1410Y RH	1/3	12.05	RSIR	2.8		92	151	259	324	436	566		5/16" Tube	1/4"T.
2708782	CAE 2410Y			CSIR	3.0	F									
2708783	AE 1412Y RH	3/8	14.15	RSIR	2.8	O.C.	96	174	306	383	514	663			
2708784	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

- CAJ/TAJ models redesigned with new electrical connection
- 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
- Anti-vibration mounts supplied
- 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 – Evaporating Temperature: °C -15	-10	-5	0	7.2	15	Oil Charge cm^3	Connections Suct.	Connections Disch.
3500021	CAJ 4476Y-FZ	5/8	21.8	CSIR	6.9	F	482	702	967	1284	1852	2648	475	1/2"V.	1/4"T.
3500022	CAJ 4492Y-FZ	3/4	25.95		8.9		620	889	1228	1617	2311	3285			5/16"T.
3500023	CAJ 4511Y-FZ	1	32.7	CSR	8.6		896	2141	1646	2124	2970	4142		5/8"V.	5/16"T.
3500024	TAJ 4511Y-TZ			3Ø	3.9										
9507028	FH 4518Y	1 1/2	53.2	CSR	11.2		1036	1650	2371	3200	4583	6333	1480		1/2"V.
2708794	TFH 4518Y			3Ø	4.15										
9507029	FH 4525Y	2	74.25	CSR	15.2		1667	2343	3201	4239	6053	8442			
9507030	TFH 4525Y			3Ø	5.6										
2708795	TAG 4528Y	2 1/2	90.2		9.4		1368	2166	3208	4492	6766	9799	1960	7/8"V.	5/8"V.
2708796	TAG 4534Y	2 3/4	100.7		10.4		1946	2871	4061	5514	8071	11460			
2708797	TAG 4537Y	3	112.5		10.0		2281	3308	4634	6258	9123	12926			
2708798	TAG 4543Y	3 1/2	124.4		10.0		2400	3442	4848	6620	9812	14124			

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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Tecumseh

Patented Te-Connect

Saves time Reduces wiring errors

AJ²

Reduced sound emissions
Reduced height
Flammable refrigerant models

Built for Today. Ready for Tomorrow.

Compressors

Tecumseh

L'Unite Hermetique

R404A – Hermetic – For Low Temperature Applications

Features

- Rotalock 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
- Rotalock suction and discharge valves on FH/TFH and TAG models
- Anti-Vibration mounts supplied
- All CAJ/TAJ models have been redesigned with new TE Connect electrical connection

Cat. No.	Model No.	Nom. HP	Displ. cm^3/rev	Motor Type	MOC: Amps	R404A Capacity: Watts – Evaporating Temperature: °C						Oil Charge cm^3	Connections	
						-35	-30	-23.3	-20	-15	-10		Suct.	Disch.
2708830	CAE 2417Z	1/3	11.3	CSR	3.4	161	280	460	557	716	891	450	3/8"T.	1/4"T.
2708831	CAE 2420Z	1/2	12.54	CSIR	4.4	232	357	547	654	836	1047			
2708871	CAE 2424Z	5/8	15	CSR	4.7	291	442	664	783	981	1199			
3500016	CAJ 2428Z-FZ	1/2	15.2	CSIR	5.1		375	603	738	977	1261	475	1/2"V	1/4"T.
3500017	CAJ 2432Z-FZ	5/8	18.3	CSR	5.9		477	762	931	1229	1582		1/2"V.	5/16"T.
3500018	CAJ 2446Z-FZ	3/4	26.15		8.2		797	1203	1436	1838	2306			
3500019	CAJ 2464Z-FZ	1 1/2	34.5	CSR	10		1068	1580	1879	2399	3010		5/8"V.	3/8"T.
3500020	TAJ 2464Z-TZ			3Ø	4.0									
9507004	FH 2480Z	2	53.2	CSR	16	738	1319	2183	2662	3476	4419	1625		
9507053	TFH 2480Z			3Ø	4.8									1/2"V.
9507054	FH 2511Z	2 1/2	74.25	CSR	24	1380	2016	3135	3796	4931	6222			
9507055	TFH 2511Z			3Ø	5									
9507056	TAG 2516Z	4	112.5		9.81	1743	2704	4356	5335	7043	9038	1960	7/8"V.	5/8"V.
9507058	TAG 2522Z	5 1/2	134.8		12.5	2378	3542	5522	6688	8711	11062		1 1/8"V.	
9507057	TAGP 2516Z	4	112.5		9.81	1743	2704	4356	5335	7043	9038	1960	7/8"V.	
9507059	TAGP 2522Z	5 1/2	134.8		12.5	2378	3542	5522	6688	8711	11062	1960	1 1/8"V.	

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 models
- 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
- 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 – Evaporating Temperature: °C								Oil Charge cm^3	Connections	
						-25	-20	-15	-10	-5	0	7.2	15		Suct.	Disch.
3500025	CAJ 9480Z-FZ	5/8	15.2	CSR	6.7	338	506	698	921	1185	1500	2065	2873	887	1/2"V.	5/16"T.
3500026	TAJ 9480Z-FZ			3Ø	4.0											
3500027	CAJ 9510Z-FZ	1	18.3	CSR	8.4	445	652	888	1165	1492	1882	2585	3590		5/8"V.	
3500028	TAJ 9510Z-FZ			3Ø	1.3											
3500029	CAJ 9513Z-FZ	1 1/8	24.2	CSR	11.3	450	728	1049	1424	1867	2391	3322	4630			
3500030	TAJ 9513Z-FZ			3Ø	4.5											
3500031	CAJ 4517Z-FZ	1 1/4	25.95	CSR	12.7			1252	1648	2112	2661	3650	5053			3/8"T.
2708880	TAJ 4517Z-FZ			3Ø	4.8											
9507009	CAJ 4519Z-FZ	1 1/2	34.5	CSR	15.2			1611	2146	2768	3498	4791	6614			
9507033	TAJ 4519Z-TZ			3Ø	6.3											
2708881	FH 4522Z	1 3/4	39.95	CSR	16			1541	2240	3038	3947	5475	7459	1480	5/8"	1/2"
2708882	TFH 4522Z			3Ø	5.4											
9507034	FH 4524Z	2	43.5	CSR	18.1			1835	2570	3407	4361	5977	8101			
9507035	TFH 4524Z			3Ø	6.3											
9507036	FH 4531Z	2 1/2	56.65	CSR	26.3			2382	3300	4419	5706	7782	10222		7/8"V.	1/2"V.
9507037	TFH 4531Z			3Ø	8.2											
9507038	FH4540Z	3	74.25	CSR	27			3388	4475	5771	7276	9814	13056			
9507039	TFH 4540Z	3	74.25	3Ø	9.2											
9507040	TAG 4546Z	4	90.2		11.4			2806	4292	5996	7956	11297	15719	1960		5/8"V.
9507042	TAG 4553Z	4 1/2	100.7		13.4			3461	4922	6752	8958	12805	17880			
9507044	TAG 4561Z	5	112.5		14			4363	5895	7942	10452	14772	20227		1 1/8"V.	
9507046	TAG 4568Z	6	124.4		15.2			5322	7077	9294	11972	16636	22760			
9507048	TAG 4573Z	6 1/2	134.8		18			5788	7710	10163	13123	18228	24806			
9507041	TAGP 4546Z	4	90.2		11.4			2806	4292	5996	7956	11297	15719		7/8"V.	
9507043	TAGP 4553Z	4 1/2	100.7		13.4			3461	4922	6752	8958	12805	17880			
9507045	TAGP 4561Z	5	112.5		14			4363	5896	7942	10452	14772	20227		1 1/8"V.	
9507047	TAGP 4568Z	6	124.4		15.2			5322	7077	9294	11972	16636	22760			
9507049	TAGP 4573Z	6 1/2	134.8		18			5788	7710	10163	13123	18228	24806			

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

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 – Evaporating Temperature: °C -10	-5	0	7.2	10	15	Oil Charge cm^3	Connections cm^3	Disch.	Proc.
2708883	AE 5465E	½	12.05	PSC	5.7	C	718	928	1169	1572	1747		450	⅜"T.	¼"T.	⅜"T.
2708884	AJ 5510E	¾	18.6		7.3			1296	1728	2447	2759	3359	475			¼"T.
2708885	AJ 5512E	1	21.75		8.2			1662	2130	2909	3248	3898				
2708886	AJ 5513E		24.2		8.8			1894	2386	3214	3574	4270				
2708887	AJ 5515E	1¼	25.95		12			2169	2722	3632	4023	4770		½"T.	5/16"T.	
2708888	AJ 5518E	1½	32.7		13.1			2688	3369	4551	5082	6138				
2708889	AJ 5519E		34.45		13.6			2756	3468	4699	5250	6245				
2708890	FH 5522E	1¾	39.95		14.5		2210	2921	3768	5228	5873		1330	⅝"T.	⅜"T.	5/16"T.
2708891	TFH 5522E			3Ø	5.8	C/V										
2708892	FH 5524E	2	43.5	PSC	16.1	C	2443	3219	4140	5718	6413					
2708893	TFH 5524E			3Ø	5.8	C/V										
2708894	FH 5527E	2¼	49.1	PSC	19.5	C	2791	3620	4650	6487	7314					
2708895	TFH 5527E			3Ø	6.5	C/V										
2708896	FH 5531E	2½	56.65	PSC	23	C	3494	4507	5654	7543	8352			¾"T.		
2708897	TFH 5531E			3Ø	6.3	C/V										
2708898	FH5540E	3	74.25	PSC	30.5	C	4291	5748	7336	9855	10909					
2708899	TFH 5540E			3Ø	10	C/V										
2708900	TFH 5540E													⅞"T.	½"V.	
2708901	TAG 5546E	3¾	90.2		10		4368	5917	7839	11262	12802	15961	1960		½"T.	⅜"T.
2708902	TAG 5553E	4	100.7		12		5313	6984	9104	12944	14688	18406				
2708903	TAG 5561E	5	112.5		15		6131	8146	10594	14878	16786	20658				
2708904	TAG 5568E	6	124.4		15.6		6966	9149	11860	16690	18864	23359				
2708905	TAG 5573E	6½	134.8		18		7508	9763	12632	17841	20210	25204				

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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Compressors

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 and 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
					Suction	Discharge			R404A		R134a	
									-25°C SST	-5°C SST	-5°C SST	
2708756	CS10K6E-PFJ-595	240/1	1.75	38.1	1 ¼"	1"	10.1	55	650	3450	1755	CR18KQ
2708757	CS14K6E-PFJ-595		2.25	48.6			12.5	58	1300	4650	2435	CR28KQ
2708754	CS18K6E-PFJ-595		2.75	61.4			13.6	58	1495	6000	3300	CR33KQ

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
					Suction	Discharge			R404A		R134a	
									-25°C SST	-5°C SST	-5°C SST	
2708755	CS14K6E-TFD-595	415 Volts 3 Phase	2.25	48.6	1 ¼"	1"	4.2	28	1300	4650	2435	CR24/28KQ
2708758	CS18K6E-TFD-595		2.75	61.4			4.7	33	1495	6000	3450	CR33KQ
2708759	CS20K6E-TFD-595		3	74.3			5.1	40	1705	6800	3850	CR41KQ
2708760	CS27K6E-TFD-595		4	92.4			8.5	41	2365	8850	5050	CR53KQ
2708761	CS33K6E-TFD-595		5	106.2			9.9	45	2950	10600	5900	CRN0500

Ratings at ARI conditions, 45°C Condensing temperature, 11k Suction superheat, 8k Subcooling

CS Series Rotalock Valve Selection

Rotalock Size	1"	1"	1 ¼"	1 ¼"
Connection ODS	⅜"	½"	¾"	⅞"
Valve Cat. No.	**2712251**	**2712252**	**2712255**	**2712256**
List Price $ Exc. GST	**$70.88**	**$70.88**	**$122.22**	**$130.98**
Seal Cat. No.	**2712264**	**2712264**	**2712265**	**2712265**
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									
						Evaporating Temperature: °C									
						-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-5
2706479	FR6CL	103U2670	6.23	CSIR	450	77	108	145	189	243	263	307	383	473	578
2706480	FR8.5CL	103U2890	7.95			99	126	168	222	290	317	372	468	577	-
2707384	SC10CL	104L2523	10.29		550	-	-	168	258	365	405	489	634	800	991
2706545	SC12CL	104L2623	12.87			58	140	237	353	490	541	650	835	1048	1292
2706549	SC15CL	104L2853	15.28			-	151	299	452	615	673	792	988	1208	1458
2706543	SC18CL	104L2123	17.69	CSR	600	167	271	395	452	715	781	918	1154	1425	1735
2706551	SC21CL	104L2322	20.95			226	325	455	617	813	887	1042	1306	1606	-

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								
						Evaporating Temperature: °C								
						-20	-15	-10	-5	0	5	7.2	10	15
2706632	TL4DL	102U2038	3.86	CSIR	280	196	229	281	349	432	527	572	631	-
2707395	FR6DL	103U2680	6.23		450	317	385	471	576	698	840	907	999	1177
2706544	SC10DL	104L2525	10.29		600	471	611	775	968	1192	1450	1576	1747	2085
2706546	SC12DL	104L2625	12.87			609	806	1028	1279	1565	1890	2046	2258	2674
2707398	SC15DL	104L2856	15.28	CSR		759	964	1207	1493	1825	2210	2397	2652	3156

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
2706432	BD35F	195B0574	Compressor with Controller Module	-
2706433	BD50F	195B0576		
2707420	BD80F	195B0331		
2706456	-	101N0220	Controller Module only	BD35F BD50F
2707423		101N0290		BD80F

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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								
						Evaporating Temperature: °C								
						-35	-30	-25	-23.3	-20	-15	-10	-5	0
2707413	TL3F	102G4300	3.13	RSIR	180	-	-	42	48	60	82	108	138	173
2706630	TL5F	102G4501	5.08			43	60	82	91	110	144	183	-	-
2707414	TLS6F	102G4620	5.70			58	77	104	115	139	183	235	-	-
2707415	NL6F	105G6606	6.13		320	52	77	110	123	151	200	258	-	-
2707422	NL7F	105G6706	7.27			71	99	136	151	182	238	303	-	-
2706518	NL9F	105G6802	8.35			80	112	155	172	208	272	346	-	-
2706517	NL11F	105G6900	11.15			102	144	200	223	271	356	455	-	-
2706540	SC15F	104G8500	15.28		550	100	155	230	260	325	439	573	-	-
2707418	SC18F	104G8800	17.69	CSIR	550	129	194	280	314	388	518	669	842	-
2707416	SC21F	104G8100	20.95			185	245	335	375	455	610	780	990	-

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												
						Evaporating Temperature: °C												
						-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2707438	PL35G	101G0250	2.00	RSIR	150	-	-	28.0	31.6	39.3	53.0	69.4	89.0	112	140	153	172	209
2706628	TL3G	102G4350	3.13		280	-	25.3	40.9	46.7	59.1	80.5	106	136	170	211	231	258	312
2706629	TL4G	102G4452	3.86			-	40.8	58.3	65.3	80.3	107	140	180	226	280	306	342	413
2706631	TL5G	102G4550	5.08			-	55.6	79.0	87.9	107	139	178	224	278	341	372	414	497
2706474	FR6G	103G6660	6.23		450	-	47.7	83.3	96.5	124	171	226	290	365	452	494	552	-
2706475	FR7.5G	103G6680	6.93			-	61.7	99.0	113	142	193	254	325	408	505	553	618	-
2706476	FR8.5G	103G6780	7.95			-	84.9	123	138	171	228	298	381	478	592	647	722	-
2707443	FR10G	103G6880	9.05			-	91.9	136	152	188	250	324	412	516	638	697	779	-
2706477	FR10G	103G6890*																-
2706478	FR11G	103G6980	11.15			-	115	170	191	233	307	395	501	628	780	-	-	-
2707444	SC10G	104G8000	10.29		550	23.0	60.0	113	135	183	268	369	486	618	764	833	925	1100
2706539	SC12G	104G8240	12.87			64.6	113	175	199	252	348	464	603	768	960	1064	1182	1437
2706541	SC15G	104G8520	15.28	CSIR		-	-	164	206	290	424	568	728	908	1110	1207	1340	1600
2706542	SC18G	104G8820	17.69		550	-	-	283	318	394	526	684	870	1087	1337	1459	1624	1950
2706550	SC21G	104G8140	20.95	CSR		-	-	333	370	453	606	792	1012	1268	1560	1700	1889	2256

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.
2707400	SC10C	104L2516	R22	LBP
2707401	SC12C	104L2674		
257075	SC15BM	104L2847		
2707402	SC18BM	104L2118		
2707403	SC21BM	104L2317		

Cat. No.	Model No.	Part No.	Refrig.	Appl.
2707404	SC10D	104L2517	R22	HBP
2706547	SC12D	104L2684		
2707406	SC15D	104L2839		

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Compressors

Danfoss

Compressor Spare Parts

Model No.	Relay HST		Relay LST		Start Capacitor			Electrical Cover	
	Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Size µf	Cat. No.	Part No.
FR6CL	**2706453**	117U6015		-	**2706577**	117U5015	80	**2706445**	103N2010
FR8.5CL	**2706452**	117U6010							
SC10CL	**2706449**	117U6003			**2706578**	117U5017		**2711818**	103N2009
SC12CL	**2706580**	117U6005							
SC15CL	**2706454**	117U6019							
SC18CL	**2711395**	117-7012				-	-		
SC21CL									

Model No.	Relay HST		Relay LST		Start Capacitor			Electrical Cover	
	Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Size µf	Cat. No.	Part No.
TL4DL	**2706447**	117U6001		-	**2706576**	117U5014	60	**2706445**	103N2010
FR6DL	**2706452**	117U6010			**2706577**	117U5015	80		
SC10DL	**2706580**	117U6005			**2706578**	117U5017		**2711818**	103N2009
SC12DL	**2706454**	117U6019							
SC15DL	**2711396**	117-7028				-	-		

Model No.	Relay HST		Relay LST		Start Capacitor			Electrical Cover	
	Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Size µf	Cat. No.	Part No.
TL3F	**2711397**	117U6007	**2706579**	103N0011	**2706576**	117U5014	60	**2706445**	103N2010
TL4F	**2706451**	117U6009							
TL5F	**2706450**	117U6004							
TLS6F	**2706450**	117U6004							
NL6F	**2706450**	117U6004			**2706577**	117U5015	80		
NL7F	**2706446**	117U6000							
NL9F	**2706447**	117U6001							
NL11F	**2706448**	117U6002							
SC15F	**2706449**	117U6003	**2706533**	103N0002	**2706578**	117U5017			
SC18F	**2706580**	117U6005		-				**2711818**	103N2009
SC21F	**2706454**	117U6019							

Model No.	Relay HST		Relay LST		Start Capacitor			Electrical Cover	
	Cat. No.	Part No.	Cat. No.	Part No.	Cat. No.	Part No.	Size µf	Cat. No.	Part No.
PL35G	**2706455**	117U6021	**2706579**	103N0011	**2706576**	117U5014	60		103N0491
TL3G	**2706451**	117U6009						**2706445**	103N2010
TL4G	**2706450**	117U6004							
TL5G	**2706446**	117U6000							
FR6G					**2706577**	117U5015	80		
FR7.5G	**2706447**	117U6001							
FR8.5G	**2706453**	117U6015							
FR10G	**2706452**	117U6010							
FR10G									
FR11G									
SC10G	**2706448**	117U6002	**2706533**	103N0002	**2706578**	117U5017		**2711818**	103N2009
SC12G	**2706449**	117U6003							
SC15G	**2706580**	117U6005		-					
SC18G	**2706454**	117U6019							
SC21G	**2711396**	117-7028				-	-		

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Compressors

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
			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
2708705	MTZ18-5VI	240/1								
2706652	MTZ22-4VI	415/3	38.12	6.63						
2706653	MTZ22-5VI	240/1								
2706654	MTZ28-4VI	415/3	48.06	8.36						23
2706655	MTZ28-5VI	240/1								
2706656	MTZ32-4VI	415/3	53.86	9.37			1 1/4"			24
2706657	MTZ32-5VI	240/1								
2706658	MTZ36-4VI	415/3	60.47	10.52						25
2706659	MTZ36-5VI	240/1								
2706660	MTZ40-4VI	415/3	67.89	11.81						26
2706661	MTZ44-4VI		76.22	13.26	2		1 3/4"	1 1/4"	1.8	37
2706662	MTZ50-4VI		85.64	14.90						
2706663	MTZ56-4VI		96.13	16.73						39
2706664	MTZ64-4VI		107.71	18.74						
2706665	MTZ72-4VI		120.94	21.04						41
2706666	MTZ80-4VI		135.78	23.63						
2706648	MTZ100-4VI		171.26	29.80	4				3.9	60
2706649	MTZ125-4VI		215.44	37.49						64
2706650	MTZ144-4VI		241.87	42.09						67
2706651	MTZ160-4VI		271.55	47.25						69

MTZ Compressor Rotalock Valve Selection Guide

Rotalock Size	1"		1 1/4"			1 3/4"	
Connection ODS	3/8"	1/2"	5/8"	3/4"	7/8"	7/8"	1 1/8"
Valve Cat. No.	**2712251**	**2712252**	**2712254**	**2712255**	**2712256**	**2712258**	**2712259**
Seal Cat. No.	**2712264**	**2712264**	**2712265**	**2712265**	**2712265**	**2712266**	**2712266**
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
				cm^3/ rev	m^3/hr @ 2900 rpm			Suct.	Disch.		
2708721	NTZ048-5LR1	120F0087	240/1	48	8.4	1	Rotalock	1 1/4"	1"	0.95	21
2708727	NTZ048-4LR1	120F0001	415/3								
2708728	NTZ068-5LR1	120F0088	240/1	68	11.8						23
2706645	NTZ068-4LR1	120F0002	415/3								
2706646	NTZ096-4LR1	120F0003		96	16.7	2		1 3/4"	1 1/4"	1.8	35
2708736	NTZ108-4LR1	120F0004		108	18.7						
2706647	NTZ136-4LR1	120F0005		136	23.6						
2708739	NTZ215-4LR1	120F0006		215	37.5	4				3.9	62
2708740	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"	7/8"	1 1/8"
Valve Cat. No.	**2712252**	**2712254**	**2712255**	**2712258**	**2712259**
Seal Cat. No.	**2712264**	**2712265**	**2712265**	**2712266**	**2712266**
NTZ048	D	S			
NTZ068	D	S			
NTZ096			D	S	
NTZ108			D	S	
NTZ136			D		S
NTZ215			D		S
NTZ271			D		S

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	
									Suct.	Disch.
2707445	RH135-VHAT	R22	0.87	13.5	2279	240	3.45	25/370	3/8"	5/16"
2707446	RH165-VHST		1.07	16.5	2814		4.2			
2707447	RH197-VHRT		1.34	19.7	3610		5.12	30/370	1/2"	
2707448	RH207-VHST		1.34	20.7	3670		5.3			
2707449	RH231-VHAT		1.47	23.1	4011		6.2	30/400		
2707450	RH247-VHAT		1.61	24.7	4407		6.0	35/400		
2707451	RH277-VHAT		1.74	27.7	4826		7.4			
2707452	PH28-VNET		1.68	28.1	4895		7.2	40/370	5/8"	3/8"
2707453	PH33-VPET		2.01	33.8	5977		8.6	50/370		
2707454	PH39-VPET		2.28	39	6884		10	60/400		
2707455	NH56-VNHT		3.6	56.9	10209		16.1	60/420	3/4"	
2707409	NH47-YDET		2.9	47.4	8372	415	5	N/A	5/8"	
2707410	NH52-YDTT		3.4	52.4	9442		5.5		3/4"	

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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ACTROL™

THE HOME OF COMPRESSORS

At Actrol, we have a comprehensive range of compressors for new and replacement applications. Hermetic, semi hermetic, scroll, screws and rotary, you name it – we've got it! And we only source world renowned companies such as Tecumseh, Emerson (Copeland), Bitzer, Danfoss (Maneurop), SCI, and others.

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Scroll Compressors

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
								Suct.	Disch.		
2709664	ZR22K3E-PFJ-522	240/1	5.34	5350	1.01L	25.9	Stub Tube	¾"	½"	11	47
2709665	ZR24K3E-PFJ-522	240/1	5.92	5900	1.01L	25				11.4	58
2700278	ZR28K3E-PFJ-522	240/1	6.83	6900	1.01L	27.2				15	61
2700279	ZR34K3E-PFJ-522	240/1	8.03	8250	1.12L	28.6				17	76
2709666	ZR36K3E-PFJ-522	240/1	8.61	8850	1.12L	29.5				18	82
2700280	ZR40K3E-PFJ-522	240/1	9.43	9760	1.12L	29.9				23	100
2709667	ZR42K3E-PFJ-522	240/1	9.95	10250	1.12L	30.4				23	97
2700281	ZR47K3E-PFJ-522	240/1	11.02	11500	1.12L	32.2		⅞"		23	114
2709670	ZR48K3E-PFJ-522	240/1	11.4	11400	1.12L	31.1				23	114
2700283	ZR61KCE-PFZ-522	240/1	14.37	14900	1.54L	41.3				30	150
2700285	ZR68KCE-PFJ-522	240/1	16.18	16700	1.72L	42.6				30	150

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
								Suct.	Disch.		
2700259	ZR28K3E-TFD-522	415/3	6.83	6900	1.01L	25.4	Stub Tube	¾"	½"	5	32
2703050	ZR40K3E-TFD-522	415/3	9.43	10300	1.12L	27.7				7	46
2709669	ZR47KCE-TFD-522	415/3	11.16	11500	1.24L	29.9		⅞"		10	48
2709668	ZR48KCE-TFD-522	415/3	11.4	11850	1.24L	28.1				10	50
2709671	ZR54KCE-TFD-522	415/3	12.74	13200	1.83L	35.8				10	51.8
2703051	ZR57KCE-TFD-522	415/3	13.43	13900	1.83L	36.3				11	61.8
2700284	ZR61KCE-TFD-522	415/3	14.37	14900	1.83L	37.2				11	65
2703053	ZR68KCE-TFD-522	415/3	16.18	16800	1.66L	38.6				13	74
2703054	ZR72KCE-TFD-522	415/3	17.06	17700	1.66L	38.6				13	74
2703055	ZR81KCE-TFD-522	415/3	18.75	19900	1.66L	39.9				15	101
2703056	ZR94KCE-TFD-522	415/3	22.1	23300	2.4L	57.2		1 ⅛"	⅞"	16	95
2703058	ZR108KCE-TFD-522	415/3	24.9	26400	3.13L	60.3		1 ⅜"		17	114
2703059	ZR125KCE-TFD-522	415/3	29.1	31100	3.13L	61.2				19	125
2703060	ZR144KCE-TFD-522	415/3	33.2	35200	3.13L	61.2				22	125
2709676	ZR160KCE-TFD-522	415/3	36.4	37700	3.38L	64.9				28	140
2709678	ZR190KCE-TFD-522	415/3	43.3	45900	3.38L	66.2				34	174

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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
								Suct.	Disch.		
								Rotalock Size	Rotalock Size		
2703057	ZR94KCE-TFD-523	415/3	22.1	23300	2.4L	57.2	Rotalock	1¾"	1¼"	16	95
2700290	ZR108KCE-TFD-523	415/3	24.9	26400	3.13L	60.3				17	114
2700291	ZR125KCE-TFD-523	415/3	29.1	31100	3.13L	61.2				19	125
2700292	ZR144KCE-TFD-523	415/3	33.2	35200	3.13L	61.2				22	125
2709677	ZR160KCE-TFD-523	415/3	36.4	37700	3.38L	64.9				28	140
2709679	ZR190KCE-TFD-523	415/3	43.3	45900	3.38L	66.2				34	174
2709675	ZR250KCE-TWD-523	415/3	56.6	56600	4.7L	140		2¼"	1¾"	41	225

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	
										Suct.	Disch.
2709672	ZR16M3E-TWD-961	415/3	32.55	37500	4.05L	103.1	28	167	Rotalock	1¾"	1¼"
2709674	ZR19M3E-TWD-961	415/3	42.07	46000	4.05L	112.1	34	198		2¼"	1¾"

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
							Suct.	Disch.		
2709661	ZR54KCE-TFD-422	415/3	12.74	1.83	35.8	Stub Tube	⅞"	½"	10	51.8
2709662	ZR61KCE-TFD-422	415/3	14.37	1.83	37.2				11	65
2709663	ZR81KCE-TFD-422	415/3	18.75	1.66	39.9				15	101

Scroll Accessories

Motor Protection Module

Cat. No.	Part No.	Description	Suits
2711140	8564342	INT69 Motor Protection Module	All scroll Model where required including ZF, ZS, ZB, ZP series

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Scroll Compressors

Copeland

ZR Series

ZR Series Electrical Accessories Selection Chart

Compressor Model No.	Run Capacitor				Start Capacitor				Relay		Crankcase Heater		
	Cat. No.	Part No.	Volt.	mFd	Cat. No.	Part No.	Volt.	mFd	Cat. No.	Part No.	Cat. No.	Part No.	Descr.
ZR22K3E-PFJ-522	2709617	014-0054-12			2709623	014-0058-31	330	88-106	2709615	040-0166-37	2709604	018-0095-00	240V 70W
ZR24K3E-PFJ-522													
ZR28K3E-PFJ-522	2709618	014-0054-36											
ZR28K3E-TFD-522													
ZR34K3E-PFJ-522	2709619	014-0054-40			2709623	014-0058-31	330	88-106	2709615	040-0166-37			
ZR36K3E-PFJ-522													
ZR40K3E-PFJ-522	2709620	014-0054-39	370	55									
ZR40K3E-TFD-522													
ZR42K3E-PFJ-522	2709621	014-0054-37	370	60	2709623	014-0058-31	330	88-106	2709615	040-0166-37			
ZR47K3E-PFJ-522													
ZR47KCE-TFD-522													
ZR48KCE-TFD-522													
ZR54KCE-TFD-522													
ZR57KCE-TFD-522													
ZR61KCE-PFZ-522	2709622	014-0054-20	440	50	2709624	014-0006-15	330	270-324	2709616	040-0046-24			
ZR61KCE-TFD-522													
ZR68KCE-PFJ-522	2709622	014-0054-20	440	50	2709624	014-0006-15	330	270-324	2709616	040-0046-24			
ZR68KCE-TFD-522													
ZR72KCE-TFD-522													
ZR81KCE-TFD-522													
ZR94KCE-TFD											2709605	018-0091-22	240V 90W
ZR108KCE-TFD													
ZR125KCE-TFD													
ZR144KCE-TFD													
ZR160KCE-TFD													
ZR190KCE-TFD													
ZR16M3E-TWD											2709614	018-0091-13	240V 70W
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.	2712255	2712256	2712259	2712260	2712262
Seal Cat. No.	2712265	2712265	2712266	2712266	2712267
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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Scroll Compressors

Copeland

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 Suct.	Connections Disch.	Replacement Oil Charge Litres	Amps Rated Load Amps	Amps Locked Rotor Amps	Weight kg
2709690	ZP36KSE-PFZ-522	240/1	5.988	7920	Stub Tube	7/8"	1/2"	1.12	17.7	98.0	29.4
2709691	ZP36KSE-TFM-522	415/3		8030					6.6	46.0	
2709692	ZP42KSE-PFZ-522	240/1	6.929	9180					21.7	128.0	33.1
2709693	ZP42KSE-TFM-522	415/3		9060					6.8	43.0	
2709694	ZP51KSE-PFZ-522	240/1	8.383						22.5	126.0	34.4
2709695	ZP51KSE-TFM-522	415/3							8.6	51.5	33.0
2709696	ZP54KSE-PFZ-522	240/1	8.896	11750					22.5	115.5	34.4
2709697	ZP54KSE-TFM-522	415/3		11650					8.6	51.5	33.0
2709698	ZP57K3E-PFJ-522	240/1	9.438					1.54	27.3	153.0	41.7
2709699	ZP57K3E-TFD-522	415/3							10.7	74.0	
2709700	ZP61KCE-PFZ-522	240/1	10.108					1.66	29.3	147.0	40.3
2709701	ZP61KCE-TFD-522	415/3		13250					10.9	64.0	
2709702	ZP67KCE-TFD-522		10.958						11.8	74.0	40.0
2709703	ZP72KCE-TFD-522		11.679	15400					12.5	75.0	
2709704	ZP83KCE-TFD-522		13.430	17950					13.6	101.0	
2709705	ZP90KCE-TFD-522		14.642	19650		1 1/8"	7/8"	2.40	16.4	95.0	57.6
2709706	ZP103KCE-TFD-522		16.763	22700		1 3/8"		3.13	18.6	111.0	61.2
2709707	ZP120KCE-TFD-522		19.760	26800					20.0	118.0	
2709708	ZP137KCE-TFD-522		22.121	30100					20.7	118.0	62.1
2709709	ZP154KCE-TFD-522		24.867	33700					25.0	140.0	64.9
2709710	ZP182KCE-TFD-522		29.078	40100					28.6	174.0	66.2
2709711	ZP385KCE-TWD-522		60.8			1 5/8"	1 3/8"	6.3		310.0	177.8

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 Cat. No.	Run Capacitor Part No.	Run Capacitor Volt	Run Capacitor mFd	Start Capacitor Cat. No.	Start Capacitor Part No.	Start Capacitor Volt.	Start Capacitor mFd	Relay Cat. No.	Relay Part No.	Crankcase Heater Cat. No.	Crankcase Heater Part No.	Crankcase Heater Description
ZP36KSE-PFZ-522		014-0064-26	370	60	**2709623**	014-0061-27	330	88-106	**2709615**	040-0166-37	**2709604**	018-0095-00	240V 70W
ZP36KSE-TFM-522													
ZP42KSE-PFZ-522		014-0064-27	370	80	**2709623**	014-0061-27	330	88-106		040-0166-21			
ZP42KSE-TFM-522													
ZP51KSE-PFZ-522		014-0064-35	440	80	**2709623**	014-0061-27	330	88-106	**2709615**	040-0166-37			
ZP51KSE-TFM-522													
ZP54KSE-PFZ-522		014-0064-35	440	80	**2709623**	014-0061-27	330	88-106	**2709615**	040-0166-37			
ZP54KSE-TFM-522													
ZP57K3E-PFJ-522		014-0064-16	440	50									
ZP57K3E-TFD-522													
ZP61KCE-PFZ-522		014-0064-35	440	80									
ZP61KCE-TFD-522													
ZP67KCE-TFD-522													
ZP72KCE-TFD-522													
ZP83KCE-TFD-522													
ZP90KCE-TFD-522											**2709605**	018-0091-22	240V 90W
ZP103KCE-TFD-522													
ZP120KCE-TFD-522													
ZP137KCE-TFD-522													
ZP154KCE-TFD-522													
ZP182KCE-TFD-522													

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Scroll Compressors

Copeland

ZB Series - R404A, R507 For Refrigeration Applications

Cat. No.	Model No.	Elect. Supply Volts / Phase	Displ. m^3/hr	Connection Type	Connections Suct.	Connections Disch.	Replacement Oil Charge Litres	Amps Rated Load	Amps Locked Rotor	Weight kg
2709680	ZB15KQE-PFJ-524	220-240/1	5.92	Tube	3/4"	1/2"	1.18	11.4	58.0	23.0
2709681	ZB19KQE-TFD-524	380-420/3	6.80				1.45	4.3	32.0	25.0
2709682	ZB26KQE-TFD-524	380-420/3	9.90					7.1	46.0	28.0
2709683	ZB38KQE-TFD-524		14.50		7/8"		1.89	8.9	65.5	38.0
2709684	ZB48KQE-TFD-524		18.75				1.66	14.0		39.0
256382	ZB50KQE-TFD-551		19.80	Rotalock	1 3/4"	1 1/4"	2.51	14.3	90.0	59.0
2709685	ZB58KQE-TFD-551		22.10					16.4	95.0	60.0
2709686	ZB66KQE-TFD-551		25.70				3.25	17.3	111.0	
2709687	ZB76KQE-TFD-551		28.80					19.2	118.0	65.0
2709688	ZB95KQE-TFD-551		36.38					25.0	140.0	
2709689	ZB114KQE-TFD-551		43.35					27.9	174.0	

ZB Series Electrical Accessories Selection Chart

Compressor Model No.	Run Capacitor Cat. No.	Run Capacitor Part No.	Run Capacitor Volt.	Run Capacitor mFd	Start Capacitor Cat. No.	Start Capacitor Part No.	Start Capacitor Volt.	Start Capacitor mFd	Relay Cat. No.	Relay Part No.	Crankcase Heater Cat. No.	Crankcase Heater Part No.	Crankcase Heater Watts
ZB15KQE-PFJ-524		014-0064-14	440	40	**2709623**	014-0061-27	330	88-106	**2709615**	040-0166-37	**2709604**	018-0095-00	70
ZB15KQE-TFD-524													
ZB19KQE-PFJ-524		014-0064-25	370	45									
ZB19KQE-TFD-524													
ZB21KQE-PFJ-524		014-0064-26	370	60									
ZB21KQE-TFD-524													
ZB26KQE-PFJ-524		014-0064-26	370	60									
ZB26KQE-TFD-524													
ZB30KQE-TFD-524													
ZB38KQE-TFD-524													
ZB45KQE-TFD-524													
ZB48KQE-TFD-524													
ZB50KQE-TFD-551											**2709605**	018-0091-22	90
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"	1 3/8"
Valve Cat. No.	**2712256**	**2712259**	**2712260**
Seal Cat. No.	**2712265**	**2712266**	**2712266**
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

Copeland

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 Suct.	Connections Disch.	Replacement Oil Charge Litres	Amps Rated Load Amps	Amps Locked Rotor Amps	Winding Resist. Ohm	Weight kg
2709595	ZF09K4E-TFD-551	415/3	8.0	2950	Rotalock	1¼"	1"	1.1	6	40	4.83	30
2709596	ZF11K4E-TFD-551		9.9	3700					7	46	4.03	31
2709597	ZF13K4E-TFD-551		11.8	4300				1.4	8	51.5	3.64	41
2709598	ZF15K4E-TFD-551		14.5	5250				1.7	10	64	2.75	42
2709599	ZF18K4E-TFD-551		17.2	6400					12	74	2.27	44
2709600	ZF24K4E-TWD-551		20.9	7900		1¾"	1¼"	4	16.1	99	1.41	100
2709601	ZF33K4E-TWD-551		28.9	11000					22.3	127	1.02	100
2709602	ZF40K4E-TWD-551		35.6	13500				4.1	25.1	167	0.83	110
2709603	ZF48K4E-TWD-551		42.1	15600		2¼"	1¾"	1.66	30.6	198	0.72	119

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) Cat. No.	Discharge Temp.Controller (DTC) Part No.	Capillary Kit Cat. No.	Capillary Kit Part No.	Solenoid Valve Cat. No.	Solenoid Valve Part No.	Solenoid Coil Cat. No.	Solenoid Coil Part No.	Crankcase Heater Cat. No.	Crankcase Heater Part No.
ZF09K4E-TFD-551	**2708314**	8563054							**2709604**	8561105
ZF11K4E-TFD-551										
ZF13K4E-TFD-551										
ZF15K4E-TFD-551										
ZF18K4E-TFD-551										
ZF24K4E-TWD-551			**2708316**	8546437	**2711327**	200RB4T3T	**2711311**	ASC2		
ZF33K4E-TWD-551			**2708317**	8546415						
ZF40K4E-TWD-551			**2708318**	8546448						
ZF48K4E-TWD-551										

Discharge Gas Thermostat (120°C)

Cat. No.	Part No.	List Price $ Exc. GST
2708315	2981196	**$89.15**

ZF Series Copeland Scroll Compressor Rotalock Valve Selection

Rotalock Size	1"	1 ¼"	1 ¾"	1 ¾"	2 ¼"
Connection ODS	½"	⅞"	1 ⅛"	1 ⅜"	1 ⅝"
Valve Cat. No.	**2712252**	**2712256**	**2712259**	**2712260**	**2712262**
Seal Cat. No.	**2712264**	**2712265**	**2712266**	**2712266**	**2712267**
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
				cm^3/ rev	m^3/hr				
2707495	HRP034T5LP6	120U2019	240/1	46.2	8.0	2.8	8.1	Stub	31
	HRP038T5LP6	120U0961				3.0	8.9		
	HRP038T4LP6	120U1006	415/3			3.0	8.9		
2707497	HRP040T5LP6	120U1929	240/1	54.4	9.5	3.3	9.5		31
2706486	HRP040T4LP6	120U1016	415/3	54.4	9.5	3.3	9.7		31
	HRP045T5LP6	120U0976	240/1			3.5	10.7		
	HRP045T4LP6	120U1036	415/3			3.5	10.9		
2707501	HRP047T4LP6	120U1046	415/3	64.1	11.2	3.8	11.6		31
	HRP058T5LP6	120U1596	240/1			4.5	13.8		
	HRP058T4LP6	120U1701	415/3			4.5	14.0		
2706487	HRP060T5LP6	120U1606	240/1	80.9	14.1	5.0	14.3		37
2706489	HRP060T4LP6	120U1726	415/3	80.9	14.1	5.0	14.5		37
2707504	HRP068T5LP6	120U1621	240/1	93.1	16.2	5.7	16.0		37
2706493	HLP068T4LP6	120U2014	415/3	93.1	16.2	5.7	16.0		37
2706490	HLP072T4LC6	120U1756		98.7	17.2	6.0	17.5		37
2706491	HLP075T4LC6	120U1766		102.7	17.9	6.5	18.4		37
2706492	HLP081T4LC6	120U1781		110.9	19.3	7.5	20.0		37
2706485	HCP094T4LC6	120U0601		126.0	21.9	8.3	23.1		44
2706483	HCP109T4LC6	120U0376		148.8	25.9	9.0	27.0		45
2706484	HCP120T4LC6	120U0401		162.4	28.3	10.0	29.1		45

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Scroll Compressors

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
			cm^3/rev	m^3/hr @ 2900 rpm		Suct.	Disch.		
2707457	SM084-4VI	415/3	114.5	19.92	Stub	1 1/8"	3/4"	3.25	72
2707458	SM090-4VI		120.5	20.97					
2707468	SM100-4VI		127.2	22.13					
2706557	SM110-4VI		144.2	25.09		1 3/8"	7/8"		80
2706552	SM115-4RI		155.0	26.97	Rotalock	1 3/4"	1 1/4"	3.80	
2706558	SM120-4VI		166.6	28.99	Stub	1 3/8"	7/8"	3.25	
2706553	SM125-4RI		166.6	28.99	Rotalock	1 3/4"	1 1/4"	3.80	
2706559	SM148-4VAI		199.0	34.60	Stub	1 3/8"	7/8"	3.60	88
2706554	SM160-4RAI		216.6	37.69	Rotalock	2 1/4"	1 3/4"	4.00	94
2706560	SM161-4VAI		216.6	37.69	Stub	1 3/8"	7/8"	3.30	86
2706555	SM185-4RI		249.9	43.48	Rotalock	2 1/4"	1 3/4"	6.60	103

SZ Series R134a, R407C

Features

- Charged with Maneurop Polyester Oil
- Rotalock service valves or angle adaptors sold separately
- Anti-Vibration mounts supplied

Cat. No.	Model No.	Elect. Supply Volts / Phase	Displacement		Connection Type	Connections		Oil Charge Litres	Weight kg
			cm^3/rev	m^3/hr @ 2900 rpm		Suct.	Disch.		
2707479	SZ084-4VI	415/3	114.5	19.92	Stub	1 1/8"	3/4"	3.30	64
2707481	SZ090-4VI		120.5	20.97					65
2707482	SZ100-4VI		127.2	22.13					
2707483	SZ110-4VI		144.2	25.09		1 3/8"	7/8"		73
2707484	SZ115-4RI		155.0	26.97	Rotalock	1 3/4"	1 1/4"	3.80	78
2707485	SZ120-4VI		166.6	28.99	Stub	1 3/8"	7/8"	3.30	73
2707486	SZ125-4RI		166.6	28.99	Rotalock	1 3/4"	1 1/4"	3.80	78
2706561	SZ148-4VAI		199.0	34.60	Stub	1 3/8"	7/8"	3.60	88
2707488	SZ160-4RAI		216.6	37.69	Rotalock	2 1/4"	1 3/4"	4.00	90
2707489	SZ161-4VAI		216.6	37.69	Stub	1 3/8"	7/8"	3.60	88
2707490	SZ175-4RI		233.0	40.54	Rotalock	2 1/4"	1 3/4"	6.20	100
2706556	SZ185-4RI		249.9	43.48					
2707492	SZ185-4CAI		249.9	43.48	Stub	1 5/8"	1 1/8"		
2707491	SZ240A4MBI		347.8	60.50	Rotalock	2 1/4"	1 3/4"	8.00	150

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.	2712255	2712258	2712259	2712248	2712262
Seal Cat. No.	2712265	2712266	2712266	2712267	2712267
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
						Suct.	Disch.					L	W	H			
2750468	SH4526ZYZ	2	415/3/ DOL	1.5	6.91	5/8"	1/2"	1.0	4.5	20.6	36	317	237	275	234 x 194	50	30 x 30
2750469	SH4536ZYZ			2	9.88	3/4"	5/8"		6.7	35.9	40	334		292			
2750470	SH4550ZYZ			3	13.15	7/8"		1.1	8.8	43.7	49	369	242	294			
2712828	SH4564ZYZ			4	16.40	1 1/8"		1.2	12.5	52.0	51	374		317			
2707557	SH4576ZYZ	4		5	21.18				11.6	63.1	79	449	315	286	312 x 246		40 x 40
2707558	SH4591ZYZ			5	24.69		7/8"		12.7	63.1							
2707559	SH4610ZYZ			7	28.02	1 3/8"	1 1/8"		17.6	87.3							
2707560	SH4612ZYZ			7	32.66				20.0	87.3							
2707561	SH4615ZMZ		415/3/ PWS	12	41.20			2.9	22.4	59.1	120	550	405	405	292 x 266	70	50 x 50
2707562	SH4620ZMZ			15	51.50	1 5/8"			32.4	74.8	126						
2712834	SH4623ZMZ			20	58.48			4.0	35.3	106.6	174	672	460	463	381 x 305		50 x 30
2712835	SH4627ZMZ			25	70.77	2 1/8"	1 3/8"		43.5	118.3	184	703					
2712836	SH4632ZMZ			30	83.81				49.2	132.6	187						
2712838	SH4639ZMZ			35	102.90				61.0	144.5	207	743					

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Semi-Hermetic Compressors

Tecumseh

SH Series

The Tecumseh SH series of semi-hermetic compressors are designed for HFC refrigerants.

