

# KTV 3/4 FLEX Direct Revolving Door

## Assembly and Installation Instructions





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# 1 About this manual

## 1.1 Manual information

### Manual

This manual facilitates the safe and efficient assembly of the KTV 3/4 FLEX Direct revolving door (hereinafter also referred to as the "revolving door"). This manual constitutes a component of the product and must be stored in the immediate vicinity of the product so that it is accessible to personnel at all times.

Before commencing any work, personnel must have carefully read through and understood this manual. Complying with all safety and operating guidelines provided in this manual is the basic prerequisite for safe working. The local accident prevention regulations and general safety conditions for the place where a revolving door is in use also apply.



#### Figures

The illustrations serve to provide a general understanding and may differ from the design of the revolving door that is actually delivered.

### Target group

This manual is intended for the assembly personnel of dormakaba Deutschland GmbH or a company appointed by it to carry out assembly.

### Customer service

Address	dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal Germany
Internet	<a href="http://www.dormakaba.com">www.dormakaba.com</a>

### Copyright

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### Further applicable documentation

In addition to this manual, the following documents are also applicable to the revolving door:

- Door system guide
- Wiring diagram
- Installation diagram
- Test log

In addition, documents provided by dormakaba Deutschland GmbH such as circuit diagrams, overviews of connections, approval certificates, supplier documents, handover certificates, etc. also apply.

## 1.2 Symbols in the documentation

### Safety instructions

In this manual safety instructions are marked by symbols. Safety instructions are introduced by signal words that indicate the extent of the danger.



#### DANGER!

This combination of a symbol and signal word indicates an immediately dangerous situation that could lead to death or serious injury if not avoided.



#### WARNING!

This combination of a symbol and signal word indicates a potentially dangerous situation that could lead to death or serious injury if not avoided.



#### CAUTION!

This combination of a symbol and signal word indicates a potentially dangerous situation that could lead to minor or slight injury if not avoided.



#### NOTE!

This combination of a symbol and signal word indicates a potentially dangerous situation that could lead to property damage if not avoided.



#### ENVIRONMENTAL PROTECTION!

This combination of a symbol and signal word indicates possible dangers to the environment.

### Tips and recommendations




This symbol is used to highlight useful tips and recommendations and information required for efficient, fault-free operation.

Safety instructions in the operating instructions

Safety instructions may relate to certain individual operating instructions. Such safety instructions are embedded in the operating instructions so as not to disrupt the flow of reading when carrying out operations. The signal words described above are used.

For example:

- 1. Loosen screw.
- 2.



**CAUTION!**  
Pinch hazard at the cover!

Close the cover carefully.

- 3. Tighten screws.