Accessories

Cat. No.	Part No.	Description	Suits Model No.
2709952	7590200	Crankcase Heater	All SH Model
2708344	7590100	Capacity Control Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z
2708345	7590101	Capacity Control Kit	SH4615Z, SH4620Z
2708346	7590102	Unloaded Start Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z
2708347	7590103	Unloaded Start Kit	SH4615Z, SH4620Z
2711058	7590206	Head Cooling Fan Assembly	SH4576Z, SH4591Z, SH4610Z, SH4612Z
2711059	7590207	Head Cooling Fan Assembly	SH4615Z, SH4620Z

Spare Parts

Cat. No.	Part No.	Description	Suits Model No.
2708332	7380740	Gasket Kit	SH4576Z, SH4610Z
2708333	7380741	Gasket Kit	SH4591Z, SH4612Z
2708334	7380742	Gasket Kit	SH4615Z
2708335	7380743	Gasket Kit	SH4620Z
2708336	72701749	Valve Plate Kit	SH4576Z, SH4610Z
2708337	7309101	Valve Plate Kit	SH4591Z
2708338	72710907	Valve Plate Kit	SH4612Z
2708339	72710908	Valve Plate Kit	SH4615Z
2708340	72710909	Valve Plate Kit	SH4620Z
2708341	7380710	Oil Sight Glass Kit	All SH Model
2708342	7590204	Kriwan Motor Protection Module	All SH Model
1609597	72710921	Compressor Mount Rubber Kit of 4	SH4576Z, SH4591Z, SH4610Z, SH4612Z
1609598	72710922	Compressor Mount Rubber Kit of 4	SH4615Z, SH4620Z
2708354	7590202	Electrical Connections Plate Kit	SH4576Z, SH4591Z, SH4610Z, SH4612Z
2708355	7590203	Electrical Connections Plate Kit	SH4615Z, SH4620Z

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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
								Suct.	Disch.		Maximum Operating		L	W	H	
2707624	J04-336	2KES-05Y	CE1	2	415/3	0.5	4.06	5/8"	1/2"	1.0	2.8	43	343	220	273	N
2707625	J04-337	2JES-07Y	CE1	2	415/3	0.7	5.21	5/8"	1/2"	1.0	3.7	43	343	220	273	N
2707626	J04-338	2HES-1Y	CE1	2	415/3	1	6.51	5/8"	1/2"	1.0	3.8	44	343	220	273	N
2707627	J04-339	2HES-2Y	CE1	2	415/3	2	6.51	5/8"	1/2"	1.0	4.5	45	343	220	273	N
2707628	J04-340	2GES-2Y	CE1	2	415/3	2	7.58	5/8"	1/2"	1.0	5.0	45	343	220	273	N
2707629	J04-347	2FES-2Y	CE1	2	415/3	2	9.54	5/8"	1/2"	1.0	5.3	45	343	220	273	N
2707630	J04-348	2FES-3Y	CE1	2	415/3	3	9.54	5/8"	1/2"	1.0	6.1	47	343	220	273	N
2707631	J04-341	2EES-2Y	CE2	2	415/3	2	11.4	7/8"	5/8"	1.5	6.0	68	398	259	307	N
2707632	J04-342	2EES-3Y	CE2	2	415/3	3	11.4	7/8"	5/8"	1.5	7.5	71	398	259	307	N
2707633	J04-343	2DES-2Y	CE2	2	415/3	2	13.4	7/8"	5/8"	1.5	7.5	68	398	259	307	N
2707635	J04-344	2DES-3Y	CE2	2	415/3	3	13.4	7/8"	5/8"	1.5	8.6	71	398	259	307	N
2707636	J04-345	2CES-3Y	CE2	2	415/3	3	16.2	7/8"	5/8"	1.5	9.1	70	398	259	307	N
2707637	J04-346	2CES-4Y	CE2	2	415/3	4	16.2	7/8"	5/8"	1.5	10.0	70	398	259	307	N
2707638	J04-351	4FES-3Y	CE3	4	415/3	3	18.1	7/8"	5/8"	2.0	9.5	82	432	309	347	50%
2707639	J04-352	4FES-5Y	CE3	4	415/3	5	18.1	7/8"	5/8"	2.0	10.8	86	432	309	347	50%
2707640	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%
2707641	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%
2707642	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%
2707643	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%
2707644	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%
2707645	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%

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
2707646	J04-461	2HES-2YE	CE1	2	240/1
2707647	J04-462	2GES-2YE	CE1	2	240/1
2707648	J04-463	2FES-2YE	CE1	2	240/1

Accessories

Cat. No.	Part No.	Description	Suits Series
2708322	347019-01	Motor Protection Device SE-B1 (Replaces INT69VS7-11)	
2708326	347023-03	Discharge Gas Temperature Control Device (sensor)	
2709475	347600-47	Capacity Control Solenoid Valve Assembly	
2708331	343309-01	Capacity Control Solenoid Coil Only 240 Volt 50 Hz	
2711051	343021-01	Cooling Fan Assembly	CE1
2711052	343021-26		CE2
2711053	343021-29		CE3

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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	Weight kg	Dimensions: mm			Optional Capacity Control
								Suct.	Disch.		Maximum Operating		L	W	H	
2707649	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%
2707650	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%
2707651	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%
2707652	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%
2707653	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%
2707654	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%
2707655	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%
2707656	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%

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	Weight kg	Dimensions: mm			Optional Capacity Control
								Suct.	Disch.		Maximum Operating		L	W	H	
2707657	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%
2707658	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%
2707659	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%
2707660	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%

Accessories

Cat. No.	Part No.	Description
2708322	347019-01	Motor Protection Device SE-B1 (Replaces INT69VS7-11)
2707879	347334-03	OLC-K1 Electronic Oil Monitoring Control
2708326	347023-03	Discharge Gas Temperature Control Device (sensor)
2709475	347600-47	Capacity Control Solenoid Valve Assembly
2708331	343309-01	Capacity Control Solenoid Coil Only 240 Volt 50 Hz
2708328	302355-53	Capacity Control Head - Complete
2711054	343021-27	Cooling Fan Assembly
	347051-01	Protection Device Kit and Harness (CM-RC-01)

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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	Weight kg	Dimensions: mm			Optional Capacity Control
								Suct.	Disch.		Maximum Operating		L	W	H	
2707661	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%
2707662	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%
2707663	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%
2707664	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%
2707665	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%
2707666	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%
2707668	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%
2707669	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%
2707670	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%
2707671	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%
2707672	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%
2707673	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%
2707674	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%
2707675	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%
2707676	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%
2707677	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%

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	Weight kg	Dimensions: mm			Optional Capacity Control
								Suct.	Disch.		Maximum Operating		L	W	H	
2707679	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%
2707680	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%
2707681	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%
2707682	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%
2707683	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%
2707684	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%
2707685	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%
2707686	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%

Accessories

Cat. No.	Part No.	Description		Suits Series
2708322	347019-01	Motor Protection Device	SE-B1 (Replaces INT69VS7-11)	
2708325	347028-01	Motor Protection Device	SE-B2 (Replaces INT69VS)	
2707877	347319-11	Delta PII Oil Pressure Switch		
2708326	347023-03	Discharge Gas Temperature Control Device (sensor)		
2709475	347600-01	Capacity Control Solenoid Valve Assembly		4VES-4NES
2708327	347600-03	Capacity Control Solenoid Valve Assembly		4JE-6FE
2708331	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz		
2708328	302355-12	Capacity Control Head - Complete		4VES-4NES
2708329	302355-20	Capacity Control Head - Complete		4JE-6FE
2711056	343021-04	Cooling Fan Assembly		4JE-4FE
2711057	343021-05	Cooling Fan Assembly		6JE-6FE

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	Weight kg	Dimensions: mm			Optional Capacity Control
								Suct.	Disch.		Maximum Operating		L	W	H	
2707687	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%
2707688	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%

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Semi-Hermetic Compressors

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 Suct.	Connections Disch.	Oil Charge: l	Current - Amps Max. Operating	Current - Amps Locked Rotor	Weight kg	Dimensions mm L	Dimensions mm W	Dimensions mm H	Dimensions mm Bolt Holes	Optional Capacity Control	Oil Switch Req.
K Series																	
2709625	DKJP-10X-CAG	2	240/1	1	5.1	5/8"	1/2"	0.7	7.1	32.4	41	365	235	280	208 x 162	N/A	N
2709626	DKJP-10X-EWL		415/3						3.2	15.5							
2709627	DKSJP-10X-CAG		240/1		6.3				6.7	32.4	42						
2709628	DKSJP-15X-CAG			1.5					9.0	43.0							
2709629	DKSJP-15X-EWL		415/3						3.4	20.4							
2709630	DKLP-15X-CAG		240/1		7.4				8.4	43.0	41						
2709631	DKLP-15X-EWL		415/3						3.4	20.4							
2709632	DKSLP-20X-EWL			2	9.1				4.7	20.4	42						
L Series																	
2709640	DLEP-20X-EWL	2	415/3	2	9.9	7/8"	5/8"	2.0	5.7	37.6	84	470	330	385	295 x 279	N/A	N
2709633	DLFP-20X-EWL				12.9				4.5		86						
2709641	DLFP-30X-EWL			3					7.2	53.0							
2709634	DLLP-30X-EWL				18.2	1 1/8"			7.3		91						
2709642	DLLP-40X-EWL			4					9.5	68.5	93						
2709635	DLSGP-40X-EWL				22.5				8.9		82						
S Series																	
2709636	D2SA-45X-EWL	2	415/3	4.5	22.4	1 1/8"	7/8"	2.4	11.4	68.5	95	560	330	395	295 x 279	N/A	Y
2709643	D2SA-55X-EWL			5.5					13.1	67.3							
2709637	D2SC-55X-EWL				26.8					74.1	96						
2709644	D2SC-65X-EWL			6.5	26.9				16.2	85.3							
2709638	D2SK-65X-EWL				31.2				16.4		97						
2709639	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		
2709645	D3SC-75X-AWM				38.0				18.7								
2709646	D3SC-100X-AWM			10					21.6	106.0							
2709647	D3SS-100X-AWM				49.9				26.0	109.0	178	680					
2709648	D3SS-150X-AWM			15		1 5/8"			30.2	125.0	177						
2709650	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%	
2709651	D8SH-500X-AWM			50					95.2	458.0	347		590			25% or 50%	
2709652	D8SJ-450X-AWM			45	181.0	3 1/8"			90.8		366		625	670		25%	
2709653	D8SJ-600X-AWM			60					102.0	500.0	367					25% or 50%	
2709654	D8SK-700X-AWM			70	210.0		2 1/8"		127.0	574.0	376	904	541				

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

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.
						Suct.	Disch.		Max. Operating	Locked Rotor		L	W	H	Bolt Holes		
2709722	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
2709723	D2DL-040X-AWM			4	23.7				10.0		140						
2709724	D2DL-075X-AWM			7.5			1 1/8"		13.0	70.0	145						
2709725	D2DB-050X-AWM			5	28.0		7/8"		11.5	55.0	140						
2709726	D2DB-075X-AWM			7.5			1 1/8"		15.4	70.0	145						
2709727	D3DA5-050X-AWM	3		5	32.2		7/8"	3.7	12.0	55.0	157	655	370	480	381 x 305		
2709728	D3DA5-075X-AWM			7.5			1 1/8"		17.5	106.0	163	680					
2709729	D3DC5-075X-AWM				38.0				14.0	70.0	161	655					
2709730	D3DC5-100X-AWM			10					20.5	121.0	175	680					
2709731	D3DS5-100X-AWM				49.9				19.5		173						
2709732	D3DS5-150X-AWM			15		1 5/8"			29.0	129.0	178	710		490			
2709733	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%	
2709734	D8DT-450X-AWM			45	181.0	3 1/8"			69.0	458.0	356						
2709735	D8DH-500X-AWM			50	151.0	2 5/8"			88.2		351		590	670		25% or 50%	
2709736	D8DJ-600X-AWM			60	181.0	3 1/8"			104.0	500.0	352						

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

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
2707883	3164918	OPS2 Oil Pressure Switch	All Copeland Semi-Hermetic Compressors with Oil Pumps
2707884	3168329	OPS2 Oil Pressure Switch and Sensor Kit	

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
2709656	2948773	Internal Crankcase Heater	27	DK
2709657	2834369		70	DL,DLHA,D2S
2709658	2834198			D2D, D3S, D3D
2709659	6610169		100	D4S, D6SA, D6SF, D6SH, D6SL, D4D, D6DH, D6DL
2709660	2832205		200	D6ST, D6SJ, D6SK, D6SU, D6DJ, D6DT, D8S, D8D

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
2711136	2972030	Single Phase Electrics Kit	DKJ, DKSJ10X
2711137	3165080		DKSJ15X, DKL15X

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
2708301	2835339	Capacity Control Kit Includes 1 each of Solenoid Valve, Coil & Gasket	All Copeland Semi-Hermetic with Capacity Control Heads Fitted
2711311	ASC2	Replacement Solenoid Coil	

Head Cooling Fans

Head cooling fans are used to provide additional cooling.

Cat. No.	Part No.	Description	Suits Model
2711000	2998245	Head Cooling Fan Less Brackets	
2711001	3117229	Head Cooling Fan Bracket Kit	D2S
	2988119		D2D
2711002	2988095		D3S, D3D
2711003	2986260		D4S
	2986248		D4D
2711004	2987616		D6SA, D6SF, D6SH, D6SL, D6ST
	2830710		D6SJ
	2987638		D6D
2711005	2986282		D8SH
	2986293		D8SJ, D8SK
	2987649		D8D

Motor Protection Module

Cat. No.	Part No.	Description	Suits
2711134	3199825	INT69-2 Motor Protection Module	Semi-hermetic compressors, DK, DL, D2, D3, D9 series
2711135	3133638		Semi-hermetic compressors, D4, D6, D8 series

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Semi-Hermetic Compressors

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
						Med Temp R404A	Med Temp R134a	Low Temp R404A		
2709737	4MF1-13X-AWMD/D	4	415/3	13	62	33,4	18,2	11,4	177	381 x 305
2709738	4MA1-22X-AWMD/D	4	415/3	22	62	33,6	19,1	10,8	178	381 x 305
2709739	4ML1-15X-AWMD/D	4	415/3	15	71	38,7	22,1	13,2	180	381 x 305
2709740	4MH1-25X-AWMD/D	4	415/3	25	71	38,8	21,4	12,5	187	381 x 305
2709741	4MM1-20X-AWMD/D	4	415/3	20	78	42,6	24,7	14,7	182	381 x 305
2709742	4MI1-30X-AWMD/D	4	415/3	30	78	42,8	23,9	13,9	188	381 x 305
2709743	4MT1-22X-AWMD/D	4	415/3	22	88	47,8	27,7	16,5	183	381 x 305
2709744	4MJ1-33X-AWMD/D	4	415/3	33	88	48,0	26,8	16,0	190	381 x 305
2709745	4MU1-25X-AWMD/D	4	415/3	25	99	54,2	31,2	18,7	186	381 x 305
2709746	4MK1-35X-AWMD/D	4	415/3	35	99	54,4	30,1	17,7	202	381 x 305
2709747	6MM1-30X-AWMD/D	6	415/3	30	120	61,8	36,9	21,6	215	381 x 305
2709748	6MI1-40X-AWMD/D	6	415/3	40	120	64,2	35,3	20,3	219	381 x 305
2709749	6MT1-35X-AWMD/D	6	415/3	35	135	70,4	41,3	25,1	221	381 x 305
2709750	6MJ1-45X-AWMD/D	6	415/3	45	135	72,4	40,4	23,6	223	381 x 305
2709751	6MU1-40X-AWMD/D	6	415/3	40	153	79,8	46,3	28,4	225	381 x 305
2709752	6MK1-50X-AWMD/D	6	415/3	50	153	82,1	45,3	26,6	230	381 x 305

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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.
2708184	J02-003	No 1	Y
2708185	J02-004	No 2	Y
2708186	J02-005	No 3	Y
2708187	J02-006	No 4	Y
2708188	J02-007	No 5	Y
2708189	J02-008	No 6	Y

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.
2708190	J02-002	2T.2S	Y
2708191	J02-001	2N.2S	Y
2708192	J03-005	4T.2S	Y
2708193	J03-004	4P.2S	Y
2708194	J03-003	4N.2S	Y
2708195	J03-002	4H.2S	Y
2708196	J03-001	4G.2S	Y
2708197	J03-008	6H.2S	Y
2708198	J03-007	6G.2S	Y
2708199	J03-006	6F.2	N

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Receiver Units

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
				-25°C	-5°C	Suct.	Dis.	Rec. Inlet	Rec. Outlet	Height	Depth	Width		
2707530	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
2707531	HLR-13-ZBD45KCE-TFD		6	4.49	12.45	7/8"	5/8"	5/8"	5/8"	710	400	690	13	75
2707532	HLR-13-ZBD58KCE-TFD		7.5	5.37	16.25	1 1/8"	3/4"	5/8"	5/8"	710	400	725	13	84
2707533	HLR-13-ZBD76KCE-TFD		10	8.05	21.04	1 3/8"	3/4"	5/8"	5/8"	710	400	725	13	90

Tandem Compressor Units

Cat. No.	Model No.	Elect. Supply Volts / Phase	Nom. HP	R404A Cap: kW		Connections				Dimensions: mm			Rec. Vol: l	Weight: kg
				-25°C	-5°C	Suct.	Dis.	Rec. Inlet	Rec. Outlet	Height	Depth	Width		
2707534	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
2707535	HLR-31-ZBDT90KCE-TFD		12	9.22	24.05	1 3/8"	7/8"	5/8"	5/8"	910	480	970	31	138
2707536	HLR-31-ZBDT116KCE-TFD		15	10.06	32.04	1 5/8"	1 1/8"	7/8"	7/8"	870	480	970	31	165
2707537	HLR-31-ZBDT152KCE-TFD		20	16.15	42.09	1 5/8"	1 3/8"	7/8"	7/8"	870	480	970	31	175

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
2709541	U07-045	2KES-05Y-R	CE1
2709542	U07-046	2JES-07Y-R	CE1
2709543	U07-037	2HES-1Y-R	CE1
2709544	U07-063	2HES-2Y-R	CE1
2709545	U07-038	2GES-2Y-R	CE1
2709546	U07-039	2FES-2Y-R	CE1
2709547	U07-064	2FES-3Y-R	CE1
2709548	U07-003	2EES-2Y-R	CE2
2709549	U07-041	2EES-3Y-R	CE2
2709550	U07-040	2DES-2Y-R	CE2
2709551	U07-002	2DES-3Y-R	CE2
2709552	U07-070	2CES-3Y-R	CE2
2709553	U07-071	2CES-4Y-R	CE2
2709554	U07-007	4FES-3Y-R	CE3
2709555	U07-008	4FES-5Y-R	CE3

Cat. No.	Part No.	Model No.	Compressor Series
2709556	U07-005	4EES-4Y-R	CE3
2709557	U07-006	4EES-6Y-R	CE3
2709558	U07-004	4DES-5Y-R	CE3
2709559	U07-049	4DES-7Y-R	CE3
2709560	U07-044	4CES-6Y-R	CE3
2709561	U07-043	4CES-9Y-R	CE3
2709562	U07-085	4VES-7Y-R	CE4
2709563	U07-086	4VES-10Y-R	CE4
2709564	U07-087	4TES-9Y-R	CE4
2709565	U07-088	4TES-12Y-R	CE4
2709566	U07-089	4PES-12Y-R	CE4
2709567	U07-090	4PES-15Y-R	CE4
2709568	U07-091	4NES-14Y-R	CE4
2709569	U07-092	4NES-20Y-R	CE4

Cat. No.	Part No.	Model No.	Compressor Series
2709570	U07-013	4JE-15Y-R	BE5
2709571	U07-014	4JE-22Y-R	BE5
2709572	U07-011	4HE-18Y-R	BE5
2709573	U07-012	4HE-25Y-R	BE5
2709574	U07-009	4GE-23Y-R	BE5
2709575	U07-010	4GE-30Y-R	BE5
2709576	U07-035	6JE-25Y-R	BE6

Cat. No.	Part No.	Model No.	Compressor Series
2709577	U07-036	6JE-33Y-R	BE6
2709578	U07-033	6HE-28Y-R	BE6
2709579	U07-034	6HE-35Y-R	BE6
2709580	U07-031	6GE-34Y-R	BE6
2709581	U07-032	6GE-40Y-R	BE6
2709582	U07-029	6FE-44Y-R	BE6
2709583	U07-030	6FE-50Y-R	BE6

Cat. No.	Part No.	Model No.	Compressor Series
2709584	U07-585	4VES-6Y-R	CE4
2709585	U07-587	4TES-8Y-R	CE4

Cat. No.	Part No.	Model No.	Compressor Series
2709586	U07-589	4PES-10Y-R	CE4
2709587	U07-591	4NES-12Y-R	CE4

Cat. No.	Part No.	Model No.	Compressor Series
2709588	U07-513	4JE-13Y-R	BE5
2709589	U07-511	4HE-15Y-R	BE5
2709590	U07-509	4GE-20Y-R	BE5
2709591	U07-535	6JE-22Y-R	BE6

Cat. No.	Part No.	Model No.	Compressor Series
2709592	U07-533	6HE-25Y-R	BE6
2709593	U07-531	6GE-30Y-R	BE6
2709594	U07-529	6FE-40Y-R	BE6

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	
2709481	B43-304	Suction Accumulator	5/8"
2709482	B43-300		7/8"
2709483	B43-301		1 1/8"
2710794	B43-305		1 3/8"
2710795	B43-302		1 5/8"
2709468	U51-009	Suction Accumulator Fitting Charge	
2708551	U40-001	Liquid Line Assembly Fitted	3/8"
2708552	U40-002		1/2"
2708553	U40-003		5/8"
2708554	U40-004		7/8"
2708555	U40-005		7/8"
2708556	U40-006		1 1/8"
2712183	U40-021	Liquid Line Ball Valve Fitted	3/8"
2712185	U40-023		5/8"
2712186	U40-024		7/8"
2712187	U40-025		1 1/8"
2712188	U40-026		1 3/8"
2709469	U40-040	Liquid Line Solenoid Valve Fitted	3/8"
2709470	U40-041		1/2"
2709471	U40-042		5/8"
2711115	U40-043		7/8"
2711118	U40-044		1 1/8"
2707426	U40-092	LP Control Auto Reset Fitted	
2707427	U40-093	HP Control Auto Reset Fitted	
2707428	U40-094	HP Control Manual Reset Fitted	
2707429	U40-090	HP Fan Cycling Control Fitted	
2707431	U40-091	Dual HP/LP Control Fan Cycling	
	S06-014	Unloader LP Control	
2709480	B37-007	Oil Separator Internal Float	5/8"
2709484	B37-008		7/8"
2710766	B37-009		1 1/8"
2710767	B37-010		1 3/8"
2710768	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	
2710760	U51-008	Oil Separator Fitting Charge	
2709474	U40-097	Traxon Oil Level Control Fitted (Octagon Compressor)	
2710772	U40-097E	Traxon Oil Level Control Fitted with Transformer & Wiring	
2709477	U40-099	Traxon Oil Level Control Fitted (C4 & B5 Compressors)	
2710771	U40-099E	Traxon Oil Level Control Fitted with Transformer & Wiring	
2710769	U40-098	Traxon Oil Level Monitoring Digital c/w Transformer Fitted	
2710770	U40-098E	Traxon Oil Level Monitoring c/w Transformer & Wiring Fitted	
2707879	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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HVAC 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 and line components individually engineered to match each compressor selection, which provides optimum system efficiency and 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.
2709485	U18-001	CSH 6553-35
2709486	U18-002	CSH 6553-50
2709487	U18-003	CSH 6563-40
2709488	U18-004	CSH 6563-60
2709489	U18-005	CSH 7553-50
2709490	U18-006	CSH 7553-70
2709491	U18-007	CSH 7563-60
2709492	U18-008	CSH 7563-80
2709493	U18-009	CSH 7573-70
2709494	U18-010	CSH 7573-90
2709495	U18-011	CSH 7583-80
2709496	U18-012	CSH 7593-90

R134a A/C units - Optimized packages with economiser fitted

Cat. No.	Part No.	Model No.
2709497	U18-201	CSH 6553-35
2709498	U18-203	CSH 6563-40
2709499	U18-205	CSH 7553-50
2709500	U18-207	CSH 7563-60
2709501	U18-209	CSH 7573-70
2709502	U18-211	CSH 7583-80
2709503	U18-212	CSH 7593-90

R407C A/C units - Optimized packages with economiser fitted

Cat. No.	Part No.	Model No.
2709504	U18-202	CSH 6553-50
2709505	U18-204	CSH 6563-60
2709506	U18-206	CSH 7553-70
2709507	U18-208	CSH 7563-80
2709508	U18-210	CSH 7573-90

Unit Accessories

Panel Assembly

Cat. No.	Part No.	Description
2709509	U40-112	R134a Dual Gauge Panel Assembly
2709510	U40-113	R407C Dual Gauge Panel Assembly

Exterior Weather Protection Canopy Set

Cat. No.	Part No.	Description
2709522	U50-121	Exterior Panel Set for 65 Series Units
2709523	U50-101	Exterior Panel Set for 75 Series Units

Liquid Line Accessories

Cat. No.	Part No.	Description
2709511	U40-051	1 3/8" Liquid Bypass Valve Assembly
2709512	U40-052	1 5/8" Liquid Bypass Valve Assembly

Suction Line Accessories

Cat. No.	Part No.	Description
2709513	U40-073	2 1/8" Suction Line Ball Valve (CSH 65)
2709514	U40-076	3 1/8" Suction Line Ball Valve (CSH 75)

Electrical Panel & Components

Cat. No.	Part No.	Description
2709515	U10-300	CSH Microprocessor Controller (supplied loose)
2709517	U10-283	65 Series Electrical Panel (includes controller)
2709518	U10-282	75 Series Electrical Panel (includes controller)

Inclusion of Condensor Fan Motor Starters

Cat. No.	Part No.	Description
2709519	N41-803	Suits 4 x 500 / 630mm Fans
2709520	N41-804	Suits 5 x 500 / 630mm Fans
2709521	N41-805	Suits 6 x 500 / 630mm Fans

Communication Cards

Cat. No.	Part No.	Description
	N32-908	Network Connection Serial Card
	N32-920	BAC net Communication Card

EXV Driver Kits

Cat. No.	Part No.	Description
2709516	U10-305	CSH7 Series EXV Driver Kit
	U10-304	CSH6 Series EXV Driver Kit

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 Nom. HP	Compressor Motor Type	Amb. Temp °C	R134a Capacity : Watts Evaporating Temperature : °C -15	-10	-5	0	5	7.2	10	15	Connections Suct: Liquid	Cond. Fan(s) 240V No./Dia. mm	MOC: Amps
2709922	EPCH4518Y-1PH	1½	CSR	32	1909	2420	3050	3800	4674	5098	5674	6804	5/8" 3/8"	2/350	15.4
				38	1774	2255	2849	3559	4389	4793	5342	6422			
2709923	EPCH4518Y-3PH		3Ø	43	1661	2117	2682	3358	4151	4538	5065	6104			5.01
2709924	EPCH4525Y-1PH	2	CSR	32	2306	3138	4000	4940	6006	6526	7245	8710			16.9
				38	2143	2924	3737	4626	5640	6135	6821	8221			
2709925	EPCH4525Y-3PH		3Ø	43	2007	2745	3517	4365	5335	5809	6467	7814			6.46
2709926	EPCH4528Y-3PH	2½	3Ø	32	2267	3103	4073	5179	6426	7020	7818	9359	7/8" 3/8"	2/400	11.1
				38	2107	2891	3805	4851	6034	6599	7360	8834			
				43	1973	2715	3581	4577	5708	6249	6978	8396			
2709927	EPCH4537Y-3PH	3	3Ø	32	3167	4294	5586	7042	8662	9427	10447	12396			11.1
				38	2943	4001	5218	6595	8134	8862	9835	11701			
				43	2756	3757	4911	6223	7694	8391	9325	11121			
2709928	EPCH4543Y-3PH	3½	3Ø	32	3547	4856	6249	7834	9615	10462	11597	13791			11.1
				38	3344	4524	5837	7337	9029	9835	10917	13017			
				43	3174	4248	5494	6923	8540	9312	10351	12372			

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 Nom HP	Compressor Motor Type	Amb. Temp °C	R404A Capacity: Watts Evaporating Temperature: °C -40	-35	-30	-23.3	-20	-15	-10	Connections Suct: Liquid	Cond. Fan(s) 240V No./Dia. mm	MOC: Amps
2709901	EPCL2480Z-1PH	2	CSR	32	872	1334	1800	2432	2746	3225	3709	5/8" 3/8"	1/350	20.1
				38	771	1192	1624	2224	2528	2999	3483			
				43	687	1073	1478	2051	2347	2811	3295			
2709902	EPCL2511Z-1PH	2 ½	CSR 3Ø	32	1194	1744	2356	3274	3767	4566	5427	5/8" 3/8"	2/350	25.5
				38	1055	1557	2126	2995	3468	4246	5096			
2709903	EPCL2511Z-3PH			43	940	1402	1934	2762	3219	3979	4821			5.86
2709904	EPCL2516Z-3PH	4	3Ø	32	1671	2429	3268	4519	5188	6269	7430	7/8" 3/8"	2/350	10.7
				38	1477	2170	2949	4133	4777	5829	6977			
				43	1316	1954	268	3812	4434	5463	6600			
2709905	EPCL2522Z-3PH	5 ½	3Ø	32	2024	3077	4202	5826	6674	8019	9438	1 1/8" 3/8"	2/400	15.1
				38	1789	2748	3792	5329	6145	7457	8863			
				43	1594	2474	3450	4915	5704	6989	8383			

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
- CSR: Capacitor Start and Run
- 3Ø: 3 Phase, 50 Hz, 400 Volt

} 1 Phase, 50 Hz, 220-240 Volt

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
		Nom HP	Motor Type		-25	-20	-15	-10	-5	0	5	10			
2709909	EPCH9510Z-1PH	1	CSR	32 38 43	751	971 860 767	1228 1099 991	1526 1374 1248	1868 1689 1539	2256 2046 1871	2696 2453 2250	3195 2918 2687	5/8" 3/8"	1/320	8.6
2709910	EPCH9513Z-1PH	1 1/8	CSR	32 38 43	891	1189 1033 903	1543 1359 1205	1954 1735 1552	2426 2165 1947	2964 2653 2394	3573 3207 2902	4264 3839 3484		1/350	10.9
2709911	EPCH4517Z-1PH	1 1/4	CSR	32 38 43		1302	1693 1498 1335	2138 1911 1721	2643 2375 2152	3214 2899 2636	3860 3491 3184	4597 4170 3814			11.3
2709912	EPCH4519Z-1PH	1 1/2	CSR	32 38 43		1841	2328 2035 1791	2887 2564 2294	3526 3162 2858	4251 3838 3494	5073 4604 4214	6008 5480 5040		1/400	16
2709913	EPCH4524Z-1PH	2	CSR	32 38 43			2654 2466 2310	3315 3089 2900	4012 3747 3527	4750 4449 4198	5569 5231 4950	6387 6013 5701		1/400	204
2709914	EPCH4531Z-1PH	2 1/2	CSR	32 38 43			3594 3340 3128	4508 4200 3944	5462 5102 4802	6464 6054 5712	7555 7097 6715	8646 8139 7717	7/8" 1/2"	2/350	27.2
2709915	EPCH4531Z-3PH		3Ø												8.75
2709916	EPCH4540Z-3PH	3	3Ø	32 38 43			4419 4106 3846	5465 5092 4781	6517 6113 5777	7759 7267 6857	9203 8600 8099	10646 9934 9340		2/400	10.4
2709917	EPCH4546Z-3PH	4	3Ø	32 38 43			3942 3663 3431	4922 4586 4306	6352 5934 5585	8110 7596 7167	10101 9489 8980	12091 11382 10792	7/8" 5/8"		12.5
2709918	EPCH4553Z-3PH	4 1/2	3Ø	32 38 43			5359 4980 4664	6769 6307 5922	8359 7808 7349	10101 9460 8926	12027 11298 10690	13953 13135 12454			13.1
2709919	EPCH4561Z-3PH	5	3Ø	32 38 43			5509 5119 4794	6954 6479 6083	8691 8118 7641	10639 9964 9402	12739	14838	1 1/8" 5/8"		15.1
2709920	EPCH4568Z-3PH	6	3Ø	32 38 43			6765 6287 5888	8820 8218 7716	10928 10208 9608	13102 12270 11576	15375 14442 13664	17647 16613 15752			16.3
2709921	EPCH4573Z-3PH	6 1/2	3Ø	32 38 43			7410 6886 6449	9224 8594 8069	11205 10466 9851	13354 12507 11801	15501 14698 14029	17647 16889 16257			19.1

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
- CSR: Capacitor Start and Run
- 3Ø: 3 Phase, 50 Hz, 400 Volt

} 1 Phase, 50 Hz, 220-240 Volt

All models are also suitable for operation with R507

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Condensing Units

Copeland

EVO Scroll

R134a - Scroll - Medium Temperature Applications

Cat. No.	Model No.	Compressor Nom. HP	Compressor Motor Type	Amb. Temp °C	R134a Capacity : Watts Evaporating Temperature : °C -15	-10	-5	0	5	10	Connections Suct: Liquid	Cond. Fans 240V No./Dia. mm	Nom. Current Comp. + Fans FLA
2709929	EPCHZB48 3PH	6.5	3Ø	32 35 38 43	5705 5496 5285	7230 6935 6628 6182	8923 8644 8341 7730	10790 10441 10061 9382	12856 12460 12012 11300	15158 14684 14207 13313	7/8" 1/2"	2/500	21.6
2709930	EPCHZB58 3PH	8	3Ø	32 35 38 43	6903 6674 6446	8579 8302 8014 7542	10504 10168 9843 9257	12712 12292 11901 11206	15151 14691 14181 13376	17850 17324 16806 15756	1 1/8" 5/8"		27.6
2709931	EPCHZB76 3PH	10	3Ø	32 35 38 43	8942 8651 8357	11080 10690 10321	13545 13065 12611 11837	16305 15804 15234 14292	19407 18788 18173 17108	22794 22014 21234 20114	1 1/8" 5/8"		31.5
2709932	EPCHZB95 3PH	13	3Ø	32 35 38 43	11213 10728 10218	14068 13498 12942	17202 16572 15963 14833	20699 20031 19281 17981	24611 23821 22977 21226	28991 27971 27060 25328	1 1/8" 5/8"		32.4
2709933	EPCHZB114 3PH	15	3Ø	32 35 38 43	12968 12398	16317 15657 15009	20048 19351 18541 17208	24304 23404 22569 20971	28863 27951 26811 25021	33724 32643 31588 29288	1 1/8" 5/8"		36

Capacities based on 18ºC return vapour and 3K sub-cooling

R404A - Scroll - Medium Temperature Applications

Cat. No.	Model No.	Compressor Nom. HP	Compressor Motor Type	Amb. Temp °C	R404a Capacity : Watts Evaporating Temperature : °C -15	-10	-5	0	5	10	Connections Suct: Liquid	Cond. Fans 240V No./Dia. mm	Nom. Current Comp. + Fans FLA
2709929	EPCHZB48 3PH	6.5	3Ø	32 35 38 43	10025 9545 9029 8159	11851 11292 10662 9668	13855 13208 12555 11350	16138 15238 14509 13145	18472 17685 16605 15057		7/8" 1/2"	2/500	21.6
2709930	EPCHZB58 3PH	8	3Ø	32 35 38 43	11828 11228 10560 9364	14148 13505 12755 11432	16741 15871 15127 13719	19387 18397 17533 15934	22131 21226 19996 18218	25472 24092 23157 20557	1 1/8" 5/8"		27.6
2709931	EPCHZB76 3PH	10	3Ø	32 35 38 43	15358 14628 13818 12379	18258 17298 16433 14794	21210 20270 19070 17254	24333 23252 21812 19777	27896 26276 25150	31145 30018 28038	1 1/8" 5/8"		31.5

Capacities based on 18ºC return vapour and 3K sub-cooling

R404A - Scroll - Low Temperature Applications

Cat. No.	Model No.	Compressor Nom. HP	Compressor Motor Type	Amb. Temp °C	R404a Capacity : Watts Evaporating Temperature : °C -40	-35	-30	-25	-20	-15	-10	Connections Suct: Liquid	Cond. Fans 240V No./Dia. mm	Nom. Current Comp. + Fans FLA
2709906	EPCLZF24 3PH	7.5	3Ø	32 35 38 43	4306 4126 3946 3595	6013 5274 5034 4634	6744 6509 6269 5786	8193 7893 7592 7006	9879 9459 9033 8268	11676 11196 10707 9807	13681 13104 12444 11416	7/8" 1/2"	2/500	18.5
2709907	EPCLZF33 3PH	10	3Ø	32 35 38 43	6013 5713 5474 5017	7531 7229 6899 6351	9285 8909 8549 7863	11332 10819 10313 9526	13533 12933 12367 11372	16058 15400 14620 13398	18844 18031 17071 15609	7/8" 1/2"		22.7
2709908	EPCLZF40 3PH	13	3Ø	32 35 38 43	7201 6897 6597 6092	9112 8752 8384 7690	11263 10783 10286 9401	13595 12995 12421 11346	16182 15498 14718 13391	18998 18141 17291 15591	22168 21028 20034 18200	7/8" 1/2"		26.1

Capacities based on 18ºC return vapour and 3K sub-cooling

Requires liquid injection for compressor cooling

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Condensing Units

Tecumseh

L'Unite Hermetique - HTA Condensing Unit

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.

- For situations where air circulation to the condensing unit is restricted
- High ambient temperature capability up to 43°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

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
		Nom HP	Motor Type		-20	-15	-10	-5	0	5	10			
2709829	AET4425YHR-FZ	1/5	CSIR	32 38 43	176	243 220 200	319 291 267	402 368 339	493 452 417	591 540 498	693 632 582	3/8" 1/4"	1/200	2.6
9507060	AET4430YHR-FZ	1/4	CSIR	32 38 43	249	324 298 276	411 379 352	510 471 438	622 573 533	744 686 637	876 807 750		1/250	3.7
9507062	AET4440YHR-FZ	1/3	CSIR	32 38 43	344	435 400 370	539 496 460	656 917 561	786 724 672	929 855 794	1084 997 925		1/250	4.54
9507061	AET4450YHR-FZ	3/8	CSIR	32 38 43	440	566 520 481	709 651 603	870 798 738	1049 960 886	1245 1138 1048	1459 1330 1223		1/300	5.2
9507063	AET4456YHR-FZ	1/2	CSIR	32 38 43	508	649 597 553	807 745 693	985 909 846	1182 1090 1014	1398 1288 1197	1634 1504 1395		1/300	5.8
9507064	AET4460YHR-FZ	1/2	CSR	32 38 43	523	670 614 567	836 769 714	1023 942 875	1231 1134 1053	1463 1346 1248	1720 1579 1461		1/300	5.3

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
		Nom HP	Motor Type		-20	-15	-10	-5	0	5	10			
2709824	AET4425ZHR-FZ	1/5	CSIR	32 38 43	234	293 262 236	359 321 289	432 386 347	511 455 409	597 861 474	687 608 542	3/8" 1/4"	1/200	3
9507070	AET4430ZHR-FZ	1/4	CSIR	32 38 43	290	361 323 292	440 394 356	525 470 424	616 549 494	711 632 566	809 716 639		1/250	3.3
9507071	AET4440ZHR-FZ	1/3	CSIR	32 38 43	390	483 431 387	584 522 471	693 620 559	808 722 651	929 829 746	1053 938 843		1/250	4.3
9507010	AET4450ZHR-FZ	3/8	CSIR	32 38 43	542	674 603 544	820 736 666	981 880 796	1154 1034 934	1340 1197 1078	1535 1367 1227		1/300	5.7
9507011	AET4460ZHR-FZ	1/2	CSIR	32 38 43	675	816 731 660	972 873 790	1142 1026 929	1325 1189 1076	1520 1363 1232	1724 1544 1394		1/300	6.5
9507012	AET4470ZHR-FZ	1/2	CSR	32 38 43	779	946 856 781	1125 1021 934	1316 1194 1092	1519 1377 1258	1733 1567 1429	1956 1766 1607		1/300	5.9

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

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 43°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 and oil sight glass on FH/TFH and TAG models
- Automatic reset HP/LP control on CAJ/TAJ, FH/TFH and TAG models

Cat. No.	Model No.	Compressor		Amb.	R404A Capacity: Watts Evaporating Temperature: °C							Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps
		Nom HP	Motor Type	Temp °C	-40	-35	-30	-23.3	-20	-15	-10			
2709827	AET2415ZBR-FZ	3/8	CSIR	32 38 43	158	211 185 164	271 240 215	339 302 272	414 370 334	495 443 400	581 521 471	3/8" 1/4"	1/200	3.2
2709825	AET2420ZBR-FZ	1/2	CSIR	32 38 43	204	271 233 202	349 304 267	437 384 340	534 472 420	639 568 508	750 669 602		1/250	5
2709828	AET2425ZBR-FZ	5/8	CSR	32 38 43	272	369 328 294	481 432 391	609 550 500	752 680 620	911 824 752	1085 981 895		1/300	4.8
3500000	CAJ2428ZBR-FZ	1/2	CSIR	32 38 43	263 217 179	374 319 274	507 442 387	720 637 567	841 747 669	1043 932 840	1270 1141 1033	1/2" 1/4"		5.7
3500001	CAJT2432ZBR-FZ	5/8	CSR	32 38 43	332 272 222	460 394 339	625 544 477	882 779 693	1024 908 812	1256 1120 1006	1505 1347 1215			6.8
3500002	CAJT2446ZBR-FZ	3/4	CSR	32 38 43	531 446 375	729 628 544	953 832 731	1291 1136 1007	1470 1296 1151	1756 1150 1378	2053 1812 1612	1/2" 3/8"		8.1
3500003	CAJT2464ZBR-FZ	1 1/2	CSR 3Ø	32 38 43	722 625 544	970 855 759	1258 1121 1006	1704 1531 1387	1947 1754 1594	2343 2119 1932	2768 2510 2295	5/8" 3/8"	1/350	10.5
3500004	TAJT2464ZBR-TZ													3.8
9507014	FHT2480ZBR-2	2	CSR 3Ø	32 38 43	872 771 687	1334 1192 1073	1800 1624 1478	2432 2224 2051	2746 2528 2347	3225 2999 2811	3709 3483 3295			20.1
2709877	TFHT2480ZBR-2													4.33
9507078	FHT2511ZBR-2	2 1/2	CSR 3Ø	32 38 43	1194 1055 940	1744 1557 1402	2356 2126 1934	3274 2995 2762	3767 3468 3219	4566 4246 3979	5427 5096 4821		2/350	25.5
2709878	TFHT2511ZBR-2													5.86
2709879	TAGT2516ZBR-2	4	3Ø	32 38 43	1671 1477 1316	2429 2170 1954	3268 2949 2683	4519 4133 3812	5188 4777 4434	6269 5829 5463	7430 6991 6600	7/8" 3/8"		10.7
2709880	TAGT2522ZBR-2	5 1/2	3Ø	32 38 43	2024 1789 1594	3077 2748 2474	4202 3792 3450	5826 5329 4915	6674 6145 5704	8019 7457 6989	9438 8863 8383	1 1/8" 3/8"	2/400	15.1

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
- CSR: Capacitor Start and Run
- 3Ø: 3 Phase, 50 Hz, 400 Volt

} 1 Phase, 50 Hz, 220-240 Volt

All models are also suitable for operation with R507.

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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 43°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
- Automatic reset HP/LP control on CAJ/TAJ, 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
		Nom HP	Motor Type		-25	-20	-15	-10	-5	0	5	10			
3500009	CAJT9480ZMHR-FZ	5/8	CSR	32 38 43	589	767 679 606	976 874 789	1218 1097 997	1495 1352 1233	1811 1624 1502	2170 1973 1809	2577 2351 2162	1/2" 3/8"	1/300	7.3
3500010	CAJT9510ZMHR-FZ	1	CSR	32 38 43	751	971 860 767	1228 1099 991	1526 1374 1248	1868 1689 1539	2256 2046 1871	2696 2453 2250	3195 2918 2687	5/8" 3/8"	1/320	9.2
3500011	CAJT9513ZMHR-FZ	1 1/8	CSR	32 38 43	891	1189 1033 903	1543 1359 1205	1954 1735 1552	2426 2165 1947	2964 2653 2394	3573 3207 2902	4264 3839 3484		1/350	12
3500012	CAJT4517ZHR-FZ	1 1/4	CSR 3Ø	32 38 43		1302	1693 1498 1335	2138 1911 1721	2643 2375 2152	3214 2899 2636	3860 3491 3184	4597 4170 3814			13.4
3500013	TAJT4517ZHR-TZ														4.5
3500014	CAJT4519ZHR-FZ	1 1/2	CSR 3Ø	32 38 43		1841	2328 2035 1791	2887 2564 2294	3526 3162 2858	4251 3838 3494	5073 4604 4214	6008 5480 5040		1/400	16
3500015	TAJT4519ZHR-TZ														5.4
9507072	FHT4524ZHR-2	2	CSR 3Ø	32 38 43			2654 2466 2310	3315 3089 2900	4012 3747 3527	4750 4449 4198	5569 5231 4950	6387 6013 5701	5/8" 3/8"	1/400	20.4
2709889	TFHT4524ZHR-2														6.9
9507073	FHT4531ZHR-2	2 1/2	CSR 3Ø	32 38 43			3594 3340 3128	4508 4200 3944	5462 5102 4802	6464 6054 5712	7555 7097 6715	8646 8139 7717	7/8" 1/2"	2/350	27.2
2709890	TFHT4531ZHR-2														8.75
9507074	FHT4540ZHR-2	3	CSR 3Ø	32 38 43			4419 4106 3846	5465 5092 4781	6517 6113 5777	7759 7267 6857	9203 8600 8099	10646 9934 9340		2/400	28.8
2709891	TFHT4540ZHR-2														10.4
2709892	TAGT4546ZHR-2	4	3Ø	32 38 43			3942 3663 3431	4922 4586 4306	6352 5934 5585	8110 7596 7167	10101 9489 8980	12091 11382 10792	7/8"		12.5
2709893	TAGT4553ZHR-2	4 1/2	3Ø	32 38 43			5359 4980 4664	6769 6307 5922	8359 7808 7349	10101 9460 8926	12027 11298 10690	13953 13135 12454	5/8"		13.1
2709894	TAGT4561ZHR-2	5	3Ø	32 38 43			5509 5119 4794	6954 6479 6083	8691 8118 7641	10639 9964 9402	12739	14838	1 1/8" 5/8"		15.1
2709895	TAGT4568ZHR-2	6	3Ø	32 38 43			6765 6287 5888	8820 8218 7716	10928 10208 9608	13102 12270 11576	15375 14442 13664	17647 16613 15752			16.3
2709896	TAGT4573ZHR-2	6 1/2	3Ø	32 38 43			741 6886 6449	922 8594 8069	1120 10466 9851	1335 12507 11801	1550 14698 14029	1764 16889 16257			19.1

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

All models are also suitable for operation with R507

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Condensing Units

Tecumseh

L'Unite Hermetique

HTA + 43°C

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 43°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 and oil sight glass on FH/TFH and TAG models
- Automatic reset HP/LP control on CAJ/TAJ, FH/TFH and TAG models

Cat. No.	Model No.	Compressor Nom. HP	Compressor Motor Type	Amb. Temp °C	R134a Capacity : Watts Evaporating Temperature : °C -15	-10	-5	0	5	7.2	10	15	Connections Suct: Liquid	Cond. Fan(s) No./Dia. mm	MOC: Amps
3500005	CAJT4476YHR-FZ	5/8	CSIR	32 38 43	714 630 560	948 850 768	1219 1103 1007	1530 1394 1280	1883 1722 1588	2057 1884 1740	2279 2091 1934	2722	1/2"	1/300	7.5
3500006	CAJT4492YHR-FZ	3/4	CSIR	32 38 43	918 822 742	1215 1103 1007	1566 1432 1321	1977 1817 1684	2454 2263 2104	2695 2488 2316	3002 2776 2587	3629 3363 3141	3/8"	1/350	9.6
3500007	CAJT4511YHR-FZ	1	CSR 3Ø	32 38 43	1222 1109 1014	1588 1453 1341	2014 1852 1717	2507 2312 2150	3071 2838 2643	3353 3100 2889	3713 3435 3204	4440 4113 3840	5/8" 3/8"	1/350	9.3
3500008	TAJT4511YHR-TZ														3.7
9507068	FHT4518YHR-2	1 1/2	CSR 3Ø	32 38 43	1909 1774 1661	2420 2255 2117	3050 2849 2682	3800 3559 3358	4674 4389 4151	5098 4793 4538	5674 5342 5065	6804 6422 6104		2/350	15.4
2709846	TFHT4518YHR-2														5.01
9507069	FHT4525YHR-2	2	CSR 3Ø	32 38 43	2306 2143 2007	3138 2924 2745	4000 3737 3517	4940 4626 4365	6006 5640 5335	6526 6135 5809	7245 6821 6467	8710 8221 7814			16.9
2709847	TFHT4525YHR-2														6.46
2709848	TAGT4528YHR-2	2 1/2	3Ø	32 38 43	2267 2107 1973	3103 2891 2715	4073 3805 3581	5179 4851 4577	6426 6034 5708	7020 6599 6249	7818 7360 6978	9359 8834 8396	7/8" 3/8"	2/400	11.1
2709849	TAGT4534YHR-2	2 3/4	3Ø	32 38 43	2940 2732 2559	3954 3684 3459	5115 4778 4497	6426 6019 5679	7893 7412 7011	8588 8073 7644	9519 8962 8497	11308 10673 10144			7.57
2709850	TAGT4537YHR-2	3	3Ø	32 38 43	3167 2943 2756	4294 4001 3757	5586 5218 4911	7042 6595 6223	8662 8134 7694	9427 8862 8391	10447 9835 9325	12396 11701 11121			11.1
2709851	TAGT4543YHR-2	3 1/2	3Ø	32 38 43	3547 3344 3174	4856 4524 4248	6249 5837 5494	7834 7337 6923	9615 9029 8540	10462 9835 9312	11597 10917 10351	13791 13017 12372			11.1

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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Tecumseh

L'Unite Hermetique

HTA and HTA EVO Unit Covers

For use indoors & out, Hermetique's condensing unit covers are aesthetically pleasing whist providing increased protection from weather and 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				
			R404A		R134a		R22
2708254	1000004	Small HTA Condensing Unit Cover	CAJT9510ZMHR	EPCH9510Z-1PH	CAJT4492YHR		CAJT9510TMHR
			CAJT9513ZMHR	EPCH9513Z-1PH	CAJT4511YHR		CAJT9513TMHR
			CAJT4517ZHR	EPCH4517Z-1PH	TAJT4511YHR		CAJT4517EHR
			TAJT4517ZHR				TAJT4517THR
			CAJT2464ZBR				
			TAJT2464ZBR				
			FHT2480ZBR				
			TFHT2480ZBR				
2708255	1000005	Medium HTA Condensing Unit Cover	CAJT4519ZHR	EPCH4519Z-1PH			TAJT4519THR
			TAJT4519ZHR				FHT4524FHR
			FHT4524ZHR	EPCH4524Z-1PH			TFHT4524FHR
			TFHT4524ZHR				FHST4531FHR
							TFHST4531FHR
2708256	1000006	Large HTA Condensing Unit Cover	FHT4531ZHR	EPCH4531Z-1PH	FHT4518YHR	EPCH4518Y-1PH	FHT4531FHR
			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

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		
			Model No.	MOC Amps	LRC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct	Liq		L	W	H
2709816	OP-MGZE136	6 ½	MTZ080-4	18	80	415/3	2 x 450	2 x 1.7	8600	240/1	10	1 ⅛"	½"	130	1510	875	1005
2709817	OP-MGZE171	7 ½	MTZ100-4	22	90		2 x 600	2 x 3.0	14000		14		⅝"	220			
2709818	OP-MGZE215	10	MTZ125-4	27	105									225			
2709819	OP-MGZE242	12	MTZ144-4	30	115									230			
2709820	OP-MGZE271	13 ½	MTZ160-4	36	140				12500					245			

Low Temperature

Cat. No.	Model No.	Nom. HP	Compressor				Fan				Liquid Receiver Capacity: l	Connections		Nett Weight: kg	Dimensions: mm		
			Model No.	MOC Amps	LRC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct	Liq		L	W	H
2709821	OP-LGZE136	4	NTZ136-4	14.3	51	415/3	2 x 350	2 x 1.2	3600	240/1	8	⅞"	½"	100	1210	800	725
2709822	OP-LGZE215	7 ½	NTZ215-4	22.3	74		2 x 450	2 x 1.7	9000		10	1 ⅛"		145			
2709823	OP-LGZE271	8 ½	NTZ271-4	27	96									150			

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

2708270	5312010L10	Weather Canopy	OP-LGZE136
2708271	5312007L07		OP-MGZE136 OP-LGZE215 OP-LGZE271
2708272	5312008L08		OP-MGZE171 OP-MGZE215 OP-MGZE242 OP-MGZE271

Accessories

Cat. No.	Part No.	Description	Suits Model

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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
- Suction accumulator
- Automatic reset HP/LP control
- Oil separator
- Weathershield covers are optional
- 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

Cat. No.	Model No.	Nom HP	Compressor				Fan				Liquid Receiver Capacity kg @ 80%	Connections		Net Weight kg	Dimensions		
			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
2707551	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
2707552	SHT4590ZHR	7	SH4590Z	12.7					3330								
2707553	SHT4610ZHR	8	SH4610Z	17.6	87.3							1 3/8"		182			
2707554	SHT4612ZHR	9	SH4612Z	20										186			
2707555	SHT4615ZHR	12	SH4615Z	22.4	59.1		3 x 500		5000		14		7/8"	232	1880	1100	840
2707556	SHT4620ZHR	15	SH4620Z	32.4	74.8							1 5/8"		238			

Accessories

Cat. No.	Part No.	Description	Suits Model
2708252	1000012	Weather Shield Unit Cover	SHT4576ZHR, SHT4590ZHR, SHT4610ZHR & SHT4612ZHR
2708253	1000013		SHT4615ZHR, SHT4620ZHR

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
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
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
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
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
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

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
					Elect. Supply: Volts/Ph./Hz	Max.Op. Current: Amps	Current: Amps	Input Power: kW		R134a	R404A	Suct.	Liqu.	Length	Width	Height	
2709434	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"	1/2"	1210	819	836	150
2709436	U16-270A	2DES-3Y-IS3-4P	2DES-3Y			8.6						7/8"					
2709438	U16-286A	2CES-4Y-IS3-4P	2CES-4Y			10											
2709440	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
2709442	U16-338A	4DES-7Y-IS5-4P	4DES-7Y			16.5											
2709444	U16-353A	4CES-9Y-IS5-4P	4CES-9Y			20.2											

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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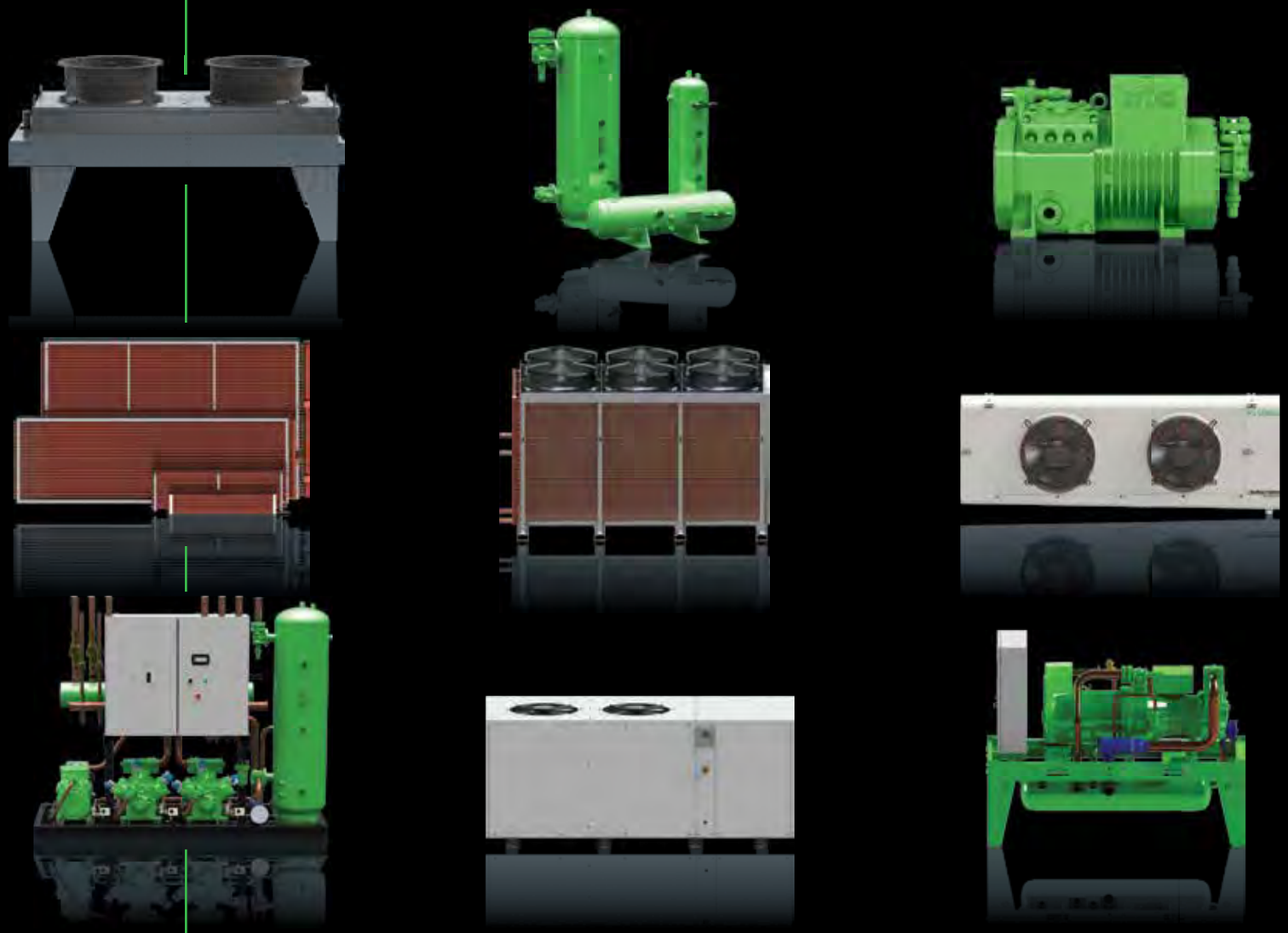
Buffalo Trident
BY BITZER GROUP



PRECISION ENGINEERING IS AT THE HEART OF OUR
OFF-THE-SHELF AND CUSTOMISED SOLUTIONS

BITZER Australia supplies a range of refrigeration equipment including condensing units, natural refrigerant systems and multiple compressor racks, pressure vessels, controls, and the BUFFALO TRIDENT range of heat exchangers. Whatever your requirements are, BITZER can supply a precision engineered solution for your next project.

For more information, speak to your local Actrol team.

Bitzer
THE HEART OF FRESHNESS

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
			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.		
2709391	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
2709392	U16-200	2JC-07.2Y-IS1-4P		0.7	3.5	1.9									
2709373	U16-202	2HC-1.2Y-IS1-4P		1		2.0									
2709374	U16-210	2HC-2.2Y-IS1-4P		2	4.3	2.4									
2709375	U16-218	2GC-2.2Y-IS1-4P			4.7	2.7									
2709393	U16-220	2GC-2.2Y-IS2-4P						1x450mm	1.10	0.25	1170	7/8"		127	
2709394	U16-219	2GC-2.2Y-IS2-6P							0.79	0.16	870				
2709376	U16-226	2FC-2.2Y-IS1-4P			4.9	2.8		1x350mm	0.60	0.14	760	5/8"		104	
2709377	U16-235	2FC-3.2Y-IS2-6P		3				1x450mm	0.79	0.16	870	7/8"		127	
2709395	U16-237	2FC-3.2Y-IS3-6P									1000	1 1/8"	1/2"	160	7.0
2709396	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
2709378	U16-243	2EC-2.2Y-IS2-6P						1x450mm	0.79	0.16	870	7/8"		127	
2709379	U16-251	2EC-3.2Y-IS2-6P		3	6.9	4.0									
2709397	U16-254	2EC-3.2Y-IS3-4P							1.10	0.25	1330	1 1/8"	1/2"	160	7.0
2709380	U16-259	2DC-2.2Y-IS2-6P		2		3.9			0.79	0.16	870	7/8"	3/8"	127	3.8
2709381	U16-268	2DC-3.2Y-IS2-4P		3	7.8	4.5			1.10	0.25	1170				
2709398	U16-270	2DC-3.2Y-IS3-4P									1330	1 1/8"	1/2"	160	7.0
2709399	U16-275	2CC-3.2Y-IS2-6P			8.5	5.0			0.79	0.16	870	7/8"	3/8"	127	3.8
2709382	U16-276	2CC-3.2Y-IS2-4P							1.10	0.25	1170				
2709411	U16-277	2CC-3.2Y-IS3-6P							0.79	0.16	1000	1 1/8"	1/2"	160	7.0
2709412	U16-278	2CC-3.2Y-IS3-4P							1.10	0.25	1330				
2709383	U16-286	2CC-4.2Y-IS3-4P		4	9.4	5.6									
2709413	U16-290	2CC-4.2Y-IS4.3-4P						2x450mm	2.20	0.49	3100		5/8"	178	
2709384	U16-293	4FC-3.2Y-IS3-6P	C3	3	9.2	5.4		1x450mm	0.79	0.16	1000		1/2"	160	
2709403	U16-294	4FC-3.2Y-IS3-4P							1.10	0.25	1330				
2709404	U16-301	4FC-5.2Y-IS3-6P		5	10.8	6.2			0.79	0.16	1000				
2709385	U16-302	4FC-5.2Y-IS3-4P							1.10	0.25	1330				
2709405	U16-305	4FC-5.2Y-IS4.3-6P						2x450mm	1.58	0.32	2350		5/8"	178	
2709406	U16-306	4FC-5.2Y-IS4.3-4P							2.20	0.49	3100				
2709414	U16-308	4EC-4.2Y-IS3-6P		4	10.7	6.4		1x450mm	0.79	0.16	1000		1/2"	160	
2709386	U16-309	4EC-4.2Y-IS3-4P							1.10	0.25	1330				
2709387	U16-322	4EC-6.2Y-IS4.3-4P		6	13.2	7.9		2x450mm	2.20	0.49	3100		5/8"	178	
2709415	U16-324	4EC-6.2Y-IS5-4P									2900			182	
2709416	U16-326	4DC-5.2Y-IS3-4P		5	13.5	8.0		1x450mm	1.10	0.25	1330		1/2"	160	
2709388	U16-331	4DC-5.2Y-IS5-6P						2x450mm	1.58	0.32	2100		5/8"	182	
2709407	U16-332	4DC-5.2Y-IS5-4P							2.20	0.49	2900				
2709389	U16-338	4DC-7.2Y-IS5-4P		7	15.9	9.0		2x450mm							
2709417	U16-347	4CC-6.2Y-IS5-6P		6		9.1			1.58	0.32	2100				
2709418	U16-346	4CC-6.2Y-IS4.3-4P							2.20	0.49	3100			178	
2709408	U16-348	4CC-6.2Y-IS5-4P									2900			182	
2709409	U16-353	4CC-9.2Y-IS5-4P		9	20.0	10.5									

Actrol Sales & Application engineers are available to provide selection advice.

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Semi-Hermetic Condensing Units

Bitzer

IS Series

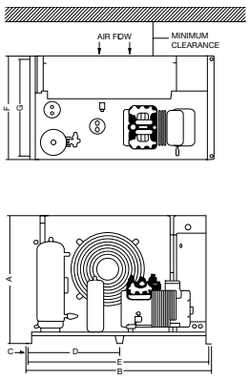
Bitzer IS series condensing units are supplied standard with the following inclusions:
Bitzer Octagon semi-hermetic compressor, powder coated base plate and panels and condenser fitted with dedicated sub-cooling circuit. Also fitted are an internal float oil separator, liquid receiver, drier, sight glass, receiver valves, discharge line vibration eliminator, dual pressure control with flexible lines, crankcase heater, electronic motor protection monitoring (SE-B1) and BSE32 oil charge.

Accessories

Cat. No.	Part No.	Description		Suits Model
2709463	U10-265	Electrical Wiring & Panel Set Fitted		IS1
2709464	U10-266			IS2
2709465	U10-267			IS3
2709466	U10-268			IS4.3/IS5
2711819	U10-269			IS4.3/IS5 (4CC-9.2Y)
2711821	U10-870	Electrical Panel Set Only Fitted		IS1/IS2
2711822	U10-871			IS3/IS4.3/IS5
2710768	B37-011	Oil Separator with Reservoir		IS3 to IS5
2709467	U51-008A	Oil Separator Fitting Charge		
2708133	U40-096	Oil Return Sight Glass Fitted		
2709474	U40-097	Oil Level Control Fitted		Octagon Compressors
2710769	U40-098	Oil Level Monitoring Digital c/w Transformer Fitted		
2710770	U40-098E	Oil Level Monitoring c/w Transformer & Wiring Fitted		
2709481	B43-304	Suction Accumulator	5/8"	
2709482	B43-300		7/8"	
2709483	B43-301		1 1/8"	
2709468	U51-009	Suction Accumulator Fitting Charge		
2707426	U40-092	LP Control Auto Reset Fitted		
2707427	U40-093	HP Control Auto Reset Fitted		
2707428	U40-094	HP Control Manual Reset Fitted		
2707429	U40-090	HP Fan Cycling Control Fitted		
2707430	U40-104	Fan Speed Control Fitted		
2709478	K01-150	Three Phase Protection Monitoring Module Fitted when ordered with unit with Electrical Wiring Fitted		
2709469	U40-040	Liquid Line Solenoid Valve Fitted	3/8"	
2709470	U40-041		1/2"	
2709471	U40-042		5/8"	
2712183	U40-021	Liquid Line Ball Valve Fitted	3/8"	
2712184	U40-022		1/2"	
2712185	U40-023		5/8"	
2709475	347600-01	Capacity Control Solenoid Valve Assembly Fitted		C3 Compressors
2708331	343309-02	Capacity Control Solenoid Coil Only 240 Volt 50 Hz		

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		570	1148			150	53.7	55.4
IS3-6P								200	57.0	60.0
IS4.3-6P		1578		780	1548				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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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
		Model No.	MOC Amps	Volts Phase	No. Dia: mm	MOC Amps	Air Flow l/s	Volts Phase		Suct.	Liq.		
Medium Temperature													
2709753	AP1.7M1-4	CAJ9480Z	4.1	240/1	1 x 350	0.65	399	240/1	2.3	½"	⅜"	68	62
2709754	AP2.1M1-4	CAJ9510Z	5.2							⅝"		70	63
2709755	AP2.5M1-4	CAJ9513Z	6.4										64
2709756	AP2.8M1-4	CAJ4517Z	7.1									71	65
2709757	AP3.9M1-4	CAJ4519Z	9.9				778						68
2709758	AP4.1M1-4	FH4524Z	10.3						3.9			81	70
2709759	AP5.7M2-4	TFH4531Z	6.5	415/3	2 x 350	2 x 0.65	856		6.0			105	69
2709760	AP7.8M2-4	TFH4540Z	8.9				1459					118	75
2709761	AP8.8M2-4	TAG4553Z	9.8						9.5	⅞"	½"	146	78
2709762	AP10.7M2-4	TAG4561Z	11.4				1402					148	
2709763	AP13.1M2-4	TAG4573Z	14.3									150	77
Low Temperature													
2709770	AP1.9L1-4	CAJ2464Z	7.8	240/1	1 x 350	0.65	399	240/1	2.3	⅝"	⅜"	73	67
2709771	AP2.9L1-4	FH2480Z	11.5				778		3.9			90	69
2709772	AP.3.3L2-4	TFH2511Z	5.1	415/3	2 x 350	2 x 0.65	856		6.0			130	72
2709773	AP4.8L2-4	TAG2516Z	7.3				1459			⅞"	½"	155	71
2709774	AP6.2L2-4	TAG2522Z	9.4				1402		9.5			175	76

* 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
		Model No.	MOC Amps	Volts/ Ph.	No. Dia: mm	MOC Amps	Volts/ Ph.		Suct.	Liq.		
2701982	APS4.6ML2-1	SH4526ZYZ	4.5	415/3/ DOL	2 x 350	2 x 0.65	240/1	6.0	5/8	3/8	161	65
2701983	APS6.0ML2-1	SH4536ZYZ	6.7								168	67
2701984	APS8.3ML2-1	SH4550ZYZ	8.8						7/8	1/2	180	67
2701985	APS11.7ML3-1	SH4567ZYZ	12.5			3 x 0.65		9.5			195	70
2701986	APS14.4ML3-1	SH4591ZYZ	12.7								240	70
2701987	APS19.0ML2-1	SH4610ZYZ	17.6		2 x 500	2 x 3.3		18.0	1 1/8	5/8	290	72
2701988	APS25.8ML2-1	SH4615ZMZ	22.4	415/3/ PWS					1 3/8		340	75
2701989	APS33.6ML2-1	SH4620ZMZ	32.4								386	77
2702251	APS39.5ML2-1	SH4623ZMZ	35.3		2 x 710	2 x 1.5	415/3	25.0	2 1/8	1 1/8	605	78
2702252	APS46.5ML2-1	SH4627ZMZ	43.5								615	78
2702253	APS56.4ML2-1	SH4632ZMZ	49.2								650	81
2702254	APS64.2ML2-1	SH4639ZMZ	61.0								670	82
2709801	APB4.9ML2-4	2GES-2Y	5	415/3	2 x 350	2 x 0.37	240/1	6.0	5/8"	3/8"	170	68
2709802	APB6.0ML2-4	2FES-3Y	6.1								175	68
2709803	APB8.5ML2-4	2DES-3Y	8.6						7/8"	1/2"	200	69
2709804	APB11.5ML3-4	4FES-5Y	10.8		3 x 350	3 x 0.37		9.5			230	71
2709805	APB15.8ML3-4	4DES-7Y	16.5								250	72
2709806	APB20.8ML2-4	4CES-9Y	20.2		2 x 500	2 x 3.3		12	1 1/8"	5/8"	290	79
2709807	APB25.8ML2-4	4TES-12Y	25.1						1 3/8"		350	79
2709808	APB29.6ML2-4	4PES-15Y	28.2								360	79
2709809	APB36.7ML2-4	4NES-20Y	33.2								390	80

* Subtract 17dBA to convert to sound pressure at 3m distance.

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Packaged Condensing Units

ACPAC

Acpac packaged condensing units offer a complete refrigeration solution.

The Acpac range is designed in Australia to provide a robust energy efficient, fully fitted packaged range with world leading hermeticlaly sealed reciprocating, scroll and semi hermetic reciprocating compressors.

Acpac uses premium compressors and large condensers in combination to ensure reliable refrigeration when you need it most. This is the Acpac packagaged advantage.

Applications are divers and include commercial food, beverage cooling, and freezing in supermarkets, as well as refrigeration applications in convenience stores, pubs and clubs, restaurants, cafés, food processors and many more.

Installation is quick and easy as every Acpac is fully optioned straight out of the box.

All Acpac units include condenser fan controls and epoxy coated condenser fins to ensure superv energy efficient performance in Australia's diverse weather conditions.

Acpac packaged condensing units are a perfect solution for your customers' refrigeration requirements.

Standard Features

- World leading compressors
- Large epoxy finned condenser/s
- Oil separator
- Suction Accumulator on most models
- Liquid Receiver
- Comprehensive electrical board fully wired to all electrical components
- Saftey controls offering substantial protection
- Condenser fan control provides stable operation in Australia's diverse weather conditions
- Copper tails for easy connections
- Galvanized powder coated encolsures not only protect the unit but provide a good looking professional finish every time
- Easy to read wiring diagram is permanently attached to inside panel for quick service
- Seperate compressor and fan compartements for safe and easy maintenance
- Easy access to all serviceable components

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
		Model No.	MOC Amps	Volts/ Phase	No. Diam. mm	MOC Amps	Volts/ Phase		Suct	Liq		
Medium Temperature												
2709777	APC4.6M1-4	ZB15KQE	16	240/1	1 x 350	1 x 0.65	240/1	3.9	5/8"	3/8"	70	66
2709778	APC5.7M2-4	ZB19KQE	6	415/3	2 x 350	2 x 0.65		6.0			131	68
2709779	APC7.9M2-4	ZB26KQE	10								133	69
2709780	APC11.5M3-4	ZB38KQE	12.5		3 x 350	3 x 0.65		9.5	7/8"	1/2"	163	70
2709782	APC14.4M3-4	ZB48KQE	17								167	73
2709783	APC18.3M2-4	ZB58KQE	23		2 x 500	2 x 3.3		12	1 1/8"	5/8"	241	77
2709784	APC20.3M2-4	ZB66KQE	24.2								242	77
2709785	APC24.7M2-4	ZB76KQE	26.9								245	78
2709786	APC29.7M2-4	ZB95KQE	27.8								305	82
2709787	APC34.9M2-4	ZB114KQE	31.4								314	83
Low Temperature												
2709788	APC3.4L2-4	ZF09K4E-TFD	6	415/3	2 x 350	2 x 0.65	240/1	6.0	5/8"	3/8"	131	70
2709790	APC4.9L2-4	ZF13K4E-TFD	8								138	73
2709791	APC5.9L2-4	ZF15K4E-TFD	10								142	73
2709792	APC7.3L3-4	ZF18K4E-TFD	12.5		3 x 350	3 x 0.65		9.5	7/8"	1/2"	163	74
2709793	APC9.2L2-4	ZF24K4E-TFD	16.1		2 x 500	2 x 3.3		12	1 1/8"	5/8"	242	82
2709794	APC12.5L2-4	ZF33K4E-TFD	22.3								245	82
2709795	APC15.0L2-4	ZF40K4E-TFD	25.1								300	82
2709796	APC18.7L2-4	ZF48K4E-TFD	28.7								314	82

* Subtract 17dBA to convert to sound pressure at 3m distance.

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Packaged Condensing Units

Acpac

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

Acpac

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 - Tecumseh - Medium & Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C									
		-40	-35	-30	-25	-20	-15	-10	-5	0	5
APS4.6ML2-1	32	708	998	1361	1803	2358	3000	3746	4598	5566	6711
	35	656	928	1270	1690	2202	2802	3512	4349	5286	6333
	38	602	856	1178	1576	2059	2629	3302	4073	4962	6017
	43	513	739	1018	1383	1818	2332	2941	3653	4467	5457
APS6.0ML2-1	32	1049	1436	1935	2518	3204	4006	4921	6004	7168	8452
	35	974	1349	1809	2356	3006	3785	4657	5644	6748	8058
	38	899	1263	1692	2209	2825	3539	4357	5339	6399	7572
	43		1116	1500	1967	2522	3169	3904	4803	5778	6869
APS8.3ML2-1	32t			2610	3455	4424	5530	6787	8266	9841	11561
	35			2418	3221	4165	5220	6421	7756	9235	11013
	38			2245	3014	3889	4878	6054	7338	8757	10311
	43			1960	2665	3460	4361	5374	6596	7887	9318
APS11.7ML3-1	32			4349	5502	6797	8252	9863	11702	13627	15680
	35			4139	5232	6481	7868	9399	11066	12996	14957
	38			3942	4983	6145	7448	8936	10519	12228	14051
	43			3625	4573	5623	6795	8125	9550	11079	12717
APS14.4ML3-1	32	2591	3621	4840	6268	7925	9901	12041	14388	17218	20003
	35	2364	3339	4492	5885	7462	9247	11243	13647	16078	18671
	38	2139	3078	4178	5459	6928	8698	10598	12687	15250	17755
	43			3637	4798	6120	7718	9427	11304		
APS19.0ML2-1	32			6618	8502	10674	13148	15923	19004	22559	26279
	35			6246	8052	10110	12510	15158	18099	21329	24827
	38			5893	7621	9585	11808	14306	17067	20278	23625
	43			5289	6876	8677	10699	12959	15467	18396	21447
APS25.8ML2-1	32			8859	11449	14415	17748	21667	25792	30248	35516
	35			8265	10711	13631	16829	20383	24274	28870	33464
	38			7731	10067	12743	15761	19318	23059	27106	31939
	43			6819	8948	11388	14144	17418	20849	24570	28539
APS33.6ML2-1	32	6612	9486	12548	15915	19642	23773	28523	33604	39133	45642
	35	5983	8802	11810	15136	18726	22687	27047	32113	37399	43092
	38	5350	8159	11112	14272	17706	21605	25764	30319	35251	41135
	43			9899	12894	16090	19545	23489	27616	32083	37202
APS39.5ML2-1	32	7003	9823	13236	17186	21774	27019	32936	39541	47215	55264
	35	6421	9145	12366	16130	20484	25610	31270	37591	44569	52174
	38	5815	8470	11551	15146	19297	24032	29380	35656	42338	49632
	43	4863	7328	10171	13461	17250	21565	26433	31876	38324	45019
APS46.5ML2-1	32	7886	11059	14959	19523	24866	31036	38062	46465	55390	65161
	35	7188	10234	13879	18191	23408	29316	36058	43639	52782	62291
	38	6456	9414	12892	16997	21800	27354	34059	41356	49506	58505
	43			11223	14957	19326	24381	30169	37250	44794	53198
APS56.4ML2-1	32	9907	13711	18403	23910	30360	37806	46284	56364	67137	78991
	35	9120	12762	17143	22344	28434	35767	43909	53088	63309	75555
	38	8304	11820	15991	20943	26745	33469	41143	50365	60246	71193
	43	7071	9743	14068	18562	23835	29964	36991	45562	54679	64928
APS64.2ML2-1	32	12832	18006	23743	30185	37380	45351	54524	64190	74569	86701
	35	11622	16668	22249	28591	35509	43163	51536	61182	71192	81817
	38	10405	15397	20850	26851	33451	40984	49030	57750	67082	78068
			12054	18479	24175	30360	37054	44752	52779	61354	

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.

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Packaged Condensing Units

Acpac

Refrigeration Capacities - Watts R134a

Semi Hermetic Reciprocating -Tecumseh - Medium & Low Temperature Applications

Model No.	Ambient Temp. °C	Saturated Suction Temperature: °C									
		-30	-25	-20	-15	-10	-5	0	5	10	12.5
APS4.6ML2-1	32	701	988	1331	1743	2221	2788	3435	4178	5016	5253
	35	649	929	1267	1662	2125	2674	3303	4016	4846	5218
	38	595	869	1201	1582	2035	2568	3177	3876	4666	4822
	43	515	780	1093	1464	1888	2393	2968	3629	4378	4524
	46	468	728	1035	1386	1798	2285	2842	3484	4211	4499
APS6.0ML2-1	32	1098	1488	1980	2566	3262	4065	4981	6001	7174	7680
	35	1028	1411	1882	2446	3118	3901	4789	5779	6886	7052
	38	956	1336	1786	2335	2982	3727	4579	5557	6624	7008
	43		1200	1631	2148	2754	3454	4251	5147	6173	6558
	46		1116	1535	2028	2616	3297	4062	4928	5891	
APS8.3ML2-1	32			2599	3350	4265	5348	6604	8031	9682	10292
	35			2461	3188	4067	5123	6339	7724	9274	9416
	38			2330	3033	3878	4883	6045	7417	8919	9370
	43			2109	2766	3558	4503	5591	6877	8296	8758
	46			1977	2604	3360	4283	5332	6535	7888	7882
APS11.7ML3-1	32	2055	2861	3830	4950	6267	7790	9529	11514	13784	14584
	35	1885	2685	3620	4716	5991	7490	9179	11100	13238	13408
	38	1705	2509	3424	4493	5734	7160	8795	10689	12762	13360
	43	1406	2200	3094	4112	5289	6638	8174	9963	11924	12540
	46	1235	2008	2884	3878	5029	6337	7821	9501	11378	11352
APS14.4ML3-1	32			3803	5009	6477	8203	10206	12533	15077	15747
	35			3575	4745	6159	7859	9803	11999	14453	15715
	38			3364	4499	5866	7481	9353	11531	13917	14359
	43			3009	4078	5362	6886	8642	10708	12962	13427
	46			2793	3814	5072	6544	8242	10168	12507	13418
APS19.0ML2-1	32			5407	7018	8992	11304	14003	17099	20605	21116
	35			5156	6718	8614	10848	13451	16480	19878	20968
	38			4907	6419	8250	10408	12921	15808	19080	20847
	43			4477	5912	7629	9658	12024	14732	17812	19570
	46			4219	5600	7245	9196	11502	14109	17078	17806
APS25.8ML2-1	32	4539	6199	8267	10702	13561	16858	20600	24918	29592	30819
	35	4213	5826	7799	10156	12919	16178	19821	23910	28434	30758
	38	3871	5456	7367	9655	12337	15428	18951	23024	27434	28274
	43	3349	4841	6644	8804	11337	14266	17596	21472	25669	26583
	46	3059	4475	6206	8276	10764	13603	16833	20470	24679	26535
APS33.6ML2-1	32	6160	8282	10810	13770	17226	21241	25840	31166	37043	40222
	35	5744	7847	10312	13188	16584	20480	24937	29984	35645	38897
	38	5306	7414	9836	12638	15900	19658	23953	28922	34407	37367
	43	4608	6677	9020	11701	14791	18340	22377	27070	32228	35013
	46		6221	8510	11119	14142	17572	21470	25876	30990	33682
APS39.5ML2-1	32	7076	9461	12313	15704	19683	24328	29693	35829	42767	46550
	35	6606	8974	11775	15068	18927	23428	28676	34623	41351	45020
	38	6120	8470	11237	14455	18204	22569	27590	33321	39938	43494
	43	5336	7657	10328	13410	16973	21098	25835	31237	37348	40833
	46	4873	7172	9770	12762	16205	20231	24806	30020	35918	39135
APS46.5ML2-1	32	7076	9461	12313	15704	19683	24328	29693	35829	42767	46550
	35	6606	8974	11775	15068	18927	23428	28676	34623	41351	45020
	38	6120	8470	11237	14455	18204	22569	27590	33321	39938	43494
	43	5336	7657	10328	13410	16973	21098	25835	31237	37348	40833
	46	4873	7172	9770	12762	16205	20231	24806	30020	35918	39135
APS56.4ML2-1	32	8975	12324	16400	21318	27051	33678	41219	49711	59404	64521
	35	8386	11650	15614	20340	25875	32274	39680	47919	57100	62037
	38	7774	10978	14831	19412	24772	30965	38018	45951	55042	59838
	43	6787	9828	13510	17838	22897	28729	35381	42864	51458	55995
	46	6220	9173	12700	16872	21733	27433	33859	41093	49166	53523
APS64.2ML2-1	32	12398	16473	21397	27181	33962	41816	50801	61152	72535	78666
	35	11580	15626	20413	26047	32702	40321	49019	58830	69775	76034
	38	10722	14779	19477	24971	31352	38707	47244	56736	67319	73016
	43	9325	13325	17878	23135	29185	36123	43994	53086	63017	68368
	46	8509	12425	16882	21989	27921	34621	42210	50740	58878	65742

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.

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Packaged Condensing Units

Acpac

Refrigeration Capacities: Watts - R404A

Semi Hermetic Reciprocating - Bitzer- 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
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
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
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
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	10831	12721		
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
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	
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		
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	

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.

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Packaged Condensing Units

Acpac

Refrigeration Capacities - Watts R134a

Semi Hermetic Reciprocating - Bitzer - 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	1065	1435	1870	2377	2964	3639	4432	5317	5804
	38	705	1008	1371	1794	2287	2859	3516	4269	5124	5593
	43	630	919	1260	1660	2127	2668	3289	3999	4802	5243
APB6.0ML2-4	32	1006	1407	1884	2442	3092	3840	4694	5660	6816	7421
	35	936	1322	1781	2318	2942	3660	4518	5464	6529	7107
	38	865	1244	1689	2211	2818	3517	4318	5224	6241	6794
	43	766	1117	1534	2022	2588	3240	3984	4824	5830	6354
APB8.5ML2-4	32	1419	1958	2599	3352	4226	5236	6387	7690	9248	10063
	35	1330	1851	2470	3196	4039	5041	6168	7448	8888	9669
	38	1241	1753	2354	3061	3883	4832	5916	7147	8527	9276
	43	1115	1592	2158	2822	3594	4483	5497	6644	8015	8730
APB11.5ML3-4	32	1828	2568	3449	4486	5695	7090	8686	10492	12648	13778
	35	1704	2421	3273	4275	5441	6827	8389	10162	12158	13242
	38	1580	2285	3116	4094	5232	6546	8050	9754	11668	12706
	43	1410	2071	2855	3776	4846	6079	7485	9074	10968	11957
APB15.8ML3-4	32	2927	4031	5331	6846	8589	10572	12956	15514	18338	19845
	35	2739	3805	5061	6569	8277	10227	12427	14880	17581	19018
	38	2575	3615	4841	6268	7912	9786	11897	14246	17088	18521
	43	2298	3276	4427	5765	7303	9141	11154	13403	15880	17200
APB20.8ML2-4	32	3661	5020	6634	8530	10738	13280	16184	19468	23385	25430
	35	3440	4754	6312	8142	10270	12796	15631	18844	22452	24410
	38	3219	4508	6024	7804	9874	12258	14982	18064	21519	23391
	43	2902	4102	5526	7195	9133	11361	13900	16766	20195	21971
APB25.8ML2-4	32	4146	5920	8011	10453	13278	16509	20379	24559	29208	31709
	35	3832	5544	7563	9918	12755	15905	19478	23485	27931	30318
	38	3519	5222	7186	9477	12125	15151	18577	22411	26655	28926
	43	3062	4622	6461	8604	11075	13894	17296	20929	24948	27100
APB29.6ML2-4	32	4913	6932	9332	12149	15412	19141	23647	28438	33712	36519
	35	4506	6463	8785	11631	14821	18468	22586	27174	32206	34877
	38	4168	6078	8345	11001	14073	17578	21526	25910	31301	33944
	43	3521	5324	7459	9953	12827	16324	20081	24251	28810	31221
APB36.7ML2-4	32	5513	8022	10974	14420	18408	22983	28188	34394	41040	44633
	35	5055	7483	10339	13671	17525	22132	27204	32919	39295	42736
	38	4597	7016	9797	13040	16789	21084	25960	31444	37550	40839
	43	3939	6158	8768	11809	15321	19336	23885	29369	35154	38266

Requires additional fan compressor cooling.

Capacities based on 20°C return vapour and 0 K sub cooling.

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Packaged Condensing Units

Acpac

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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Acpac

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
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
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
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
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
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
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
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
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
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

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
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
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
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
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
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
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
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

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							
AP.3.3L2-4	1285	628	820	585	660	895	610
AP4.8L2-4							
AP6.2L2-4							

Semi Hermetic Reciprocating High Ambient Series

Cat No.	Model No.	Overall Dimensions			Case		Mounting Holes	
		L	W	H	W	H	L	W
2701982	APS4.6ML2-1	1420	630	820	585	660	780	610
2701983	APS6.0ML2-1							
2701984	APS8.3ML2-1							
2701985	APS11.7ML3-1	1880					740 + 740	
2701986	APS14.4ML3-1							
2701987	APS19.0ML2-1	1770	870	1015	810	885	1230 + 225	840
2701988	APS25.8ML2-1							
2701989	APS33.6ML2-1							
2702251	APS39.5ML2-1	2455	1101	1544	1051	1224	294 + 944 + 941	1071
2702252	APS46.5ML2-1							
2702253	APS56.4ML2-1							
2702254	APS64.2ML2-1							

Cat No.	Model No.	Overall Dimensions			Case		Mounting Holes	
		L	W	H	W	H	L	W
2709801	APB4.9ML2-4	1420	630	820	585	660	780	610
2709802	APB6.0ML2-4							
2709803	APB8.5ML2-4	1880						
2709804	APB11.5ML3-4						740 + 740	
2709805	APB15.8ML3-4	1770	870	1015	810	885	1230 + 225	840
2709806	APB20.8ML2-4							
2709807	APB25.8ML2-4							
2709808	APB29.6ML2-4							
2709809	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							
APC11.5M3-4	1745					665+665	
APC14.4M3-4							
APC18.3M2-4	1660	790	1015	735	885	1074+356	750
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							
APC5.9L2-4							
APC7.3L3-4	1745					665+665	
APC9.2L2-4	1660	790	1015	735	885	1074+356	750
APC12.5L2-4							
APC15.0L2-4							
APC18.7L2-4							

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Packaged Condensing Units

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	Connections		Dimensions: L x W x H mm	Weight: kg
		Model No.	Rated Load Current: A	Locked Rotor Current: A	No. Diam. mm	Suction	Liquid		
2707538	ZXD040E-TFD-461	ZBD29KQE-TFD-558	7.7	48	2 x 450	7/8"	1/2"	1029 x 424 x 1242	104
2707539	ZXD050E-TFD-461	ZBD38KQE-TFD-558	10.4	64					112
2707540	ZXD060E-TFD-461	ZBD45KQE-TFD-558	9.6	74					114
2707542	ZXD075E-TFD-461	ZBD48KQE-TFD-558	12.4	100					119
2707541	ZXD076E-TFD-461	ZBD48KQE-TFD-558	12.4	100					122

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
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
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
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

Return gas temperature 18.3°C at suction superheat of 10K

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Packaged Condensing Units

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	Connections		Dimensions: L x W x H mm	Weight: kg
		Model No.	Rated Load Current: A	Locked Rotor Current: A	No. Diam. mm	Suction	Liquid		
2707543	ZXL020E-TFD-461	ZXI06KCE-TFD	5.6	39.2	1 x 450	¾"	½"	1029 x 424 x 840	79
2707544	ZXL025E-TFD-461	ZXI08KCE-TFD	6.2	39.2					81
2707545	ZXL030E-TFD-461	ZXI09KCE-TFD	6.0	39.2					81
2707546	ZXL035E-TFD-461	ZXI11KCE-TFD	8.3	51.5		⅞"			93
2707547	ZXL040E-TFD-461	ZXI14KCE-TFD	8.6	51.5					93
2707548	ZXL050E-TFD-461	ZXI15KCE-TFD	10.0	51.5	2 x 450			1029 x 424 x 1242	106
2707549	ZXL060E-TFD-461	ZXI18KCE-TFD	11.1	74.0					-116
2707550	ZXL075E-TFD-461	ZXI21KCE-TFD	14.6	101.0					121

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
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
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
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
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	0.63
	43	2.67	3.34	4.1	4.93	5.83	6.77	7.75	8.76	9.78
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	0.84	1.97
	43	2.99	3.77	4.69	5.71	6.78	7.87	8.95	9.97	10.89
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	0.08	1.57	3.11	4.7
	43	3.81	4.67	5.67	6.79	8	9.3	10.67	12.09	13.54
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	0.94	2.55	4.3	6.19
	43	4.21	5.3	6.43	7.63	8.9	10.25	11.71	13.28	14.97

Return gas temperature 5°C

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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
- Easy installation
- 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
				Diam.	Watts	
2708200	66/4 DI	1300	½	300mm	73	3.8
2708201	68/4 DI	1940	1			4.1
2708202	88v4 DI	2280	1¼			6.0
2708203	1212/4 DI	3220	1½	350mm	130	10.2

Slide In Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A
				Diam.	Watts	
2708204	66/4 SI	1300	½	300mm	73	3.8
2708205	68/4 SI	1940	1			4.1
2708206	88/4 SI	2280	1¼			6.0
	1212/4 SI	3220	1½	350mm	130	10.2

Push In Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A
				Diam.	Watts	
	66/4 PI	1300	½	300mm	73	3.8
	68/4 PI	1940	1			4.1
	88/4 PI	2280	1¼			6.0

Low Profile Units - Medium Temp

Cat. No.	Part No.	Nominal Capacity: Watts	Compressor HP Nominal	Evaporator Fan		Nominal Power Input: A
				Diam.	Watts	
	64/4 LP	975	⅜	2x175mm	60	4.65
	66/4 LP	1200	½	3x175mm	90	4.88
	68/4 LP	1930	1			7.02
	88/4 LP	2250	1¼			8.42

Packaged Dimensions & Weights:

Drop in Units

Model No.	Dimensions: mm	Weight
66/4 DI	720 x 460 x 870	47kg
68/4 DI	720 x 460 x 940	56kg
88/4 DI		62kg
1212/4 DI	920 x 680 x 1010	105kg

Slide In Units

Model No.	Dimensions: mm	Weight
66/4 SI	1070 x 700 x 510	58kg
68/4 SI		67kg
88/4 SI		71kg
1212/4 SI	1320 x 900 x 600	120kg

Push In Global Units

Model No.	Dimensions: mm	Weight
66/4 PI	930 x 810 x 700	56kg
68/4 PI		58kg
88/4 PI		60kg

Low Profile Units

Model No.	Dimensions: mm	Weight
64/4 LP	900 x 500 x 650	40 kg
66/4 LP		46 kg
68/4 LP		47 kg
88/4 LP		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
					Run	FLA	
2700579	MSB125T	1450	-5 to +10	45	5.0	8.4	59
2700580	MSB225N	2080			6.3	12.0	74
2700581	MSB225T	2450			7.0	12.5	75
2700582	MSB135N	3270			10.0	19.7	92
2700583	MSB135T	4400			12.3	23.9	98

Drop in units - Low temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg
					Run	FLA	
2700569	BSB125T	1190	-25 to -5	45	5.6	9.1	68
2700570	BSB225T	1690			7.7	21.1	87
2700571	BSB135T	2480			7.5	22.0	102

Slide in units - Medium temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg
					Run	FLA	
2700572	MGM106	1100	-5 to +10	45	5.0	8.3	56
2700573	MGM110	1500			5.6	11.2	64
2700574	MGM211	1960			6.9	12.4	80
2700575	MGM213	2600			9.3	18.0	80
2700576	MGM315	3440			8.5	16.1	98
2700577	MGM320	3850			11.5	17.1	100

Slide in units - Low temperature

Cat. No.	Model No.	Nominal Capacity: Watts	Temp Range: °C	Max. Ambient: °C	Current: A		Weight: kg
					Run	FLA	
2700565	BGM218	1210	-25 to -5	45	5.9	11.7	80
2700566	BGM220	1660			7.5	20.9	80
	BGM320	2190			9.9	25.1	105
2700568	BGM330	2650			9.9	25.1	105

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Cabinet Coolers

ACTROL™

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		
		R404A	R134a	R22			Suct.	Liq.	Length	Width	Height
2710404	PC30	313	295	310	1	30	9.5	9.5	440	395	135
2710405	PC41	414	390	410							
2710406	PC53	535	504	530							
2710407	PC64	646	608	640							
2710409	PC76	768	722	760	2	60			705		
2710410	PC100	1030	969	1020							
2710411	PC135	1364	1283	1350	3	90			840		
2710412	PC160*	1616	1520	1600			12.7	12.7			
2710413	PC200*	2020	1900	2000							190
2710414	PC230*	2323	2185	2300							

*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
		R404A	R22			Suct.	Liq.	Length	Width	Height	
2710408	PCL40	400	396	1	30	9.5	9.5	440	395	135	400
2710423	PCL50	500	495								
2710424	PCL60	600	594	2	60			705			600
2710425	PCL80	800	792								
2710426	PCL100	1000	990	3	90			840			800
2710402	PCL120*	1200	1188			12.7	12.7				
2710433	PCL150*	1500	1485							190	1500
2710434	PCL170*	1700	1683								

*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		
		R404A	R134a	R22			Suction	Liquid	Length	Width	Height
2710416	PDC45	455	428	450	1	35	9.5	9.5	565	335	160
2710417	PDC60	606	570	600							
2710418	PDC80	808	760	800							
2710419	PDC100	1010	950	1000					610	430	
2710415	PDC120*	1212	1140	1200			12.7	12.7			
2710435	PDC160*	1616	1520	1600							200
2710436	PDC185*	1869	1757	1850							

*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

Actrol recommend selection using the EN 328 SC2 capacity data.
The 35mm x 35mm inline (parallel) tube pattern removes less moisture as it operates at a higher average coil temperature.
Selection at 8 KTD is usual for general purpose cool-rooms.

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 @ -8°C SST & 8 KTD : Watts		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
		"R404A (EN 328 SC2)"	"R134a (EN 328 SC2)"	"R404A (EN 328)"	"R134a (EN 328)"				Total Watts	Total Amps	Heat/24 Hrs Total Watts	Liq.	Suct.	Length	Depth	Height	
300mm Diameter Fan Model																	
	LPC4A1/30.1*	1155	1051	866	788	375	7	1 x 300	85	0.38	2040	½"		815	670	380	13
2710337	LPC4B1/30.1*	1617	1471	1213	1104	336											14
2710338	LPC4C1/30.1*	1991	1812	1493	1359	311	6					5/8"	¾"				15
	LPC4D1/30.1	2178	1982	1634	1486	294											16
2710339	LPC4E1/30.1	2442	2222	1832	1667	278	5										17
2710340	LPC4B2/30.1	3289	2993	2467	2245	672	7	2 x 300	170	0.76	4080		⅞"	1365	670		26
2710341	LPC4C2/30.1	4048	3684	3036	2763	622	6										28
	LPC4D2/30.1	4510	4104	3383	3078	589											30
2710342	LPC4E2/30.1	4961	4515	3721	3386	556	5										32
2710343	LPC4C3/30.1	6061	5516	4546	4137	933	6	3 x 300	255	1.14	6120		1 ⅛"	1915	670		41
	LPC4D3/30.1	6930	6306	5198	4730	883											45
	LPC4E3/30.1	7469	6797	5602	5098	833	5										48
	LPC4C4/30.1	8140	7407	6105	5556	1244	6	4 x 300	340	1.52	8160			2465	670		55
2710344	LPC4D4/30.1	9262	8428	6947	6321	1178											59
	LPC4E4/30.1	10032	9129	7524	6847	1111	5										64

Refrigerant Correction Multiplier

Refrigerant	R404A	R507	R134a	R22
Capacity Multiplier	1.0	1.0	0.91	0.95

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Forced Draught Evaporators

Cabero

LPC E Series - Low Temperature

Actrol recommend selection using the EN 328 SC3 capacity data.
The 35mm x 35mm inline (parallel) tube pattern removes less moisture as it operates at a higher average coil temperature.
Selection at 7 KTD is usual for general purpose freezer-rooms.

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 @ -25°C SST & 7 KTD : Watts "R404A (EN 328 SC3)"	Capacity @ -24°C SST & 6 KTD : Watts "R404A (EN 328)"	Air Flow l/s	Air Throw m	No. & Dia. of Fans	Fan Motors: Total Watts	Fan Motors: Total Amps	Fan Motors: Heat/ 24 Hrs Total Watts	Defrost Heaters 240 Volts: Coil No. & Watts	Defrost Heaters 240 Volts: Drip Tray No. & Watts	Connections: Liq.	Connections: Suct.	Overall Dim: mm: Length	Overall Dim: mm: Depth	Overall Dim: mm: Height	Weight kg
300mm Diameter Fan Model																	
	LPC4A1/30E.1*	880	754	375	7	1 x 300	85	0.38	2040	2 x 600	1 x 600	½"	¾"	815	670	380	13
2710345	LPC4B1/30E.1*	1190	1020	336													14
2710346	LPC4C1/30E.1*	1370	1174	311	6							⅝"					15
	LPC4D1/30E.1	1580	1354	294						3 x 600							16
2710347	LPC4E1/30E.1	1730	1483	278	5												17
2710348	LPC4B2/30E.1	2350	2014	672	7	2 x 300	170	0.76	4080	2 x 1100	1 x 1100		⅞"	1365	670		26
2710349	LPC4C2/30E.1	2800	2400	622	6												28
	LPC4D2/30E.1	3160	2709	589						3 x 1100							30
2710350	LPC4E2/30E.1	3470	2974	556	5												32
2710351	LPC4C3/30E.1	4280	3669	933	6	3 x 300	255	1.14	6120	2 x 1600	1 x 1600		1 ⅛"	1915	670		41
	LPC4D3/30E.1	4870	4174	883						3 x 1600							45
2710352	LPC4E3/30E.1	5230	4483	833	5												48
	LPC4C4/30E.1	5650	4843	1244	6	4 x 300	340	1.52	8160	2 x 2100	1 x 2100			2465	670		55
	LPC4D4/30E.1	6290	5391	1178						3 x 2100							59
2710353	LPC4E4/30E.1	6980	5983	1111	5												64

Refrigerant Correction Multiplier

Refrigerant	R404A	R507	R134a	R22
Capacity Multiplier	1.0	1.0	0.91	0.95

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Induced Draught Evaporators

Cabero

DH Dual Air Discharge Series - Medium Temperature

DH series dual air discharge evaporators are designed for cutting and packaging rooms and for storage of sensitive products where reduced air flow is optimal.

Features

- 12mm Professional In-line (parallel)tube configuration
- Fins protected with Blue-Fin coating
- Fan/s pre-wired to IP54 junction box
- Powder coated smooth aluminium case
- Flush mount ceiling brackets
- Fold down drip trays with central drain connections
- Venturi distributor for multiple refrigerants
- Low energy fan/s
- Separate fan compartments
- Stainless steel fixings
- Air Bypass Sheet with special drainage system

Cat. No.	Part No.	Capacity @ 0C SST & 10 KTD : Watts		Air Flow l/s	Air Throw m	No. & Dia. of Fans	Fan Motors			Connections mm		Overall Dim: mm		
		"R404A (EN 328 SC1)"	"R134a (EN 328 SC1)"				Total Watts	Total Amps	Heat/ 24 Hrs Total Watts	Liq.	Suct.	Length	Depth	Height
300mm and 350mm Diameter Fan Models - 4mm Fin Spacing (6 FPI)														
	DH4B1/30	3180	2894	653	6	1/350	140	0.60	3360	1/2	5/8	940	1005	325
	DH4C1/30	3820	3476	606										
	DH4D1/35	6440	5860	569	5		140	0.60	3360					
	DH4E1/35	6880	6261	544							3/4			
	DH4B2/35	8750	7963	1306	8	2/350	280	1.20	6720			1590		
	DH4C2/35	11550	10511	1211							7/8			
	DH4D2/35	12730	11584	1139	7					5/8				
	DH4E2/35	14160	12886	1089							1 1/8			
	DH4C3/35	17380	15816	1817	9	3/350	420	1.80	10080			2240		
	DH4D3/35	19690	17918	1708	8									
	DH4E3/35	21160	19256	1633										
	DH4D4/35	16130	14678	2278		4/350	560	2.40	13440	7/8	1 3/8	2890		
	DH4E4/35	28410	25853	2178										
500mm Diameter Fan Models - 4mm Fin Spacing (6 FPI)														
	DH4C1/50	17240	15688	2033	26	1/500	750	1.30	18000	5/8	1 1/8	1420	1315	480
	DH4D1/50	20300	18473	1975	25									
	DH4E1/50	22400	20384	1922	24									
	DH4G1/50	25630	23323	1808	22					7/8	1 3/8			
	DH4C2/50	34990	31841	4067	27	2/500	1500	2.60	36000			2500		
	DH4D2/50	40950	37265	3950	26						1 5/8			
	DH4E2/50	45340	41259	3844	25									
	DH4G2/50	52000	47320	3617	23									
	DH4D3/50	61410	55883	5925	26	3/500	2250	3.90	54000		2 1/8	3580		
	DH4E3/50	68870	62672	5767	25					1 1/8				
	DH4G3/50	75860	69033	5425	23									

Refrigerant Correction Multiplier

Refrigerant	R404A	R507	R134a	R22
Capacity Multiplier	1.0	1.0	0.91	0.95

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Induced Draught Evaporators

Cabero

CH Series - Medium Temperature

Actrol recommend selection using the EN 328 SC2 capacity data.
The 35mm x 35mm inline (parallel) tube pattern removes less moisture as it operates at a higher average coil temperature.
Selection at 8 KTD is usual for general purpose cool-rooms.

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
- 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 @ -8°C SST & 8 KTD : Watts		Capacity @ -4°C SST & 6 KTD : Watts			Air Throw m	No. & Dia. of Fans	Fan Motors			Connections		Overall Dim: mm		
		R404A (EN 328 SC2)	R134a (EN 328 SC2)	R404A (EN 328)	R134a (EN 328)				Total Watts	Total Amps	Heat/24 Hrs Total Watts	Liq.	Suct.	Length	Depth	Height
300mm and 350mm Diameter Fan Model																
2710355	CH4B1/30-1	2120	1929	1611	1466	439	6	1/300	85	0.38	2040	½"	½"	850	560	470
2710356	CH4C1/30-1	2590	2357	1968	1791	428										
2710357	CH4B1/35-1	3060	2785	2326	2116	689	7	1 x 350	140	0.60	3360		⅝"	1050		
2710358	CH4C1/35-1	3980	3622	3025	2753	664										
2710359	CH4B2/30-1	4240	3858	3222	2932	878		2 x 300	170	0.76	4080		¾"	1300		
2710360	CH4D1/35-1	4530	4122	3443	3133	622	6	1 x 350	140	0.60	3360			1050		
	CH4E1/35-1	4850	4414	3686	3354	586										
2710361	CH4C2/30-1	5170	4705	3929	3576	856	7	2 x 300	170	0.76	4080			1300		
2710362	CH4B2/35-1	6480	5897	4925	4482	1383	9	2 x 350	280	1.20	6720		⅞"	1700		
2710363	CH4C2/35-1	7970	7253	6057	5512	1322										
2710364	CH4D2/35-1	9000	8190	6840	6224	1230	8					⅝"				
2710365	CH4E2/35-1	9890	9000	7516	6840	1183										
2710366	CH4C3/35-1	11910	10838	9052	8237	1936	10	3 x 350	420	1.80	10080		1 ⅛"	2350		
2710367	CH4D3/35-1	13850	12604	10526	9579	1839	9									
2710368	CH4E3/35-1	14940	13595	11354	10333	1761										
2710369	CH4D4/35-1	18470	16808	14037	12774	2439		4 x 350	560	2.40	13440	⅞"	1 ⅜"	3000		
2710370	CH4E4/35-1	20800	18928	15808	14385	2358										
500mm Diameter Fan Model																
	CH4C1/50-1	11460	10429	8710	7926	2033	26	1 x 500	750	1.30	18000	⅝"	1 ⅛"	1420	670	750
2710371	CH4D1/50-1	13740	12503	10442	9503	1975	25									
	CH4E1/50-1	15190	13823	11544	10505	1922	24									
2710372	CH4G1/50-1	17450	15880	13262	12068	1808	22					⅞"	1 ⅜"			
2710373	CH4C2/50-1	23220	21130	17647	16059	4067	27	2 x 500	1500	2.60	36000			2500		
2710374	CH4D2/50-1	27690	25198	21044	19150	3950	26						1 ⅝"			
2710375	CH4E2/50-1	30720	27955	23347	21246	3844	25									
2710376	CH4G2/50-1	35400	32214	26904	24483	3617	23									
2710377	CH4D3/50-1	41490	37756	31532	28694	5925	26	3 x 500	2250	3.90	54000		2 ⅛"	3580		
2710378	CH4E3/50-1	46640	42442	35446	32256	5767	25					1 ⅛"				
2710379	CH4G3/50-1	51680	47029	39277	35742	5425	23									

Refrigerant Correction Multiplier

Refrigerant	R404A	R507	R134a	R22
Capacity Multiplier	1.0	1.0	0.91	0.95

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Induced Draught Evaporators

Cabero

CH E Series - Low Temperature

Actrol recommend selection using the EN 328 SC3 capacity data.
The 35mm x 35mm inline (parallel) tube pattern removes less moisture as it operates at a higher average coil temperature.
Selection at 7 KTD is usual for general purpose freezer-rooms.

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 @ -25°C SST & 7 KTD : Watts "R404A (EN 328 SC3)"	Capacity @ -24°C SST & 6 KTD : Watts "R404A (EN 328)"	Air Flow l/s	Air Throw m	No. & Diam. of Fans	Fan Motors Total Watts	Fan Motors Total Amps	Fan Motors Heat/ 24 Hrs Total Watts	Defrost Heaters 240 Volt Coil No. & Watts	Defrost Heaters 240 Volt Drip Tray No. & Watts	Defrost Heaters 240 Volt Total Amps	Connections Liq.	Connections Suct.	Overall Dim: mm Length	Overall Dim: mm Depth	Overall Dim: mm Height
300mm and 350mm Diameter Fan Model																	
2710381	CH4B1/30E-1	1590	1363	439	6	1/300	85	0.38	2040	2 x 450	1 x 450	0.90	½"	½"	850	560	470
2710382	CH4C1/30E-1	1820	1560	428													
2710383	CH4B1/35E-1	2310	1980	689	7	1 x 350	140	0.60	3360	2 x 650	1 x 650	1.30		⅝"	1050		
2710384	CH4C1/35E-1	2950	2529	664								1.95					
2710385	CH4B2/30E-1	3180	2726	878		2 x 300	170	0.76	4080	2 x 850	1 x 850			¾"	1300		
	CH4D1/35E-1	3310	2837	622	6	1 x 350	140	0.60	3360	4 x 650	1 x 650	2.60			1050		
2710386	CH4E1/35E-1	3450	2957	586													
2710387	CH4C2/30E-1	3650	3129	856	7	2 x 350	170	0.76	4080	2 x 850	1 x 850				1300		
2710388	CH4B2/35E-1	5040	4320	1383	9		280	1.20	6720	2 x 1200	1 x 1200	2.40			1700		
2710389	CH4C2/35E-1	6100	5229	1322								3.60		⅞"			
2710390	CH4D2/35E-1	6890	5906	1230	8					4 x 1200		4.80	⅝"				
2710391	CH4E2/35E-1	7210	6180	1183										1 ⅛"			
2710392	CH4C3/35E-1	9080	7783	1936	10	3 x 350	420	1.80	10080	2 x 1750	1 x 1750				5.25		
	CH4D3/35E-1	10290	8820	1839	9					4 x 1750							
2710393	CH4E3/35E-1	10790	9249	1761													
2710394	CH4D4/35E-1	13760	11794	2439		4 x 350	560	2.40	13440	4 x 2300	1 x 2300	9.20	⅞"	1 ⅜"	3000		
2710395	CH4E4/35E-1	14900	12771	2358													
500mm Diameter Fan Model																	
2710396	CH4C1/50E-1	8310	7123	2033	26	1 x 500	750	1.30	18000	3 x 850	2 x 850	3.75	⅝"	1 ⅛"	1420	670	750
	CH4D1/50E-1	10300	8829	1975	25					5 x 850		4.50					
2710397	CH4E1/50E-1	10990	9420	1922	24					6 x 850		5.25					
	CH4G1/50E-1	12570	10774	1808	22							6.00	⅞"	1 ⅜"			
2710398	CH4C2/50E-1	17000	14571	4067	27	2 x 500	1500	2.60	36000	3 x 1650	2 x 1650	7.25			2500		
	CH4D2/50E-1	20950	17957	3950	26					5 x 1650		8.70		1 ⅝"			
2710399	CH4E2/50E-1	22420	19217	3844	25					6 x 1650		10.15					
2710400	CH4G2/50E-1	26120	22389	3617	23							11.60					
2710401	CH4D3/50E-1	30770	26374	5925	26	3 x 500	2250	3.90	54000	5 x 2450	2 x 2450	12.90		2 ⅛"	3580		
	CH4E3/50E-1	34820	29846	5767	25					6 x 2450		15.05	1 ⅛"				
2710403	CH4G3/50E-1	36800	31543	5425	23							17.20					

Refrigerant Correction Multiplier

Refrigerant	R404A	R507	R134a	R22
Capacity Multiplier	1.0	1.0	0.91	0.95

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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 Capacity: kW @ 10 KTD		Air Flow m^3 / hr	Fan Data		Sound Power dBA	Net Weight kg
		R404A	R134a		Total Power Input: kW	Fan Speed: RPM		
2750443	ACW085A2.2/2L-EC	102.0	94.9	45090	3.94	950	85.9	537
2750444	ACW087A2.2/2L-EC	119.9	111.5	44570			85.7	592
2750445	ACW089A2.2/2L-EC	132.1	122.9	44070			85.5	648
2750446	ACW085A3.3/3L-EC	154.0	143.3	67630	5.91		87.7	724
2750447	ACW087A3.3/3L-EC	182.2	169.5	66850			87.5	807
2750448	ACW089A3.3/3L-EC	198.7	184.8	66110			87.3	889
2750449	ACW085A4.4/4L-EC	208.2	193.7	90180	7.88		88.9	1033
2750450	ACW087A4.4/4L-EC	240.0	223.3	89140			88.7	1140
2750451	ACW089A4.4/4L-EC	267.9	249.2	88140			88.6	1252
2750452	ACW087A5.5/5L-EC	297.5	276.7	111420	9.85		89.7	1451
2750453	ACW089A5.5/5L-EC	334.9	311.5	110180			89.5	1587
2750454	ACW087A6.6/6L-EC	364.7	339.3	133710	11.82		90.5	1718
2750455	ACW089A6.6/6L-EC	397.8	370.0	132210			90.3	1880

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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

900mm Fan Model

Cat. No.	Model No.	Nominal Capacity: kW @ 10 KTD		Air Flow m³ / hr	Fan Data		Sound Power dBA	Net Weight kg
		R404A	R134a		Total Power Input: kW	Fan Speed: RPM		
2750456	ACW095A2.2/2N-EC	121.1	112.7	60900	6.5	1100	91.7	537
2750457	ACW097A2.2/2N-EC	148.3	138.0	60010			91.5	592
2750458	ACW099A2.2/2N-EC	163.0	151.6	59090			91.5	648
2750459	ACW095A3.3/3N-EC	181.8	169.1	91350	9.75		93.5	724
2750460	ACW097A3.3/3N-EC	219.7	204.4	90020			93.3	807
2750461	ACW099A3.3/3N-EC	243.5	226.5	88630			93.3	889
2750462	ACW097A4.4/4N-EC	296.5	275.8	120020	13.0		94.5	1140
2750463	ACW099A4.4/4N-EC	327.2	304.4	118170			94.5	1252
2750464	ACW097A5.5/5N-EC	367.4	341.8	150030	16.3		95.5	1451
2750465	ACW099A5.5/5N-EC	405.6	377.3	147720			95.5	1587
2750466	ACW097A6.6/6N-EC	426.3	396.6	180030	19.5		96.3	1718
2750467	ACW099A6.6/6N-EC	471.5	438.6	177260			96.3	1880

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Induced Draught Evaporators

Buffalo Trident

BY BITZER GROUP

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 reversable 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		
		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																
2710068	PS1M019	1130	977	1066	427	8.6	1	73	0.3	1752	12.7	15.9	6.4	676	425	425
2710069	PS1M030	1816	1571	1714	354	7.9										
2710070	PS1M036	2170	1877	2047	406	8.4								845		
2710071	PS1M042	2497	2160	2356	854	10.5	2	146	0.6	3504				1057		
2710072	PS1M050	3029	2620	2858	804	10.3										
2710073	PS1M061	3659	3165	3452	708	9.8										
2710074	PS1M063	3806	3292	3591	1281	12.5	3	219	1.0	5256	15.9			1438		
2710075	PS1M077	4623	3999	4362	1206	12.3										
2710076	PS1M084	5070	4385	4784	1125	12.0										
2710077	PS1M095	5705	4935	5383	1062	11.7										
2710078	PS1M102	6095	5272	5751	1608	14.0	4	292	1.3	7008	22.2			1819		
2710081	PS1M128	7681	6644	7247	1416	13.4										
350mm Diameter Fan Model - Fin Series 6																
2710079	PS2M108	6469	5596	6104	1458	16.9	2	260	1.2	6240	15.9	15.9	6.4	1544	425	425
2710080	PS2M117	6997	6052	6602	1422	16.5										
2710082	PS2M141	8475	7331	7997	2331	18.7	3	390	1.7	9360	28.5			2154		
2710083	PS2M162	9693	8384	9146	2187	18.4										
2710084	PS2M177	10612	9179	10013	2133	17.9										
2710085	PS2M187	11238	9721	10603	3108	21.0	4	520	2.3	12480		22.2		2764		
2710086	PS2M217	13029	11270	12294	2916	20.8										
2710087	PS2M246	14749	12758	13916	2844	20.2										
2710088	PS2M276	16549	14315	15615	3645	21.7	5	650	2.9	15600				3373		
2710089	PS2M309	18519	16019	17474	3555	20.6										

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
BY BITZER GROUP

Buffalo

Medium Temperature

Buffalo PS EVD Series

The PS1 & 2 Series Low Line Evaporators are an innovative and modern design. The EVD Ice electronic expansion valve and controller is quick and easy to commisssion and provides real time digital superheat display. The design is ideally suited for walk in medium temperature cool rooms and low temperature display freezer rooms where the crisp white finish compliments the quality installation on display.

Features

- Fitted with EVD Ice electronic expansion valve and controller
- Fans and EVD Ice wired to junction box
- Crisp, white powder coated evaporator panels
- Stainless steel fastenings
- Fitted with Ultra Cap to ensure positive closure in the event of a power failure
- Standard coils circulated for multiple refrigerants (No orifice change required)
- Performance optimised circuitry and distributor system with Venturi Effect Technology
- Hinged and fully reversible drip tray
- Hinged access door both ends- easily removeable, where coil is installed close to adjacent walls
- Absolute flush mounting

Cat. No.	Part No.	Capacity @ -4°C SST & 6 KTD :Watts		
		R404A	R134a	R22
300mm Diameter Fan Models - Fin Series 6				
2712759	PS1M019 EVD Ice w U/Cap	1130	977	1066
2712760	PS1M030 EVD Ice w U/Cap	1816	1571	1714
2712761	PS1M036 EVD Ice w U/Cap	2170	1877	2047
2712762	PS1M042 EVD Ice w U/Cap	2497	2160	2356
2712763	PS1M050 EVD Ice w U/Cap	3029	2620	2858
2712764	PS1M061 EVD Ice w U/Cap	3659	3165	3452
2712765	PS1M063 EVD Ice w U/Cap	3806	3292	3591
2712766	PS1M077 EVD Ice w U/Cap	4623	3999	4362
2712767	PS1M084 EVD Ice w U/Cap	5070	4385	4784
2712768	PS1M095 EVD Ice w U/Cap	5705	4935	5383
2712769	PS1M102 EVD Ice w U/Cap	6095	5272	5751
2712770	PS1M128 EVD Ice w U/Cap	7681	6644	7247
350mm Diameter Fan Models – Fin Series 6				
2712771	PS2M108 EVD Ice w U/Cap	6469	5596	6104
2712772	PS2M117 EVD Ice w U/Cap	6997	6052	6602
2712773	PS2M141 EVD Ice w U/Cap	8475	7331	7997
2712774	PS2M162 EVD Ice w U/Cap	9693	8384	9146
2712775	PS2M177 EVD Ice w U/Cap	10612	9179	10013
2712776	PS2M187 EVD Ice w U/Cap	11238	9721	10603
2712777	PS2M217 EVD Ice w U/Cap	13029	11270	12294
2712778	PS2M246 EVD Ice w U/Cap	14749	12758	13916
2712779	PS2M276 EVD Ice w U/Cap	16549	14315	15615
2712780	PS2M309 EVD Ice w U/Cap	18519	16019	17474

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Induced Draught Evaporators

Buffalo Trident

BY BITZER GROUP

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 reversable 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		
		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																		
2710090	PS1LE016	981	999	926	418	8.6	1	73	0.3	1752	1060	4.4	12.7	15.9	6.4	676	425	425
2710091	PS1LE025	1486	1513	1402	347	7.9												
2710092	PS1LE033	1991	2027	1879	836	10.5	2	146	0.6	3504	1960	8.2				1057		
2710093	PS1LE041	2441	2485	2303	788	10.3												
2710094	PS1LE051	3047	3102	2875	694	9.8												
2710095	PS1LE056	3358	3419	3169	1182	12.5	3	219	1.0	5256	2700	11.3	15.9			1438		
2710096	PS1LE069	4130	4204	3897	1101	12.3												
2710097	PS1LE075	4482	4562	4229	1041	12.0												
2710098	PS1LE083	4984	5074	4703	1576	11.7	4	292	1.3	7008	3580	14.9	22.2			1819		
2710100	PS1LE099	5952	6060	5617	1388	14.0												
350mm Diameter Fan Model – Fin Series 6 236 Fins/m																		
2710099	PS2LE086	5151	5244	4860	1428	16.9	2	260	1.2	6240	2880	12.0	15.9	15.9	6.4	1544	425	492
2710101	PS2LE100	6003	6111	5664	1393	16.5												
2710102	PS2LE105	6300	6413	5944	2283	18.7	3	390	1.7	9360	4300	17.9	28.5			2154		
2710103	PS2LE123	7410	7543	6992	2142	18.4												
2710104	PS2LE136	8138	8284	7678	2090	17.9												
2710105	PS2LE158	9462	9632	8928	3044	21.0	4	520	2.3	12480	5720	23.8		22.2		2764		
2710106	PS2LE168	10079	10260	9510	2856	20.8												
2710107	PS2LE191	11469	11676	10822	2786	20.2												
2710108	PS2LE203	12187	12406	11499	3570	21.7	5	650	2.9	15600	7160	29.8				3373		
2710109	PS2LE233	13963	14214	13175	3483	20.6												

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
BY BITZER GROUP

Buffalo

Low Temperature

Buffalo PSLE EVD Series

The PS1 & 2 Series Low Line Evaporators are an innovative and modern design. The EVD Ice electronic expansion valve and controller is quick and easy to commisssion and provides real time digital superheat display. The design is ideally suited for walk in medium temperature cool rooms and low temperature display freezer rooms where the crisp white finish compliments the quality installation on display.

Features

- Fitted with EVD Ice electronic expansion valve and controller
- Fans and EVD Ice wired to junction box
- Heater safety thermostat
- Fitted with Ultra Cap to ensure positive closure in the event of a power failure
- Standard coils circulated for multiple refrigerants (No orifice change required)
- Performance optimised circuitry and distributor system with Venturi Effect Technology
- Hinged and fully reversible drip tray
- Hinged access door both ends- easily removeable, where coil is installed close to adjacent walls
- Absolute flush mounting
- Crisp, white powder coated evaporator panels
- Stainless steel fastenings

Cat. No.	Part No.	Capacity @ -24°C SST & 6 KTD :Watts		
		R404A	R507A	R22
300mm Diameter Fan Models - Fin Series 6				
2712781	PS1LE016 w U/Cap	981	999	926
2712782	PS1LE025 w U/Cap	1486	1513	1402
2712783	PS1LE033 w U/Cap	1991	2027	1879
2712784	PS1LE041 w U/Cap	2441	2485	2303
2712785	PS1LE051 w U/Cap	3047	3102	2875
2712786	PS1LE056 w U/Cap	3358	3419	3169
2712787	PS1LE069 w U/Cap	4130	4204	3897
2712788	PS1LE075 w U/Cap	4482	4562	4229
2712789	PS1LE083 w U/Cap	4984	5074	4703
2712790	PS1LE099 w U/Cap	5952	6060	5617
350mm Diameter Fan Models – Fin Series 6				
2712791	PS2LE086 w U/Cap	5151	5244	4860
2712792	PS2LE100 w U/Cap	6003	6111	5664
2712793	PS2LE105 w U/Cap	6300	6413	5944
2712794	PS2LE123 w U/Cap	7410	7543	6992
2712795	PS2LE136 w U/Cap	8138	8284	7678
2712796	PS2LE158 w U/Cap	9462	9632	8928
2712797	PS2LE168 w U/Cap	10079	10260	9510
2712798	PS2LE191 w U/Cap	11469	11676	10822
2712799	PS2LE203 w U/Cap	12187	12406	11499
2712800	PS2LE233 w U/Cap	13963	14214	13175

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Induced Draught Evaporators

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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		
		R22	404A	134a	High	High						Length	Depth	Height
2709972	BBM 81	8124	8612	7572	2388	21	1	780	1.35	28.5	12.7	1260	646	903
2709973	BBM 106	10554	11187	9836	2180									
2709974	BBM 139	13908	14742	12962	2454	22				34.9	15.9	1610		1030
2709975	BBM 162	16249	17224	15144	4776	23	2	1560	2.7			2210		903
2709976	BBM 184	18361	19462	17112	4628						22.2			
2709977	BBM 211	21108	22374	19672	4360					41.2				
2709978	BBM 244	24373	25836	22716	7164	25	3	2340	4.05			3160		
2709979	BBM 275	27541	29194	25668	6942									
2709980	BBM 317	31661	33561	29508	6540					54	28.5			
2709981	BBM 359	35856	38007	33418	9044	26	4	3120	5.4			3310		1030
2709982	BBM 412	41208	43681	38406	8456									

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		
		R22	R404A	R507	High	High						Watts	Amps	Length	Depth	Height
2709983	EBBL 66	6552	6945	7076	2409	19	1	780	1.35	28.5	12.7	6000	25	1260	646	903
2709984	EBBL 85	8502	9012	9182	2213					34.9	15.9					
2709985	EBBL 110	11106	11772	11994	2471	20					22.2	8200	34.2	1610		1030
2709986	EBBL 131	13103	13889	14151	4818	21	2	1560	2.7	41.2		12000	50	2210		903
2709987	EBBL 148	14795	15683	15979	4680											
2709988	EBBL 170	17000	18024	18364	4426						28.5					
2709989	EBBL 197	19655	20834	21227	7227	23	3	2340	4.05			18000	75	3160		
2709990	EBBL 222	22193	23524	23968	7020					54						
2709991	EBBL 255	25506	27036	27546	6639											
2709992	EBBL 281	28104	29790	30352	8872	24	4	3120	5.4		34.9	19000	79.17	3310		1030
2709993	EBBL 323	32280	34216	34862	8600											

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CABERO

ENGINEERED IN GERMANY
TO SUIT YOUR NEEDS

CH Series Evaporators

- Perfect for walk in cool rooms
- Fold down drip tray standard
- Blue coating on fins for added protection
- Available with 300, 350 and 500mm diameter fans

LPC Series Evaporators

- The low profile alternative for small rooms and reach in cabinets.

ACW Series Condensers

- Powder coated zinc plated steel construction
- Blue coating on fins for added protection
- Available with 800mm and 900mm fans

Competent. Modern. Professional.

Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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:
			R404A: kW		R134a: kW			
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed		
2710003	T91-201 RC-1PH-STD	RC009C	6362				350	1
2710004	T91-202 RC-1PH-STD	RC012C	8159		7459			
2710005	T91-203 RC-1PH-STD	RC013C	9251		8458			
2710006	T91-204 RC-1PH-STD	RC018C	12216		11169			
2710007	T91-205 RC-1PH-STD	RC023C	15545		14213			
2710008	T91-206 RC-1PH-STD	RC025C	17684		16168			
2710009	T91-207 RC-3PH-STD	RC019C	12823	10234	11724	9357	500	3
2710010	T91-208 RC-3PH-STD	RC024C	16582	12672	15160	11586		
2710011	T91-209 RC-3PH-STD	RC028C	18997	13897	17368	12706		
2710012	T91-210 RC-3PH-STD	RC030C	21058	15964	19253	14596		
2710013	T91-211 RC-3PH-STD	RC034C	24012	17053	21954	15591		
2710014	T91-212 RC-3PH-STD	RC037C	26278	18981	24026	17354		
2710015	T91-213 RC-3PH-STD	RC047C	33163	25345	30321	23172		
2710016	T91-214 RC-3PH-STD	RC054C	38080	29231	34816	26725		
2710017	T91-215 RC-3PH-STD	RC062C	43659	32399	39917	29622		
2710018	T91-216 RC-3PH-STD	RC074C	51575	37250	47154	34057		
2710019	T91-217 RC-3PH-STD	RC082C	56989	41693	52104	38120		
2710020	T91-218 RC-3PH-STD	RC093C	65489	48598	59875	44433		
2710021	T91-219 RC-3PH-STD	RC100C	70251	49973	64230	45689		
2710022	T91-220 RC-3PH-STD	RC109C	75984	55591	9471	50826		
2710023	T91-221 RC-3PH-STD	RC115C	80350	57126	73463	52230		

RC-EC Remote Air Cooled Series

Features

- Epoxy finned
- Pre-wired 4 pole EC fan motor/s
- Vertical or horizontal airflow
- Single phase switch

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fan Dia.: mm	Phase:
			R404A: kW		R134a: kW			
			High Fan Speed	Low Fan Speed	High Fan Speed	Low Fan Speed		
2710291	T91-207 RC1EC	RC019C-EC	12823	10234	11724	9357	500	3
2710292	T91-208 RC1EC	RC024C-EC	16582	12672	15160	11586		
2710293	T91-209 RC1EC	RC028C-EC	18997	13897	17368	12706		
2710294	T91-210 RC1EC	RC030C-EC	21058	15964	19253	14596		
2710295	T91-211 RC1EC	RC034C-EC	24012	17053	21954	15591		
2710296	T91-212 RC1EC	RC037C-EC	26278	18981	24026	17354		
2710297	T91-213 RC1EC	RC047C-EC	33163	25345	30321	23172		
2710298	T91-214 RC1EC	RC054C-EC	38080	29231	34816	26725		
2710299	T91-215 RC1EC	RC062C-EC	43659	32399	39917	29622		
2710300	T91-216 RC1EC	RC074C-EC	51575	37250	47154	34057		
2710301	T91-217 RC1EC	RC082C-EC	56989	41693	52104	38120		
2710302	T91-218 RC1EC	RC093C-EC	65489	48598	59875	44433		
2710303	T91-219 RC1EC	RC100C-EC	70251	49973	64230	45689		
2710304	T91-220 RC1EC	RC109C-EC	75984	55591	9471	50826		
2710305	T91-221 RC1EC	RC115C-EC	80350	57126	73463	52230		

Note: This is at full speed (1100RPM).

Options

Cat. No.	Part No.	Description
2710174	1ST FMC RC DV/DH	1st Additional Condenser Circuit
2710175	2ND FMC RC DV/DH	2nd Additional Condenser Circuit
	R51000212	CBG Controller 0-10V (R134a-R404A) 30 bar
	R51000230	CBG Controller 0-10V (R410A) 50 bar

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Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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:
			R404A: kW	R134a: kW	R22		
			High Fan Speed				
2710306	T91-207 RC-3PH-Q	RC019C-Q	10002	9144	9525	500	3
2710307	T91-208 RC-3PH-Q	RC024C-Q	12436	11370	11844		
2710308	T91-209 RC-3PH-Q	RC028C-Q	13678	12505	13026		
2710309	T91-210 RC-3PH-Q	RC030C-Q	15793	14440	15041		
2710310	T91-211 RC-3PH-Q	RC034C-Q	17289	15807	16466		
2710311	T91-212 RC-3PH-Q	RC037C-Q	18395	16818	17519		
2710312	T91-213 RC-3PH-Q	RC047C-Q	24872	22740	23688		
2710313	T91-214 RC-3PH-Q	RC054C-Q	28560	26112	27200		
2710314	T91-215 RC-3PH-Q	RC062C-Q	31434	28740	29938		
2710315	T91-216 RC-3PH-Q	RC074C-Q	36102	33008	34383		
2710316	T91-217 RC-3PH-Q	RC082C-Q	41032	37515	39078		
2710317	T91-218 RC-3PH-Q	RC093C-Q	47152	43110	44906		
2710318	T91-219 RC-3PH-Q	RC100C-Q	49176	44961	46834		
2710319	T91-220 RC-3PH-Q	RC109C-Q	54709	50019	52104		
2710320	T91-221 RC-3PH-Q	RC115C-Q	56245	51424	53567		

Options

Cat. No.	Part No.	Description
2710174	1ST FMC RC DV/DH	1st Additional Condenser Circuit
2710175	2ND FMC RC DV/DH	2nd Additional Condenser Circuit

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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
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
2710110	T52-101 EP-4P	FMC 1-3R-4P	71	64.9	67.6	630	3	4 Pole
2710111	T52-102 EP-4P	FMC 1-4R-4P	85.2	77.9	81.1			
2710112	T52-103 EP-4P	FMC 1-5R-4P	94.8	86.6	90.2			
2710113	T52-104 EP-4P	FMC 2-3R-4P	142	129.8	135.2			
2710114	T52-105 EP-4P	FMC 2-4R-4P	170.4	155.7	162.2			
2710115	T52-106 EP-4P	FMC 2-5R-4P	189.6	173.3	180.5			
2710116	T52-107 EP-4P	FMC 3-3R-4P	213	194.7	202.8			
2710117	T52-108 EP-4P	FMC 3-4R-4P	255.6	233.6	243.3			
2710118	T52-109 EP-4P	FMC 3-5R-4P	284.4	259.9	270.7			
2710119	T52-101 EP-Q	FMC 1-3R-Q	72.9	66.6	69.4	800		6 Pole
2710120	T52-102 EP-Q	FMC 1-4R-Q	85.4	78.1	81.3			
2710121	T52-103 EP-Q	FMC 1-5R-Q	93.2	52.2	88.7			
2710122	T52-104 EP-Q	FMC 2-3R-Q	145.8	133.3	138.8			
2710123	T52-105 EP-Q	FMC 2-4R-Q	170.8	145.1	162.6			
2710124	T52-106 EP-Q	FMC 2-5R-Q	186.4	170.4	177.5			
2710125	T52-107 EP-Q	FMC 3-3R-Q	218.7	199.9	208.2			
2710126	T52-108 EP-Q	FMC 3-4R-Q	256.2	234.2	243.9			
2710127	T52-109 EP-Q	FMC 3-5R-Q	279.6	255.6	266.2			
2710146	T52-101 EP-EC	FMC 1-3R-EC	2710146	71	64.9	67.6		EC
2710147	T52-102 EP-EC	FMC 1-4R-EC	2710147	85.2	77.9	81.1		
2710148	T52-103 EP-EC	FMC 1-5R-EC	2710148	94.8	86.6	90.2		
2710149	T52-104 EP-EC	FMC 2-3R-EC	2710149	142	129.8	135.2		
2710150	T52-105 EP-EC	FMC 2-4R-EC	2710150	170.4	155.7	162.2		
2710151	T52-106 EP-EC	FMC 2-5R-EC	2710151	189.6	173.3	180.5		
2710152	T52-107 EP-EC	FMC 3-3R-EC	2710152	213	194.7	202.8		
2710153	T52-108 EP-EC	FMC 3-4R-EC	2710153	255.6	233.6	243.3		
2710154	T52-109 EP-EC	FMC 3-5R-EC	2710154	284.4	259.9	270.7		

Options

Cat. No.	Part No.	Description
2710174	1ST FMC RC DV/DH	1st Additional Condenser Circuit
2710175	2ND FMC RC DV/DH	2nd Additional Condenser Circuit
2710158	R72000349	Crate FMC 1 Module
2710159	R72000350	Crate FMC 2 Module
2710160	R72000351	Crate FMC 3 Module
	R51000212	CBG Controller 0-10V (R134a-R404A) 30 bar
	R51000230	CBG Controller 0-10V (R410A) 50 bar

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Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
2710024	T45-101 EP-4P	LDV227B	171.5	156.8	163.3	630	3	4 Pole
2710025	T45-102 EP-4P	LDV252B	189.1	172.9	180.1			
2710026	T45-103 EP-4P	LDV273B	201.6	184.3	192			
2710042	T45-113 EP-4P	LDV302B	224.2	205	213.5			
2710027	T45-104 EP-4P	LDV340B	257.2	235.2	245			
2710028	T45-105 EP-4P	LDV378B	283.1	258.9	269			
2710029	T45-106 EP-4P	LDV409B	301.6	275.7	287.2			
2710030	T45-107 EP-4P	LDV454B	323	313.6	326.6			
2710031	T45-108 EP-4P	LDV505B	378.3	345.9	360.3			
2710032	T45-109 EP-4P	LDV547B	403.2	368.6	384			
2710033	T45-110 EP-4P	LDV568B	428.8	392	408.3			
2710034	T45-111 EP-4P	LDV631B	472.9	432.3	450.4			
2710035	T45-112 EP-4P	LDV684B	504	460.8	480			
2710239	T45-101 EP-Q	LDV227B-Q	170.2	155.6	162.1	800		6 Pole
2710240	T45-102 EP-Q	LDV252B-Q	184.7	168.9	175.9			
2710241	T45-103 EP-Q	LDV273B-Q	193.5	177	184.3			
2710242	T45-113 EP-Q	LDV302B-Q	235.9	215.7	224.6			
2710243	T45-104 EP-Q	LDV340B-Q	255.3	233.4	243.2			
2710244	T45-105 EP-Q	LDV378B-Q	276.5	252.8	163.3			
2710245	T45-106 EP-Q	LDV409B-Q	289.5	264.7	275.7			
2710246	T45-107 EP-Q	LDV454B-Q	340.4	311.2	324.2			
2710247	T45-108 EP-Q	LDV505B-Q	369.4	337.8	351.9			
2710248	T45-109 EP-Q	LDV547B-Q	387.1	353.9	368.7			
2710249	T45-110 EP-Q	LDV568B-Q	425.6	389.1	405.3			
2710250	T45-111 EP-Q	LDV631B-Q	461.8	422.2	439.8			
2710251	T45-112 EP-Q	LDV684B-Q	483.9	442.4	460.9			

Options

Cat. No.	Part No.	Description
2710176	1ST LDV/LDH VB	1st Additional Condenser Circuit
2710177	2ND LDV/LDH VB	2nd Additional Condenser Circuit
2710166	R72000187	Crate LDV/H-B 227-252-273
2710167	R72000188	Crate LDV/H-B 302-340-378-409
2710168	R72000189	Crate LDV/H-B 454-505-547
2710169	R72000190	Crate LDV/H-B 568-631-684

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Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
2710278	T45-101 EP-EC	LDV227B-EC	171.5	156.8	163.3			
2710279	T45-102 EP-EC	LDV252B-EC	189.1	172.9	180.1			
2710280	T45-103 EP-EC	LDV273B-EC	201.6	184.3	192			
2710281	T45-113 EP-EC	LDV302B-EC	224.2	205	213.5			
2710282	T45-104 EP-EC	LDV340B-EC	257.2	235.2	245			
2710283	T45-105 EP-EC	LDV378B-EC	283.1	258.9	269.6			
2710284	T45-106 EP-EC	LDV409B-EC	304.6	275.7	287.2			EC
2710285	T45-107 EP-EC	LDV454B-EC	343	313.6	326.6			
2710286	T45-108 EP-EC	LDV505B-EC	378.3	345.9	360.3			
2710287	T45-109 EP-EC	LDV547B-EC	403.2	368.6	384			
2710288	T45-110 EP-EC	LDV568B-EC	428.8	392	408.3			
2710289	T45-111 EP-EC	LDV631B-EC	472.9	432.3	450.4			
2710290	T45-112 EP-EC	LDV684B-EC	504	460.8	480			

Options

Cat. No.	Part No.	Description
2710176	1ST LDV/LDH VB	1st Additional Condenser Circuit
2710177	2ND LDV/LDH VB	2nd Additional Condenser Circuit
2710166	R72000187	Crate LDV/H-B 227-252-273
2710167	R72000188	Crate LDV/H-B 302-340-378-409
2710168	R72000189	Crate LDV/H-B 454-505-547
2710169	R72000190	Crate LDV/H-B 568-631-684

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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 ZAplus - 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	
			R404A: kW		R134a: kW			
			Full Speed: 1100RPM	Speed: 680RPM	Full Speed: 1100RPM	Speed: 680RPM	Number	Nom Diameter: mm
2710321	T56-101-EP-EC	LDV-D-6-4R-2F	150	117	138	87	2	800
2710322	T56-102-EP-EC	LDV-D-6R-2F	186	142	172	106		
2710323	T56-103-EP-EC	LDV-D-6-4R-3F	225	141	207	130	3	
2710324	T56-104-EP-EC	LDV-D-6R-3F	280	172	258	159		
2710325	T56-105-EP-EC	LDV-D-6-4R-4F	300	188	277	173	4	
2710326	T56-106-EP-EC	LDV-D-6R-4F	373	229	344	211		

Dual Module

Cat. No.	Part No.	Model No.	Nominal Capacities at 10 KTD				Fans	
			R404A: kW		R134a: kW			
			Full Speed: 1100RPM	Speed: 680RPM	Full Speed: 1100RPM	Speed: 680RPM	Number	Nom Diameter: mm
2710327	T56-107-EP-EC	LDV-D-6-4R-2F-2M	300	188	277	173	4	800
2710328	T56-108-EP-EC	LDV-D-6R-2F-2M	373	229	344	211		
2710329	T56-109-EP-EC	LDV-D-6-4R-3F-2M	450	282	415	260	6	
2710330	T56-110-EP-EC	LDV-D-6R-3F-2M	559	344	515	317		
2710331	T56-111-EP-EC	LDV-D-6-4R-4F-2M	600	376	553	347	8	
2710332	T56-112-EP-EC	LDV-D-6R-4F-2M	746	459	687	423		

Options

Cat. No.	Part No.	Description	Suits Model
2710176	1ST LDV/LDH VB	1st Additional Condenser Circuit	All LDV-D
2710177	2ND LDV/LDH VB	2nd Additional Condenser Circuit	
2710333	T56-113	LDV-D Condenser Sub-Frame Base	1M-2F
2710334	T56-114		1M-3F
2710335	T56-115		1M-4F

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Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
2710190	T33-201 EP-Q	VB-4-4R-Q	205.8	188.1	195.9	800		6 Pole
2710191	T33-202 EP-Q	VB-4-5R-Q	223.8	204.6	213.1			
2710192	T33-203 EP-Q	VB-4-6R-Q	232.2	212.2	221.1			
2710193	T33-204 EP-Q	VB-6-4R-Q	318.4	291	303.1			
2710194	T33-205 EP-Q	VB-6-5R-Q	338.8	309.7	322.5			
2710196	T33-206 EP-Q	VB-6-6R-Q	348.8	318.8	332.1			
2710197	T33-207 EP-Q	VB-8-4R-Q	422.8	386.4	402.5			
2710198	T33-208 EP-Q	VB-8-5R-Q	451.4	412.6	429.7			
2710199	T33-209 EP-Q	VB-8-6R-Q	465.2	425.2	442.9			
2710200	T33-210 EP-Q	VB-10-4R-Q	527.6	482.2	502.3			
2710201	T33-211 EP-Q	VB-10-5R-Q	565.8	517.1	538.6			
2710202	T33-212 EP-Q	VB-10-6R-Q	580.6	530.7	552.7			

Options

Cat. No.	Part No.	Description
2710176	1ST LDV/LDH VB	1st Additional Condenser Circuit
2710177	2ND LDV/LDH VB	2nd Additional Condenser Circuit
2710170	R72000333	Crate V Block 4 Fan
2710171	R72000344	Crate V Block 6 Fan
2710172	R72000346	Crate V Block 8 Fan
2710173	R72000341	Crate V Block 10 Fan

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Condensers

Buffalo Trident

Buffalo Trident
BY BITZER GROUP

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
			R404A: kW	R134a: kW	R22			
			High Fan Speed					
2710227	T33-201 EP-EC	VB-4-4R-EC	194	177.3	184.7			EC
2710228	T33-202 EP-EC	VB-4-5R-EC	214.6	196.1	204.3			
2710229	T33-203 EP-EC	VB-4-6R-EC	226.4	206.9	215.5			
2710230	T33-204 EP-EC	VB-6-4R-EC	300.6	274.7	286.2			
2710231	T33-205 EP-EC	VB-6-5R-EC	325	297.1	309.4			
2710232	T33-206 EP-EC	VB-6-6R-EC	340	310.8	323.7			
2710233	T33-207 EP-EC	VB-8-4R-EC	339.8	365.4	380.6			
2710234	T33-208 EP-EC	VB-8-5R-EC	433.2	395.9	412.4			
2710235	T33-209 EP-EC	VB-8-6R-EC	453.8	414.8	432			
2710236	T33-210 EP-EC	VB-10-4R-EC	497.4	454.6	473.5			
2710237	T33-211 EP-EC	VB-10-5R-EC	542.8	496.1	516.7			
2710238	T33-212 EP-EC	VB-10-6R-EC	566.6	517.9	539.4			

Options

Cat. No.	Part No.	Description
2710176	1ST LDV/LDH VB	1st Additional Condenser Circuit
2710177	2ND LDV/LDH VB	2nd Additional Condenser Circuit
2710170	R72000333	Crate V Block 4 Fan
2710171	R72000344	Crate V Block 6 Fan
2710172	R72000346	Crate V Block 8 Fan
2710173	R72000341	Crate V Block 10 Fan

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Water Cooled Condensers

Bitzer

Fresh Water

Cat. No.	Part No.	Model No.
2711350	J13-502	K033N
2711351	J13-504	K073H
2711352	J13-508	K123H
2711353	J13-513	K203H
2711354	J13-516	K283H
2711356	J13-520	K373H
2711357	J13-526	K573H
2711358	J13-529	K813H
2711359	J13-506	K1053H
2711360	J13-509	K1353T
2711361	J13-511	K1973T
2711362	J13-518	K2923T
2711363	J13-522	K3803T
2711364	J13-525	K4803T

Salt Water

Cat. No.	Part No.	Model No.
2711365	J13-003	K033NB
2711366	J13-004	K073HB
2711367	J13-006	K123HB
2711368	J13-009	K203HB
2711369	J13-010	K283HB
2711370	J13-012	K373HB
2711371	J13-015	K573HB
2711372	J13-016	K813HB
2711373	J13-005	K1053HB
2711374	J13-007	K1353TB
2711376	J13-008	K1973TB
2711377	J13-011	K2923TB
2711378	J13-013	K3803TB
2711379	J13-014	K4803TB

Inclusions

- All condensers are supplied with angle mounting brackets above and 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.

Heaters

Key

Drain

Cat. No.	Part No.	Watts	Type
294105	8132	10	PVC
294106	8133	25	
294107	8138	46	

Tecumseh

L'Unite Hermetique

Crankcase

Cat. No.	Part No.	Volts	Watts	Type	Application
2710527	CH101-40	240	54	External	AH Series
2710528	CH101-3-40	440			
2710529	CH102-40	240	60		AJ Series
2710533	8681590	480	27	Internal	FH, TAG Series

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Heaters

Maneurop

Cat. No.	Part No.	Volts	Watts	Type	Application
2706442	7773107	230	65	External	MT/MTZ44-81, NTZ096-136 & SM/SZ084-161
2706443	7773108	230	75		MT/MTZ100-160, NTZ215-271 & SM/SZ175-185 & SH180-300
2710534	7773122	230	130		SY/SZ240-380 & SH380
2706644	120Z0459	-	27	Internal	MTZ & NTZ

Thermon

Cat. No.	Part No.	Volts	Watts	Type	Application
2701624	651-1010	240 Vac	52 at 10°C	External	Compressors up to 1200mm circumference

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
2710510	CRH-660	Cast Aluminium General Purpose

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

The CRH-WRC65 is a large capacity thermostatically controlled condensate evaporation pan.

Cat. No.	Part No.	Description
2710509	CRH-WCR65	Large Condensate Evaporation Pan

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

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
2710673	IM23/14SSC	240	23	14	40°C	735h x 478w x 580d	43
2710674	IM40/20SSC		40	20		725h x 675w x 580d	50
2710675	IM75/38SSC		75	38		999h x 675w x 670d	75

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BREMA® Ice Makers

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

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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 and integral insulated polyurethane foam injected bin.

Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg per day	Storage Capacity: kg	Dimensions: mm W x D x H	Shipping Weight: kg
2704161	CB184A	240	10	21	4	345 x 400 x 590	34
2704162	CB249A			28	9	390 x 460 x 690	44
2704163	CB316A			33	16	500 x 580 x 690	56
2704164	CB416A			42			60
2704165	CB425A			46	25	500 x 580 x 800	64
2704166	CB640A			65	40	738 x 600 x 920	89
2704167	CB840A			80			98
2704168	CB955A			90	55	738 x 600 x 1020	102
2704169	CB1265A		15	130	65	840 x 740 x 1075	133
2704170	CB1565A			155			138

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 per day	Dimensions: mm W x D x H	Shipping Weight: kg
2710597	C150A	240	15	155	862 x 555 x 720	128
2710598	C300A	415	32	300	1250 x 580 x 848	178

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 per day	Storage Capacity: kg	Dimensions: mm W x D x H	Shipping Weight: kg
2710591	VB250A	240	10	105	35	738 x 600 x 980	85

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 48ºC 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 per day	Dimensions: mm W x D x H	Shipping Weight: kg
2710594	VM350A	240	10	140	540 x 544 x 707	95
2710595	VM500A		15	200	770 x 550 x 805	101
2710596	VM900A		32	400		124
2710618	VM1700A	415		770	1250 x 645 x 950	242

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Ice Makers

Brema

GB Series

The GB series of granulated ice flakers are fully self contained and 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 per day	Storage Capacity: kg	Dimensions: mm W x D x H	Shipping Weight: kg
2710599	GB902A	240	10	90	20	500 x 660 x 690	67
2710619	GB903A				30	500 x 660 x 800	76
2710600	GB1555A		15	150	55	738 x 690 x 1020	105

TB Series

The TB series are under counter ice makers producing a solid pebble of ice smaller than cubed ice, ideal for cocktails and food preservation. They offer low operating costs and high efficiency ice production.

Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg per day	Storage Capacity: kg	Dimensions: mm W x D x H	Shipping Weight: kg
2706975	TB852A	240	10	85	20	500 x 660 x 690	67
2706976	TB1405A			140	50	738 x 690 x 1020	105

TM Series

The TM series produce solid pebbles of ice. Storage bins should be ordered seperately.

Cat. No.	Model No.	Voltage	Electrical Plug Type: Amps	Ice Production: kg per day	Dimensions: mm W x D x H	Shipping Weight: kg
2706977	TM250A	240	10	250	560 x 569 x 695	93
2706978	TM450A		16A	440	560 x 569 x 695	113

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 per day	Dimensions: mm W x D x H	Shipping Weight: kg
2710620	G150A	240	10	150	640 x 470 x 555	68
2710601	G250A		15	250	640 x 470 x 700	93
2710602	G500A			500		113
2710603	G1000A	415		1000	934 x 684 x 700	195
2710621	G500Split	240	15	500	640 x 470 x 700	75
2710622	G1000Split			1000	474 x 684 x 700	122

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Ice Makers

Brema

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 and 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 and 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 W x D x H	Shipping Weight: kg
2710604	M350A/W	240	15	400	900 x 588 x 705	150
2710623	M600A	415		620		166
2710605	M800A/W			900	1107 x 700 x 880	262
2710624	M1500A			1500	1107 x 700 x 970	342
2710625	M2000A			2200	1062 x 832 x1423	500
2710606	M350Split			400	495 x 588 x 705	82
2710626	M600Split	240	15	620		89
2710607	M800Split			900	604 x 700 x 880	153
2710627	M1500Split			1500	604 x 700 x 970	160
2710628	M2000Split	415		2200	736 x 832 x 1075	328

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 W x D x H	Shipping Weight
	HIKU26A	240	10 Amps	26kg	395 x 530 x 790	47kg
	DSS42A			42kg	500 x 360 x 920	72kg

Bins

Cat. No.	Model No.	Bin Storage Capacity: kg	Dimensions: mm W x D x H	Shipping Weight: kg
2710610	Bin 240PE	240	942 x 795 x 1153	92
2710608	Bin 200	200	870 x 790 x 1000	74
2710609	Bin 350	350	1250 x 790 x 1100	126
2710617	Bin 550	550	1110 x 1060 x 1284	177
2710611	Single Roller Bin	125	795 x 1060 x 1284	80
2710612	Double Roller Bin 100	266	1560 x 1060 x 1484	170
2710614	Double Roller Bin 500	516	1560 x 1145 x 1780	185

Water Filter

Cat. No.	Part No.	Description	Contents
2710615	CCE10	Water Filter Assembly	Water Filter
			Pressure Limiting Valve
			½" & ¾" Brass Connections
			Ball Valve
2710616	CCE100	Quick Change Water Filter Cartridge and Housing	

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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
2710638	B17-11	5	White	Hot & Cold	Spike
2710639	B17-11G		Granite		
2710640	B17-11T		Titanium		
2710644	B18-11		White	Cook & Cold	
2710645	B18-11G		Granite		
2710646	B18-11T		Titanium		

B10 Traditional Square Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Top
2710651	B10	5	White	Cook & Cold	Open

B22 Modern Bench Top Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Top
2710652	B22-11	5	Grey & Black Sides	Cook & Cold	Spike

Water Bottles

Cat. No.	Model No.	Description
2710654	C-155	8 litre water bottle with filter
2710655	C-159	Replacement filter cartridge

Freestanding Drinking Water Fountains

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered
2702437	M2	10	Stone Colourbond	Bubbler	No
2704300	M2F				Yes
2702438	M3			Bubbler & Glass Filler	No
2704301	M3F				Yes
2080167	M4	19		Bubbler	No
2080159	M4F				Yes
2704302	M4SS		Stainless Steel		No
2080164	M4FSS				Yes
2080168	M5		Stone Colourbond	Bubbler & Glass Filler	No
2080160	M5F				Yes
2704303	M5SS		Stainless Steel		No
2080165	M5FSS				Yes
2080169	M10	26	Stone Colourbond	Bubbler	No
2704304	M10F				Yes
2704305	M10SS		Stainless Steel		No
2704306	M10FSS				Yes
2080170	M11		Stone Colourbond	Bubbler & Glass Filler	No
2701786	M11F				Yes
2704307	M11SS		Stainless Steel		No
2704308	M11FSS				Yes

WM Series Wall Mounted Water Fountains

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered
27012666	WM2	8	Stone Colourbond	Bubbler	No
2704309	WM2SS		Stainless Steel		
2704310	WM3		Stone Colourbond	Bubbler & Glass Filler	
2704311	WM3SS		Stainless Steel		

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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
2710656	RP2	5	White	Cook & Cold	No
2710657	RP2F				Yes
2710658	RP2G		Granite		No
2710659	RP2GF				Yes
2710660	RP2T		Titanium		No
2710661	RP2TF				Yes
2710662	RP3		White	Hot & Cold	No
2710663	RP3F				Yes
2710664	RP3G		Granite		No
2710665	RP3GF				Yes
2710666	RP3T		Titanium		No
2710667	RP3TF				Yes

SP Modern Square Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered
2710668	SP2G	5	Granite	Cook & Cold	No
2710669	SP2GF				Yes

PB Modern Square Series

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Outlet	Filtered
2710670	PB1	5	Grey & Black Sides	Cook & Cold	No
2710671	PB1F				Yes

Mains Connected Under Bench Water Coolers

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Filtered
2704314	UB3	5	White	No
2704315	UB3F			Yes
2080172	UB1	8		No
2704312	UB1F			Yes
2080173	UB2	15		No
2704313	UB2F			Yes

Mains Connected Under Bench Water Heater

Hydra Master Series

Cat. No.	Model No.	Max Heating: l/h	Cabinet	Filtered
2710672	UH1	11.25	White	No

Mains Connected Wall Recessed Water Coolers

Cat. No.	Model No.	Max Cooling: l/h	Cabinet	Filtered
2080171	IBWR	26	Stainless Steel	No

Mains Connected Wall Mount Remote Water Coolers

Cat. No.	Model No.	Max Cooling: l/h	Filtered
2702440	WR45	26	No

Mains Connected Central Storage Remote Water Coolers

Cat. No.	Model No.	Max Cooling: l/h	Filtered
2702439	PT30	90	No

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Oil Separators

Emerson

Cat. No.	Part No.	Connection ODF Solder	Capacity Ratings : kW						Dimensions mm	
			R134a		R22		R404A /R507		Overall Height	Diameter
			Evaporating Temperature °C							
			-40	5	-40	5	-40	5		
2710753	A-XW55823	3/8"	1.72	2.03	2.67	2.96	2.37	3.00	183	102
2710754	A-W55824 3/8	1/2"	3.5	6.3	5.3	7	5.3	7	260	
2710755	A-W55855 3/8	5/8"	11.2	15.8	15.8	19.3	14.1	19.3	362	
2710756	A-W55877 3/8	7/8"	16.9	22.5	24.6	28	22.9	29.9	450	
2710757	A-W55889 3/8	1 1/8"	22.5	29.9	31.7	37	29.9	38.7	533	
2710758	A-W559011 3/8	1 3/8"	28.1	40	40.4	47.5	36.9	49.2	540	
2710759	A-W569213 3/8	1 5/8"	41.5	56.3	56.3	63.3	52.7	66.8	473	152

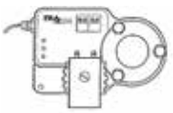
Cat. No.	Part No.	Max Capacity kW		Connection ODF Solder	Suits Bitzer Accessible Hermetec Compr.	Dimensions mm		Min. Op. Oil Charge Lts
		R22	R404A R507			Height (less conns)	Diameter	
2710761	B36-001	15.4	16.5	7/8"	2HC to 2CC	320	168	0.87
2710762	B36-009	23.2	24.8	1 1/8"	4FC to 4CC	370		
2710763	B36-004	34.8	36.5	1 1/8"	4Z to 4V	435		
2710764	B36-011	48	50.5	1 3/8"	4T to 4H	435		
2710765	B36-010	78.3	82	1 5/8"	4G to 6F	495	220	1.8

Oil Control Accessories

Antal

Cat. No.	Part No.	Oil Return Connection
2710741	AA-HS	3/8 " Male Flare

Traxoil



Oil Level Control System

Cat. No.	Part No.	Description	
2710742	TR3203	**Oil level system with screw adaptor 1-1/8" UNEF**	
		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, K15OCC/CS, K180CC/CS, K200CC, K230CS,K235CC, K240SB, K40CC, K50CS, K75CC/CS
		Maneurop	LT, MT, SM, SZ
2710744	TR3202	**Oil level system with screw adaptor 3/4" 14 NPTF**	
		Bitzer	ZL, ZM
		Copeland	ZB, ZF, ZS
2710745	TR3201	**Oil level system with flange adaptor 3-4 hole**	
		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
		Bitzer	4VC, 4TC, 4PC, 4NC, 4J, 4H, 4G, 6J, 6H, 6G, 6F, 8GC, 8FC
2710746	TR3205	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**	
		Copeland	DK, DL
	TR3207	**Oil level system with flange adaptor 3 hole**	
		Copeland	D8D, D8S (except D8SJ and D8SK), Terry VS
	TR3212	**Oil level system with Rotalock adaptor 1-3/4" 12 UNF**	
		Copeland	ZR90 tp ZR19M, ZR250 to ZR380, ZRT180K to 30K

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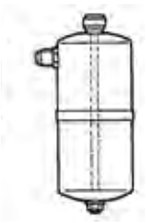
Liquid Receivers

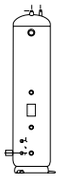
Tecumseh

L'Unite Hermetique



Cat. No.	Part No.	Volume: Lts	Inlet Connection	Rotalock Size	Height: mm	Diameter: mm
2710779	8380142	0.75	¼" Tube	N/A	205	77
2710780	8661567	1.5	Rotalock valve	1"	248	101
2710781	8661566	2.35			280	124
2710784	8380159	3.9			383	125
2710782	8380160	6			311	169
2710783	8380157	9.5		1 ¼"	504	
2710785	8380156	12			604	

Bitzer



Cat. No.	Part No.	Pump Down Capacity: Kg		Inlet Connection	Outlet Connection	Height: mm	Dia.: mm
		R22	R404A				
2710776	RV73	28	25	¾" Rotalock	¾" Rotalock	920	220
	RV80	42	37	1 ⅛" Rotalock	1⅛" Rotalock	1200	220
2710777	RV221	90	79.4	1 ⅜" Rotalock	1⅜" Rotalock	1160	356

Suction Accumulators

Emerson

Cat. No.	Part No.	Connection ODF Solder	Capacity: kW – Evaporating Temperature: °C									Liquid Holding Capacity* kg	Weight kg
			R134a			R22			R404A / R507				
			-18	-7	5	-18	-7	5	-18	-7	5		
2710800	A-AS-384	½"	2.1	2.8	4.2	3.2	4.9	7	2.8	3.5	4.6	0.9	0.8
2710801	A-AS-3125	⅝"	2.8	4.2	6	4.9	7.4	10.5	4.2	5.6	7	1.4	1
2710802	A-AS-3126	¾"	3.5	5.6	8.1	6.3	9.8	14	5.3	7	9		
2710803	A-AS-596		2.4									2.7	2.4
2710804	A-AS-597	⅞"	6.3	9.8	14	11.6	18	25.7	9.5	12.7	16.2		
2710805	A-AS-5126	¾"	3.5	5.6	8.1	6.3	9.8	14	5.3	7	9	4	3.6
2710806	A-AS--5127	⅞"	6.3	9.8	14	11.6	18	25.7	9.5	12.7	16.2		
2710807	A-AS-5137		3.7									4.3	3.7
2710808	A-AS-5139	1⅛"	10.9	17.6	25.3	18.6	29.2	41.5	15.5	20.7	26.7		
2710809	A-AS-5179		3.8									5.4	3.8
2710810	A-AS-51711	1⅜"	16.2	25.7	37.6	29.9	46.4	66	25.3	33.8	43		
2710811	A-AS-61411		5.6									5.9	5.6
2710812	A-AS-62013	1⅝"	25.7	41	60	45	70	100	37.6	50	64	9	7.4

*Holding Capacity of R22 at 4°C Evaporator Temperature.

Bitzer

Cat. No.	Part No.	Model No.	Connection ODF Solder
2710797	B40-060	SXE-118	Solder
2710796	B40-061	SXE-138	1⅜"
2710798	B40-062	SXE-158	1⅝"
2710799	B40-063	SXE-218	2⅛"
	B40-064	SXE-258	2⅝"
	B40-065	SXE-300	3"

Acpar

Cat. No.	Part No.	Description	Connection	Length
2710775	116-06	Copper Spun Accumulator	⅜"	230mm

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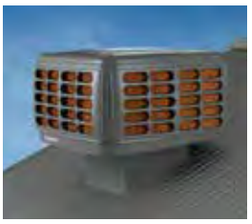
Evaporative Coolers

Kaden



Evaporative Cooler Range

Combining innovative features with intelligent design, Kaden gives you precise control of your home environment. Engineered specifically for Australia's long, harsh summers, Kaden delivers enduring performance matched with whisper quiet operation. Made to last, every Kaden Evaporative Cooler comes with a full 5 year warranty plus the option of extending for a further two years.

Classic

Features

- High efficiency cooling pads
- Automatic WinterSeal to prevent heat escaping in winter
- Extra airflow
- Smart Water Management System
- Pre-wet function
- Self-cleaning water pump
- Super quiet axial fan
- Fan Speed Sensing
- Ventilation only setting

Cat. No.	Model No.	Description	Airflow L/s @80 PA	Motor (Watts)	Length (mm)	Width (mm)	Height Front (mm)	Dry Weight (kg)	Operating Weight (kg)	Dropper Duct Connection (mm)
1621245	KC17	KADEN EVAP COOLER CLASSIC KC17 CHARCOAL	1790	750	1100	1100	597	48	63	550 x 550
1621246	KC17	KADEN EVAP COOLER CLASSIC KC17 TERRA RED								
1621247	KC17	KADEN EVAP COOLER CLASSIC KC17 BEIGE								
1621248	KC21	KADEN EVAP COOLER CLASSIC KC21 CHARCOAL	2190				682	51	66	
1621249	KC21	KADEN EVAP COOLER CLASSIC KC21 TERRA RED								
1621250	KC21	KADEN EVAP COOLER CLASSIC KC21 BEIGE								
1621251	KC27	KADEN EVAP COOLER CLASSIC KC27 CHARCOAL	2795	950						
1621252	KC27	KADEN EVAP COOLER CLASSIC KC27 TERRA RED								
1621253	KC27	KADEN EVAP COOLER CLASSIC KC27 BEIGE								
1621254	KC32	KADEN EVAP COOLER CLASSIC KC32 CHARCOAL	3290	1000			945	64	79	
1621255	KC32	KADEN EVAP COOLER CLASSIC KC32 TERRA RED								
1621256	KC32	KADEN EVAP COOLER CLASSIC KC32 BEIGE								

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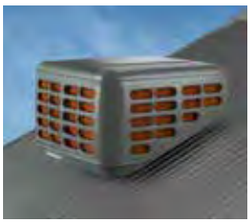
Evaporative Coolers

Kaden



Low Profile

Features

- High efficiency cooling pads
- Automatic WinterSeal to prevent heat escaping in winter
- Low profile sloping base
- Smart Water Management System
- Pre-wet function
- Self-cleaning water pump
- Super quiet axial fan
- Fan Speed Sensing
- Ventilation only setting

Cat. No.	Model No.	Description	Airflow L/s @80 PA	Motor (Watts)	Length (mm)	Width (mm)	Height Front (mm)	Height Back (mm)	Dry Weight (kg)	Operating Weight (kg)	Dropper Duct Connection (mm)
1621257	KL16	KADEN EVAP COOLER LOW PRO KL16 CHARCOL	1695	750	1100	1100	597	400	47	59	550 x 550
1621258	KL16	KADEN EVAP COOLER LOW PRO KL16 TERRA RED									
1621259	KL16	KADEN EVAP COOLER LOW PRO KL16 BEIGE									
1621260	KL22	KADEN EVAP COOLER LOW PRO KL16 CHARCOL	2210				682		48	60	
1621261	KL22	KADEN EVAP COOLER LOW PRO KL22 TERRA RED									
1621262	KL22	KADEN EVAP COOLER LOW PRO KL22 BEIGE									
1621263	KL25	KADEN EVAP COOLER LOW PRO KL25 CHARCOAL	2505						50	62	
1621264	KL25	KADEN EVAP COOLER LOW PRO KL25 TERRA RED									
1621265	KL25	KADEN EVAP COOLER LOW PRO KL 25 BEIGE									
1621266	KL28	KADEN EVAP COOLER LOW PRO KL28 CHARCOAL	2890	1000			945		51	63	
1621267	KL28	KADEN EVAP COOLER LOW PRO KL28 TERRA RED									
1621268	KL28	KADEN EVAP COOLER LOW PRO KL28 BEIGE									

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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	
		Cool	Heat	Liquid	Gas
1621093	DXK06ZM-S	2.0	2.7	6.35	9.52
1621096	DXK09ZMA-S	2.5	3.2		
1621099	DXK12ZMA-S	3.3	4.0		
1621102	DXK18ZMA-S	5.0	5.8		12.70
1621105	DXK21ZMA-S	6.3	7.1		15.88
1621108	DXK24ZMA-S	7.1	8.0		
1621111	DXK28ZMA-S	8.0	9.0		
1621114	DXK32ZMA-S	9.2	10.0		15.88

Wall Mount Split Heat Pump R410A Inverter

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm	
		Cool	Heat	Liquid	Gas
1600054	SRK20ZJ-S	2.0	2.7	6.35	9.52
2703063	SRK25ZJ-S	2.5	3.2		
2703065	SRK35ZJ-S1	3.3	4.0		
1620658	SRK50ZJ-S	5.0	5.8		12.7
1620668	SRK63ZK-S	6.3	7.1		15.88
1620669	SRK71ZK-S	7.1	8.0		
1620671	SRK80ZL-S	8.0	9.0		
1620672	SRK92ZL-S	9.2	10.0	9.52	15.88

Wall Mount Split Heat Pump R410A Inverter Hi EER/COP

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm	
		Cooling	Heating	Liquid	Gas
1602464	SRK20ZJX-S	2.0	2.5	6.35	9.52
1602459	SRK25ZJX-S	2.55	3.13		
1602460	SRK35ZJX-S	3.5	4.3		
1602462	SRK50ZJX-S1	5.0	6.0		12.7
1602465	SRK60ZJX-S1	6.0	6.8		

Wall Mount Split Cool Only R410A Inverter

Cat. No.	Model No.	Capacity: kW	Pipe Sizes: mm	
		Cool	Liquid	Gas
1602467	SRK10YJ-S	2.5	6.35	9.52
1602469	SRK18YJ-S	5.0		12.7

Floor Console Split Heat Pump R410A Inverter

Cat. No.	Model No.	Capacity: kW		Pipe Sizes: mm	
		Cooling	Heating	Liquid	Gas
1602470	SRF25ZJX-S	2.5	3.4	6.35	9.52
1602471	SRF35ZJX-S	3.5	4.5		
1602472	SRF50ZJX-S1	5.0	6.0		12.7

Control Options

Cat. No.	Part No.	Description
1603165	RC-E5	Wired Remote Controller - 2 Wire
1602139	SC-BIKN-E	Interface Kit for SRK, ZJ, ZJX & DXK to RC-5E

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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
		Cooling	Heating			
1602474	SCM40ZJ-S1	4.0	4.5	2 Indoor	6.0	3.5
1602475	SCM50ZJ-S1	5.0	6.0	2~3 Indoor	8.5	5.0
1602476	SCM60ZJ-S1	6.0	7.0		11.0	6.0
1602473	SCM71ZJ-S1	7.1	8.6	2~4 Indoor	12.5	
1602477	SCM80ZJ-S1	8.0	9.5		13.5	
1602478	SCM100ZJ-S1	10.0	12.0	4-5 Indoor	16.0	7.1
1602479	SCM125ZJ-S1	12.5	13.5	4-6 Indoor	19.5	

Indoor Units

SRK-Z Wall Mount

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1603131	SRK20ZMA-S	2.0	3.0
1603133	SRK25ZMA-S	2.5	3.4
1603135	SRK35ZMA-S	3.5	4.5
1603137	SRK50ZMA-S	5.0	5.8
1603141	SRK71ZMA-S	7.1	8.6

Cassette Units

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1602483	FDTC25VF	2.5	3.4
1602484	FDTC35VF	3.5	4.5
1602485	FDTC50VF	5.0	5.8
1602486	FDTC60VF	6.0	6.8

*Control not included and must be ordered separately

SRK-ZJX Wall Mount

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1602513	SRK20ZJX-S	2.0	3.0
1602514	SRK25ZJX-S	2.5	3.4
1602515	SRK35ZJX-S	3.5	4.5
1602516	SRK50ZJX-S1	5.0	5.8
1602517	SRK60ZJX-S1	6.0	6.8

Bulk Head Units (low static)

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1602487	SRR25ZJ-S	2.5	3.4
1602488	SRR35ZJ-S	3.5	4.5
1602489	SRR50ZJ-S	5.0	5.8
1602490	SRR60ZJ-S	6.0	6.8

Floor Type Units

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1602480	SRF25ZJX-S	2.5	3.4
1602481	SRF35ZJX-S	3.5	4.5
1602482	SRF50ZJX-S1	5.0	5.8

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Superior technology that **outlasts and outperforms**

For the smallest bedrooms and home living areas to the largest commercial spaces and high rise developments there is a **heavy duty, energy efficient, quiet and reliable** Mitsubishi Heavy Industries air conditioner suitable to your needs.

SR-DX Series

Wall Split
Floor Consoles
Multi Split Systems

Hyper Inverter

- **Wall Split Systems SRK - DXK** 1.7~9.2kW
- **Wall Split Systems SRK HiCOP** 2.0~6.0kW
- **Floor Type System SRF** 2.5~5.0kW
- **RAC Multi SCM Series** 7 outdoor units 4.0~12.5kW

FD Series

Ducted, Cassette & Console

Hyper Inverter

- **Single Phase Units** 5.0~14.0kW
- **Three Phase Units** 14.0kW ~ 20.0kW

KX Series

Variable Refrigerant Flow

Hyper Inverter

- **Heat Pump Systems** 24 Models 11.2~136.0kW
- **Heat Recovery Systems** 21 Models 22.4~136.0kW
- **Indoor Units** 16 Types 78 Models
- **Superlink** BMS Interface

Parts and Labour 5 Year Warranty

MITSUBISHI HEAVY INDUSTRIES

AIR CONDITIONING

Air Conditioners

Mitsubishi Heavy Industries

Cassette Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602493	FDT60ZJXVD	5.6	6.7
1621117	FDT71VNXVD	7.1	8.0
1621119	FDT100VNVD	10.0	11.2
1621121	FDT125VNXVD	12.5	14.0
1621123	FDT140VNXVD	14.0	16.0

Infrared Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602499	FDT60ZJXVD	5.6	6.7
1602458	FDT71VNXVD	7.1	8.0
1602461	FDT100VNVD	10.0	11.2
1602501	FDT125VNXVD	12.5	14.0
1602502	FDT140VNXVD	14.0	16.0

Cassette Compact Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602503	FDTC50ZJX-S	5.0	5.4

Infrared Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602504	FDTC50ZJX-S	5.0	5.4

Ducted Heat Pump

50 ~ 85Pa Wired Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602508	FDUM50ZIXVD	5.0	5.4
1602509	FDUM60ZIXVD	5.6	6.7
1602510	FDUM7IVNXVF	7.1	8.0

10 ~ 200Pa Wired Control

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
1602416	FDUA71VNXVF	7.1	8.0
1602417	FDUA100VNVF	10.0	11.2
1620549	FDUA125VNXVF	12.5	14.0
1620550	FDUA140VNXVF	14.0	16.0
1602418	FDUA160VSVF	16.0	18.0

Cat. No.	Model No.	Capacity: kW	
		Cooling	Heating
2706808	DXU24VNXVF	7.1	8.0
2706809	DXU34VNVF	10.0	11.2
2706810	DXU43VNXVF	12.5	14.0
2706811	DXU48VNXVF	14.0	16.0
2706812	DXU55VSVF	16.0	18.0

Under Ceiling Heat Pump R410A Inverter

Wired Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602511	FDEN100VNVD	10.0	11.2
1602491	FDEN125VNXVD	12.5	14.0

Infrared Control

Cat. No.	Model No.	Capacity: kW	
		Cool	Heat
1602512	FDEN100VNVD	10.0	11.2
1602492	FDEN125VNXVD	12.5	14.0

Control Options

Cat. No.	Model No.	Description
1602141	CnT Connector	Card connector flying leads
1603166	RC-EX1A	EcoTouch Controller
1603165	RC-E5	Wired Remote Control - 2 Wire
1602137	SC-ADNA-E	Superlink Interface - RC-E5

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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
1602067	FDC112HKXEN6	11.2
1602068	FDC140HKXEN6	14.0
1602069	FDC155HKXEN6	15.5

Cat. No.	Model No.	Capacity: kW
1602070	FDC224KXE6	22.4
1602071	FDC280KXE6	28.0
1602072	FDC335KXE6	33.5

KX6 2 Pipe Multi Heatpump

Cat. No.	Model No.	Capacity: kW
1602073	FDC335KXE6-K*	33.5
1602074	FDC400KXE6	40.0
1602075	FDC450KXE6	45.0
1602076	FDC504KXE6	50.4
1602077	FDC560KXE6	56.0
1602078	FDC560KXE6-K*	56.0
1602079	FDC615KXE6	61.5
1602080	FDC680KXE6	68.0

* Combination

KXR6 3 Pipe Multi Heat Recovery

Cat. No.	Model No.	Capacity: kW
1602081	FDC224KXRE6	22.4
1602082	FDC280KXRE6	28.0
1602083	FDC335KXRE6	33.5
1602084	FDC335KXRE6-K	33.5
1602085	FDC400KXRE6	40.0
1602086	FDC450KXRE6	45.0
1602087	FDC504KXRE6	50.4
1602088	FDC560KXRE6	56.0
1602089	FDC560KXRE6-K	56.0
1602090	FDC615KXRE6	61.5
1602091	FDC680KXRE6	68.0

* Combination

KX & KXR System Commissioning

Cat. No.	Model No.	Description
1602092	KXR SYS COMM	3 Hours Assistance

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 in lieu of models requested.

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Mitsubishi Heavy Industries

VRF Systems (Variable Refrigerant Flow) - Indoor Units

Wall mount

Cat. No.	Model No.	Capacity: kW
1602093	FDK22KXE6	2.2
1602094	FDK28KXE6	2.8
1602095	FDK36KXE6	3.6

Cat. No.	Model No.	Capacity: kW
1602096	FDK45KXE6	4.5
1602097	FDK56KXE6	5.6
1602098	FDK71KXE6	7.1

4 Way Cassette

Cat. No.	Model No.	Capacity: kW
1602099	FDT28KXE6	2.8
1602100	FDT36KXE6	3.6
1602101	FDT45KXE6	4.5
1602102	FDT56KXE6	5.6
1602103	FDT71KXE6	7.1

Cat. No.	Model No.	Capacity: kW
1602104	FDT90KXE6	9.0
1602105	FDT112KXE6	11.2
1602106	FDT140KXE6	14.0
1602107	FDT160KXE6	16.0

4 Way Compact Cassette

Cat. No.	Model No.	Capacity: kW
1602108	FDTC22KXE6	2.2
1602109	FDTC28KXE6	2.8
1602110	FDTC36KXE6	3.6

Cat. No.	Model No.	Capacity: kW
1602111	FDTC45KXE6	4.5
1602112	FDTC56KXE6	5.6

1 Way Blow Cassette

Cat. No.	Model No.	Capacity: kW
1602113	FDTQ22KXE6	2.2
1602114	FDTQ28KXE6	2.8
1602115	FDTQ36KXE6	3.6

Cat. No.	Model No.	Capacity: kW
1602116	FDTQ45KXE6	4.5
1602117	FDTQ71KXE6	7.1

Ducted Fan Coil Unit (FCU) (50-130Pa)

Cat. No.	Model No.	Capacity: kW
1602118	FDU71KXE6	7.1
1602119	FDU90KXE6	9.0

Cat. No.	Model No.	Capacity: kW
1602120	FDU112KXE6	11.2
1602121	FDU140KXE6	14.0
	FDUA160KXE6	16.0 kW

High Static Ducted Fan Coil Unit (FCU) (100-200Pa)

Cat. No.	Model No.	Capacity: kW
1602122	FDU224KXE6	22.4

Cat. No.	Model No.	Capacity: kW
1602123	FDU280KXE6	28.0

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Mitsubishi Heavy Industries

VRF Systems (Variable Refrigerant Flow) - Indoor Units

Ducted Fan Coil Unit (FCU) (50-90Pa)

Cat. No.	Model No.	Capacity: kW
1602124	FDUM22KXE6	2.2
1602125	FDUM28KXE6	2.8
1602126	FDUM36KXE6	3.6
1602127	FDUM45KXE6	4.5
1602128	FDUM56KXE6	5.6

Cat. No.	Model No.	Capacity: kW
1602129	FDUM71KXE6	7.1
	FDUM90KXE6	9.0
	FDUM112KXE6	11.2
	FDUM140KXE6	14.0

Low Profile Ducted FCU (Low Static)

Cat. No.	Model No.	Capacity: kW
	FDUT22KXE6	2.2kW
	FDUT28KXE6	2.8kW
	FDUT36KXE6	3.6kW
	FDUT45KXE6	4.5kW
	FDUT56KXE6	5.6kW
	FDUT71KXE6	7.1kW

Compact Ducted Fan Coil Unit (FCU)

Cat. No.	Model No.	Capacity: kW
	FDUH22KXE6	2.2
	FDUH28KXE6	2.8

Cat. No.	Model No.	Capacity: kW
	FDUH36KXE6	3.6

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Mitsubishi Heavy Industries

Controls and Accessories

Individual Remote

Cat. No.	Model No.	Description	
1603165	RC-E5	Wired Remote Control	2 Wire
1603167	RCH-E3	Simple Wired Remote Control	
1603166	RC-EX1A	EcoTouch Controller	

Controller Wireless Kits

Cat. No.	Model No.	Description	
1603169	RCN-T-36W-E	Wireless Kit	FDT
1602138	RCN-TC-24W-ER		FDTC
	RCN-E-E		FDE
	RCN-K-E		FDK
	RCN-K71-E		FDK 7.1 and above
1603168	RCN-KIT3-E		General Use

Superlink Network Controllers

Cat. No.	Model No.	Description
1602143	SC-SL1N-E	Central Controller
1602144	SC-SLA2N-E	Centralized Controller
1602145	SC-SL3N-AE	

Cat. No.	Model No.	Description
1602146	SLA3R-BX	Mounting Box for SC-SLA3N
1602147	CONT COMM	Controls Commissioning Assistance 5hrs

Accessories

Cat. No.	Model No.	Description	
1602148	SC-THB-E3	Remote Sensor	
	U-FCRA	Fan Speed Controller	FDU
	U-FCRB		FDU-F

Pipe Kits

Cat. No.	Model No.	Description		
1602149	DIS-22-1	HP Branch Pipe Kit		2.2 to 18.0kW
1602150	DIS-180-1			18.0 to 37.1kW
1602151	DIS-371-1			37.1 to 54.0kW
1602152	DIS-540-1			54.0kW up
1602153	DOS-2A-1	HP Outdoor Branch Pipe Kit		73.5 to 136.0kW
1602154	HEAD4-22-1	HP Header Pipe Kit	4 Port	2.2 to 18.0kW
1602155	HEAD6-180-1		6 Port	18.0 to 37.1kW
1602156	HEAD8-371-1		8 Port	37.1 to 54.0kW
1602157	HEAD8-540-1			54.0kW up

Cat. No.	Model No.	Description	
1602158	DIS-22-1-R	HR Branch Pipe Kit	2.2 to 18.0kW
1602159	DIS-180-1-R		18.0 to 37.1kW
1602160	DIS-371-1-R		37.1 to 54.0kW
1602161	DIS-540-1-R		54.0kW up
1602162	DOS-2A-1-R	HR Outdoor Branch Pipe Kit	73.5 to 136.0kW

KX6 Refrigerant Flow Controllers Interfaces

Cat. No.	Model No.	Description	
1602163	PFD1123-E	Single Refrig. Contr.	2.2 to 9.0kW
1602164	PFD1123X4-E	Multi Refrig. Contr.	
1602165	PFD1803-ER	Single Refrig. Contr.	11.2 to 18.0kW
1602166	PFD2803-ER		18.0kW up
	PFD-15WR-E	Wiring Extension for PFD 15m	

Cat. No.	Model No.	Description
1602139	SC-BIKN-E	Interface Kit for SRK, ZJ, ZJX & DXK to RC-5E
1602141	CnT Connector	Card connector flying leads
1602137	SC-ADNA-E	Superlink Interface - RC-E5

Filter Kits

Cat. No.	Model No.	Description	
	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	

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Air Conditioners

Hitachi

Wall Mounted Split Air Conditioners

The Hitachi wall mounted split air conditioners all utilise a twin inverter rotary compressor for a smoother quieter operation.

Cat. No.	Model No.	Capacity: kW		Pipe Sizing	
		Cool	Heat	Liquid	Gas
2750239	RAS25YHA5KIT	2.5	3.2	6.35	9.5
2750240	RAS35YHA6KIT	3.5	4.0	6.35	9.5
2750472	RAS50YHA4KIT	5.0	6	6.35	12.7
2750473	RAS60YHA4KIT	6.0	7	6.35	12.7
2750474	RAS70YHA4KIT	7.0	8	6.35	15.88
2750475	RAS80YHA4KIT	8.0	9	6.35	15.88

Floor Console Split Air Conditioners

The Hitachi floor console split air conditioner utilises a twin inverter rotary compressor for a smoother quieter operation.

Cat. No.	Model No.	Capacity: kW		Pipe Sizing	
		Cool	Heat	Liquid	Gas
2705209	RAF50NXA1KIT	5.0	6.0	6.35	12.7

Cassette Split Air Conditioners

Cat. No.	Model No.	Capacity: kW		Pipe Sizing	
		Cool	Heat	Liquid	Gas
2750169	RCI-2.0FSN3KIT	5.0	5.6	6.35	12.7
2750170	RCI-2.5FSN3KIT	5.6	6.3	6.35	12.7
2705172	RCI-3.0FSN3KIT	7.1	8.0	9.52	15.88
2705173	RCI-4.0FSN3KIT	10.0	11.2	9.52	15.88
2705174	RCI-5.0FSN3KIT	12.5	14.0	9.52	15.88
2705580	RCI-6.0FSN3KIT	13.0	16.0	9.52	15.88

Ducted

Cat. No.	Model No.	Capacity: kW		Pipe Sizing	
		Cool	Heat	Liquid	Gas
2750167	RPI-2.0FSNSQKIT	5.0	5.6	6.35	12.7
2750168	RPI-2.5FSNSQKIT	5.6	6.3	6.35	12.7
2705178	RPI-3.0FSN2SQKIT	7.1	8.0	9.52	15.88
2705179	RPI-4.0FSN2SQKIT	10.0	11.2	9.52	15.88
2705180	RPI-5.0FSN2SQKIT	12.5	14.0	9.52	15.88
2705181	RPI-6.0FSN2SQKIT	13.0	16.0	9.52	15.88
2705182	RPI-7.0FSN2SQKIT	16.0	18.0	9.52	15.88

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Air Conditioners

Midea

Wall Mount Split Systems

Fairwind Inverter Series

The new Fairwind inverter series will replace the Corona inverter series.

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
2706814	FMV09DR	2.45	2.7	1/4"	3/8"
2706817	FMV12DR	3.5	3.7	1/4"	1/2"
2706820	FMV18DR	5.0	5.3	1/4"	1/2"
2706823	FMV24DR	6.7	6.7	3/8"	5/8"

Oasis Inverter Series

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602383	MORC09	2.5	2.6	1/4"	3/8"
1602384	MORC12	3.25	3.15	1/4"	1/2"
1602385	MORC14	4.25	4.3	1/4"	1/2"
1602386	MORC18	5	5.3	1/4"	1/2"
1602387	MORC24	6.9	7.4	3/8"	5/8"
1602388	MORC28	7.9	8.3	3/8"	5/8"

Fairwind Fixed Speed Series

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602404	MEF09	2.7	2.8	1/4"	3/8"
1602405	MEF12	3.5	3.5	1/4"	1/2"
1602406	MEF18	5.1	5.3	1/4"	1/2"
1602407	MEF24	6.4	7	3/8"	5/8"

Room Air Conditioners

- Reverse Cycle
- Remote Control Included

Cat. No.	Model No.	Capacity: kW		Dimensions: mm		
		Cool	Heat	Width	Depth	Height
1602370	MWF09HB4	2.6	2.35	600	560	380
1602371	MWF12HB4	3.5	3.2	660	680	428
1602372	MWF18HB4	5.5	4.7	660	780	428

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Air Conditioners

Midea

Multi Head Systems

Outdoor Units

Cat. No.	Model No.	Capacity: kW		Connections		Max No of Heads
		Cool	Heat	Liquid	Gas	
304216	M2OC18HRDN1	5.2	6.1	2 x 1/4"	2 x 3/8"	2
304217	M3OC27HRDN1	7.9	8.8	3 x 1/4"	3 x 3/8"	3
304218	M4OC27HRDN1	7.9	8.8	4 x 1/4"	4 x 3/8"	4
304219	M5OC36HRDN1	10.5	11	5 x 1/4"	5 x 3/8"	5
1602408	MM4OC36	10.5	11	5 x 1/4"	5 x 3/8"	4

Indoor Units Wall Mount

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
304237	MS11DI07HRDN1Q	2	2.3	1/4"	3/8"
1602409	MS11DI09HRDN1Q	2.6	2.9	1/4"	3/8"
304239	MS11DI12HRDN1Q	3.5	3.8	1/4"	3/8"
304240	MS11DI18HRDN1Q	5	5.3	1/4"	1/2"
1602410	MMSO24	7	7.3	3/8"	5/8"

Mini 4 Way Cassette

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
304242	MCA2I07HRDN1	2	2.6	1/4"	3/8"
304243	MCA2I09HRDN1	2.6	3.2	1/4"	3/8"
304244	MCA2I12HRDN1	3.5	3.8	1/4"	3/8"
304245	MCA2I18HRDN1	5.2	6	1/4"	1/2"

Ducted Unit

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602411	MTBI07HWDN1Q	2	2.4	1/4"	3/8"
1602412	MTBI09HWDN1Q	2.6	3.2	1/4"	3/8"
1602413	MTBI12HWDN1Q	3.5	3.8	1/4"	3/8"
1602414	MTBI18HWDN1Q	5.2	5.8	1/4"	1/2"

Floor Console

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602415	MFF18HRDN1	5.2	5.8	1/4"	1/2"

Ducted Systems

• Single Phase • Wired Control

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602390	MHG24HWFN1Q	7.35	8.5	3/8"	5/8"
1602391	MHG36HWFN1Q	10.4	11.2	3/8"	5/8"
1602392	MHG48HWFN1Q	13.5	16	3/8"	3/4"
1602393	MHG60HWFN1Q	16.8	17.7	3/8"	3/4"

Cassette Systems

• Single Phase • Wired Control

Cat. No.	Model No.	Capacity: kW		Connections	
		Cool	Heat	Liquid	Gas
1602394	MCD24HRFN1Q	7.1	7.6	3/8"	5/8"
1602395	MCD42HRFN1Q	11	13	3/8"	3/4"
1602396	MCD46HRFN1Q	12.8	14	3/8"	3/4"

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Teco

Room Air Conditioners

Features
- R410A Refrigerant
- Reverse Cycle
- Remote Control Included

Cat. No.	Model No.	Capacity: kW		Dimensions: mm		
		Cool	Heat	Height	Width	Depth
1602361	TWW22HFB	2.2	1.9	375	560	668
1602362	TWW27HFB	2.7	2.4			
1602363	TWW40HFB	4.0	3.6	430	660	705
1602364	TWW53HFB	5.3	5.0			
1602365	TWW60HFB	6.0	5.6			

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
1606353	A/C Ultra Plus	Universal A/C Remote Control
1602359	ESR	Energy Saving Remote Control

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Air Conditioners

Temperzone

Air Cooled Split Ducted Units

All these Temperzone units use R410A refrigerant.

Features

- Galvanised Sheet Steel Construction
- EpoxtyCoated Coils
- EC Supply Air Fan Motor/s ISDL 66 - 116, ISD 87 - 324
- Optional Baked Polyester Powdercoat finish to ISD 87 - 950
- Reliable Operation up to 52°C Ambient
- Baked Polyester Powdercoat finish to Outdoor unit - Color options available
- Closed Cell foam with Foil Faced Insulation
- Variable Speed HP control
- Closed Cell foam with Foil Faced Insulation
- MEPS Compliant

Low Profile Split Ducted - Horizontal Only

Cat. No.	Model No.	Nominal Capacity/ Capacity Range: kW		Nominal Airflow l/sec	Pipe Sizes Ømm		Electrical Supply	Compressor	No. of Circuits
		Cooling	Heating		Liquid	Suction			
	ISDL / OSA 66	6.7	6.2	370	Ø9.5	Ø16	1 Phase	non digital scroll	1
	ISDL / OSA 87	8.5	7.8	480				DiGital	
	ISDL / OSA 116	11.2 / 4.5 - 11.2	11.1 / 4.4 - 11.1	630			1 or 3 Phase	non digital scroll	

Split Ducted - Inverter

Cat. No.	Model No.	Nominal Capacity/ Capacity Range: kW		Nominal Airflow l/ sec	Pipe Sizes Ømm		Electrical Supply	Compressor	No. of Circuits
		Cooling	Heating		Liquid	Suction			
2750187	ISD184KYXOSA184RKTFH	17.9 / 3.7 - 23.1	18.7 / 3.7 - 22.5	980	Ø9.5	Ø19	3 Phase	Inverter	1
2750190	ISD224KYXOSA224RKTFH	20.6 / 7.9 - 26.5	23.0 / 8.0 - 27.6	1190	Ø13	Ø22			
2750192	ISD294KYXOSA294RKTFV	27.1 / 5.6 - 33.5	27.5 / 5.5 - 33.0	1570		Ø28			
	ISD324KYXOSA324RKTFV	34.0 / 6.8 - 40.8	32.2 / 6.4 - 38.6	1725					

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Air Conditioners

Temperzone

Split Ducted - DiGital & Non Digital

Cat. No.	Model No.	Nominal Capacity/ Capacity Range: kW		Nominal Airflow l/sec	Pipe Sizes Ømm		Electrical Supply	Compressor	No. of Circuits
		Cooling	Heating		Liquid	Suction			
	ISD87KYXOSA87RKTDH	8.5	7.8	480	Ø9.5	Ø16	1 Phase	non digital scroll	1
	ISD116KYX/OSA116RKSGH	11.4 / 4.6 - 11.4	10.8 / 4.3 - 10.8	630			1 Phase	DiGital	
	ISD116KYX/OSA116RKTGH						3 Phase		
2750184	ISD141KYXOSA141RKSGH	13.7 / 5.5 - 13.7	12.6 / 5.1 - 12.6	830			1 Phase		
2750185	ISD141KYXOSA141RKTGH						3 Phase		
2750186	ISD164KYXOSA164RKTGH	16.4 / 6.4 - 16.4	15.0 / 6.0 - 15.0	910					
2750188	ISD194KYXOSA194RKTGH	19.2 / 7.5 - 19.2	16.8 / 6.7 - 16.8	1065	Ø13	Ø19			
2750189	ISD224KYXOSA224RKTGH	22.4 / 8.8 - 22.4	21.6 / 8.6 - 21.6	1190		Ø22			
2750191	ISD294KYXOSA294RKTGV	28.4 / 11.5 - 28.4	28.2 / 11.3 - 28.2	1570		Ø28			
	ISD324KYXOSA324RKTFGV	32.3 / 12.9 - 32.3	30.3 / 12.1 - 30.3	1725					
160822	ISD380KBYOSA380RKTBV	37.6	38.8	2100		Ø22		non digital scroll	2
160838	ISD380KBOSA380RKTBGV							DiGital Stage 1	
160823	ISD465TBHOSA465RKTBV	44.6	44.0	2550				non digital scroll	
160825	ISD570KBHOSA570RKTBV	56.1	55.9	3100		Ø28*			
160827	ISD570BHPOSA570RKTBV								
160829	ISD670BHPOSA670RKTBV	65.9	62.8	3600					
160832	ISD670KBHOSA670RKTBV								
160833	ISD840BHOSA840RKTBV	84.7	79.8	4500		Ø35			
160835	ISD950KBHOSA950RKTBV	94.9	90.1	5000					

*ISD570 and 670 can use 35mm suction lines

Split Ducted - DiGital & Non Digital Vertical Supply Air Configuration

Cat. No.	Model No.	Nominal Capacity/Capacity Range: kW		Nominal Airflow l/sec	Pipe Sizes Ømm		Compressor
		Cooling	Heating		Liquid	Suction	
160824	ISD465TBVOSA465RKTBV	44.6	44.0	2550	Ø13	Ø22	non digital scroll
160826	ISD570KBVOSA570RKTBV	56.1	55.9	3100		Ø28	
160828	ISD570BVPOSA570RKTBV						
160830	ISD670BVPOSA670RKTBV	65.9	62.8	3600			
160831	ISD670KBVOSA670RKTBV						
160834	ISD840BVOSA840RKTBV	84.7	79.8	4500		Ø35	
160836	ISD950KBVOSA950RKTBV	94.9	90.1	5000			

*ISD570 and 670 can use 35mm suction lines

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Air Conditioners

Temperzone

Air Cooled Rooftop Packaged

All these Temperzone units use R410A refrigerant and are 3 phase.

Features

- Galvanised Steel Construction
- EC Fan Motor OPA 116 - 201
- Baked Polyester Powdercoat finish - Optional colors available
- Closed Cell foam with Foil Faced Insulation
- Optional 50mm Panel Filters Available - OPA 242 - 2000
- Optional 100mm Panel filters available - OPA 465 - 2000
- Epoxy Coated Evap & Cond Coils
- Variable Speed HP Control
- MEPS Compliant
- Reliable Operation up to 52°C Ambient
- 32 Handing Options Available OPA 242 - 2000

Package Units - Over/Under Configuration

Cat. No.	Model No.	Nominal Capacity: kW		Nominal Airflow l/sec	Compressor	No. of Circuits
		Cooling	Heating			
2705492	OPA 116	11.6	10.8	650		1
2705495	OPA 161	16.1	14.4	815		
	OPA 186	18.6	16.2	1000	DiGital	
2705494			16.7			
	OPA 201	20.0	18.1	1100	DiGital	
2705581			19.0			

Package Units - Side/Side Configuration

Cat. No.	Model No.	Nominal Capacity: kW		Nominal Airflow l/sec	Compressor	No. of Circuits
		Cooling	Heating			
2705506	OPA 242	23.5	22.2	1400	DiGital Option	2
2750241	OPA 294	29.5	27.2	1600		
160839	OPA 296	29.7 / 13 - 32	28.1 / 12 - 32	1700	Inverter	
2750242	OPA 340	34.0	30.1	1800	DiGital Option	
2750243	OPA 370	39.1	35.6	2100		
2750244	OPA 465	46.7	43.5	2500		
2750245	OPA 550	56.1	49.5	2800		
2750246	OPA 705	71.6	69.4	3700		
2750248	OPA 855	85.1	83.5	4200		
2750249	OPA 960	96.0	90.0	5200		
	OPA 1370	137.0	135.0	7500		4
	OPA 2000	193.0	213.0	9500		

Package Units - Side/Side Configuration - ECO Series

Cat. No.	Model No.	Nominal Capacity: kW		Nominal Airflow l/sec	Compressor	No. of Circuits
		Cooling	Heating			
	OPA 465	46.7	43.5	2500	1 DiGital / 1 Fixed	2
	OPA 550	56.1	49.5	2800		
	OPA 705	71.6	69.4	3700		
	OPA 855	85.1	83.5	4200		
	OPA 960	96.0	90.0	5200		

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Air Conditioners

Temperzone

Water Cooled Packaged Units

All these Temperzone units use R410A refrigerant.

Horizontal Water Cooled Packaged Units

Features

- Flexible hoses included in models HWP 36 - HWP 192
- ThermoShell® heat exchanger in models HWP 36 - HWP 192
- HWP 79 - HWP 445 draw thru configuration
- Epoxy coated Evap coil for increased corrosion resistance
- Spring kit included
- HWP 36 - HWP 59 blow thru configuration
- 12mm R/A Filter Inc with HWP 36 - HWP 192
- Closed cell foam with foil faced iInsulation

Cat. No.	Model No.	Nominal Capacity Heat Pump: kW		Nominal Capacity Cool Electric Heat: kW		Nominal Airflow l/sec	Electric Supply	Compressor
		Cooling	Heating	Cooling	Heating			
	HWP 36	3.5	3.7	3.5	2.0	190	1 Phase	
	HWP 48	4.4	4.6	4.4		230		
	HWP 59	5.9	5.4	5.9	3.0	320		
	HWP 79	8.1	8.9	8.1	4.0	500		
	HWP 96	9.9	11.1	9.9		560		
	HWP 118	12.2	11.9	12.2	6.0	620	3 Phase	
	HWP 142	14.7	14.1	14.7		775		
	HWP 172	18.5	17.4	18.5	9.0	1015		
	HWP 192	21.2	19.9	21.2		1160		
	HWP 225	23.1	22.3	23.1	12.0	1180		
	HWP 290	28.7	28.6	28.7	18.0	1500		
	HWP 291	27.7 / 19 - 31	28.5	Not Available		1400		Inverter
	HWP 370	36.6	34.9	36.6	18.0	1900		
	HWP 445	44.5	42.2	44.5	24.0	2300		

Vertical Water Cooled Packaged Units

Features

- Flexible Hoses available as an option
- Baked polyester powdercoat cabinet finish - Optional colours available
- Epoxy coated Evap coil for increased corrosion resistance
- 12mm R/A panel filter included in models CWP 0063 - CWP 0178
- 50mm panel filter Optional on models CWP 0217 - CWP 1030
- Galvanised steel construction
- Closed cell foam with foil faced iInsulation

Cat. No.	Model No.	Nominal Capacity Heat Pump: kW		Nominal Capacity Cool Electric Heat: kW		Nominal Airflow l/sec	Electric Supply	Flex Hose Diameter mm	Flex Hose Length mm
		Cooling	Heating	Cooling	Heating				
	CWP 0063	6.3	6.6	6.3	2.5	380	1 Phase	2 x 20	600
	CWP 0083	8.3	8.3	8.3	3.0	490		2 x 25	800
	CWP 0096	9.6	9.6	9.6	4.0	570		2 x 25	800
	CWP 0109	10.9	10.3	10.9	4.5	600	1 Phase / 3 Phase	2 x 25	800
	CWP 0132	13.1	11.9	13.1		770		2 x 32	1300
	CWP 0178	17.8	16.4	17.8	6.5	920	3 Phase	2 x 32	1300
	CWP 0217	21.7	20.5	21.7	8.0	1210			
	CWP 0266	26.3	23.8	26.3	10.0	1535			
	CWP 0374	37.4	35.5	37.4	15.0	1940			
	CWP 0447	44.7	46.6	44.7	21.0	2315			
	CWP 0568	57.5	54.9	57.5	22.5	2935			
	CWP 0890	89.0	84.4	89	34.5	4800			
	CWP 1030	101.6	98.6	101.6	39.0	4960			

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Air Conditioners

Temperzone

Chilled Water

Low Profile Chilled Water Fan Coil Units

Features

- Blow through configuration
- Optional supply air spigot with flexible duct spigots fitted
- Closed cell foam with foil faced insulation
- Optional EC motor version available
- Epoxy coated coil

Cat. No.	Model No.	Nominal Air Flow l/sec	Configurations		Spigot Diameter mm
	IMDL 40	205	3 Row Cool / 1 Row Heat	4 Row Cool / Electric Heat	2 x Ø200
	IMDL 60	335			2 x Ø250
	IMDL 90	480			3 x Ø250
	IMDL 130	650			4 x Ø250

Chilled Water Fan Coil Units

Features

- Draw through configuration
- Optional spring hanging kit
- Optional baked polyester powdercoat cabinet finish
- Closed cell foam with foil faced insulation
- Optional EC motor version available
- Galvanised steel construction
- Epoxy coated coil

Cat. No.	Model No.	Nominal Air Flow l/sec	Configurations		Spring Kit
	IMD 95	450	4Row Cool / 1 Row Heat	4 Row Cool / Electric Heat	Spring Kit #2
	IMD 135	600			
	IMD 170	750			
	IMD 210	900			
	IMD 280	1250			
	IMD 420	1800			
	IMD 550	2340			Spring Kit #3

Chilled Water Air Handling Units

Features

- Draw through configuration
- Optional baked polyester powdercoat cabinet finish
- Epoxy coated coil
- Galvanised steel construction
- Vertical discharge available
- Closed cell foam with foil faced insulation

Cat. No.	Model No.	Nominal Air Flow l/sec	Configurations	
	IJD 370	1500	4 Row Cool / 1 Row Heat or 6 Row cool / 1 row heat	4 Row Cool / Electric Heat or 6 Row Cool / Electric heat
	IJD 450	1800		
	IJD 620	2400		
	IJD 950	3600		
	IJD 1400	5500		
	IJD 2000	7200		
	IJD 2400	8600		

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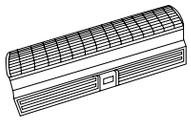
Air Curtains

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
1602397	FM125-09	900	240	50	95	17	900 x 215 x 193	1150	>480	125	<60
1602398	FM125-12	1200	240	50	135	21	1200 x 215 x 193	1640	>480	125	<60

Humidification

Carel

HumiDisk Adiabatic Humidifier

Cat. No.	Part No.	Humidification Ltr/hr	Supply Voltage	Rated Current
1602441	UC065D1000	1.1 to 6.5	230V	2A

Unit Guards

Protect

Condenser Guard

Protect guards are designed to be quick and 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 and 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		
			Width	Height	Depth
1602060	ACG9	25mm Mesh Condenser Guard	1000	900	600
1602061	ACG10	25mm Mesh Condenser Guard	1200	1000	600
1602062	ACG12	25mm Mesh Condenser Guard	1200	1200	600
1602063	ACG14	25mm Mesh Condenser Guard	1200	1400	600
1602064	ACG16	25mm Mesh Condenser Guard	1200	1600	600

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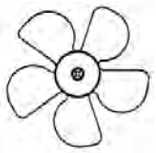
Fan Blades

AFMC Torin

Plastic Fan Blades

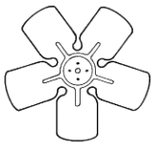


Cat. No.	Part No.	Diam. mm (inches)	Bore	No. of Blades	Direct. of Rotation	Application
2710816	5-S4-4-CCW 125F	100 (4)	1/8"	4	ACW	Domestic Frost Free Refrigerators

Cat. No.	Part No.	Diam. mm (inches)	Type of mounting	No. of Blades
2710814	FBP190UWEFR	196 (7 3/4)	Hub Mount or 6mm Bore	5

Radlon

Aluminium Hub Mount

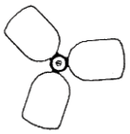


Cat. No.	Part No.	Diam. mm	Pitch	Airflow
2710824	A-170S+	170	30º	Suction with CCW Direction
2710827	A-200S+	200		
2710826	A-230S+	230		
2710828	A-250S+	250		
2710829	A-300S+	300		
2710825	A-350S	350	20º	
2710818	A-170B+	170	30º	Blower with CCW Direction
2710819	A-200B+	200		
2710820	A-230B+	230		
2710821	A-250B+	250		
2710822	A-300B+	300		
2710823	A-350B	350	20º	

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
2710865	PS3-178N32R05AA	178 (7)	5/16"	Suck on Anti-Clockwise Motor
2710858	PS3-178A20L05AA	203 (8)		Blow on Anti-Clockwise Motor
2710847	PS3-203N28R05AA			Suck on Anti-Clockwise Motor
2710856	PS3-203N29L05AA			Suck on Clockwise Motor
2710868	PS3-229N30L05AA	229 (9)		Suck on Clockwise Motor
2710870	PS3-229A30L05AA			Blow on Anti-Clockwise Motor
2710846	PS3-254A30R05AA	244 (9 1/2)		Blow on Clockwise Motor
2710854	PS3-254N30R05AA	254 (10)		Suck on Anti-Clockwise Motor
2710852	PS3-254A30L05AA			Blow on Anti-Clockwise Motor
2710853	PS3-254N30L05AA			Suck on Clockwise Motor
2710855	PS3-254A29R05AA			Blow on Clockwise Motor
2710857	PS3-305N25R05AA	305 (12)		Suck on Anti-Clockwise Motor
2710859	PS3-305A25L05AA			Blow on Anti-Clockwise Motor
2710861	PS3-305N25L05AA			Suck on Clockwise Motor
2710851	PS3-305A25R05AA			Blow on Clockwise Motor

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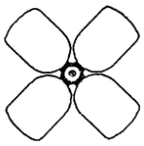
Fan Blades

AFMC Torin

Type ‘H’ Heavy Duty



Fabricated from plated drawing quality steel spiders with riveted aluminium blades

Cat. No.	Part No.	Diameter		Bore	Application
		mm	inches		
2710875	PH3-457A20L08AA	457	18”	½”	Blow on Anti-Clockwise Motor
2710876	PH3-457N20R08AA				Suck on Anti-Clockwise Motor
2710873	PH3-457A20R10AA			⅝”	Blow on Clockwise Motor
2710872	PH3-508A16R08AA	508	20”	½”	

Type ‘M’ Medium Duty

Fabricated from plated drawing quality steel spiders with riveted aluminium blades

Cat. No.	Part No.	Diameter		Bore	Application
		mm	inches		
2710867	PM3-356A20L05AA	356	14”	5/16”	Blow on Anti-Clockwise Motor
2710874	PM3-406N20R08AA	406	16”	½”	Suck on Anti-Clockwise Motor
2710866	PM3-406A20R09AA			9/16”	Blow on Clockwise Motor
2710864	PM3-406N20R09AA				Suck on Anti-Clockwise Motor

Type ‘U’ Light Duty

One piece pressings in aluminium

Cat. No.	Part No.	Diameter		Bore	Application
		mm	inches		
2710839	PU5-178A30R05AA	178	7”	5/16”	Blow on Clockwise Motor
2710840	PU5-203A30R05AA	203	8”		
2710842	PU5-203N40R05AA				Suck on Anti-Clockwise Motor
2710844	PU5-229N40R05AA	229	9”		
2710841	PU5-254A30R05AA	254	10”		Blow on Clockwise Motor

Temperzone

Fan Blades to suit Temperzone Air Conditioning Units

Cat. No.	Part No.	Application
2710879	018000072	Fan Blade Metal
2710880	018000075	Fan Blade Plastic

Blower Wheels

AFMC Torin

Single Inlet

Injection moulded plastic

Cat. No.	Part No.	Diameter x Width		Bore	Application
		mm	inches		
2710878	GD201010-R08-46	203 x 203	8” x 8”	½”	Left and Right Hand

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Fan Motors

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
					Shaft Diameter	Body Diameter	Body Length	
2701742	50D501-80AT	0.3	10	225 X 40°	7.9 (5/16")	102	62	3 and 4 Hole
2701744	50D502-80AT	0.5	20	250 X 40°			66	
2701745	50D503-80AT	0.75	40	275 X 40°			73	
2701761	50D505-80AT	1	60	350 X 30°			85	

Single Shaft

240 Volt 50Hz 1300 rpm

Cat. No.	Part No.	Amps	Watts Output	Rotation	Maximum Fan Blade Dia. x Pitch	Dimensions - mm		
						Shaft Diameter	Body Diameter	Body Length
2710884	50D505-61CT	1	60	CW	350 X 30°	7.9 (5/16")	102	85

Special Purpose

Cat. No.	Part No.	Watts Output	Rotation	Replaces / Application
2703347	50D521-76AT	15	ACW	Agitator Motor, 140mm Shaft
2701746	50D509-22AT	40		415V (Kirby) Two Phase Motor Rep. Brinsmead BG4A
2710889	50D505-71CT	60	CW	BP146C (Muller), BDS60-1C
2710902	50D551-01AT	20	ACW	5-2868-509-039, General Replacement, Muller, CDN, CDL Series
2710886	50D543-01AT	35		

Hub Mount – Threaded Shaft

240 Volt 50Hz 1300 rpm to suit Hubless Fan Blades

Cat. No.	Part No.	Watts Output	Rotation	Replaces / Application
2710883	50D520-82AT	8	ACW	30D520-79A
2701743	50D501-81AT	13		30D501-70A
2701753	50D552-01AT	10		BKM 90150, Kysor Warren, 3 Hole Mount, Low
2701788	50D551-02AT	20		BKM 9170, 3 or 4 Hole Mount
2701760	50D543-03AT	35		

Bearing Service Pack

Cat. No.	Part No.	Description
2701741	391-074-01	Two Bearings,Wave Washers, etc

Rotation viewed from shaft end ACW = Anti-Clockwise CW = Clockwise

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Fan Motors

Fasco

6 & 8 Series Motors

Single Shaft

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Current: A	Rotation	Reversable	No. Speeds	Speed: rpm	Mounting	Run Capacitor: µF/V
2710916	8061S077-02S	60	240	1	0.75	Clockwise Lead End	Yes	1	920	-	2/440
2710917	8061S059-04S	150	240	1	0.9	Clockwise Drive End	No	3	920	-	6/440
2710904	808557KTB-A11	150	240	1	1.2		Yes		900	-	6/440
2710897	8061S107-02S	180	415	3	0.75			1	1400	Mounting Bushes	Nil
2710914	808534LTB-A12	180	415	3	0.9				1400	-	Nil
2701749	808554LTB-A80	180	240	1	1.25				1380	-	4/440
2710894	808554LTB-A13S	185	415	2	0.9		No		1400	Bracket	6/440
2710898	8061S009-06S	250	240	1	2.65				915	-	6/440
2710900	8061S137-80	250	240	1	2.3		Yes		910	-	4/440
2710901	808536MTB-A11	250	415	3	0.95		Yes		900	-	Nil
1319012	8061S109-03	315	240	1	2.5	Anticlockwise Lead End	No	3	1315	Resilient Mount	4/440
2710920	8061S118-02S	300	240	1	2.7				910	-	6/440
2710921	808555NVA-A13S	315	240	1	2.5	Clockwise Drive End			1350	-	4/440
2701748	8061S120-80	370	240	1	2.9			1	900	-	8/440
2710905	8061S121-80S	370	415	3	1.1		Yes		890	Resilient Mount	Nil
2710922	808557NTA-A11S	370	240	1	2.4		No	3	840	-	12/440
2703384	8061S148-01S	410	240	1	3.2				890	-	15/370
2710924	808557NVB-B11	450	240	1	3			2	900	Bracket	20/440
2710892	8061S082-03	600	240	1	4.4			3	1200	Resilient Mount	15/440
2710925	8061S082-17S	600	240	1	4.4				1200	Resilient Mount	15/440
2710958	80855BPVA-A11S	600	240	1	4.2			Variable	1270	-	20/440
2710927	8061S128-06S	750	240	1	4.9			3	1360	Resilient Mount	20/440
2710929	80855BQVA-A18	750	220	1	5.1	Clockwise Drive End	Yes	Variable	1280	Tie Rods	25/440
2710959	80855BQVA-A25S	750	240	1	4.4		No		1370	-	25/400
2710930	80855BRVA-A13S	950	240	1	6.8				1295	-	25/400
2710931	80855BRVA-A16S	950	240	1	6.8				1295	-	25/400

Note: Run capacitors must be ordered separately

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Fan Motors

Fasco

6 & 8 Series Motors

Double Shaft

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Current: A	Rotation	Reversable	No. Speeds	Speed: rpm	Mounting	Run Capacitor: µF/V
2710891	8061S134-80	40	240	1	-	Clockwise Lead End	No	3	900	Resilient Cradle	2/440
2710899	8061S057-80	90/60			0.9	Anticlockwise Lead End		2 2	940/820	Bracket	4/440
2710932	8061S083-80	100			1.1				1370	Resilient Cradle	2/440
2710903	8061S122-80	130			1.2			3	1370		4/440
2710933	8061S130-80	130			0.9	Clockwise Lead End			910		4/440
2710906	8061S004-80	200			2	Anticlockwise Lead End			890		4/440
2710934	8061S019-80	250			1.8	Clockwise Lead End			1300		6/440
2710893	8061S109-01S	425			3.35	Anticlockwise Lead End			1330		10/440
2710935	8061S109-04S	315			2.5				1350		4/440
2710936	8061S082-15S	600			3.4				1354		15/440
2701747	8061S082-80	600			4				1330		15/440
2710937	808555PVA-A11	600			4				1360		15/440
2710938	8061S128-80	750			4.9				1360		20/440
2710939	808555QVA-A11S	750			4.9				1360		20/440

Note: Run capacitors must be ordered separately

9 Series Motors

Cat. No.	Model No.	Output: Watts	Voltage: V	Phase	Current: A	Rotation	Reversable	No. Speeds	Speed: rpm	Mounting	Run Capacitor: µF/V
2710895	809436NTB-B11	375	415	3	1.1	Clockwise Drive End	Yes	1	940	Lug	Nil
2710940	809455PVB-B13S	600	240	1	4		No		1433	Resilient Cradle	20/400
2710941	809454PVB-B19S	550			3.3				1400		20/440
2710942	809454PVB-A16	600			3.9				1400	Lug	20/400
2710952	809455QVB-B13S	750			4.6				1400	Resilient Cradle	20/400
2710943	80945BQVB-B11S	750			4.2				1400		20/400
2710944	80945CPTC-B11	950			6.8				860	Lug	25/400
2710945	809455SVA-B12S	1100			6.3	Anticlockwise Lead End		3	1420	Resilient Cradle	30/440
2710953	809455SVB-B14	1100			6			1	1400		30/400
2710946	809455XVB-B13S	1500			8.4				1400		30/440
2710947	809455XVB-B14	1500/500			8.5/6.3	Clockwise Drive End		2	1400/940		45/400
2710948	809455SVB-B17	1500			6.2			3	1400	Lug	25/440

Note: Run capacitors must be ordered separately

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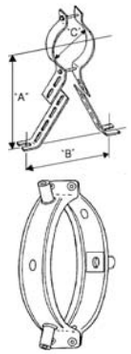
Fan Motors

Fasco



Motor Mounting Brackets

Cat. No.	Part No.	Brand	Type	Centre Height 'A' mm		Feet Centres 'B' mm		Motor Diameter 'C' mm
				Max.	Min.	Max.	Min.	
2710896	391-160-02	CMG Fasco	3 Lug Collar	Suits Fasco Apollo / 35F Series Motors				
2710911	391-127-U		Stud Band Mounting, 3 or 4 Post			189mm External Diameter		
2710912	391-127-V		Suits Fasco S Series			176mm External Diameter		
2710913	MUA 133-1		Suits Fasco 50D Series			300mm Blade		
2710991	5-MU206		Mounting Bracket to suit Muller Evaporators					
2710887	HBA	Radlon	AdJustbale Height - max 173mm Suits Radlon RMV Series					

Open Frame – 240V, 50Hz

Cat. No.	Part No.	Rotation	Amps	Stack	Shaft	Application
2701750	J03RF03J	CW (Reversible)	0.14	9.55mm (3/8")	3.2mm (1/8")	Domestic Frost Free Refrigerators
2710995	J06RF17J	ACW	0.34	19mm (3/4")	4.8mm (3/16")	Muller CSN, CSI, Series Cabinet Coils
2701757	J06RF24J	CW	0.34	19mm (3/4")	4.8mm (3/16")	Kirby, Repco Cabinet Coils
2710994	J06KR10J	ACW	0.36	19mm (3/4")	4.8mm (3/16")	To Suit Muller Replaces 2858-306-005
2710993	J06FM02J	ACW	0.26	19mm (3/4")	6mm (1/4")	Muller CN Series P/No. MPB 220-1
2701795	J09BM05J	ACW	0.15	28mm (1 1/8")		Kirby UECL, UJAV Drop-in Replaces 46C019-02A
2701794	J090R05SJ	ACW	0.22	28mm (1 1/8")		Threaded ShaftSuit Orford Cabinets

Rotation viewed from shaft end ACW = Anti-Clockwise CW = Clockwise

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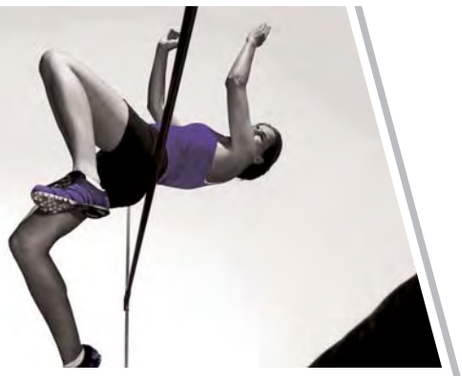

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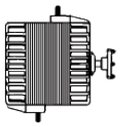
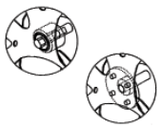
Fan Motors

Radlon



Type RMV – 220-240V, 50/60Hz

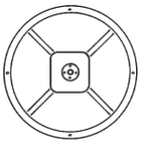
Cat. No.	Part No.	Watts Output	Rotation	Shaft	Dimensions		
					P	C	A
2710975	RMV-005/FIVE	5	CCW	Fan Hub	12.7	51	81
2710980	RMV-010/FIVE	10			19.1	51	88
2710983	RMV-016/FIVE	16			25.4	55	97
2710979	RMV-034/FIVE	34			38.4	53	118



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
2710976	RM-025.5	25	CCW	8mm
2710977	RM-025/113			Fan Hub



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
2710984	RDMV07-200	7	CCW	200	N	246	103
2710985	RDMV07-200/AUS				Y - Suction		
2710988	RDMV12-250	12		250	N	300	
2710989	RDMV12-250/AUS				Y - Suction		

Rotation viewed from shaft end – CCW = Counter Clock Wise

Fan Hubs

Cat. No.	Part No.	Description	Suits
2710981	27000163	Plastic Fan Hubs	6.35mm shaft
2710982	27000280		8mm shaft

Temperzone

Fan motors to suit Temperzone air conditioning units

Cat. No.	Part No.	Description
2711010	046000222	Condenser Fan Motor
2711011	046000228	Condenser Fan Motor
2711012	046000204	Condenser Fan Motor

Fasco

CW Series

Cat. No.	Part No.	Description	Input kW	Full Load Amps	Speed: RPM
2710950	CWTC4031D	Dual Speed Evaporative Cooler Motor	0.85	3.7/2.2	1380/900

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Fan Motors

ebm-papst

IQ Series

Cat. No.	Part No.	Description	Power Output: W	Volt.: V	Freq.	Speed: RPM	Max Air Temp °C	Approx Weight: kg	Lead Length
2705369	iQ3612	High Efficiency Fan Motor	≤ 15	220-240	50/60	1300	50	0.6	1500
2704070	iQ3620		≤ 25					0.8	

Q Series

Base Model

Cat. No.	Part No.	Power Output: W	Power Input: W	Volt.: V	Speed: RPM	Current: A	Approx Weight: kg	Notes
2704099	M4Q045-CF01-38	16	60	230	1300	0.42	1.3	450mm lead, iP42
2704101	M4Q045-EA01-38	25	90			0.62	2.0	450mm lead, iP42

Variants

Cat. No.	Part No.	Power Output: W	Power Input: W	Volt.: V	Speed: RPM	Current: A	Approx Weight: kg	Notes
2704105	M4Q045-CA01-72-LYALL	7	31	230	1300	0.20	1.1	300mm Lyall plug lead
2704119	M4Q045-CA01-72/AO1	7	31			0.20	1.1	2000mm lead and no lamination varnish
	M4Q045-CA01-48	7	31	0.20	1.1	42	82	
2704102	M4Q045-CA03-75/B01	10	36	0.25	1.2	42	82	1500mm lead and iP20
2704103	M4Q045-CF01-75/B01	16	60	0.42	1.3	42	87	
2704104	M4Q045-DA05-75/B01	23	86	0.62	1.6	54	93	
2704109	M4Q045-EF01-75/B01	34	110	0.75	2.2	79	125	

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Fan Motors

ebm-papst

Compact Axial

EC Series

Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase
2704138	W1G200-EC91-45	EC Compact Axial Fan Assembly	200	230	1
2711070	W1G200-EC91-10				

W Series

Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase
2704368	W2S130-AA03-63	Compact Axial Fan Assembly	130	230	1
2711065	W2E142-BB01-01		142		

Radial R Series

Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase
2700253	R2S133-AE17-05	Backward Curved Radial Fan Assembly	133	230	1
2705396	R2E180-CB28-09		180		
2705397	R2E190-AO26-37		190		

Radial D Series

Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase
2711129	D2E146-HS97-04	Forward Curved Radial Fan Assembly	146	230	1

Radial G Series

Cat. No.	Part No.	Description	Diameter: mm	Volts	Phase
2711066	G2E120-CR26-03	Forward Curved Radial Fan Assembly	120	230	1
2711067	G2E140-A128-01		140		

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Fan Motors

Soler Palau

Fan Motor Assembly

A = Forced

B = Induced

Induced Draft- Basket Mounting

Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres
				Volts	Amps	Watts	RPM	l/s	
2711023	HRB/2-200 BPN	200mm	1PH	240	0.34	60	2775	208	260
2711024	HRB/4-250 BPN	250mm			0.21	40	1450	242	300
2711025	HRB/4-300 BPN	300mm			0.33	78	1380	444	360
2711026	HRB/4-350 BPN	350mm			0.55	130	1400	786	440
2711027	HRB/4-400 BPN	400mm			0.71	160	1150	1049	505
2711033	HRT/4-400 BPN		3PH	415	0.32		1250		
2711006	HRB/4-450/30 BPN	450mm	1PH	240	2.4	490	1320	1681	515
2711038	HRB/6-451/32BMN				0.9	200	850		
2711028	HRT/4-450/30 BPN		3PH	415	0.9	480	1340		
2711008	HRB/4-500/25 BPN	500mm	1PH	240	2.65	600		2097	565
2711039	HRB/4-500/30BPN				3.3	780	1320	2417	
2711031	HRB/6-500/35 BPN				1.3	300	867	1722	
2711030	HRT/4-500/25 BPN		3PH	415	1.1	620	1340	2097	
2711014	HRT/4-500/30 BPN				1.45	730	1360	2417	
2711029	HRB/6-560/30 BPN	560mm	1PH	240	1.8	400	830	2153	700
2711034	HRT/4-560/25 BPN		3PH	415	1.9	1000	1350	2983	
2711032	HRB/6-630/35 BPN	630mm	1PH	240	3.0	700	820	3333	750
2711035	HRT/4-630/25 BPN		3PH	415	2.5	1400	1330	4111	
2711036	HRT/6-630/30 BPN				1.35	640	830	3028	
2711037	HRT/6-710/30 BPN	710mm			2.3	800	900	3889	825

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S&P KRUGER Fans

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- Condensors
- Ventilators
- Air Handlers
- Evaporators
- Fan Coil Units
- Chillers

S&P KRUGER

Fan Motors

Soler Palau

Fan Motor Assembly

Induced Draft- Square Plate Mounting

Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres
				Volts	Amps	Watts	RPM	l/s	
2711040	HRBT/4-630/30 BZ	630mm	3PH	415	3.5	1850	1350	5136	750
2711041	HRST/4-630/33BZ				4.1	2500	1320	5500	
2711042	HRST/6-800/28BZ	800mm			3.5	1900	890	7166	910
2711043	HRST/8-800/28BZ				1.83	760	670	5302	
2711044	HRST/6-910/15BZ	910mm			3.5	1920	900	6950	1010

Forced Draft- Basket Mounting

Cat. No.	Model No.	Description		Technical Data					Mounting Hole Centres
				Volts	Amps	Watts	RPM	l/s	
2711045	HRB/4-300 APN	300mm	1PH	240	0.33	78	1380	444	360
2711046	HRB/4-350 APN	350mm			0.55	130	1400	786	440

Inlet Cones

Cat. No.	Model No.	Fan Inlet: mm	A	B	C	D	R	Gauge
2711021	ARIC 350/560	350	470	363	403	45	20	1.2mm
2711022	ARIC 400/630	400	525	410	450			
2711007	AIC 450	450	550	455	495			
2711009	AIC 500	500	600	508	550		18	
2711019	AIC 560	560	730	560	650	50	25	
2711020	AIC 630	630	780	637	700			

Fan Decks

Cat. No.	Model No.	Description	Technical Data					
			Volts	Amps	Watts	RPM	l/s	Min. Pa.
1604024	KD2-9/7T 600W	3spd. Deck Tight	240	4	600	1350	1200	180
2711047	KD2-9/7T 750W			4.9	750		1390	120
1604026	KD2-9/7 750W	3spd. Fan Deck					1420	180
2711048	KD2-9/9 1100W			7.1	1100	1420	1750	310

Torin

Direct Drive Blowers

Cat. No.	Model No.	Description	Wheel: mm Diam x Width	Motor Model No.	Motor	Watts Out
2711063	DDC270-270-360	Direct Drive Blower	270 x 270	40P5134-750SA	240V 4 Pole 3 Speed	750

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Fan Motors

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
2704085	S4E300-AR26-38-CTN	Fan Motor Assembly used in evaporators and condensors	300	230	1	Buffalo, Bitzer
2704086	S4E300-AS72-44-CTN					Cabero, Kirby
2704087	S4E350-AN02-48-CTN		350			Buffalo, Bitzer
2704088	S4E350-AN02-60-CTN					Cabero, Kirby

Forced Draft Basket Mount

Cat. No.	Model No.	Description	Diameter: mm	Nominal Voltage	Phase	Common Applications
2711122	S4E300-AS72-45/F01	Fan Motor Assembly	300	230	1	Cabero

Ziehl Abegg

FE2 Series

The Ziehl Abegg FE2 owlet 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
2711075	FN050-VDK.4I.V7-BL	500	415	3	4	Cabero

Induced Draft Plate Mount

Cat. No.	Model No.	Diameter: mm	Nominal Voltage	Phase	Poles	Common Applications
2711077	FN050-4EQ.4I.V7BLACK	500	230	1	4	Buffalo RC
2711078	FN050-VDQ.4I.V7-GREY		415	3		Buffalo DV
2711079	FN063-VDQ.6N.V7-GREY	630				Buffalo LDV
2711080	FN080-SDQ.6N6V7P2-SH	800			6	

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
2711082	FB063-6EK.4I.V4P	630	230	1	6

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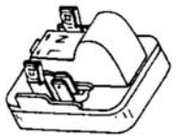
Electrical

Danfoss

Starting Equipment



Cat. No.	Part No.	Description	For Compressor Type
2706579	103N0011	PTC Starting Device (LST)	PL, TL, NL, FR
2706533	103N0002	PTC Starting Device (LST)	SC10B, G/12A, B, G/15A, F
2711385	117-7011	Starting Device (HST)	SC10GHH/15, 15D/21, 21B

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.

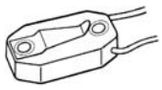
Cat. No.	Part No.	Compressor Application Guide
2711274	TO-5	3.5 to 10.5 KW

Supco

Solid State Relays, Overloads and Capacitors

ICG Series Relay

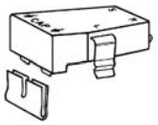
One size for all compressors from 1/12 HP through 1/2 HP



Cat. No.	Part No.
2700456	ICG-220

PO Series Relay

One size for all compressors from 1/12 HP through 1/2 HP



Cat. No.	Part No.
2711305	PO-230

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
2711296	RO-82	1/12, 1/10, 1/8
2711307	R0-62	1/6, 1/5
2711297	RO-42	1/4, 1/3

RSC Series Starting Relay and Capacitor

One size for all compressors from 1/12 HP through 1/2 HP

Cat. No.	Part No.
2711308	URSC-20

Type REA-1 – Solid State Relay

For Refrigeration, Air Conditioning, General Single Phase Electric Motor Applications up to 2 HP

Cat. No.	Part No.
2711407	REA-1

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.
2711408	REA-2

ICM

Universal Relays

Cat. No.	Part No.	Description
2711266	USMR-50	Universal Motor Starting Relay

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Contactors

With 240 VAC 50 Hz Coil		Ratings: AC3 415V		Auxiliary Contacts
Cat. No.	Part No.	kW	Amps	
2711553	MC-9B 240VAC	4	9	1 NO & 1 NC
2711554	MC-12B 240VAC	5.5	12	
2711555	MC-18B 240VAC	7.5	18	
2711556	MC-22B 240VAC	11	22	
2711557	MC-32A 240VAC	15	32	
2711558	MC-40A 240VAC	18.5	40	2 NO & 2 NC
2711559	MC-50A 240VAC	22	50	
2711560	MC-65A 240VAC	30	65	

Thermal Overload Relays

Cat. No.	Part No.	Rating: Amps	Suits Contactors
2711561	MT-32-0.16	0.1 - 0.16	MC-9B to MC-40A
2711562	MT-32-0.25	0.16 - 0.25	
2711563	MT-32-0.4	0.25 - 0.4	
2711564	MT-32-0.63	0.4 - 0.63	
2711565	MT-32-1	0.63 - 1	
2711566	MT-32-1.6	1 - 1.6	
2711567	MT-32-2.5	1.6 - 2.5	
2711568	MT-32-4	2.5 - 4	
2711569	MT-32-6	4 - 6	
2711570	MT-32-8	5 - 8	
2711571	MT-32-9	6 - 9	
2711572	MT-32-10	7 - 10	
2711573	MT-32-13	9 - 13	
2711574	MT-32-18	12 - 18	
2711575	MT-32-22	16 - 22	
2711576	MT-32-25	18 - 25	
2711577	MT-32-32	22 - 32	
2711578	MT-32-40	28 - 40	
2711579	MT-63-40	28 - 40	MC-50A to MC-65A
2711580	MT-63-50	34 - 50	
2711581	MT-63-65	45 - 60	

Electronic Overloads

Cat. No.	Part No.	Rating: Amps	Suits Contactors
2711582	GMP22-2P 1.5A	0 - 1.5	MC-9B to MC-22B
2711583	GMP22-2P 5A	1 - 5	
2711584	GMP22-2P 22A	4.4 - 22	

Accessories

Cat. No.	Part No.	Description		
2704968	AU-220	Auxillary Contacts	Front Mount	2 NO
324756	AU-202			2 NC
2711585	UA-111		Side Mount	1 NO & 1 NC

Coils

Cat. No.	Part No.	Description		Suits Contactors
2711586	MC22-CO-24VAC	Replacement Coil	24 VAC	MC-9B to MC-22B
2711587	MC22-CO-415VAC		415 VAC	
2711588	MC40-CO-24VAC		24 VAC	MC-32A to MC-40A
2711589	MC40-CO-415VAC		415 VAC	
2711590	MC65-CO-24VAC		24 VAC	MC-50A to MC-65A
2711591	MC65-CO-415VAC		415 VAC	

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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
2711484	BKN61P10-C	C Curve Circuit Breaker	10	1
2711485	BKN61P16-C		16	
2711486	BKN61P20-C		20	
2711487	BKN61P25-C		25	
2711488	BKN61P32-C		32	
2711489	BKN61P40-C		40	
2711490	BKN61P50-C		50	
2711491	BKN61P63-C		63	

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
2711474	BKN61P10-D	D Curve Circuit Breaker	10	1
2711481	BKN61P16-D		16	
2711482	BKN61P20-D		20	

Cat. No.	Part No.	Description	Amps	Poles
2711483	BKN63P10-D	D Curve Circuit Breaker	10	3
2711475	BKN63P20-D		20	
2711476	BKN63P25-D		25	
2711477	BKN63P32-D		32	
2711478	BKN63P40-D		40	
2711479	BKN63P50-D		50	
2711480	BKN63P63-D		63	

Residual Current Circuit Breakers

30mA sensitivity, 10Ka fault rating.

Cat. No.	Part No.	Description	Amps	Poles
2711492	RKS-C10/003	C Curve Residual Current Circuit Breaker	10	1
2711493	RKS-C16/003		16	
2711494	RKS-C20/003		20	

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MCB Enclosures

Cat. No.	Part No.	Description	Poles
2711347	DA-L1	MCB Enclosure	1
2711389	DA-L2		2
2711390	DA-L4		4
2711391	DA-L6		6
2711392	DA-L8		8
2711393	DA-L12		12
2711394	DA-L18		18

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Push Buttons

Cat. No.	Part No.	Description	Colour	Contacts
2711753	TS2BFR-C	22mm Flush Push Button	Red	1 N/O & 1 N/C
2711754	TS2BFG-C		Green	

Indicator Lights

Cat. No.	Part No.	Description	Colour	Voltage
2711755	PL22/24R	22mm LED Indicator Light	Red	24VAC
2711756	PL22/24G		Green	
2711757	PL22/240R		Red	240VAC
2711758	PL22/240G		Green	

Toggle Switches

Cat. No.	Part No.	Description	Poles	Amps	Positions
2711759	TO11A	Toggle Switch	1	10	Off On
2711760	T511A			15	
2711761	TO23A		2	10	On Off On
2711762	T513A		1	15	

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ACTROL™

The one-stop shop for all your electrical needs!

Whether you're a fridgie, A/C installer or trade electrician, Actrol now have a range of electrical products to suit your requirements.

- Weatherproof isolators and GPOs
- Corrugated conduit and fittings
- IP56 switched socket outlets
- GPOs, switches & mounting accessories
- Plastic and metal enclosures

- Contactors and overloads
- Electronic overloads
- Accessories to suit
- Miniature circuit breakers

- Analogue and digital time clocks
- Relays and bases
- Heavy duty relays
- Timing relays

- Fuses and accessories
- Cable installation products
- Switchboard and enclosure accessories
- Toggle switches

Eureka

Metasol

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Helping your customers keep their cool this summer.

Installation of electrical products require the relevant electrical trade qualification.

Eureka

Relays & Bases

Square and flat pin relays with LED and push-to-test button.

Cat. No.	Part No.	Description	Pins	Voltage: AC	Amps	Poles
2711412	BLY2-240VACLT	Flat Pin Relay	8	240	10	2
2700174	BLY2-24VACLT			24		
2711413	BMY4-240VACLT		14	240	5	4
2711414	BMY4-24VACLT			24		

Bases to suit square and flat pin relays.

Cat. No.	Part No.	Description	Pins	Poles
2711409	PTF-08I	DIN Rail Mount Relay Base	8	2
2711415	NDSQ-14		14	4

Slimline relays.

Cat. No.	Part No.	Description	Pins	Voltage: AC	Amps	Poles
2711417	EUR-2-SN 240VAC	Slimline Flat Pin Relay	8	240	10	2
2711418	EUR-2-SN-24VAC			24		

Bases to suit slimline relays.

Cat. No.	Part No.	Description	Pins	Poles
2711416	EUR-08-E	DIN Rail Mount Slimline Relay Base	8	2

HRC Type Fuse Links

Compact clip-in fuse for industrial and general applications.

80kA, 415VAC / 40kA, 240VDC

Cat. No.	Part No.	Description	Amps
2711419	NSD 2	415V Offset Fuse Link	2
2711420	NSD 4		4
2711421	NSD 6		6
2711422	NSD 10		10
2711423	NSD 16		16
2711424	NSD 20		20
2711425	NSD 25		25
2711426	NSD 32		32

Fuse Fittings for NS fuses.

Cat. No.	Part No.	Description	Amps
2711435	32NNF	Fuse Fitting	32

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Glass Fuses

3AG Fuses

Cat. No.	Part No.	Description	Rating	Size	Pack Qty
2711444	3AG100MA	Glass Fuse	100mA	0.25” x 1.25”	10
2711445	3AG250M		200mA		
2711443	3AG375M		300mA		
2711442	3AG500MA		500mA		
2711446	3AG750M		800mA		
2711447	3AG1A		1A		
2711448	3AG1.5A		1.6A		
2711449	3AG2A		2A		
2711450	3AG2.5A		2.5A		
2711451	3AG3A		3.15A		
2711452	3AG4A		4A		
2711453	3AG5A		5A		
2711411	3AG6.3A		6.3A		
2711439	3AG8A		8A		
2711440	3AG10A		10A		
2711441	3AG15A		15A		
2711454	3AG20A		20A		

M205 Fuses

Cat. No.	Part No.	Description	Rating	Size: mm	Pack Qty
2711455	M205100MA	Glass Fuse	100mA	5 x 20	10
2711456	M205200MA		200mA		
2711457	M205315M		300mA		
2711458	M205500MA		500mA		
2711459	M205630M		800mA		
2711460	M2051A		1A		
2711461	M2051.6A		1.6A		
2711462	M2052A		2A		
2711463	M2052.5A		2.5A		
2711464	M2053.15A		3.15A		
2711466	M2054A		4A		
2711468	M2055A		5A		
2711469	M2056.3A		6.3A		
2711470	M2058A		8A		
2711471	M20510A		10A		
2711472	M20515A		15A		
2711473	M20520A		20A		

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Theben

Time Switches

Cat. No.	Part No.	Programme Dial	Time Setting Intervals	Min. Switching Period	No. Pins	Type of Circuit	Elect. Rating 240 VAC
2700255	64 BA/7	24 hours	7.5 mins	30 mins.	3 Green 3 Red	Single Pole Change Over	16 (2)
2708182	64 Ca7	24 hours/ 7 days	5 mins./ 30 mins.	20 mins./ 2 hours	16 Blue 16 Red		
2708207	FRI 77G	60 mins./ 24 hours	1 min./ 1 hour	2 mins./ 1 hour	4 Green 4 Red	Double Pole	16 (2.5)

Siemens

Digital Weekly Time Clock

Cat. No.	Model No.	Voltage	IP Rating	Type Of Circuit	Output Voltage	Output Current
2708164	SEH62.1	240V	20	Single Pole Changeover	5...250V	0.1...6Amps

MJB Controls

Solid State Cube Timers

Cat. No.	MJB Model No.	Avion Model No.	Description		Control Voltage	Max. Current
2703486	LT240X180	TCB320	Anti Cycling Lock Out Timer	3 min. fixed	19-288 Vdc or Vac	1A
2703487	LTA240X480	TCB621		10 sec. to 8 min.		
2703488	LT240X300T			5 min. fixed (4 pin)		
2703485	ODT240X480	TCG621	Delay on Timer	10 sec. to 8 min.		
2708385	ROT240X1800	TRC621	Run on / Lag off	30 sec. to 30 min.		

Defrost Timers

2703491	EDF-02A	DFT126	Elect. Demand Defrost Timer C/W 2m Probe	230 Vac	16A
2703492	EDF-02A/24	CDP104		24 Vac	
2703490	EDF-02A-SEN	-	Replacement sensor Suits EDF series timers	-	-

Eureka

Multi Function Timers

- Multi voltage
- DIN rail mount

Cat. No.	Part No.	Description	Voltage	Adjustment	Mount	C/O Contacts
2708386	CRM-93H	Multi Function Timer	12-240VDC	0.1s to 10 days	DIN Rail	-
2708387	CRM-91H UNI	Multi Function Timer	12-240VDC	0.1s to 10 days	DIN Rail	3

Digital Time Clocks

Cat. No.	Part No.	Description	Voltage	Mounting	Timing
2708365	PET-010	1 Channel Digital Time Clock	240	DIN Rail	7 Day 24 Hour

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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 and re-install the motor for repair, possible loss of stock and profits, loss of management time. MP15s 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
2700207	MP15	Motor Protector	1 to 60 seconds	15 minutes	8 Pin Octal
2700199	MP15D				DIN Rail

Mounting Bases

Cat. No.	Part No.	Description
2708364	PF-083A-E	8 Pin Round Mounting Base

Paragon

Defrost Timers

Domestic Series

Cat. No.	Part No.	Description	Defrosts in 24 Hours	Defrost Frequency Hours	Defrost Time Minutes
2700128	A1400-21	Defrost Timer	4	6	21

Commercial Series

Cat. No.	Part No.	Description	Type
2700124	632-21	Defrost Timer	With pump down, drain or fan delay cycles
2700127	8245-21		Time initiated, pressure terminated
2700126	8145-21		Time initiated, remote temperature or pressure terminated
2700125	8045-21		Time initiated, time terminated

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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
2704468	MIS1-20	Weatherproof Mini Isolator	20	1
2711348	MIS3-20		20	3
2711349	MIS3-35		35	

Standard Isolators

Cat. No.	Part No.	Description	Amps	Poles
2711355	DNA-W32-1P	Weatherproof Isolator	32	1
2711375	DNA-W63-3P		63	3

Compact Weatherproof Switches

- Voltage Rating: 240V, 25A
- Degree of Protection: IP56
- Screwed Entry

Cat. No.	Part No.	Description	Amps	Gang
2711384	WSW1	Weatherproof Compact Switch	15	1

Plugs & Sockets

Cat. No.	Part No.	Description	Amps
2711779	HWRS10	3 Pin Socket	10
2711780	HWRP10	3 Pin Plug	

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
2711790	CO3PH410	IP66 Switched Socket	10	4
2711791	CO3PH510			5
2711792	CO3PH520		20	

Straight Plugs

Cat. No.	Part No.	Description	Amps	Pins
2711793	PLS3PH410	IP66 Straight Plug	10	4
2711794	PLS3PH420		20	
2711795	PLS3PH432		32	
2711796	PLS3PH510		10	5
2711797	PLS3PH520		20	

GPOs & Switches

Switches

Cat. No.	Part No.	Description	Amps	Gang
2711765	88SW1	White Vertical Switch with Plate	10	1
2711766	88SW2			2
2711767	88SW3			3
2711768	88SW4			4
2711769	88SW5			5
2711770	88SW6			6

GPOs

Cat. No.	Part No.	Description	Amps	Gang
3501310	88PP1H	White Horizontal GPO with Plate	10	1
2711772	88PP1H15		15	
2711773	88PP2H		10	2

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Eureka

GPOs & Switches

Weatherproof GPOs

- Degree of Protection: IP53
- Conduit Entry: 25mm
- Rear and side entry

Cat. No.	Part No.	Description	Amps	Gang
2711774	EUR WPG01	Weatherproof Single GPO	10	1
2711775	EUR WPG02	Weatherproof Double GPO		2

Mounting Blocks

Cat. No.	Part No.	Description
2711776	MB-30	Standard Mounting Block 30mm Deep
2711777	WP/CBOX	Weatherproof Mounting Block 30mm Deep

Installation Accessories

Clips & Saddles

Cat. No.	Part No.	Description	Pack Qty
2711778	EUR-PCLIP	Plaster C Clip	5
2711835	EUR-SAD20	20mm Half Metal Saddle	25
2711836	EUR-SAD25	25mm Half Metal Saddle	
2711744	EUR-CC10	1.5mm Cable Clip	500
2711745	EUR-CC12	2.5mm Cable Clip	

Cable Connectors

Cat. No.	Part No.	Description	Pack Qty
2711739	EUR-G32A1	Single Screw Connector	100
2711740	EUR-G32A2	Two Screw Connector	50

DIN Rail

Cat. No.	Part No.	Description	Length: m
2711853	TBR-N	Aluminium Slotted DIN Rail	1
2711854	TBR-N2		2
2711855	RS-35D8	Steel Slotted DIN Rail	

Terminal Strips

Cat. No.	Part No.	Description	Amps	No. Ways
2711741	TS126A	4mm Terminal Strip	17.5	12
2711742	TS1210A	6mm Terminal Strip	24	
2711743	TS1235A	10mm Terminal Strip	41	

Cable Ties

Cat. No.	Part No.	Description	Size: mm	Pack Qty
7807088	CT102B	Black Cable Ties	100 x 2.5	100
7807174	CT143B		150 x 3.6	
2711726	CT194B		203 x 4.6	
7807090	CT280B		300 x 4.8	

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Eureka

Junction Boxes & Enclosures

Junction Boxes

Cat. No.	Part No.	Description
2711781	EUR-JBOX-S	Small Junction Box with Connectors
2711782	EUR-JBOX-L	Large Junction Box with Connectors

Waterproof PVC Enclosures

- UV stabilised
- Double insulated
- Tamperproof seals
- IP56 waterproof
- Inbuilt hinges
- Grey cover & body

Cat. No.	Part No.	Description	Dimensions: mm		
			Height	Width	Depth
2711783	44204	PVC Junction Box	100	100	50
2711784	44206		150	110	70
2711785	44207		190	140	70
2711786	44208		240	190	90
	44209		300	220	120
	44210		380	300	
	44211		460	380	
	44215		120	80	
	44216		150	110	140
	44217		190	140	
	44218		240	190	160
	44219		300	220	180
	44220		380	300	
	44221		460	380	

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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
			Height	Width	Depth		
2711783	EUR252010	Metal Enclosure	250	200	100	0	1
	EUR252015				150		
	EUR252020				200		
	EUR302015		300		150	1	
2711495	EUR302515			250			
	EUR302520				200		
2711496	EUR303015			300	150		
	EUR1602075				200		
	EUR403015		400		150		
	EUR403020				200		
2711497	EUR404020			400			
	EUR406025			600	250		
	EUR504015		500	400	150		
2711498	EUR504020				200		
	EUR504025				250		
2711500	EUR505020			500	200		
2711501	EUR505025				250		
	EUR604015			400	150	2	2
2711499	EUR604020				200		
	EUR605015			500	150		
	EUR604025			400	250		
2711502	EUR605020			500	200		
2711503	EUR605025				250		
2711506	EUR606020			600	200		
2711507	EUR606025				250		
2711508	EUR606030				300		
2711504	EUR705020		700	500	200		
2711505	EUR705025			600	250		
2711509	EUR806020		800		200		
	EUR806025				250		
	EUR806030				300		
	EUR808020			800	200		
	EUR808025				250	4	
	EUR808030				300		
	EUR1006025		1000	600	250	2	
	EUR1006030				300		
	EUR1008025			800	250		
	EUR1008030				300	4	
	EUR10010030			1000			
	EUR18002252		1200	800			
	EUR11904630			1000			

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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
3505600	EURCC20GR	20mm Grey Corrugated Conduit	50
3505601	EURCC25GR	25mm Grey Corrugated Conduit	

PVC Clip Lock Glands
Straight

Cat. No.	Part No.	Description	Pack Qty
2711826	MA20GR	20mm Gland Straight to Corrugated	5
2711828	MA25GR	25mm Gland Straight to Corrugated	

Elbow

Cat. No.	Part No.	Description	Pack Qty
2711830	MA20GR-90	20mm Gland Elbow to Corrugated	5
2711832	MA25GR-90	25mm Gland Elbow to Corrugated	

PVC Screwed Bushes
Female

Cat. No.	Part No.	Description	Size: mm	Pack Qty
2711837	EUR-VF16	Female PVC Screwed Bush	16	3
2711838	EUR-VF20		20	
2711839	EUR-VF25		25	
2711840	EUR-VF32		32	
2711841	EUR-VF40		40	
2711842	EUR-VF50		50	

Male

Cat. No.	Part No.	Description	Size: mm	Pack Qty
2711843	EUR-VM16	Male PVC Screwed Bush	16	3
2711844	EUR-VM20		20	
2711845	EUR-VM25		25	
2711846	EUR-VM32		32	
2711847	EUR-VM40		40	
2711848	EUR-VM50		50	

Nylon Cable Glands - IP68, AS1939-1990

Cat. No.	Part No.	Description	Size: mm	Pack Qty
	M12	Nylon Cable Gland	12	3
2711849	M16		16	
2711850	M20		20	
2711851	M25		25	
2711852	M32		32	
	M40		40	
	M50		50	
	M63		63	

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Eureka

Installer Packs

The Eureka corrugated conduit packs enable the installer to purchase all the items required to install a 1 pole isolator in one 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
2711823	CCS2020C	1 Pole 20A Electrical Install Pack

Conduit Fixing Clips

• Steel clip with black PVC liner

Cat. No.	Part No.	Description	Size: mm	Pack Qty
2711856	FCC16	Conduit Fixing Clips	16	10
2711857	FCC20		20	
2711858	FCC25		25	
2711859	FCC32		32	

Conduit Mounting Saddles

Cat. No.	Part No.	Description	Size: mm	Pack Qty
2711860	FCL16	Nylon Conduit Saddle	16	10
2711861	FCL21		20	
2711862	FCL28		25	
2711863	FCL34		32	

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Eureka

Insulated Terminals

Connectors

Cat. No.	Part No.	Description	Cable Size: mm	Colour	Pack Qty
2711706	BSV1	Insulated Connector	0.5/1.5	Red	20
2711707	BSV2		1.5/2.5	Blue	

Wire Pin Terminals

Cat. No.	Part No.	Description	Cable Size: mm	Colour	Pack Qty
2711708	WPV1/12	Insulated Wire Pin Terminal	0.5/1.5	Red	20
2711709	WPV2/12		1.5/2.5	Blue	

Ring Terminals

Cat. No.	Part No.	Description	Cable Size: mm	Stud	Colour	Pack Qty
2711710	RV1-5	Insulated Ring Terminal	0.5/1.5	5.3	Red	20
2711711	RV2-5		1.5/2.5		Blue	

Female Terminals

Cat. No.	Part No.	Description	Cable Size: mm	Suits Tab	Colour	Pack Qty
2711713	QCF1-3/5	Insulated Female Terminal	0.5/1.5	2.8 x 0.5	Red	20
2711714	QCF1-3/8			2.8 x 0.8		
2711715	QCF1-5/5			4.8 x 0.5		
2711716	QCF1-5/8			4.8 x 0.8		
2711717	QCF1-6			6.3 x 0.8		
2711718	QCF2-3/5		1.5/2.5	2.8 x 0.5	Blue	
2711719	QCF2-3/8			2.8 x 0.8		
2711720	QCF2-5/5			4.8 x 0.5		
2711721	QCF2-5/8			4.8 x 0.8		
2711722	QCF2-6			6.3 x 0.8		

Male Terminals

Cat. No.	Part No.	Description	Cable Size: mm	Suits Female	Colour	Pack Qty
2711723	QCM1-6	Insulated Male Terminal	0.5/1.5	6.3 x 0.8	Red	20
2711724	QCM2-6		1.5/2.5		Blue	

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
2711692	HSKB	Heat Shrink Kit	2 - 25	Black & Red

Fujitsu

Batteries

Fujitsu G Series batteries are a premium grade alkaline cell for everyday applications.

Cat. No.	Part No.	Description	Size	Pack Qty
2711746	LR03G/BP4	Alkaline Batteries	AAA	4
2711752	LR6G/BP2			2
2711751	LR6G/BP4			4
2711750	LR14G/BP2		C	2
2711749	LR20G/BP2		D	
2711747	PJ996/4R25	Alkaline Lantern Battery	6V	1
3500260	6LF22G/BP1	Alkaline Batteries	9V	

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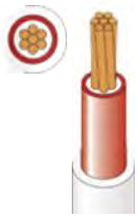
Electrical Cable

Building Wires- Flat

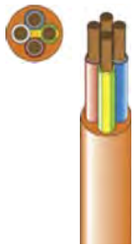
Cat. No.	Part No.	No. of Cores	Nom. Area mm²	Stranding No/mm	Nom. OD mm	Insul. Thick. mm	Sheath Thick. mm	Pack Length m
2711597	SRF2015AV	Twin Active	1.5	7/0.50 x 2	7.4 x 4.7	0.6	0.9	100
2711592	SRF3010V	Twin + Earth	1.0	1/1.13 x 2 7/0.50 E	9.0 x 4.3			
2711593	SRF3015V		1.5	7/0.50 x 2 7/0.50 E	10.0 x 4.7			
2711595	SRF3025V		2.5	7/0.67x 2 7/0.67 E	12.4 x 5.6	0.7	1.0	
2711596	SRF3040V		4.0	7/0.85 x 2 7.0.67 E	14.2 x 6.4	0.8	1.1	
2711594	SRF4015V	3 Core + Earth	1.5	7/0.50 x 3 7/0.50 E	12.5 x 4.5	0.6	0.8	



Building Wires- Single Core, Double Insulated

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
2711619	SDI1025V	1	2.5	7/0.67 x 1	5.2	0.8	0.9	100

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
2711598	F2075-OR	2	0.75	24/0.20 x 2	6.4	0.6	0.8	100
2711599	F3075-OR	2 + E		24/0.20 x 3	6.8			
2711601	F4075-OR	3 + E		24/0.20 x 4	7.3			
2711603	F5075-OR	4 + E		24/0.20 x 5	8.2		0.9	
2711604	F2010-OR	2	1.0	32/0.20 x 2	6.7		0.8	
2711605	F3010-OR	2 + E		32/0.20 x 3	7.1			
2711607	F4010-OR	3 + E		32/0.20 x 4	7.9		0.9	
2711608	F5010-OR	4 + E		32/0.20 x 5	8.7			
2711613	F2015-OR	2	1.5	30/0.25 x 2	7.7	0.7	0.8	
2711615	F3015-OR	2 + E		30/0.25 x 3	8.3		0.9	
2706201	F4015-OR	3 + E		30/0.25 x 4	9.3		1.0	
2711617	F5015-OR	4 + E		30/0.25 x 5	10.4		1.1	
2711609	F3025-OR	2 + E	2.5	50/0.25 x 3	10.2	0.8	1.1	
2711610	F4025-OR	3 + E		50/0.25 x 4	11.1			
2711611	F5025-OR	4 + E		50/0.25 x 5	12.4		1.2	

Ordinary Duty- Grey

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
2711600	F3075-GR	2 + E	0.75	24/0.20 x 3	6.8	0.6	0.8	100
2711602	F4075-GR	3 + E		24/0.20 x 4	7.3			
2711606	F3010-GR	2 + E	1	32/0.20 x 3	7.1			
2711612	F4010-GR	3 + E	1.5	32/0.20 x 4	7.9	0.7	0.9	
2711614	F2015-GR	2		30/0.25 x 2	7.7		0.8	
2706200	F3015-GR	2 + E		30/0.25 x 3	8.3		0.9	
2711616	F4015-GR	3 + E		30/0.25 x 4	9.3		1.0	
2711618	F5015-GR	4 + E		30/0.25 x 5	10.4		1.1	

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Refrigeration Electricals

Motor Start Capacitors

Cat. No.	MFD	Volts AC
2702376	25-30	250
2702519	36-43	
2711631	47-56	
2702368	53-64	
2711632	63-72	
2702369	72-88	
2702370	88-108	

Cat. No.	MFD	Volts AC
2711633	108-130	250
2711634	124-149	
2711635	145-175	
2705830	161-193	
2711636	189-227	
2705831	200-250	
2711637	250-315	

Cat. No.	MFD	Volts AC
2711638	31-40	320
2711640	63-80	
2711641	80-100	
2702373	100-125	

Cat. No.	MFD	Volts AC
2711642	125-160	320
2711643	160-200	
2711644	200-250	
2702497	250-315	

Motor Run Capacitors

Cat. No.	MFD	Volts AC
2702501	2	450
2702505	3	
2711646	4	
2711647	5	
2702507	6	
2702508	8	
2702401	10	
2711648	12.5	
2702509	14	
2702402	15	
2702510	16	
2711649	18	
2702403	20	

Cat. No.	MFD	Volts AC
2702404	25	450
2702405	30	
2702511	35	
2711650	40	
2702512	45	
2702407	50	
2702408	55	
2702409	60	
2702513	70	
2702514	75	
2702515	80	
2702517	90	
2702518	100	

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
2711645	SCAP-60D	SwitchCap Dual Multiple Value Capacitor

Thermon

Self Regulating Heater Cable - with Tinned Copper Braid

Cat. No.	Part No.	Description
2711694	FLX-10-2BC	10 Watts per ft – 33 Watts per m Cable
2711695	SX-TERM-1BC	End and Power Connection Kit
2711693	ATUM 1¾ 400	Shrink Tube 400mm Lengths

Cat. No.	Part No.	Description
2711691	CDH-2-1-OJ	Condensate Drain Heater - 1m Terminated

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CRH

Lighting Products

Bulkhead Light

The SF-200L Bulkhead light fitting is an IP65 rated Cool room and 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
2711623	SF-200L	Bulkhead Light Assembly

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
2711624	FH9218T8	600mm Single LED Tube Light Assembly
2711625	FH9236T8	1200mm Twin LED Tube Light Assembly
	FH9136T8	1200mm Single LED Tube Light Assembly

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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
2711626	CF001	435mm 8 Watt Cool White Clear Cover LED Tube
2711627	CF002	600mm 9 Watt Cool White Clear Cover LED Tube
2711628	CF004	900mm 13 Watt Cool White Clear Cover LED Tube
2711629	CF006	1200mm 18 Watt Cool White Clear Cover LED Tube
2711630	CF007	1500mm 23 Watt Cool White Clear Cover LED Tube

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
2711621	EURLEDSTARTER	Fuse Starter For LED Tubes

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Fluke

Fluke 61 Infrared Thermometer

Cat. No.	Model No.	Temp. Range °C	Resolution °C	Distance to Spot Ratio
8001507	Fluke 61	-18 to 275	0.2	8:1

Fluke 62 MAX+ Infrared Thermometer

Cat. No.	Model No.	Temp. Range °C	Resolution °C	Distance to Spot Ratio
8001509	Fluke 62 MAX+	-30 to 650	0.1	12:1

Fluke 561 HVACPro Infrared and Contact Thermometer

Cat. No.	Part No.	Temp. Range	Reading Resolution
8001508	Fluke 561	-40°C to 550°C	0.1°C of reading

Fluke 52-2 Digital Thermometer

Cat. No.	Model No.	Temp. Range °C	Size (HxWxD)	Weight (kg)
8001511	Fluke 52-2	-250 to 1372	173 x 86 x 38	0.4

Fluke 971 Temperature Humidity Meter

Cat. No.	Part No.	Temp. Range	Temp. Resolution	Humidity Range %RH
8001512	Fluke 971	-20°C to 60°C	1°C	5% to 95% R.H.

Fluke 411D Laser Distance Meter

Cat. No.	Part No.	Description	Range	Measuring accuracy
8001596	Fluke 411D	Laser Distance Meter	0.1 m to 30 m (0.33 ft to 100ft)	± 3 mm (0.118 in)

Fluke 922/Kit Airflow Meter

Cat. No.	Part No.	Description
8001598	Fluke 922/Kit	Airflow Meter Kit

Fluke 975V AirMeter

Cat. No.	Part No.	Description
8001597	Fluke 975V	AirMeter Kit with velocity probe

Fluke 1AC II Voltage Detector

Cat. No.	Part No.	Description	Range
8001557	Fluke 1AC-II	Voltage Detector	90 to 1000V

Fluke T5 Electrical Tester

Cat. No.	Part No.	Measuring	Maximum Ranges
8001556	T5-600	AC Current	100 A
		AC/DC Voltage	600 V
		Resistance	1000 Ω

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Fluke

Fluke 324 Clamp Meter

Cat. No.	Part No.	Description
8001560	Fluke 324	True RMS Clamp Meter

Fluke 323 True RMS Clamp Meter

Cat. No.	Part No.	Measuring	Maximum Ranges
8001562	Fluke 323	AC Current	400 A
		AC/DC Voltage	600 V
		Resistance	400 to 4000 Ω

Fluke 381 Remote Display Clamp Meter

Cat. No.	Part No.	Description
8001564	Fluke 381	Remote Display Clamp Meter

Fluke 365 Detachable Jaw Clamp Meter

Cat. No.	Part No.	Description
8001565	Fluke 365	Detachable Jaw Clamp Meter

Fluke 771 Milliamp Process Clamp Meter

Cat. No.	Part No.	Range/Resolution	Accuracy
8001563	Fluke-771	-20.99 to +20.99 mA	0.2% or reading +5 counts
		-21.0 to -99.9 mA	1% reading +5 counts
		+21.0 to +99.9 mA	1% reading +5 counts

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Fluke

Fluke 116 Digital Multimeter

Cat. No.	Part No.	Measuring	Maximum Ranges
8001558	Fluke 116	AC/DC Voltage	600V
		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
8001559	Fluke 233	Remote Display Multimeter

Fluke 116/323 Combo kit

Cat. No.	Part No.	Kit contents
8001568	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

Fluke 116/62 Combo Kit

Cat. No.	Part No.	Kit contents
8001567	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

Fluke VR1710 Voltage Power Recorder

Cat. No.	Part No.	Description
8001569	Fluke VR1710	Voltage Power Recorder

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
8001472	EVO-MAG	Magjumper magnetic test cable

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Fluke

Fluke 1587 Insulation Multimeter

Cat. No.	Part No.	Size (HxWxD): mm	Weight: kg
8001566	Fluke 1587	203 x 100 x 50	0.55

Accessories

Cat. No.	Part No.	Description	
8001571	TPAK	Meter Hanging Kit. Includes; Universal hanger clips (2), hook and loop straps (2 lengths), strong magnet	
8001572	80AK	Thermocouple Adapter	
8001573	TP1	Modular Test Probes	
8001574	TL75	Test Lead, Lead Set. Inc.: Pair Comfort Grip probes with PVC insulated test leads, with right-angle shrouded banana plugs	
8001575	TP175	Twistguard Test Probe Set	
8001576	TI175	Twistguard Test Lead Set	
8001577	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	
8001578	TLK289	Industrial Master Accessory Kit. Inc: Alligator Clip Set, Hook Clip Set, Large Jaw Aligator Clip Set. Lantern Tip Test Probe Set, Test Lead Set, Hanging Kit, Temperature Thermocouple, Soft Storage Case	
8001579	80PK1	Temperature Probe	Bead K Type -40°C to 260°C
8001580	80PK3A		Surface K Type 0°C to 260°C
8001581	80PK25		Piercing K Type -40°C to 350°C
8001582	80PK11		Velcro Strap on K Type -30°C to 105°C
8001583	80PK8		Pipe Clamp K Type -29°C to 149°C
8001555	H5	Holster	
8001584	C12A	Soft Case	
8001585	C25		
8001586	C33		

Refco

Inverter Check Kit

Cat. No.	Part No.	Description
8001595	4678571	Inverter Check Kit

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
8001499	4686697	LP-88	Infrared Thermometer

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Kimo

AQ110S Air Quality Meter

AQ110S 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
8001599	AQ110S	CO2: From 0 to 5000 PPM Temp: -20°C to +80°C	±3% / ±50 PPM ±0.4% / ± 0.3°C	1 ppm 0.1°C

HQ210P Air Quality Meter

HQ210P 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
8001600	HQ210P	CO2: 0 to 5000ppm Temp: -20°C to +80°C Humidity: 5 to 95% RH	±0.3% / ± 50 ppm ±0.3% of reading ±0.25°C ±1.8% RH (from 15°C to 25°C)	1 ppm 0.1°C 0.1% RH

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
8001601	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	±0.4% of reading ± 0.3˚C ±0.3% of reading ± 0.03*area(cm2) ±0.3% of reading ± 0.01m/s ±0.1% of reading ± 0.3m/s	0.1˚C 1m3/h 0.01m/s 0.1m/s

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
8001607	LV130S	Air Velocity: 0.25 to 3m/s Air Flow: 0 to 99999m3/h Temp: 0 to +50°C	±3% / ±0.1m/s ±3% / ± 0.03 area(cm2) ±0.4% / ±0.3°C	0.01m/s 1m3/h 0.1°C

MP110S Manometer

MP110S Manometer is a key tool to diagnose, inspect and check pressure.

Cat. No.	Model No.	Measuring Range	Accuracy	Resolution
	MP110S	Pressure: From 0 to ± 1000 Pa	±0.5% / ±2Pa	1 Pa 0.1 m/s

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
8002870	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	±0.5% / ±2Pa ±0.7 m/s ±0.5% / ±0.3m/s	1 Pa 0.1 m/s

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Kimo

VT110S Hotwire Thermo-Anemometer

VT110S 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
8001603	VT110S	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	±0.3% 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

MP210G Thermo-Anemo-Manometer

MP210G 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
8001605	MP210G	Pressure:	0 to 10,000 Pa	±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
		Air Velocity:	2 to 5 m/s		
			5.1 to 100m/s		
		Air Flow :	0 to 99,999m3/h		

*Air velocity and airflow probes an optional extra

DBM610 Portable Flow Meter

DBM610 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
8001606	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

KiRay 100 Infrared Thermometer

Cat. No.	Model No.	Temperature Range °C	Resolution °C	Distance to Spot Ratio
8001609	KiRay 100	-50°C to +800°C	0.1°C	20:1

KiRay 200 Infrared Thermometer

Cat. No.	Model No.	Temperature Range °C	Resolution °C	Distance to Spot Ratio
8001610	KiRay 200	-50°C to +850°C	0.1°C	30:1

TK112S Thermocouple Thermometer

TK112S 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
8001611	TK112S	-200 to 1300°C	±1.1°C or ±0.4%	0.1°C

TR110S PT100 Thermometer (RTD)

TR110S Thermometer is a key tool to diagnose and check low temperature to high accuracy.

Cat. No.	Model No.	Temperature Range °C	Accuracy	Resolution
	TR110S	-100 to 400°C	±0.3°C or ±0.4%	0.1°C

HD110S Hygrometer

HD110S 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
8001613	HD110S	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

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
8001614	CQ15	Class 110 Protective Case

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Test & Measurement

Refco

Pocket Thermometers – Dial Type

Cat. No.	Part No.	Range °C	Description
8001469	15150	-40 to 40	25mm Dial. 127mm Stem c/w Pocket Tube and Clip

Dial Thermometers

Cat. No.	Part No.	Size: mm	Description	Capillary Length: m	Range °C
8001486	F84-100MM-FA	100	Front Flange Rear Entry	1.5	-40 to 40
8001483	F84-60MM-FP	60	Rear Flange Bottom Entry		
8001484	F84-80MM-FP	80			
8001485	F84-100MM-FP	100			
8001489	F87R-60MM	60	Reversible Flange can be changed from Front Flange to Rear Flange Mounting Bottom Entry		
8001488	F87R-100MM	100			
8001487	F87R-100MM-7.5M	100		7.5	

• Suitable for building into cabinets

Cat. No.	Part No.	Brand	Size: mm	Capillary Length: m	Range °C
8001490	CPF-83	Refco	52	1.5	-40 to 40
8001492	CPN	Arthermo			0 to 120

Rectangular Thermometer

Cat. No.	Part No.	Size Rectangular: mm	Range °C	Capillary Length: m
8001491	15165	26 x 58	-40 to 40	1.5

Actrol

Digi-thermo

Cat. No.	Range °C	Resolution °C	Accuracy °C	Sample Time	Battery Type (inc.)	Dimensions: mm
8001505	-50 to 260	0.1	0.5	1 sec or 10 sec	1.5V 'AAA'	106 x 66 x 20

Thermo Controls

Dual Input Digital Thermometer

Cat. No.	Part No.	Range °C	Resolution °C	Accuracy °C	Battery Type (inc.)	Dimensions: mm
8001493	4918	-50 to 1300	0.1	0.1	9V	149 x 71 x 41

Paragon

Temp Tech Digital Maximum / Minimum Thermometer

Cat. No.	Part No.	Range °C	Resolution °C	Sampling Cycle	Ext. Sensor Length	Battery Type (inc.)
8001460	EMT 88	-5 to 50	1	10 sec	3m	G13 or LR44

Carel

Panel Mount Thermometers

Cat. No.	Part No.	Range °C	Power Supply	Sensor (not inc.)
8001473	IREVM0LN0U	-50 to 50	12-24Vac/dc	NTC
8001474	IREVM0EN0U		240Vac	

Refco

Digital Pocket Thermometer

Cat. No.	Model No.	Description	Range
8001501	15140	Digital Pocket Thermometer	-50 to 150°C

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Data Loggers

Kimo

Data Loggers

Starter Kits

Cat. No.	Part No.	Description	Kit Contents
8001538	KT-50-IN STARTER KIT	Temperature Data Logging Starter Kit	1 x KT 50 IN Logger 1 x USB Cable
8002871	KH-50-IN STARTER KIT	Temperature and Humidity Data Logging Starter Kit	1 x KH 50 Logger 1 x USB Cable

Loggers

Cat. No.	Part No.	Description	Display	IP Rating	Int. Sensor	Ext. Inputs	Working Temp Range	Working Humidity Range	Light Range
8001540	KT 110 IN	Temperature Data Logger	Yes	IP67	Yes	0	-40°C to 70°C		
8001544	KH 110 AN	Temperature, Humidity & Light Data Logger	No			0	-20°C to 70°C	5 to 95%	0 to 10,000 lux
8001545	KH 110 AO		Yes			0			

Software and Cable

Cat. No.	Part No.	Description
8001539	KIC2-N	Software with USB Cable
8002872	CK-50	USB Cable to suit Class 50 Data Loggers

Manifolds

Refco

APEX Series

For 134a, R22 and R404A

Cat. No.	Part No.	Description
8001663	APEX-M2-6-kPa-R22	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines

BM2 Series

Cat. No.	Part No.	Description
For R134a, R22 and R404A		
8001667	BM2-6-R134a/22-kPa/psi	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines
For R134a Automotive Air Conditioning		
8001665	BM2-3-kPa-R134A-Acme	Autoset R134a manifold, gauges 3 x 1800mm charging lines and CX-Auto couplings supplied in plastic case
For R22 and R410A		
8001672	BM2-6-DS-CLIM	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm 1/4"charging lines, 1 x Red, Blue & Yellow & 2 x 900mm 1/4" x 5/16" charging lines (Red,Blue)
For R410A		
8001668	BM2-3-K8a-R410A	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines and 1/2"–20UNF (5/16"SAE) connection and core depressor on the unit side. Supplied in plastic case.

R32 and R410A

Cat. No.	Part No.	Model No.	Description	Refrigerant Scales	Hose Connections: inch		
					Red	Blue	Yellow
8001661	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

M4 Series - 4-Way Service Manifold

Cat. No.	Part No.	Description
For R134a, R22 and R404A		
8001674	BM4-3-M2	Manifold with dual scale gauges and 3 x 900mm charging lines. Supplied in plastic case.
For R410A		
8001671	M4-3-Deluxe-DS-R410A	Manifold with dual scale (kPa/psi) gauges and 3 x 900mm charging lines with 1/2"-20 UNF (5/16"SAE) connection and core depressor on the unit side. Supplied in plastic case.

Multicase

Cat. No.	Part No.	Description
8001677	M4-6-15	Empty plastic case

Gauge Protectors

Cat. No.	Part No.	Description
8001918	CPR333	Rubber Gauge Protector Black

Rothenberger

Digital Manifolds

The Rothenberger 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.

Rocool

Cat. No.	Part No.	Description
7700177	1000000569	Digital Manifold Set With 1 temperature sensor, 3 x 1/4" x 1.5m hoses & 2 x 5/16" adaptors

Accessories

Cat. No.	Part No.	Description
7700178	1000000540	Clamping Thermometer
7700184	1000000541	Vacuum Sensor

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Manifolds

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(CO_2), 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 1/4" flare, blue, red and yellow
- 2 x 1500mm charging lines 5/16" flare, blue and red
- 2 x K type temperature sensors
- Sturdy plastic case

Cat. No.	Part No.	Model No.	Description
8001678	4686736	DIGIMON-SE-3-PLUS	Digital Manifold Set

4 Way Manifold

Digimon digital two way manifold with:

- 3 x 1500mm charging lines 1/4" flare, blue, red and yellow
- 2 x 1500mm charging lines 5/16" flare, blue and red
- 2 x K type temperature sensors
- Sturdy plastic case

Cat. No.	Part No.	Model No.	Description
8001680	4686740	DIGIMON-4-3-PLUS	Digital Manifold Set

Digimon Accessories

Cat. No.	Part No.	Description
8001681	4681466	K Type Pipe Clamp Temperature Sensor
8001682	4681394	K Type Temperature Sensor
8001683	4686713	External Vacuum Sensor

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REFCO™

Leading the way with tools.

Gauges

Refco

60mm Diameter Dual Scale

Direct Mounted - Bottom Entry ⅛” NPT

Cat. No.	Part No.	Type	Range	Temp. Refrigerant	Features
8001404	M2-250-R134a/22	Compound	-100 : 1000 kPa	R134a, R22, R404A	Bourdon Type Adjustable
			30” : 0 : 140 psi		
8001405	M2-500-R134a/22	Pressure	0 : 3000 kPa		
			0 : 400 psi		
8001410	M2-250-DS-CLIM	Compound	-100 : 3600 kPa	R22, R407C, R410A	
			30” : 0 : 520 psi		
8001411	M2-500-DLS-CLIM	Pressure	-100 : 5400 kPa		
			30” : 0 : 780 psi		
8001400	M2-255-kPa-R410A	Compound	-100 : 3600 kPa	R410A	
			30” : 0 : 520 psi		
8001401	M2-555-kPa-R410A	Pressure	-100 : 5400 kPa		
			30” : 0 : 780 psi		
8001402	R3-220-DS-R410A	Compound	-100 : 3600 kPa		Bellows Type, Adjustable Oil Filled Aluminium Housing
			30” : 0 : 520psi		
8001403	R3-320-DS-R410A	Pressure	-100 : 5400 kPa		
			30” : 0 : 780 psi		
8001408	R3-220-kPa-R22	Compound	-100 : 1000 kPa	R134a, R22, R404A	
			30” : 0 : 140 psi		
8001409	R3-320-kPa-R22	Pressure	0 : 3000 kPa		
			0 : 400 psi		

Harris

Gauge Protectors

Cat. No.	Part No.	Description
8001918	CPR6333	Rubber Gauge Protector Black

Differential Pressure Gauges

HK Instruments

Differential Pressure Gauge

Cat. No.	Part No.	Gauge Range
1004395	DPG250	0 - 250 Pa
1004396	DPG500	0 - 500 Pa

Differential Pressure Gauge and Pressure Switch Combination

Cat. No.	Part No.	Gauge Range	Switch Range	Accuracy of Gauge	Switching Difference	Accuracy of Switching Point	
						Low Limit Typ.	High Limit Typ.
1004397	DPG600/PS600	0 - 600 Pa	40 - 600 Pa	±2%	30 Pa	40 Pa ± 5 Pa	600 Pa ± 30 Pa

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Charging Hoses

Refco

Charging Hoses – 1/4" Flare Connection

Cat. No.	Part No.	Nominal Length	Colour
8001725	CCL-36	Set of 3 - 900mm (36")	Blue, Red, Yellow
8001726	CCL-72	Set of 3 - 1800mm (72")	Blue, Red, Yellow
8001712	CL-36B	900mm (36")	Blue
8001710	CL-36R		Red
8001711	CL-36Y		Yellow
8001715	CL-60B	1500mm (60")	Blue
8001713	CL-60R		Red
8001714	CL-60Y		Yellow
8001718	CL-72B	1800mm (72")	Blue
8001716	CL-72R		Red
8001717	CL-72Y		Yellow
8001723	CL-144B	3600mm (144")	Blue
8001724	CL-144R		Red
8001722	CL-144Y		Yellow

Charging Hoses – For R410A

Cat. No.	Part No.	Description	Working Press.
8001641	CCL-36- 1/2"-20 UNF	Set of 3 hoses, 1 each Blue, Red & Yellow. 900mm (36") long	6000 kPa (870 psig)
8001640	CCL-60- 1/2"-20 UNF	Set of 3 hoses, 1 each Blue, Red & Yellow. 1500mm (60") long	

Charging Hoses – 3/8" Flare Connection

Cat. No.	Part No.	Nominal Length
8001765	HCL6-36Y	900mm (36")
8001767	HCL6-48Y	1200mm (48")
8001768	HCL6-60Y	1500mm (60")

R134a Automotive A/C Ball Service Valves

Cat. No.	Part No.	Description	Connection
8001693	CX-AUTO-R-1/4	High Side Valve – Red	1/4" M. Fl. x Auto Quick Connect Supplied with Angle Adaptor
8001692	CX-AUTO-B -1/4	Low Side Valve – Blue	

Charging Line Valve

Cat. No.	Part No.	Description	Connection
8001694	CA-1/4 SAEY	Charge Line Valve	1/4" FF x 1/4" MF
8001695	CA-1/2 2OUNF		5/16" FF x 1/4" MF R410A Rated

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Charging Accessories

Refco

Quick Couplers

Cat. No.	Part No.	Description	
8001696	V35010	1/4" x 1/4"	Straight
8001697	V35012		Elbow
8001698	V35410	1/4" x 5/16"	Straight
8001699	V35412		Elbow

Replacement Parts for Service Manifolds

Cat. No.	Part No.	Description	Suit Model
8001669	M4-6-11	Sight Glass Assembly	All Refco
8001673	M2-10-95	Valve Seat & Stem	

Replacement Parts – For 1/4" Flare Charging Hoses

Cat. No.	Part No.	Description
8001644	P509/10	Black Neoprene Gasket (Packet of 10)
8001645	P509T/10	White Teflon Gasket (Packet of 10)
8001731	PSI3/10	Valve Core Depressor (Packet of 10)

Replacement Parts – For 3/8" Flare Charging Hoses

Cat. No.	Part No.	Description
8001662	P510/10	3/8" Charging Line Gasket O'Ring (Packet of 10)

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Refrigerant Recovery Units

Inficon

Cat. No.	Part No.	Description
8002002	714-202-G31	Vortex AC Refrigerant Recovery Unit

Rothenberger

Cat. No.	Part No.	Description
8002015	15000500510	Rorec Pro R32 Refrigerant Recovery Unit

Robinair

Cat. No.	Part No.	Description
8000075	RG3000-A	Refrigerant Recovery Unit
8000074	RG5410EX	
8002001	RG600A	

Appion

Compatable with R32 and R123. An isolated crankcase enables pumping liquid without throttling.

Cat. No.	Part No.	Description
8002010	G5TWIN	Twin Cylinder Refrigerant Recovery Unit
8002011	G1SINGLE	Single Cylinder Refrigerant Recovery Unit

Recovery Unit Spare Parts

Cat. No.	Part No.	Brand	Description	Suits
8002003	QS22014	Javac	Manifold Knob Set	Javac XTRACT-R, XTR

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

INFICON
Laboratory Accurate. Toolbox Tough.®
www.inficonservicetools.com

Electronic Scales

Inficon

Wey-TEK HD™ Electronic Scales

Wireless Refrigerant Charging Scale

Features:

- Huge 15kg capacity
- Free downloadable app
- Auto shut-off to maximise battery life
- Plastic carrying case for protection
- Two year replacement warranty

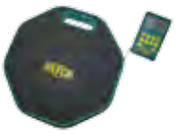
Wey-TEK HD™

Cat. No.	Part No.	Model No.	Description
8000082	719-202-G1	Weytek Wireless Refrigerant Scale	115kg Electronic Scales

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
8001785	4679462	REF-METER-OCTA	100kg Electronic Scales

OCTA-WIRELESS

Cat. No.	Part No.	Model No.	Description
8001786	4686663	OCTA-WIRELESS	100kg Wireless Electronic Scales

Replacement Control Boxes

Cat. No.	Part No.	Description	Suits
8001777	4686813	Replacement Control Box	REF-METER-OCTA
8001778	4686752	Replacement Control Box	OCTA-WIRELESS

Rothenberger

Electronic Scales

Cat. No.	Part No.	Description
7700179	R173004	120kg Electronic Scales

Flexible Lines

Cat. No.	Part No.	Length: mm	I.D: mm	Connection
8001823	F01099	700	2mm	¼" FF Straight x ¼" FF 90° Elbow
8001824	F01071	1000		
8001827	F03179	700	4mm	
8001828	F03087	1000		

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Vacuum Pumps

Rothenberger

Vacuum Pumps

Cat. No.	Part No.	Capacity Litre/min	End Vacuum Microns	Motor HP	Weight: Kg	Intake Ports	Oil Capacity
2704332	R170061	42	25	¼	9	¼"	250ml
2704333	R170062	85		⅓	10.7		330ml
2704367	1500050007	170		½	11.5		330ml
2704335	R170064	255		1	17		590ml

Robinair

Vacuum Pumps

Cat. No.	Part No.	Capacity Litre/min	End Vacuum Microns	Motor HP	Weight: Kg	Intake Ports	Oil Capacity
2700046	15151S2	35	25	¼	8.2	¼" & ⅜"	210ml
2700049	15501S2	118		½	10.5		300ml
2705550	15801S2	212		1	16.3		590ml

Appion

Vacuum Pumps

Cat. No.	Model No.	Capacity Litre/min	End Vacuum Microns	Weight: Kg	Description
8002022	TEZ8	227	20	12.7	Two Stage Vacuum Pump

JB Industries

Vacuum Pumps

Cat. No.	Model No.	Capacity Litre/min	Vacuum Rating: Microns	Motor: HP	Weight: kg	Oil Capacity
8002019	DV42N250AU	36	15	½	13.2	798ml
8002020	DV85N250AU	72			13.6	798ml
8002005	DV142N250AU	120			14.5	680ml
8002021	DV200N250AU	170			14.5	680ml
8002007	DV285N250AU	242			15.4	709ml

Oil Pump Caddy

Cat. No.	Part No.	Description
8002009	DVT1	The Tank Vacuum Pump Oil Caddy

Vacuum Pump Spare Parts

Cat. No.	Part No.	Brand	Description	Suits
8001988	VS4016	Javac	Exhaust Demister Oil Filter Kit	Javac Shark
8001989	VC2005		Drain Plug	
8001991	VC2036		Power Socket Panel Mount	
8001990	PS-4106		Power Cord	Javac
8001999	S20-502		Round Oil Sight Glass	Javac SE Series
8002004	S20-501		Vertical Sight Glass	Javac JD/DD/DS Series
8001992	523195	Robinair	Oil Fill Plug Plastic	Robinair 15151, 15301, 15501, 15801
8001994	541482		Oil Fill Plug Brass	
8001993	523192		Handle	Robinair 15151, 15301, 15501
8001995	535491			Robinair 15801

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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
8001980	4686712	REF-VAC	Electronic Vacuum Gauge	0 to 18000 Microns

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
8001412	9882473	19800 SV	80mm Recalibratable Vacuum Gauge

JB Industries

Digital Vacuum Gauge

Cat. No.	Part No.	Conn: Size	Description	Effective Range
2701805	DV-24N	1/4"MF	Digital Vacuum Gauge with Case	25 to 12000 microns
2700205	DV-41AU			10 to 12000 microns

Vacuum Connection Kits

Appion

MegaFlow Connection Kits

The Appion MegaFlow 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
8001802	MGABAS	MegaFlow Basics Evacuation Kit	1 x 1/2" MegaFlow Hose
			1 x 1/4" valve removal tool
8001804	MGAKIT	MegaFlow Speed Kit	Gauge Manifold
			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
8001810	MGAKIT-V	MegaFlow Vacuum Speed Kit	9 Port Tree Vacuuum Manifold
			2 x 1/2" MegaFlow Hoses
			2 x 3/8" MegaFlow Hoses
			2 x Vacuum Rated Valve Core Removal Tools
			1 x 1/2" Conneciton Hose
			1 x 3/8" Connection Hose
			1 x Carrying Case
8001814	MGAKIT-R	MegaFlow Recovery Speed Kit	Gauge Manifold
			4 x 3/8" MegaFlow Hoses (RBYY)
			2 x 1/4" Valve Core Removal Tools
			2 x 5/16" Valve Core Removal Tools
			1 x Carrying Case

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Leak Detection

Inficon

Leak Detectors - Electronic Type

TEK-Mate

Cat. No.	Part No.	Description
8001735	705-202-G1	TEK-Mate Electronic Leak Detector
8001737	703-020-G1	Replacement Sensor
8001738	705-600-G1	Tip Filters

D-TEK™ Select

Cat. No.	Part No.	Description
8001736	712-202-G6	D-Tek™ Select Electronic Leak Detector
8001739	712-701-G1	Replacement Infrared Cell

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
8001740	4686714	REF-LOCATOR	Refrigerant Leak Detector

Robinair

22791A Leak Detector

Cat. No.	Part No.	Description
8001734	22791A	Infrared Refrigerant Leak Detector

Kimo

DFC100 Leak Detector

Cat. No.	Part No.	Description
8001733	DFC-100	Refrigerant Leak Detector

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Leak Detection

Amprobe

Ultrasonic Leak Detector

Cat. No.	Part No.	Description
8001732	ULD-300	Ultrasonic Leak Detector

Propipe

Spectroline UV Dye Leak Detection System

Spectroline UV Dye is industry endorsed by leading Industry OEM's such as Emerson, Copland, Bitzer and Daikin to name a few. It's highly concentrated UV dye enables the smallest of leaks to be found quickly and easily using a very small amount of dye.

Simply use the compressor oil capacity as your guide to the amount of dye required; refer dosage instructions on pack. Two injection methods available Hydraulic (see OPK40EZE & EZ100ECS) OR System Pressure Injection (see Glo Sticks 'GS')

OPK40EZE Kit Includes
- Dye for use in compressors with up to 7 Litres of oil per cartridge
- No mess hydraulic injector and hose
- UV enhancing glasses
- Powerful OPTIMAX Torch
- Dye cleaner and remover

EZ100ECS and BEZ400ECS Kit Includes
- Dye for use in compressors with up to 7 Litres of oil per cartridge (BEZ400ECS up to 5.7 Litres, super concentrate)
- No mess hydraulic injector and host

Cat. No.	Part No.	Description	Appliaction Guide
8001756	OPK40EZE	Complete UV Dye Kit	Air Con And Refrigeration Systems
8001758	EZ100ECS	UV Dye Starter Kit	Air Con And Refrigeration Systems
8001761	EZ4ECS	Replacement Cartridges For Above Kits	UV Dye Detection
8001759	BEZ400ECS	Industrial UV Dye Starter Kit	Industrial Air Con And Refrigeration Systems
8001762	BEZ4ECS	Industrial Replacement Cartridges For Above Kit	Industrial Air Con And Refrigeration Systems
8001754	OPX400CS	True Ultra Violet LED Torch PLUS UVS40 Glasses	UV Dye Detection
	UVS40	Fluro Enhancing Glasses	UV Dye Detection
8001750	GS101ECS	1ml Dye Capsule; GLO STICK	For small Systems up to 445ml of oil
8001751	GS1ECS	14.8ml Dye Capsule; GLO STICK	For Residential Systems up to 1.5 Litres of oil
8001752	GS2ECS	14.8ml Dye Capsule; GLO STICK	For Commercial Systems up to 3 Litres of oil
8001749	GS3ECS	14.8ml Dye Capsule; GLO STICK	For Industrial Systems up to 7.6 Litres of oil
8001753	ARGLO4EP	473 ml Bottle of Dye For use with injector	For Use With All Systems, Mix your Own

Fluke

UV Flashlight

Cat. No.	Part No.	Description
8001744	RLD2	UV Leak Detector Flashlight

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Fixed Leak Detection

Phasefale

RAM Fixed Leak Detection

Features

- Gas concentration readout from 0-990ppm.
- 1 to 5 channels of the same refrigerant type.
- Data logging function to USB
- Light & security outputs, onboard buzzer
- Fan control output function
- Bright red LCD display, 3 digits
- Display flashes for alarm condition
- Programmable settings
- All common refrigerants supported
- Optional battery backup supported
- Alarm bypass for isolating alarm
- Separate RAMiv/4 board to power sensors, supplied in surface mount enclosure

Cat. No.	Part No.	Description
8001787	RAMIV9	Refrigerant Air Monitor
8001788	RAMIV4	4 Way Sensor Board with Enclosure
8001789	RAMIV/P308	P308 HCFC Gas Sensor
8001790	RAMIV/P328	P328 HFC Gas Sensor

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
8001805	DPWLA07000	Compact Gas Detector with inbuilt semiconductor sensor	R22	IP41	-20 to 50	0 to 1000
8001806	DPWLB07000		R134a			
8001807	DPWLC07000		R404a			
8001808	DPWLD07000		R407c			
8001809	DPWLE07000		R410a			
8001818	DPWL417000	Compact Gas Detector with inbuilt infrared sensor	CO2	IP66	-40 to 50	0 to 10000
8001811	DPWLA27000	Gas Detector with 5m remote semiconductor sensor	R22		-20 to 50	0 to 1000
8001812	DPWLB27000		R134a			
8001813	DPWLC27000		R404a			
8001815	DPWLD27000		R407a			
8001816	DPWLE27000		R410a			
8001820	DPWL427000	Gas Detector with 5m remote infrared sensor	CO2		-40 to 50	0 to 10000
	DPWLK07000	Compact Gas Detector with inbuilt dual beam infrared sensor	R134a	IP41	-20 to 50	0 to 1000
	DPWLL07000		R404a			
	DPWLM07000		R407c			
	DPWLN0700		R410a			

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
8001792	080Z2098	DGS Gas Detector	R404A/R507	IP41	-20 to 50	Semiconductor
8001793	080Z2092		R134a			
8001794	080Z2093		R407A			
8001795	080Z2090		R22			
8001796	080Z2095		CO2			Infrared
8001797	080Z2099		R404A	IP66	-40 to 50	Semiconductor
8001798	080Z2089		R134A			
8001799	080Z2094		R407A			
8001800	080Z2091		R22			
8001801	080Z2096		CO2			Infrared
8001803	080Z2097	DGS Gas Detector with 3m Probe	CO2			

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Brazing Equipment

Silbraze

Silver Solder

Silbraze 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
8001954	67390	2P Silbraze Silver Solder	2%	2.5 x 750	5
8001956	67419	5P Silbraze Silver Solder	5%		
8001934	67386	15P Silbraze Silver Solder	15%		10
8001957	67537	45 Silbraze Silver Solder	45%	1.5 x 750	5

Bulk

Cat. No.	Description	Silver Content	Rod Size: mm
1900004	2P Silbraze Silver Solder	2%	2.5 x 750
1900001	5P Silbraze Silver Solder	5%	
1900002	15P Silbraze Silver Solder	15%	
1900003	45 Silbraze Silver Solder	45%	1.5 x 750

Flux

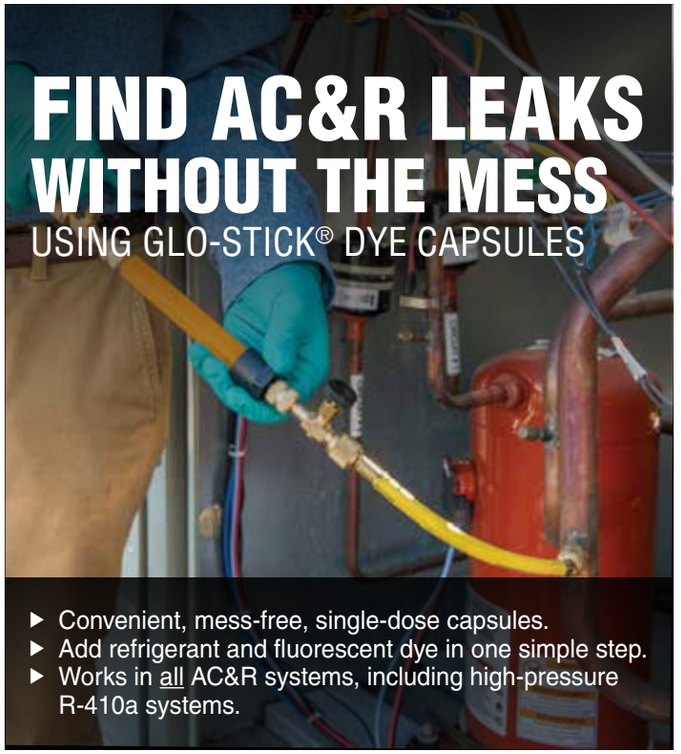
Cat. No.	Part No.	Description	Size:
1903102	00567	Easyflo Flux	250 gram

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
8000070	66039	Dynaflow Silver Brazing Alloy	6%	8



GLO-STICK® UNIVERSAL/POE DYE CAPSULES

SINGLE-DOSE

GS-101/ECS GS-1/ECS GS-2/ECS GS-3/ECS

Available in **4 sizes/concentrations**.

COMPLETE EZ-JECT™ KIT

MULTI-DOSE

OPK-40EZ/E

Features the **OPX-400 OPTIMAX™ 400,** economical, cordless, battery operated, violet light leak detection flashlight.

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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. It has been specifically designed for use with 1 each of disposable Mapp & Oxygen gas cylinders.

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
7001755	OTS 200	Turbo Set 200 Brazing Kit

Refco

Brazing Torch

Features

- Operates on Mapp gas
- Supplied with Cyclone Tube & Heat guard

Cat. No.	Part No.	Description
8001927	16868	Brazing Torch

Disposable Gas Cylinders

Cat. No.	Part No.	Cylinder Contents
6802522	35663	453 grams (16 oz) of Mapp Gas
7001756	OOB	1 Litre Oxygen 11000kPa

Rothenberger

Superfire 2 Brazing Torch

Cat. No.	Part No.	Description
7705464	35644	Super Fire 2 Torch

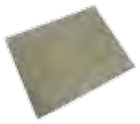
Superfire 3 Brazing Torch

Cat. No.	Part No.	Description
7705473	35430	Super Fire 3 Torch Set

Superfire 3 Hot Box Kit

Cat. No.	Part No.	Description
7705475	354901UK	Super Fire 3 Hot Box Kit

Soldering Mats



Cat. No.	Part No.	Description
7705444	67022	12” x 12” Soldering Mat

Heat Deflector Guards

Cat. No.	Part No.	Suits
6810201	31042	Superfire 2
	31043	Superfire 3

Spare Parts

Cat. No.	Part No.	Description	Suits
6802348	35659	Burn Tube	Superfire 2
6802347	35661	Turbine Flame Burner	

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Equipment & 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 ¼" male flare outlet fitting and is purpose built for the air conditioning and refrigeration industries.

Cat. No.	Part No.	Description
7001751	RI1SNI60	Nitrogen Regulator 6000kPa, 1/4" SAE Flare Ourlet with 5/16" SAE Flare Adaptor

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 ¼" male flare.

Cat. No.	Part No.	Description
8000072	RG1MNI15	Nitrogen Regulator 1500kPa, 1/4" SAE Flare Outlet

Nitrogen Purge Tools

Cat. No.	Part No.	Description	Sizes
2700167	GEPTT	Nitrogen Purge Tools, 1/4" SAE Flare Inlet	1/4 to 3/4 and 3/4 to 1 1/8

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 ¼" Male Flare outlet. Optional rubber gauge protectors will help protect gauges from damage.

Cat. No.	Part. No.	Description
8001919	825Z080	Nitrogen Regulator
8001918	CPR6333	Rubber Gauge Protector Black

Replacement Gauges

Cat. No.	Part. No.	Description
8001915	U8E6620K	Deliver Gauge 0 - 6 000 kPa
8001916	U8E615K	Content Gauge 0 - 30 000 kPa

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
8001839	N3000	Nitro 3000 Nitrogen Purge Controller

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Tube Cutters

Refco

RS Series

Cat. No.	Part No.	Description
8001958	RS-16	1/8" to 5/8" Tube Cutter
8001959	RS-25	1/8" to 1" Tube Cutter
8001960	RS-35	1/8" to 1 3/8" Tube Cutter
8001961	RS-42	1/8" to 1 5/8" Tube Cutter
8001962	RS-67	1/4" to 2 5/8" Tube Cutter

Ratchet Series

Cat. No.	Part No.	Description
8001968	RTC-13	For 1/8" to 1 1/8" (3 to 13mm) Tubing
8001967	RTC-29	For 5/16" to 1 1/8" (8 to 29mm) Tubing

Rothenberger

Cat. No.	Part No.	Description
8002012	70401	Mini tube cutter 1/4"-5/8"
8002013	70402	Mini tube cutter 1/4"-7/8"
8002014	70105	Minicut 2000 tube cutter 1/4"-7/8"
8002008	70015	Minimax tube cutter 1/4"-1 1/8"
8002029	70027	No.35 tube cutter 1/4"-1 3/8"
8002030	70030	Automatic pipe cutter 1/4"-2 5/8"

Reamers/Deburrers

Refco

Inner-Outer Tube Reamer

Cat. No.	Part No.	Description
8001836	RFA-209	For copper, aluminium and brass tubing

Rothenberger

Universal Int/Ext Deburrer

Cat. No.	Part No.	Description
7705168	1500000236	Internal/External deburrer, 6-35mm

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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.
8001627	RF-175-FS

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.
8001625	RF888Z
8001624	RF899Z

Rothenberger

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.	Description
7703075	R222402	Pro Flaring Tool

Ridgid

Eccentric Flaring Tool Kit

Suitable for R410A refrigerant tube

Cat. No.	Part No.
7702709	70677

Tube Benders

Refco

Spring Type Tube Benders

Cat. No.	Part No.	Tube OD
8001931	BS-4	1/4"
8001932	BS-5	5/16"
8001933	BS-6	3/8"
8001935	BS-8	1/2"
8001936	BS-10	5/8"
8001937	BS-12	3/4"
8001938	BS-44 Set	1/4", 3/8", 1/2", 5/8"

Lever Type Tube Benders

Cat. No.	Part No.	Tube OD
8001941	RFA-364-FHB-04	1/4"
8001942	RFA-364-FHB-06	3/8"
8001943	RFA-364-FHB-08	1/2"
8001944	RFA-364-FHB-10	5/8"
8001945	RFA-364-FHB-12	3/4"

3-in-1 Lever Type Tube Benders

Cat. No.	Part No.	Tube OD
8001946	FRA368FH	1/4", 5/16", 3/8"

Cross Bow Type Tube Benders

Cat. No.	Part No.	Tube OD
8001947	Tell- 7	1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8"

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Tube Expanders

Refco

Hydraulic Tub Expander Kit

Using hydraulic power this light weight hand tool makes a perfect expansion of copper and aluminium tubing with only a few pumps.

Cat. No.	Part No.	Description
8001930	HY-EX-6	Hydraulic expander with 6 heads -3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8", plus deburring tool

Rothenberger

Copper Tube Expander Kit

Cat. No.	Part No.	Size	Description
8001925	012321	Kit	c/w 4 Heads – 1/2", 5/8", 3/4", 7/8"

Copper Tube Expander Heads

Cat. No.	Part No.	Size
7701360	11052	3/8"
7701362	11053	1/2"
7701364	11054	5/8"
7701366	11055	3/4"
7701367	11056	7/8"

Cat. No.	Part No.	Size
7701368	11057	1"
7701369	11058	1 1/8"
7701371	11059	1 1/4"
7701380	11035	1 3/8"
8001929	11062	1 5/8"

Gratfix Deburrer

Cat. No.	Part No.	Description
8001854	107050	GRATFIX with HSS general purpose blade
7705166	21652	Spare HSS general purpose blade

Equipment & Tools

Refco Ratchet Spanners – Reversible

Cat. No.	Part No.	Description
8001852	RFA-124-C	1/2", 9/16", Hex. 3/16", 1/4" Square Ratchets
8001853	RFA-127-C	1/4", 3/8", 3/16", 5/16" Square Ratchets
8001851	RFA-127-C - Offset	

Reamer

Cat. No.	Part No.	Description
8001835	RFA-209-STYLO-HD	Reamer HSS blade

Capillary Tube Gauge

Cat. No.	Part No.	Description
8001860	10971	Capillary Tube Gauge

Torque Wrench Kit

Cat. No.	Part No.	Description
8001848	TW8	Torque wrench kit c/w 7 different sized interchangable spanners to fit R410A flare nuts Sizes:17, 19, 22, 24, 26, 27, 29mm Adjustable torque setting range 10 - 75Nm

Refco

Fin Combs

Cat. No.	Part No.	Model No.	Description
8001617	9881562	14142	Fin Comb with Spare Head
8001618	9881561	14144	Spring Steel Fin Comb

Service Piercing Pliers

Cat. No.	Part No.	Description
8001621	14210-STD	Service Piercing Pliers
8001622	14210-01	Spare Needle

Pinch-Off Pliers

Cat. No.	Part No.
8001620	14200

Swaging Pole

Cat. No.	Part No.	Size
8001623	T-21100	1/8 to 1 3/4

Inspection Mirrors

Cat. No.	Part No.	Brand	Description
8001840	M-1	Wagner	Swivel Mirror with double ball joint links. With telescoping feature 160mm long extending to 475mm. Mirror 32mm Diameter
8001841	M-2		Same specifications as M1 but telescoping feature 250mm long extending to 355mm. Mirror 57mm Diameter

Safe Test Screwdriver

Cat. No.	Part No.
8001838	Safe Test Screwdriver

Actrol

Charge-Oil Pump

Cat. No.	Part No.
8001780	21702

Manual Oil Pump

Cat. No.	Part No.
8001783	RMP

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Equipment & Tools

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
8001950	NB-58	Nylon Tube Cleaning Brush	5/8"
8001952	NB-34		3/4"
8001953	FS12.7-7.6	Flexible Shaft	12.7mm x 7.6m
8001955	FS-RTC-8	Adaptor	8mm

Hole Cutters

Rothenberger

Dry Diamond Core Drill Kit

Cat. No.	Part No.	Description
7700655	89020	Dry Diamond Core Drill Bit

Patlee Tools

Core Cutter Sets

Cat. No.	Part No.	Description	
2702736	PWCCSET-AN	Core Cutter Set	Tungsten Carbide Tipped
2702889	PWCCSET-AG		Tungsten Carbide Grit
2702890	PWCCSET-AD		Diamond

BVA

Hand Refractrometer

Cat. No.	Part No.	Description
8001821	BVA ET	Ester Tester Hand Refractrometer

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
8001906	24-458	33 LED Pivoting Worklight

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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
7701087	VETOMB	HVAC Test Meter Tool Bag
7701088	VETOMB2	HVAC Test Meter Tool Bag

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
7701089	VETOTP3	HVAC 3 Pocket Tool Bag
7701090	VETOTP4	HVAC 4 Pocket Tool Bag

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
7701093	VETOOTLC	Open Top Tool Bag

TECH Series Tool Bags

The TECH Series Tool Bags are 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
7701032	VETOTECHLC	HVAC Tech Large Tool Bag
7701037	VETOTECHMCT	HVAC Tech Small Tool Bag

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
7701097	VETOXLT	Extra Large Laptop and Tool Bag

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
7701034	VETOTECHPAC1	Backpack Tool Bag

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Safety

Eyewear

Cat. No.	Part No.	Description
7626885	02/ARW02	Clear Safety Sunglasses
7626890	02/ARW02SMO	Smoke Safety Sunglasses
8001396	02/ARW02SIL	Silver Safety Sunglasses

Wide Vision Goggles

Cat. No.	Part No.	Description
8002034	02/UN45	Wide Vision Goggle

Head Protection

Cat. No.	Part No.	Description
8002037	01/UN22	Safety Helmet ABS

Hearing Protection

Cat. No.	Part No.	Description
8002039	04/EP011	Ear plugs with cords - single pair

Ear Muffs

Cat. No.	Part No.	Description
8002084	04/X02	Ear Muff Yellow 23dB Class 4

Respiratory Protection

Cat. No.	Part No.	Description
8001392	05/BD842	Disposable Respirator Masks Box 20

Hi-Visibility

Cat. No.	Part No.	Description
8002098	06/B1261	Day Safety Vest
8002208	06/B1691	Day Night Safety Vest

Gloves

Cat. No.	Part No.	Description
8002244	09/AR029	Amourwear Foam Nitrile Palm Gloves Size 9
8002245	09/H115	Candy Stripe Leather Palm Gloves

Accessories

Sunscreen

Cat. No.	Part No.	Description
1906149	10/JA21	Sunscreen SPF 30+ 125ml

First Aid Kits

Cat. No.	Part No.	Description
8002246	18/B05	Small Travel First Aid Kit

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TOOLS WITH BITE

GRAB ONE TODAY

NEW

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FOLDING LOCK BACK
UTILITY KNIFE
9502675

BIGDOG

8M MAGNETIC
TAPE MEASURE
9505876

BIGDOG

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WIDE JAW
WRENCH 150MM
9502806

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HANDSAW
350MM
9505894

BIGDOG

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INSPECTION
MIRROR
7900039

BIGDOG™

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
2701913	SI-30	Condensate Pump	20l/hr	3m	10m
2701914	SI-33		30l/hr	4m	13m

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, in line 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
2701921	DELTA PACK	Condensate Pump Kit	20l/hr	10m

Si10

The Sauermann Si10 is a monobloc pump with integrated transparent float reservoir which is designed for easy maintenance. Covers a large range of capacity up to 20kW. Drain safe device facilitates connection to the discharge pipe. The pump is silent at 22dbA and the wall bracket is designed to reduce vibration.

- 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
2701872	SI-10	Condensate Pump	20l/hr	10m

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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
2702633	FP2212	Mini Orange Condensate Pump	12l/hr	10m
2702779	FP2210	Maxi Orange Condensate Pump	35l/hr	15m

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
2701889	FP3312	Mini Lime Condensate Pump	12l/hr	10m
2701890	FP2213	Maxi Lime Condensate Pump	35l/hr	15m

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
2705826	FP1080	Mini Blanc Condensate Pump	12l/hr	10m

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
2705825	FP2406	Mini Aqua Condensate Pump	12l/hr	10m

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Mini Condensate Pumps

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
1602605	MegaBlue	Condensate Pump	50l/hr	20m	7m
1602606	MaxiBlue		14l/hr	8m	8m
1602607	MiniBlue		8l/hr	8m	5m

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
1602531	EC-400	Condensate Pump	18l/h	14m	1m

ASPEN® PUMPS

mini blanc

condensate removal pump

The 'ultra quick fit' Mini Blanc is designed to be fitted beneath high wall indoor units and offers easy access for future maintenance.

12L/h max. flow

10m max. rec. head (flow rate 6L/h)

21dB(A)

KEY FEATURES

- Extra quick to fit
- Compact & discreet
- Clear removable reservoir
- Ultra quiet operation

SUITABILITY

- Up to 16kW / 54,000Btu/h
- High wall mini split systems

✓**Perfect for...** Domestic use – where easy maintenance is key

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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
1602608	4678538	Gobi Condensate Pump	12l/hr	15m

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
- Soft start with “EECS”
- Submersible
- Powerful and compact
- No mechanical floats to stick
- All electrical components safely encapsulated against moisture ingress

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
1602609	4678512	Karoo Condensate Pump	12l/hr	6m

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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
2701878	PE-5200	Peristaltic Condensate Pump	6l/hr	2m	12m

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 of 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
2701885	PE-5100	Peristaltic Condensate Pump	6l/hr	2m	12m

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 of 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
2701886	PE-5000	Peristaltic Condensate Pump	6l/hr	2m	12m

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
2701879	PE-6250	Peristaltic Condensate Pump	25l/hr	2m	10m

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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 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
- 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
- Only requires live/neutral supply and 2 sensors either side of the evaporating coil – one 'air on' and one 'air off'

Specifications

- Dimensions: 115mm(H) x 135mm(W) x 77mm(D)
- Inlet /outlet size: 6mm
- Pump rating: 0.2A, 230V AC
- Connecting cable: 3 metres

Cat. No.	Part No.	Description	Max Flow Rate	Max Discharge Head
2705828	FP2082	Universal Peristalic Condensate Pump	6.25l/hr	12m

Tank Pumps

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
			0.5m Water Head	1m Water Head	1.5m Water Head	3m Water Head	4.3m Water Head	
1602532	VCMA-20S	Condensate Pump	4.8	4.7	4.5	3.3	0	0.6

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
			0.5m Water Head	1m Water Head	1.5m Water Head	3m Water Head	4.3m Water Head	
1602533	VCC-20-S	Condensate Pump	4.8	4.7	4.5	3.3	0	0.6

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Tank Pumps

Sauermann

SI60

The Sauermann 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
2701933	SI-60	Condensate Pump	20l/hr	10m	0.5l

SI82

The Sauermann SI82 pump is specifically designed to be installed on:

- Refrigerated display cabinets
- Ducted units
- Gas condensing boilers
- Cold store cabinets
- Multi cassette unit
- Dehumidifiers
- Column air conditioning units

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
2705832	SI-82	Condensate Pump	500l/hr	5m	2l

SI1805

The Sauermann SI1805 pump has a compact tray and is specifically designed to be installed on:

- Refrigerated display cabinets
- Ducted units
- Gas condensing boilers
- Cold store cabinets
- Multi cassette unit
- Dehumidifiers
- Column air conditioning units

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
2701887	SI-1805	Condensate Pump	500l/hr	5m	0.5l

SI1830

The Sauermann 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
- Refrigerated display cabinets
- Multi cassette unit
- Gas condensing boilers
- Cold store cabinets
- Column air conditioning units
- Gas furnaces
- Evaporators

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
2701920	SI-1830	Condensate Pump	400l/hr	3.7m	0.5l

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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
1602603	SI-1822	Condensate Pump	380l/hr	5.8m	3.8l

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
- Multi cassette units
- Gas furnaces
- Cold store cabinets
- Column air conditioning units
- Evaporators
- Gas condensing boilers
- Ducted units

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
2701877	SI-1850	Condensate Pump	1100l/hr	10m	3.8l

SI93

The Sauermann Si 93 pump is specifically designed for refrigeration applications, such as:

- Refrigerated display cabinets
- Dairy cabinets
- Cold store cabinets
- This model is ultra flat with a height of 69mm.

Built to last in stainless steel this model features a patented non-chemical anit-biofilm system which helps retard bio-film growth and assists with reduced site maintenance. Slides easily underneath the refrigerated display cabinet with a minimum tank profile of 69mm. It also has top, left or right inlets. Comes with universal inlet adapter (32-40-50mm), an easy opening tank lid and modular pump compartment for ease of maintenance.

Cat. No.	Model No.	Description	Nom. Flow Rate	Max Discharge Head	Tank Size
1600036	SI-93	Condensate Pump	360	20m	1.6l

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
1602601	SI-2052	Universal OEM Replacement Condensate Pump	70l/hr	0.95m	20mm

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Pumps 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) (flour)
- Print rooms (print dust)
- Food preparation areas and bakeries etc

This inline filter is easy to install and comes with two male 6mm spigots.

Cat. No.	Part No.	Description
1602549	ACC17010	Inline Filter

Peristaltic Tube

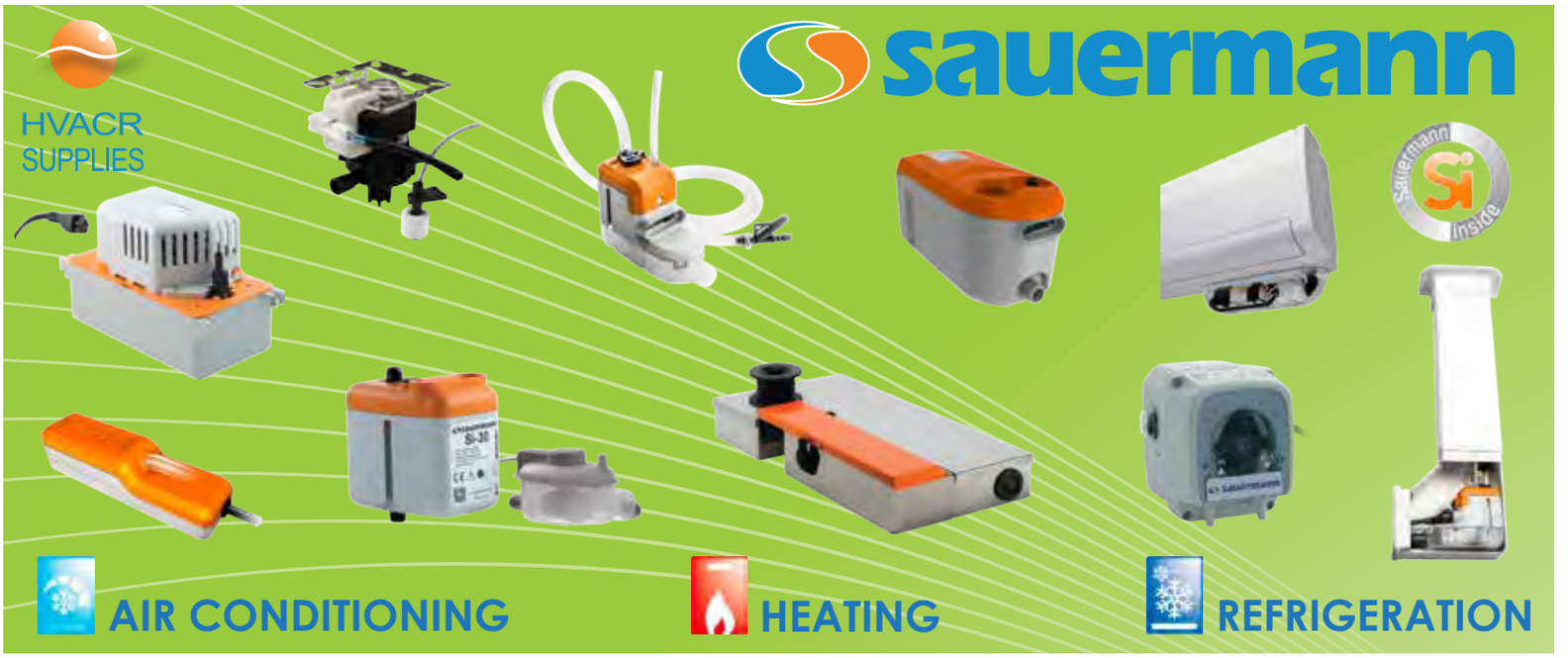
The Sauermann PE5002 replacement tube is designed for replacing worn tubes and is easy to replace. Suitable for the PE5000, PE5100, PE5200 pump Model. Comes with 2 cable ties for a firm and secure fit.
NB: Must be lubricated a silicone based lubricant (to prevent failure or early wear)

Cat. No.	Part No.	Description
2705834	PE-5002	Replacement Tube for Peristaltic Pumps

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
1602611	PE-5001	Replacement Head for Peristaltic Pumps



Pumps 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
1602613	ACC00601	Float Detection Switch

Sensor Extension Cable

The Sauermann AC00705 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
1602616	ACC00705	Sensor Extension Cable

Check Valve

The Sauermann ACC00801 replacement 10mm check valve is a quick fit solution. Comes with o-ring.

Cat. No.	Part No.	Description
1602614	ACC00801	10mm Check Valve

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
1602610	SI-2958	Universal Float Detection Sensor

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
1602612	PE5003	15mm to 6mm Adaptor Reducer

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
1602618	ACC00216	Anti Siphoning Device

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
1602619	ACC02040	Multi Size Inlet Adaptor

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
1602629	ACC00110	Rubber Inlet Adaptor Kit

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
1602617	ACC00805	6mm Non Return Valves Pack of 5

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Evaporative Cooler Pumps

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
1602528	Model 38	Evaporative Cooler Pump	50	29.5l/m	23l/m
1602529	Model 50		60	38l/m	30.5l/m

Accessories

Cat. No.	Part No.	Description
1602527	J-BASKET	Evaporative Cooler Filter Basket

ebm-papst

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
2704110	Alpha Pump	Evaporative Cooler Pump	50	32l/m	25l/m

Propipe

Super Pump

Evaporative cooler field replacement pump; proven quality and reliability tested to As/NZs 60335.1:2011 electrical safety requirements.

Features

- Intergrated filter basket
- Hi flow motor cooling venturi
- Stainless steel shaft
- Quick fit assembly bracket
- Longlife Bearings

Cat. No.	Part No.	Description	Watts	Flow at 600mm	Flow at 1600mm
1602518	SP280	Super Pump Evaporative Cooler Pump	44	24.0	16.5
1602519	SP380	Super Pump Evaporative Cooler Pump	52	29.5	23.0
1602520	SP500	Super Pump Evaporative Cooler Pump	67	38.0	30.5

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Pumps - Other

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
- 24V solenoid
- 300mm SWC PVC drain adapter with O-ring
- 6mm water supply tube from solenoid to valve
- 240V to 24V encapsulated transformer with 2 metre lead

Cat. No.	Part No.	Description
27076237	6001331	Dump Valve Kit

Replacement Parts

Cat. No.	Part No.	Description
27076592	6001336	Dump Valve Body
27076285	6001341	24V Solenoid with 6mm Straight Tube Connector
27076287	6001334	240V to 24V Transformer with 2m Leads

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
- Sump type pick-up
- Epoxy encapsulated motor
- Can be installed on any of five sides
- Removable inlet screen
- Operates fully submerged
- Motor overload protection on PE-2
- Filled with special oil that provides lifetime lubrication & rapid dissipation of heat through housing

Cat. No.	Part No.	Description	Flow at 300mm Head	Flow at 0mm Head	Max Water Head	Discharge Connection
1602534	PE-1H	Submersible Pump	9l/m	10l/m	1400mm	1/4" MNPT
1602535	PE-2		15l/m	18l/m	2500mm	1/4" MNPT

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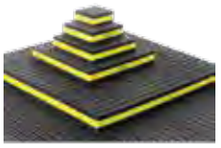
Noise & Vibration Control Products

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
1609592	4507241	AVP-4	Anti-Vibration Pad	101 x 101 x 22

Mason

Waffle Pad

Cat. No.	Part No.	Size : mm	Load Ratings:		
			Durometer	Load per 50 x 50 mm Sq.	Rated Deflection : mm
2701723	18 x 18 SW	457 x 457 x 19	50	82 kg	2.5
1609584	R18 x 18 MSW	457 x 457 x 9.5	40	1.3	-

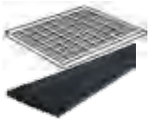
Metalflex

Tear Away Mounting Pads

Cat. No.	Part No.	Nominal Dimensions : mm
1606006	ADG3310K	300 x 300 x 10
1606007	ADG3315K	300 x 300 x 15

Propipe

Waffle Pad



Cat. No.	Nominal Dimensions : mm
1609591	450 x 450 x 10
1609590	50 x 50 x 10

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Air Filtration

Filtratech

Disposable Filters

Cat. No.	Model No.	Size : mm			Capacity : L/s			Pressure Loss : Pa			Performance Rating
		Height	Width	Depth	Low	Medium	High	Low	Medium	High	
1602541	14x20x1	356	495	22	274	458	581	50	87		G4
1602543	15x20x1	368			293	490	601				
1602552	16x20x1	394			313	523	643				
1602553	20x20x1	495			392	655	808				
1602554	12x24x1	293	595		282	472	575				
1602555	20x24x1	495			471	787	971				
1602556	24x24x1	595			565	945	1168				
1602542	14x25x1	356	622		343	574	730				
1602544	16x25x1	394			392	655	808				
1602557	20x25x1	495			490	819	1016				
1602550	10x20x2	248	495	48	156	254	323	32	65	90	
1602551	12x12x2	293	293		137	223	283				
1602547	12x20x2	293	495		236	394	492				
1602558	14x20x2	356			274	458	572				
1602538	15x20x2	368									
1602559	16x20x2	394			313	523	654				
1602546	18x20x2	445			353	589	736				
1602560	20x20x2	495			392	655	818				
1602561	12x24x2	293	595		282	472	589				
1602539	14x24x2	356			338	550	700				
1602545	16x24x2	394			375	610	773				
1602562	18x24x2	445			423	708	883				
1602563	20x24x2	495			471	787	982				
1602564	24x24x2	595			565	945	1179				
1602540	14x25x2	356	622		354	575	730				
1602565	16x25x2	394			392	655	818				
1602566	20x25x2	495			490	819	1022				
1602548	20x30x2	495			588	983	1229				
1602567	16x20x4	394	495	98	313	523	654	30	50	75	
1602568	18x20x4	445			353	589	736				
1602569	20x20x4	495			392	655	818				
1602570	12x24x4	293	595		282	472	589				
1602571	18x24x4	445			423	708	883				
1602572	20x24x4	495			471	787	982				
1602573	24x24x4	595			565	945	1179				
1602574	16x25x4	394	622		392	655	818				
1602575	20x25x4	495			490	819	1022				

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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
1609558	SPACEPEAK664	Four Pyramid Bag Filter	610 x 610 x 380	F5
1609559	SPACEPEAK634	Two Pyramid Bag Filter	610 x 305 x 380	F5

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
1609560	SPACEPAK663W	Three Pocket Bag Filter with Wire	610 x 610 x 570	F5
1609561	SPACEPAK632W	Two Pocket Bag Filter with Wire	610 x 305 x 570	F5

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
1609562	SPACECUBE66	Cube Style Bag Filter	610 x 610 x 600	F5
1609563	SPACECUBE63	Cube Style Bag Filter	610 x 305 x 600	F5

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
1609564	SPACECONE66	Cone Style Bag Filter	610 x 610 x 660	F5
1609565	SPACECONE63	Cone Style Bag Filter	610 x 305 x 660	F5

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
1609566	PAP665S4422	Multi-Pocket Bag Filter	610 x 610 x 559	6	F6
1609567	PAP365S2422	Multi-Pocket Bag Filter	610 x 305 x 559	3	F6
1609568	PAP685S4422	Multi-Pocket Bag Filter	610 x 610 x 559	6	F7
1609569	PAP385S2422	Multi-Pocket Bag Filter	610 x 305 x 559	3	F7
1609570	PAP895S4422	Multi-Pocket Bag Filter	610 x 610 x 559	8	F8
1609571	PAP495S2422	Multi-Pocket Bag Filter	610 x 305 x 559	4	F8

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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 feet ■ metres	25.4 0.3048
Area	$inch^2$ ■ mm^2 ft^2 ■ m^2	645.16 0.0929
Volume	$inch^3$ ■ mm^3 ft^3 ■ m^3	16387 0.0283
Volume (Liquid)	gall (Imp) ■ gall US gall (Imp) ■ l gall (US) ■ l	1.20095 4.5456 3.785
Volume (Flow Rate) Liquid	gall/min (Imp) ■ l/sec gall/min (Imp) ■ l/min gall/min (Imp) ■ l/hour gall/min (US) ■ l/sec gall/min (US) ■ l/min gall/min (US) ■ l/hour	0.07575 4.5456 272.736 0.06308 3.785 227.1
Volume (Flow Rate) Air	cfm ■ l/sec cfm ■ l/min cfm ■ m^3/min cfm ■ m^3/hour m^3/hour ■ l/sec	0.472 28.32 42.372 1.6992 0.2778
Power	HP ■ Watts HP ■ kW	746 0.746

Measurement	Units	Factor
Heat Flow	BTU/hr ■ Watts Tons (Refrig) ■ BTU/hr Tons (Refrig) ■ kW kcal/hr ■ Watts kcal/hr ■ Tons (Refrig)	0.29307 12000 3.517 1.163 0.000331
Pressure	psi ■ kPa psi ■ mPa psi ■ bar psi ■ Atmos. In. Wg ■ Pa In. Wg ■ kPa Atmos. ■ kPa in. Hg ■ Pa in. Hg ■ kPa In. Hg ■ bar kg/cm2 ■ psi kg/cm2 ■ kPa	6.895 0.006895 0.06895 0.06895 248.6 0.249 101.325 3386 3.386 0.034 14.22 98.07
Velocity	ft/sec ■ km/hr ft/sec ■ m/sec ft/min ■ m/sec	1.609 0.3048 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	5.787×10^{-4}	Cubic Feet
Cubic Inches	1.639×10^{-5}	Cubic Metres
Cubic Inches	2.143×10^{-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	1.286×10^{-3}	British Thermal Units
Foot-pounds	5.050×10^{-7}	Horsepower-hrs
Foot-pounds	3.241×10^{-4}	Kilogram-calories
Foot-pounds	0.138	Kilogram-metres
Foot-pounds	3.766×10^{-7}	Kilowatt-hrs
Foot-pounds/sec.	7.717×10^{-2}	B.T. Units/min.
Foot-pounds/sec.	1.818×10^{-3}	Horsepower
Foot-pounds/sec.	1.945×10^{-2}	kg-calories/min.
Foot-pounds/sec.	1.356×10^{-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

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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 x 10-4	kgs/sq. cm
Pounds/sq. foot	6.945 x 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	0.0332396	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. H_2O 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 H_2O	0.036	0.0025	0.833	1	0.0025	0.025	0.074	1.871	0.187	0.0025	2.486	0.249
kg/cm^2	14.233	0.968	32.867	394.408	1	10.018	29.054	737.959	73.796	0.981	980.662	98.066
Metres H_2O	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
0.010	0.2540	0.590	14.9860
0.020	0.5080	0.600	15.2400
0.030	0.7620	0.610	15.4940
0.040	1.0160	0.620	15.7480
0.050	1.2700	0.630	16.0020
0.060	1.5240	0.640	16.2560
0.070	1.7780	0.650	16.5100
0.080	2.0320	0.660	16.7640
0.090	2.2860	0.670	17.0180
0.100	2.5400	0.680	17.2720
0.110	2.7940	0.690	17.5260
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
0.200	5.0800	0.770	19.5580
0.210	5.3340	0.780	19.8120
0.220	5.5880	0.790	20.0660
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
0.300	7.6200	0.850	21.5900
0.310	7.8740	0.860	21.8440
0.320	8.1280	0.870	22.0980
0.330	8.3820	0.880	22.3520
0.360	9.1440	0.890	22.6060
0.370	9.3980	0.900	22.8600
0.380	9.6520	0.910	23.1140
0.390	9.9060	0.920	23.3680
0.400	10.1600	0.930	23.6220
0.410	10.4140	0.940	23.8760
0.420	10.6680	0.950	24.1300
0.430	10.9220	0.960	24.3840
0.440	11.1760	0.970	24.6380
0.450	11.4300	0.980	24.8920
0.460	11.6840	0.990	25.1460
0.470	11.9380	1.000	25.4000
0.480	12.1920		
0.490	12.4460		

Fractions to Decimals to Millimetres					
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
3/32	0.0938	2.3812	19/32	0.5938	15.0812
7/64	0.1094	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
19/64	0.2969	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
11/32	0.3438	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
1/2	0.5000	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.

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Design Temperature/Pressure

The Australian/New Zealand Standards include minimum recommended design pressures (PS) for all pipe work, fittings and components use in fixed refrigeration and air conditioning systems. This covers all fixed systems other than automotive air conditioning. The design pressures are based on the saturated pressure of the refrigerant at the temperature listed in the table below at the design ambient temperature for the location in which the system is to operate. When evaporators can be subject to high pressure, e.g. during hot gas defrosting or reverse cycle operation, the high pressure side specified temperature shall be used.

Ambient Conditions	≤ 32 °C	≤ 38 °C	≤ 43 °C	≤ 55 °C
High pressure side with air cooled condenser	55 °C	59 °C	63 °C	67 °C
High pressure side with water cooled condenser and water heat pump	Maximum leaving temperature +8K			
High pressure side with evaporative condenser	43 °C	43 °C	43 °C	55 °C
Low pressure side with heat exchanger exposed to the outdoor ambient temperature	32 °C	38 °C	43 °C	55 °C
Low pressure side with heat exchanger exposed to the indoor ambient temperature	27 °C	33 °C	38 °C	38 °C

Specified design temperatures (Method 2) as per AS/NZS 1677.2:2016

Minimum design temperature as per AS/NZS 5149.2:2016

It is advisable to reference AS/NZS 5149.2:2016 for more complete information.

The pressure listed in the chart below represent the saturated pressure of each refrigerant and therefore the required minimum design pressure for the pipe work and components in that part of a refrigeration or air conditioning system.

Design High Side Pressure	55°C	59°C	63°C	67°C
R134a	1391	1542	1704	1880
R404A	2485	2723	2977	3252
R427A	2279	2498	2732	2981
R410A	3339	2659	4002	4370

When selecting components for use in a refrigeration or air conditioning systems care should be taken to ensure the maximum design pressure of the component selected is suitable for the 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 refrigerants.

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	11/8 - 14	33.3	36.0	68 - 81	n/a	n/a
7/8	11/4 - 12	41.0	41.0	n/a	n/a	n/a

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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	1309	190	3262	473	3254	472	54
56	2688	390	2564	372	2436	353	2199	319	2680	389	2454	356	2352	341	2340	339	1615	234	1379	200	3416	495	3408	494	56
58	2813	408	2690	390	2550	370	2311	335	2805	407	2577	374	2461	357	2449	355	1692	245	1451	210	3576	519	3568	517	58
60	2942	427	2821	409	2668	387	2427	352	2933	425	2706	392	2574	373	2562	372	1772	257	1526	221	3741	543	3734	541	60
62	3075	446	2957	429	2790	405	2548	370	3066	445	2839	412	2691	390	2678	388	1854	269	1604	233	3913	567	3905	566	62
64	3213	466	3098	449	2916	423	2674	388	3204	465	2978	432	2811	408	2799	406	1939	281	1684	244	4090	593	4083	592	64
66	3355	487	3246	471	3046	442	2805	407	3345	485	3121	453	2936	426	2923	424	2027	294	1768	256	4274	620	4268	619	66
68	3502	508	3400	493	3180	461	2940	426	3491	506	3271	474	3064	444	3052	443	2117	307	1854	269	4465	648	4461	647	68
70	3654	530	3561	517	3318	481	3081	447	3642	528	3427	497	3197	464	3185	462	2210	321	1943	282	4663	676	4660	676	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

	R413A				R417A				R427A				R438A (MO99)				R507				R717		R744		
	BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		BUBBLE		DEW		(Ammonia)		(CO^2)		
°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	-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) (CO2=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

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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).

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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 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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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	11/8	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	2 1/8	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	11/8	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	13/8	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	13/8	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	11/8	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	13/8	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	13/8	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

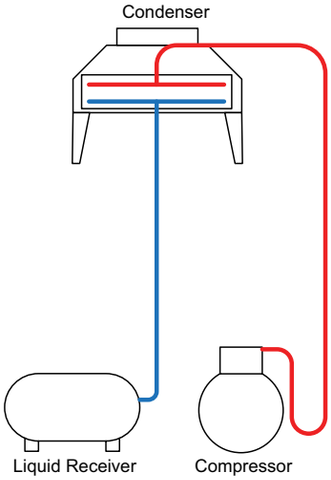
Good refrigeration line design and line sizing is essential to ensure refrigeration systems operate reliably and efficiently.
The designer must satisfy the following:

Discharge Line

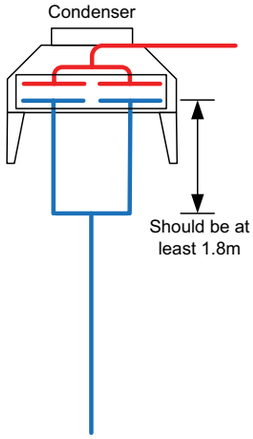
- Minimise pressure losses in the line
- Horizontal lines should be pitched in the direction of flow at 12mm every 3m
- Avoid oil being trapped during times of low load
- Prevent back flow of liquid refrigerant or oil to the compressor at times of low load or shut down.
- Minimise transmission of compressor vibration and dampen vapour pulsations and noise in the line.

Condenser to Receiver Liquid Drain Line

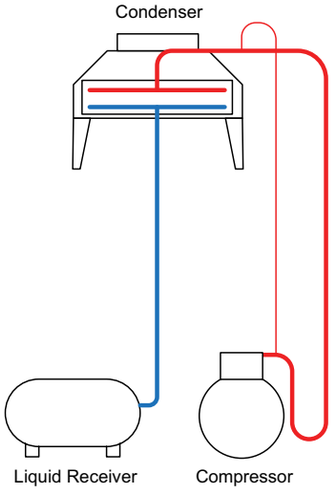
- Allow liquid to freely drain to liquid receiver while providing vapour pressure to equalize in the other direction



Single Riser Discharge Line



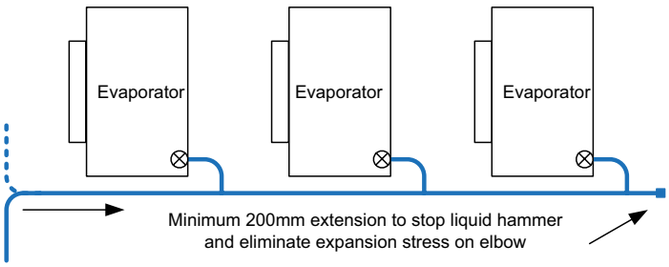
Discharge and Liquid Drain Lines for Double Circuited Condenser



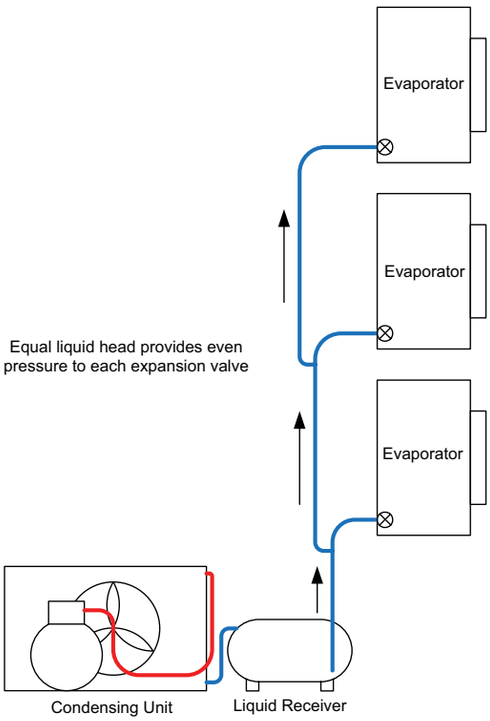
Double Riser Discharge Line

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



Liquid Line to Horizontal Evaporators



Liquid Line to Vertically Stacked Evaporators

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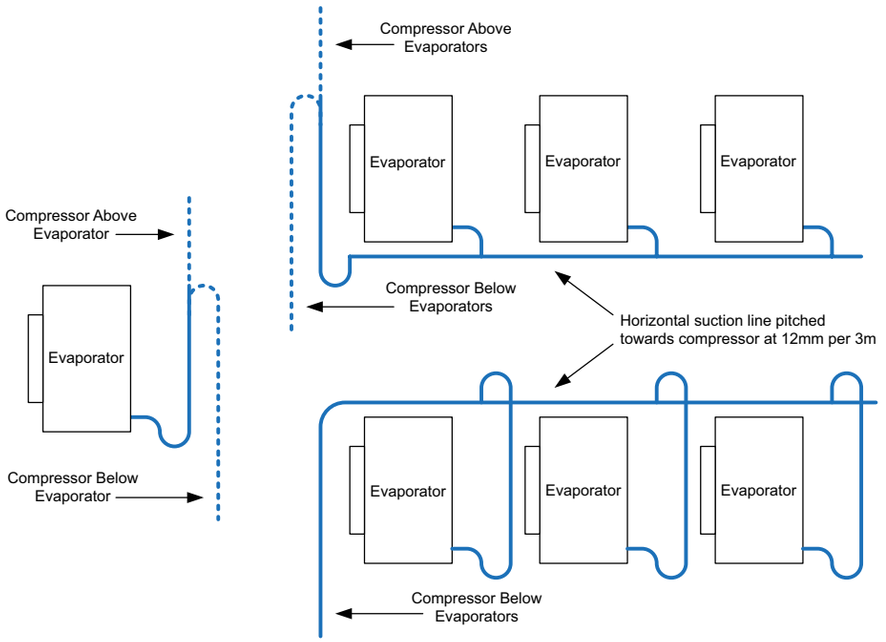
Refrigerant Line Design

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

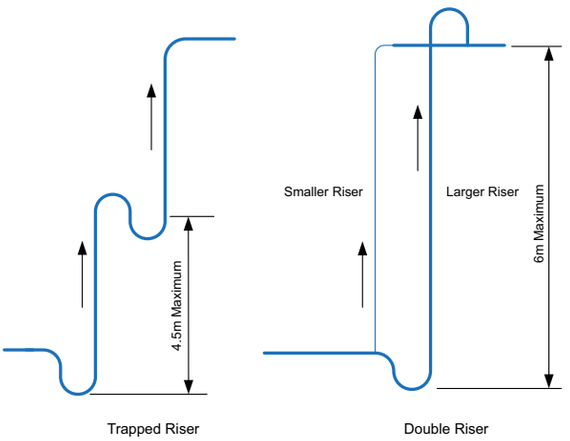
The trapped riser is used in systems with minimal capacity control. The trapped riser is used in vapour lines, both suction and discharge to ensure the oil is carried with the refrigerant vapour up the riser.

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.



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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				
						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	1/4 " x 24	0.091	30m Coil	0	7069	6656	6350	6130	5971
6.35	0.71	1/4 " x 22	0.112	30m Coil	0	9175	8638	8242	7955	7749
6.35	0.91	1/4 " x 20	0.139	30m Coil	0	12142	11431	10907	10528	10256
6.35	1.22	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	3/8 " x 24	0.141	18m Coil	0	4579	4311	4113	3970	3867
9.53	0.71	3/8 " x 22	0.176	18m Coil	0	5893	5548	5294	5110	4978
9.53	0.91	3/8 " x 20	0.220	18m Coil	0	7710	7258	6925	6685	6512
12.70	0.56	1/2 " x 24	0.191	18m Coil	0	3389	3190	3044	2938	2862
12.70	0.71	1/2 " x 22	0.239	18m Coil	0	4344	4090	3903	3767	3669
12.70	0.81	1/2 " x 21	0.270	18m Coil	0	4994	4701	4486	4330	4218
12.70	0.91	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	3/4 " x 22	0.366	18m Coil	0	2846	2679	2557	2468	2404
19.05	0.91	3/4 " x 20	0.464	18m Coil	0	3684	3468	3309	3194	3111
19.05	1.14	3/4 " 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	1/4 " x 21	0.126	20m Coil	0	10635	10012	9553	9221	8982
9.52	0.81	3/8 " x 21	0.198			6800	6402	6108	5896	5743
6.35	0.81	1/4 " x 21	0.126			10635	10012	9553	9221	8982
12.70	0.81	1/2 " x 21	0.270			4994	4701	4486	4330	4218
6.35	0.81	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	3/8 " 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	3/8 " x 21	0.198			6800	6402	6108	5896	5743
19.05	1.22	3/4 " x 18	0.611			5015	4722	4505	4349	4236
12.70	0.81	1/2 " x 21	0.270			4994	4701	4486	4330	4218
19.05	1.22	3/4 " 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	4.63	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 formula:

$$P_{sw} = \frac{2000 \times S_D \times t_m}{D - tm}$$

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)

Courtesy of Crane Enfield Metals Pty Ltd

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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.

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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

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

*Outside of normal limits for single stage compression application.

Condenser Capacity (THR) = Compressor Capacity x 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 x 1.27 = 49022 Watts THR

- Divide required THR by the specified temperature difference (KTD) between condensing temperature and the ambient air,

50° – 35°C = 15 K TD. $\frac{\text{49022 Watts}}{\text{15 K TD}}$ THR = 3268 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.

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Motor Types
L'Unite Hermetique

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

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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	13	85 to 95	3.35	1.78	250	-0.8	2 to 3 weeks	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	95	-	9 to 12 months	23
Figs– 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
Prunes – Dried	0 to 4	55 to 60	2.56	1.19	108	-	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

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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				
Vegetables								
Artichokes – Globe	0	95 to 100	3.65	1.89	280	-1.2	2 weeks	84
Artichokes – 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	
Beetroot – 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
Carrots – 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
Peas – 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
Peppers – Dry, Chilli	0 to 10	60 to 70	1.24	0.99			6 months	12
Potatoes – Culinary	7	90 to 95	3.45	1.81	260	-0.7		78
Potatoes – 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
Squash – 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
Tomatoes– 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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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				
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
Oleomargerine	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

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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

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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

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Coolroom Design Data

Heat Load Tables

2ºC 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 m^3	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

-18ºC 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 m^3	Storage Only – No Product Freezing	Heat Load - Watts		
				Product Freezing Load Per Day (Product Entering at 5°C)		
Height = 2.4						
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.

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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° – 4°). 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.

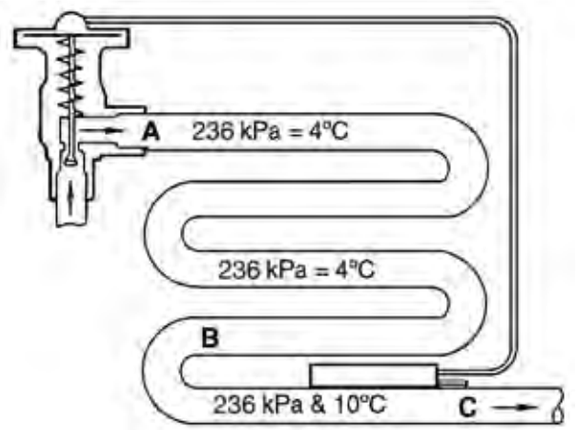
Good superheat control is the criterion of T.X. valve performance. It is important that this function be measured as accurately as possible, or in the absence of accuracy, to be aware of the magnitude and direction of whatever error is present.

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



Thermostatic Expansion Valve with internal equaliser on evaporator with no pressure drop

for all practical purposes.
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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Trouble Shooting Tips - A list of Do's and Don'ts 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 geater 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.

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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

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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 1 atmosphere	101.325 1 atmosphere	760000 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

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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 at 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

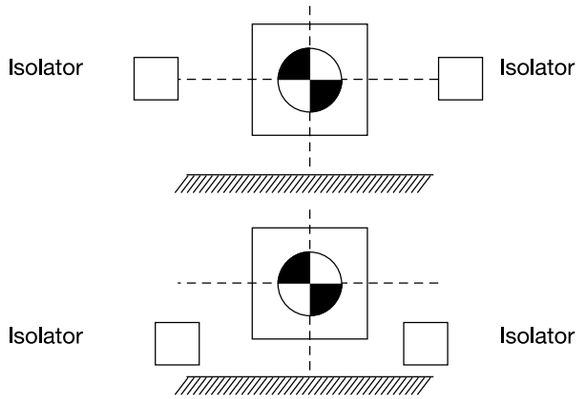
Selection Principles:

Temperature

Extremes of temperature can affect the service life of rubber isolators. Generally, operating temperature should not exceed 60ºC but occasional temperatures of up to 80ºC can be accommodated.

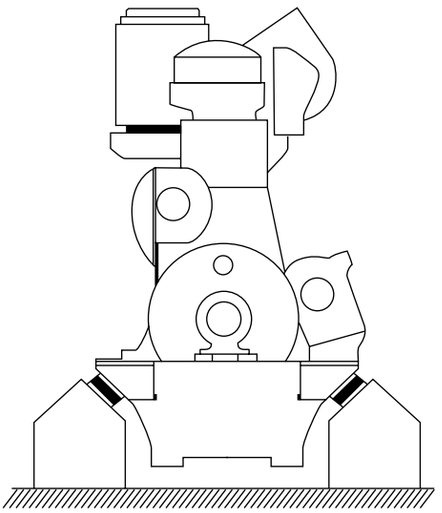
Protection

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.



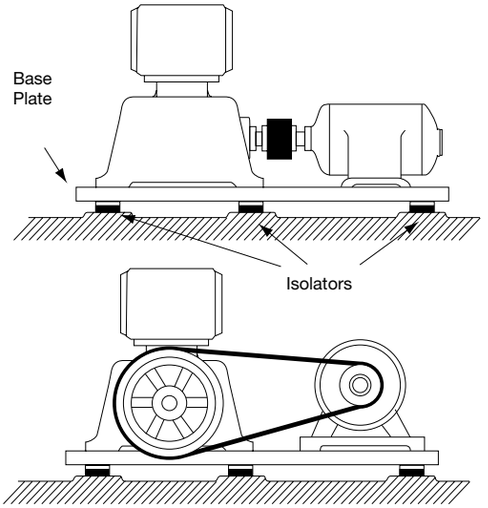
Mount Positioning

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.



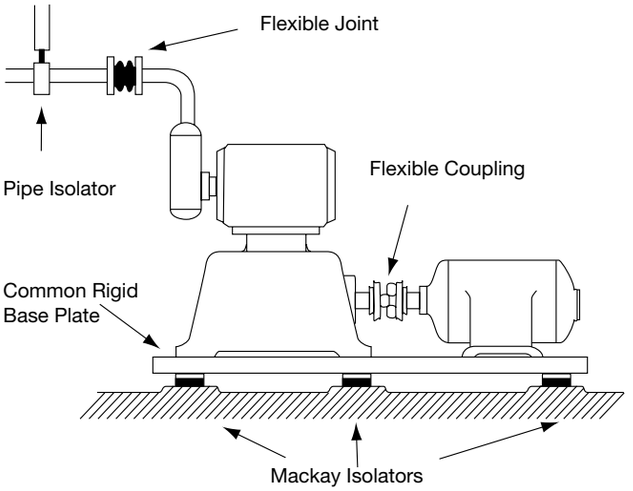
Stability

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.

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Noise and Vibration

Low Frequency Selection

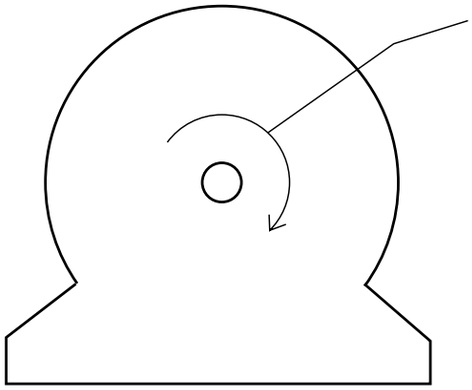
When frequencies under 15Hz are encountered or when there are HEAVY impact loads imposed on the isolator, consult with Mackay's technical division for advice. For normal purposes, the disturbing frequency can be considered as the revolutions per second of the offending item:

i.e. $\frac{\text{R.P.M}}{60}$

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

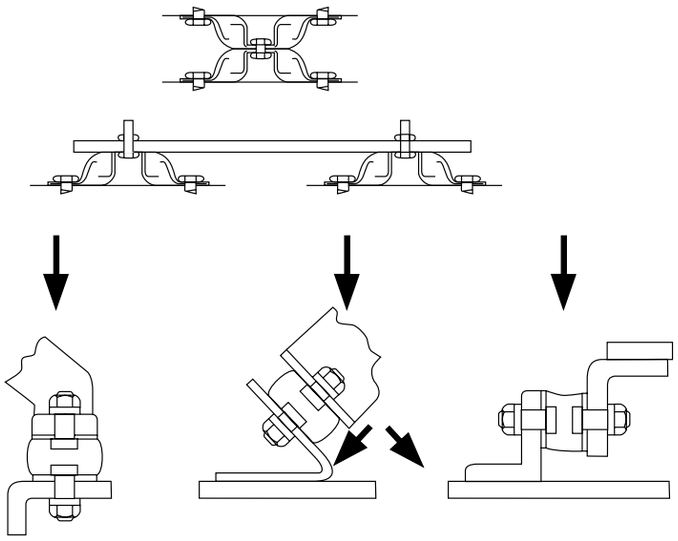


$$= \frac{\text{RPM}}{60} \text{ Hz}$$

$$\frac{2500}{60} \times 2 = 83\text{Hz}$$

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.



COMPRESSION SHEAR & COMPRESSION SHEAR

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:

$$\frac{\text{Rated Deflection x Actual Load}}{\text{Rated Load}}$$

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 he 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.

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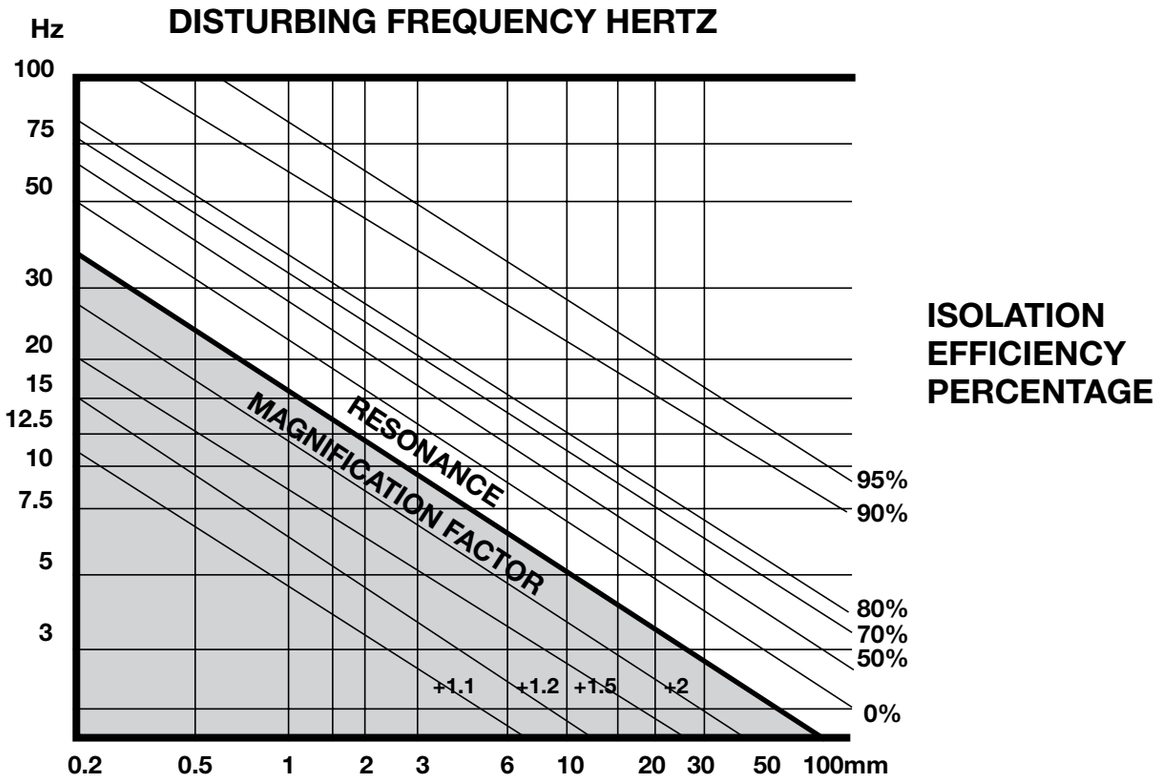
Noise and Vibration



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 8kW to 38kW More than 38kW	70% 75% 80%	90% 94% 96%
Centrifugal Compressors		94%	99.5%
Centrifugal Fans	Up to 4kW 4kW to 18kW More than 18kW	70% 80% 90%	94% 96% 98%
Fan Coil Units	Hung Supported	80% 90%	90% 96%
Pipes	Hung	70%	90%
Pumps	Up to 2 kW 2kW to 4kW More than 4kW	70% 80% 90%	94% 96% 98%
Reciprocating Compressors	Up to 8kW 8kW to 38kW More than 38kW	70% 80% 90%	94% 96% 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 Pnematic 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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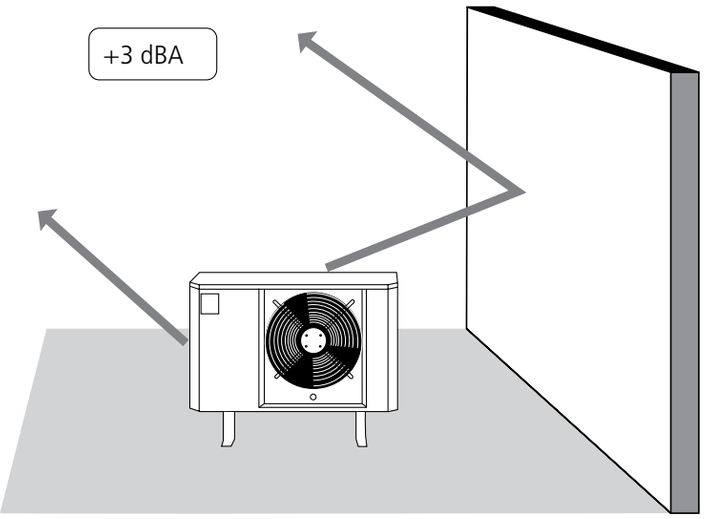
Noise and Vibration

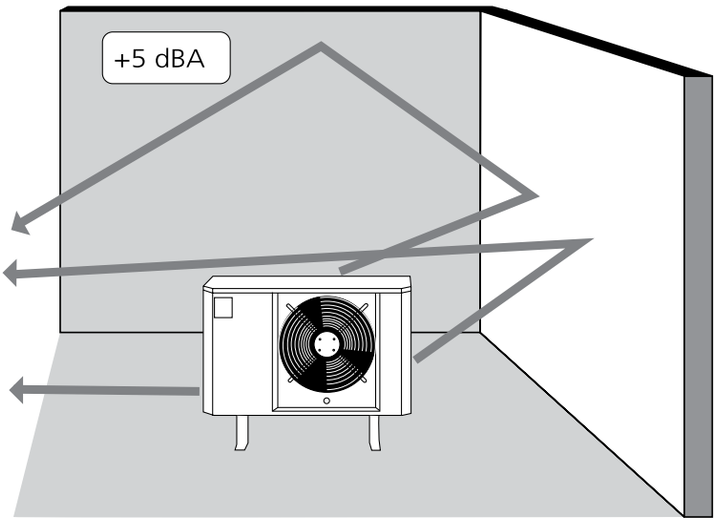
Sound Pressure Level and Reflective Surfaces

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.

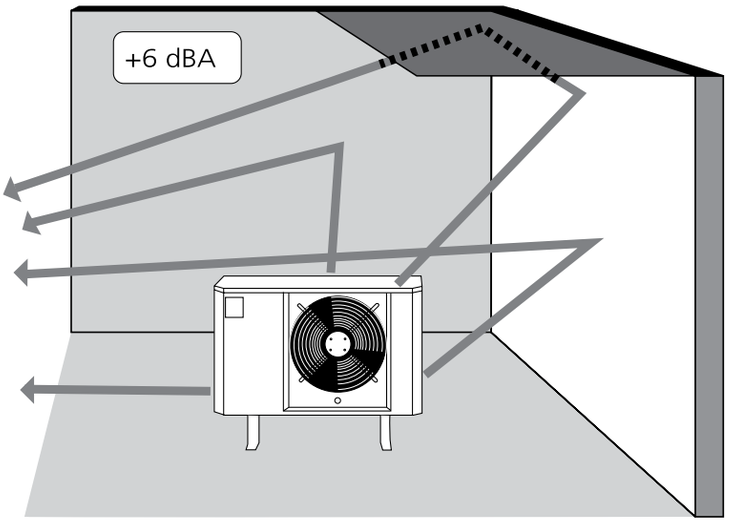
+3 dBA if unit is within 3 metres of 1 wall/ceiling



+5 dBA if unit is within 3 metres of 2 walls/ceiling



+6 dBA if unit is within 3 metres of 3 walls/ceiling



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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 noiser 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 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.

Vibration

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Noise and Vibration

Barriers

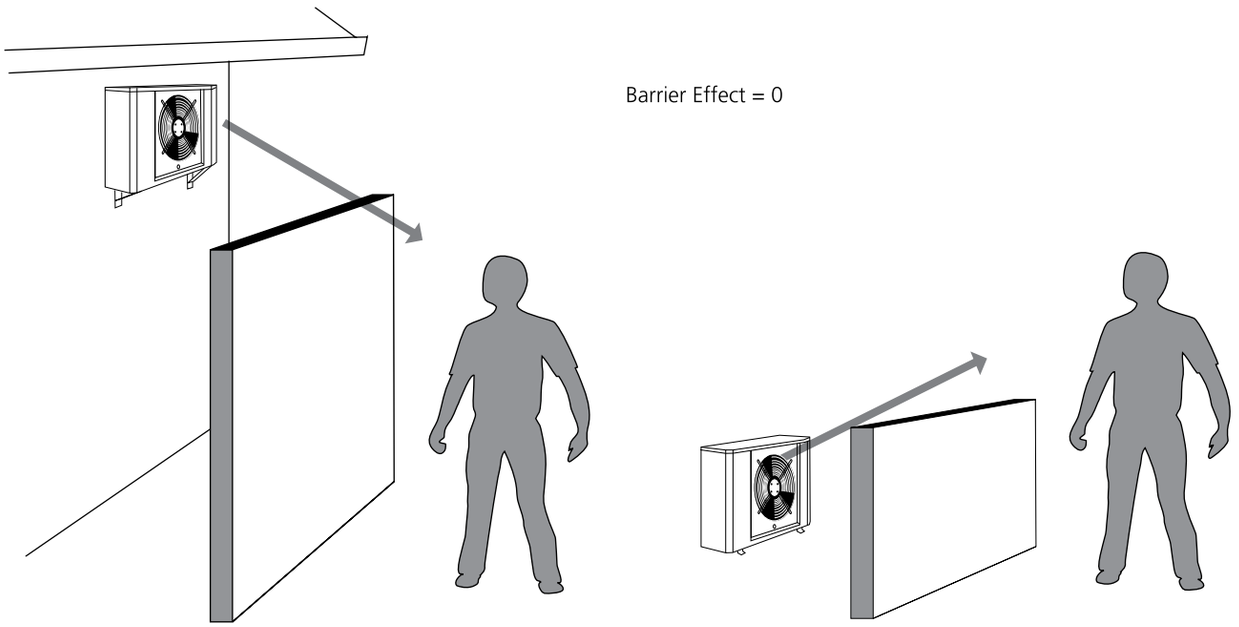
Barriers can be an effective method for reducing noise, however, the barrier must be a solid material with no gaps or penetrations. The material should have a surface density of not less than 5 kg/m.

Effective Barriers

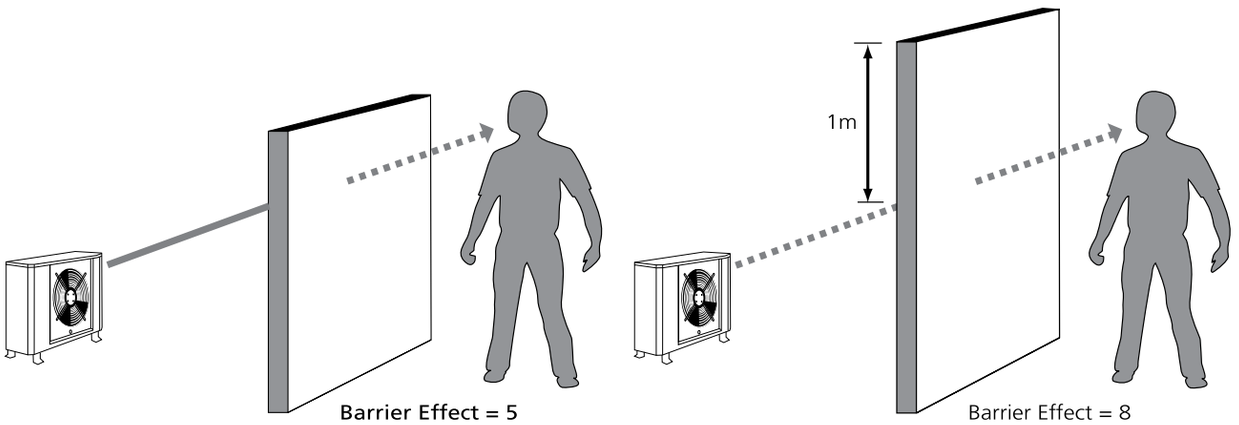
- Solid timber fence (e.g. double lapped fence)
- Solid masonry fence (brick, concrete block, aerated concrete)
- Solid colourbond, sheetmetal, or corrugated iron fence
- Other solid material (e.g. plywood, cement sheet, particleboard)

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	
Shortest straight line distance from Unit to Receiver position: m	**Distance factor**
1	8
2	14
3	17
4	20
5	22
6	23
7	25
8	26
10	28

Column 2	
Barrier	**Barrier Effect**
Ineffective Barrier	0
Effective Barrier	
Line of sight to unit not blocked	0
Blocks line of sight to unit	5
High barrier blocks line of sight of unit by more than 1m	8

Column 3	
Reflection	**Reflection Factor**
No reflecting surfaces within 3m	0
One reflecting surface within 3m (one wall)	3
Two reflecting surfaces within 3m (two walls)	5
Three reflecting surfaces within 3m (two walls and large eaves)	6
	6

_____ - _____ - _____ + _____

SWL — Distance factor — Barrier Effect — Reflection Factor

= Resultant Sound Pressure Level (SPL) _____

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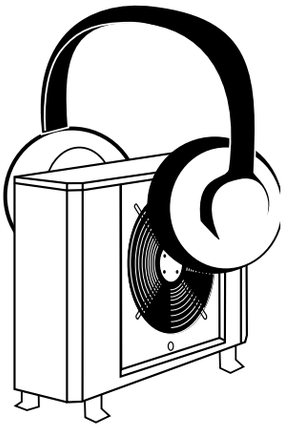
Noise and Vibration

Do's and Don'ts

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.

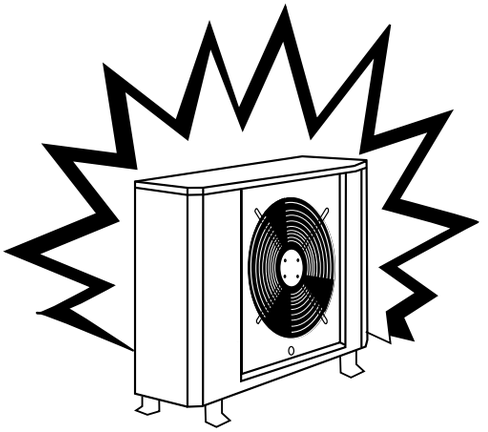
DO

Use the quietest unit to begin with - it may be the difference between an acceptable or unacceptable noise level for a given location.



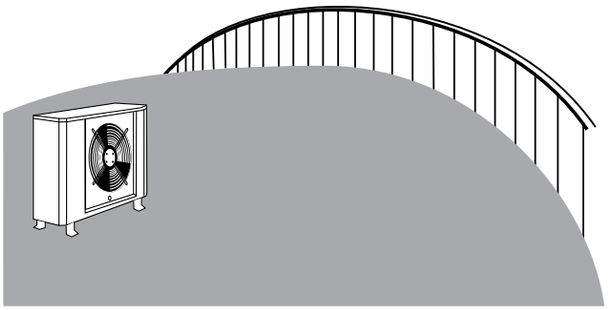
DON'T

Don't necessarily use the cheapest unit - it may be the noisiest - check the SWL.



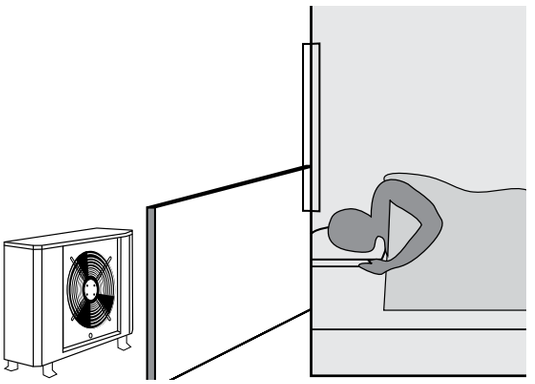
DO

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.



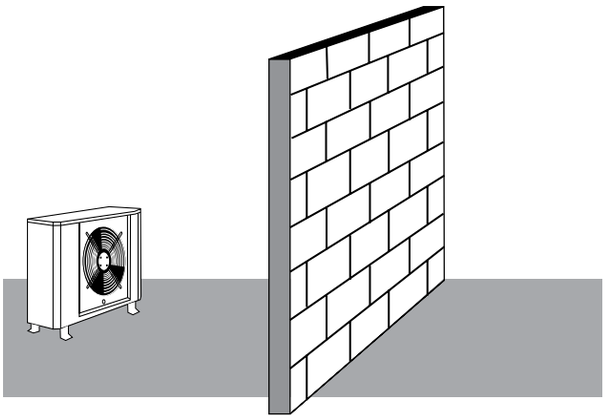
DON'T

Don't install the unit near a boundary, especially if it is near a window or worst of all - near a bedroom window!



DO

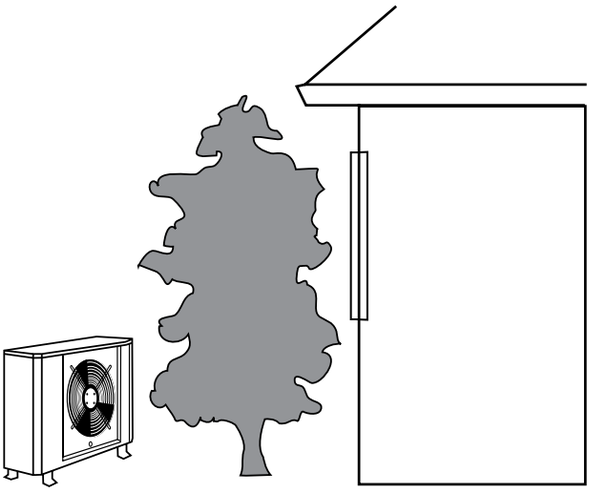
Make sure that any fences or barriers are Effective Barriers, with no holes, gaps or missing planks.



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



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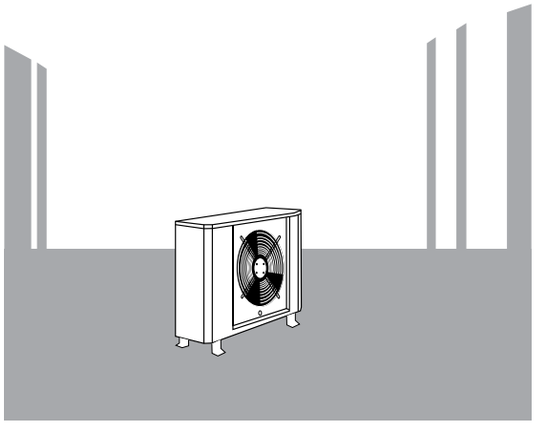
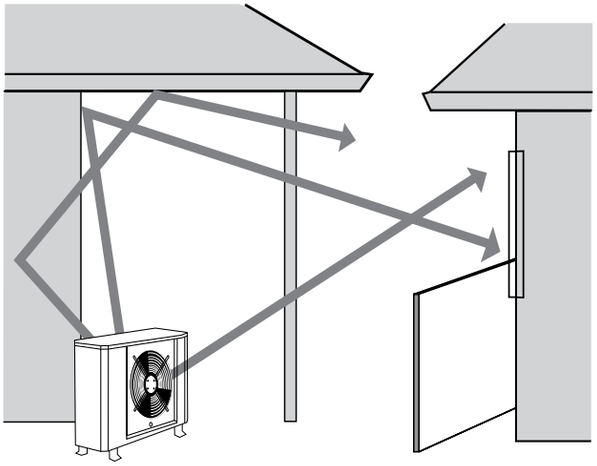
Noise and Vibration

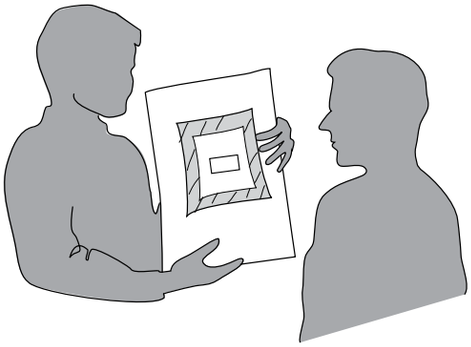
DO
Try and locate the unit away from any reflecting surfaces.



DON'T
Don't place the unit near corners or in very reverberant spaces such as carports or alcoves.



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 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 cratches 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 "plinger" 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.

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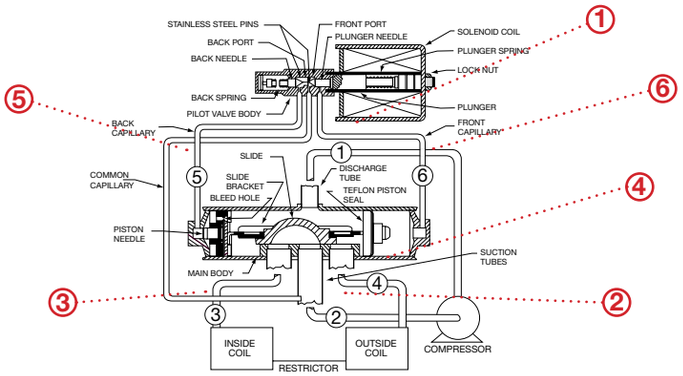
Touch Test Chart



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	Possible Causes	Corrections
	1	2	3	4	5	6		
Normal Operation of Valve								
Normal Cooling	Hot	Cool	Cool as (2)	Hot at (1)	*TVB	*TVB		
Normal Heating			Hot as (1)	Cool at (2)				
Malfunction of Valve								
Valve will not shift from Cool to Heat	Check electrical circuit 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
							Piston cup leak	Stop unit. After pressures equalise, restart with solenoid energized. If valve shifts, re-attempt with compressor running. If still no shift, replace valve
						*TVB	Clogged pilot tubes	Raise head pressure, operate solenoid to free. If still no shift, replace valve
					Hot	Hot	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	Check unit for correct operating pressures and charge. Raise head pressure. If no shift, use valve with smaller ports
							Body damage	Replace valve
					Hot		Both ports of Pilot open	Raise head pressure, operate solenoid. If no shift, replace valve
		Hot	Hot	Hot	*TVB		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.
					Hot		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 excessive leak, replace valve.
Will not shift from heat to cool	Hot	Cool	Hot as (1)	Cool as (2)	*TVB	*TVB	Pressure differential too high	Stop unit. Will reverse during equalization period. Recheck system.
							Clogged Pilot tube	Raise head pressure, operate solenoid to free dirt. If still no shift, replace valve.
					Hot		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	Defective Pilot	Replace Valve
	Warm		Warm as (1)		Warm	*TVB	Defective Compressor	

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.

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

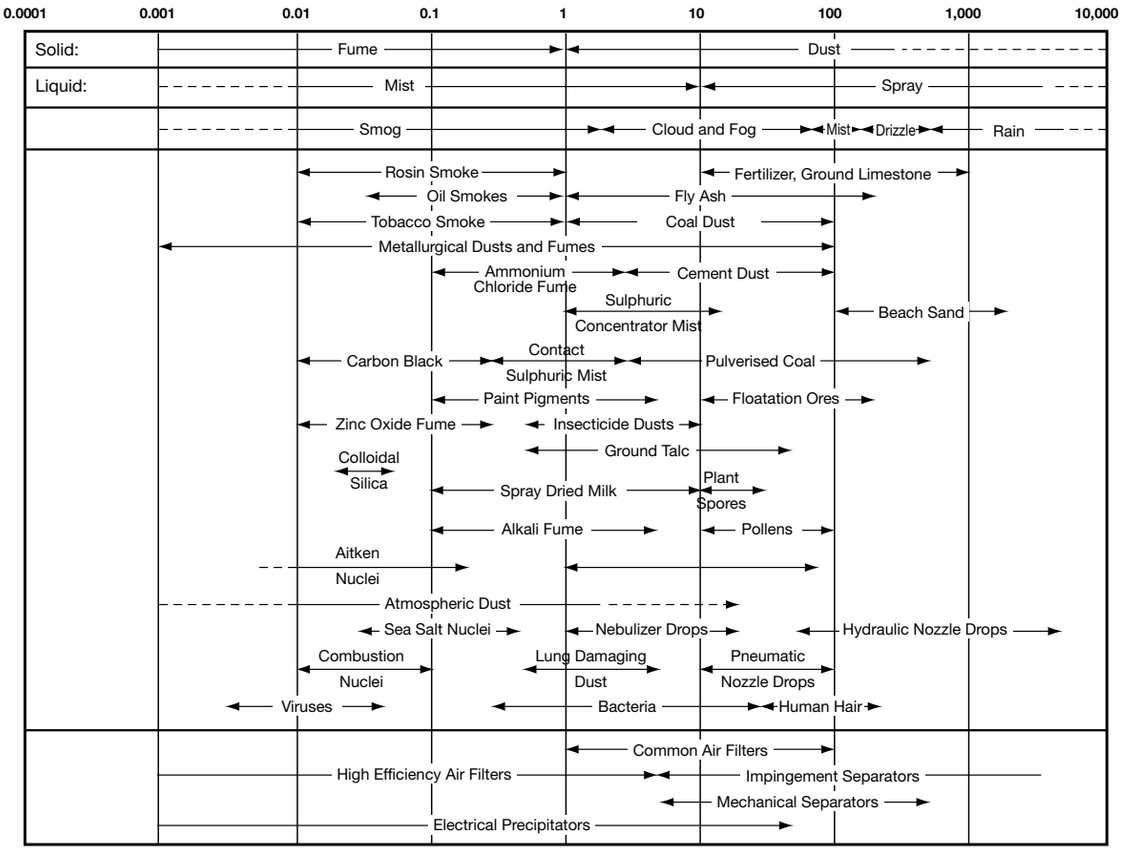
Health effects resulting from poor indoor air quality vary with individual cases, however minimising the levels of airborne particulates will minimise the risk to health. Some well known ailments exacerbated by poor air quality include itchy and watery eyes, sneezing, itchy throat, wheezing, asthma, 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 ≤ A < 80		
G3	80 ≤ A < 90		
G4	90 ≤ A		
F5		40 ≤ E < 60	450
F6		60 ≤ E < 80	
F7		80 ≤ E < 90	
F8		90 ≤ E < 95	
F9		90 ≤ 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

Information courtesy of AREMA

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 are 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.

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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.

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Selection of ***Cool Room/Freezer Equipment***

When requesting quotations for coolroom equiment, 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.

*Date: _____ / _____ / _____

*Client: _____ *Phone No: _____

*Contact Name: _____ *Fax No: _____

Address: _____ Email: _____

Account No: _____

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 Useage Heavy ☐ Average ☐ Long ☐ Glazing Type ☐ Double ☐ Triple ☐

Miscelaneous 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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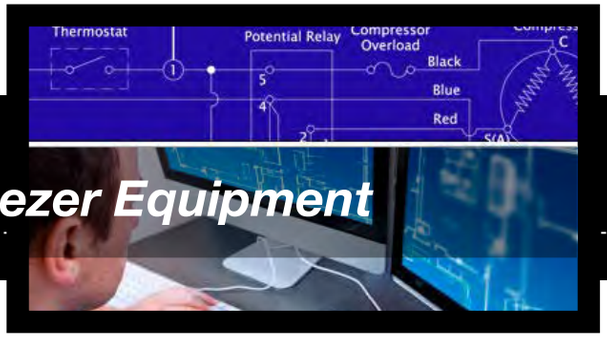
Selection of ***Cool Room/Freezer Equipment***



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 ☐	Other _____
Punchbowl ☐	Buffalo ☐	Cabero ☐	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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