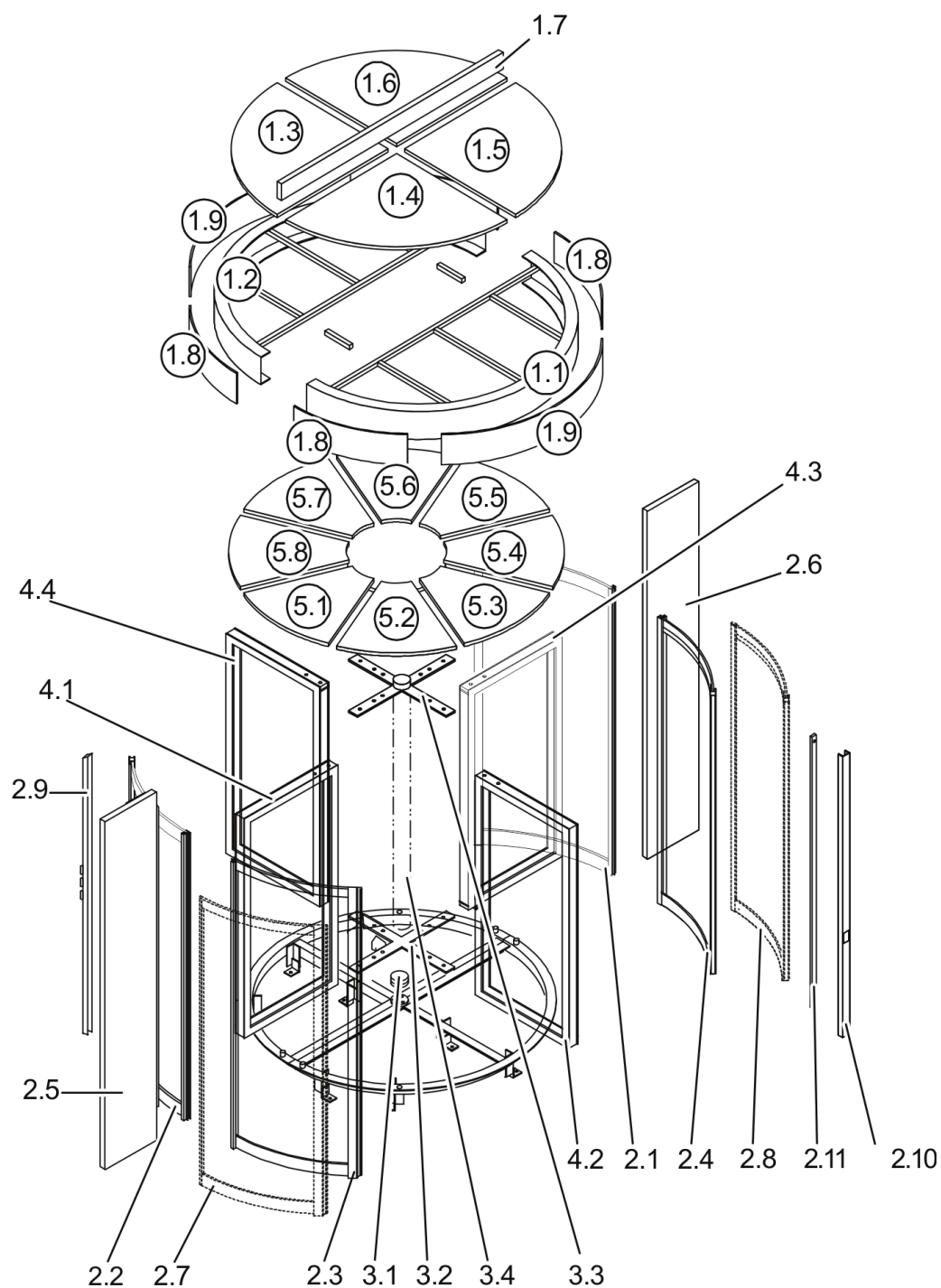
Other markings

In this manual the following markings are used to highlight operation instructions, results, lists, references, and other elements:

Marking	Explanation
1., 2., 3...	Step-by-step operating instructions
»	Results of operation steps
1 About this manual, p. 5	References to sections of this manual and applicable documentation
•	Lists without a defined sequence
Display	Screen elements (e.g. buttons, allocation of function buttons)
►Phase ►Phase	Sequence of the operating phases of the system

## 2 Product description

### Assemblies of the carousel door



**Fig. 1** Assemblies of a carousel door

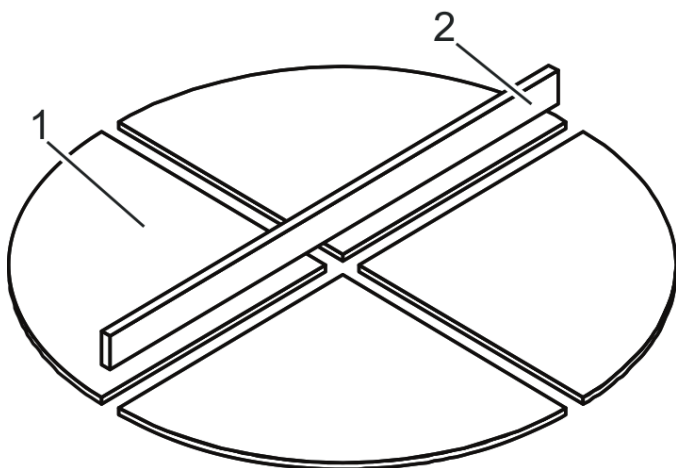
- 1.1-1.2** Ceiling halves
- 1.3-1.6** Upper ceiling
- 1.7** Upper panel for connection to the façade
- 1.8-1.9** Canopy covers
- 2.1-2.4** Drum wall segments
- 2.5-2.6** Side panel for connection to the façade
- 2.7-2.8** Night shield segment\*
- 2.9-2.10** Trailing and leading mullions
- 2.11** Safety bumper\*
- 3.1** Floor bearing

- 3.2-3.3** Cross fittings
- 3.4** Center column
- 4.1-4.4** Wing
- 5.1-5.8** Lower ceiling
- \*Optional

## 2.1 Assembly description

### 2.1.1 Ceiling structure

#### Upper ceiling



**Fig. 2** Upper ceiling

The upper ceiling (Fig. 2) is comprised of four upper ceiling segments (Fig. 2/1). These segments are mounted on the ceiling structure (Ceiling structure, p. 8).

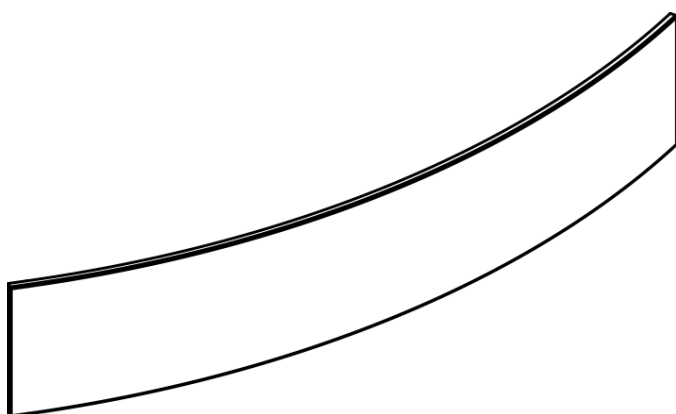
The upper ceiling is available in the options "rain-tight", "not rain-tight", and "prepared for rain-proofing".

A panel for connection to the façade (Fig. 2/2) seals the upper ceiling to the building façade.



The option "prepared for rain-proofing" is prepared by dormakaba and must be completed by a specialized company.

#### Canopy

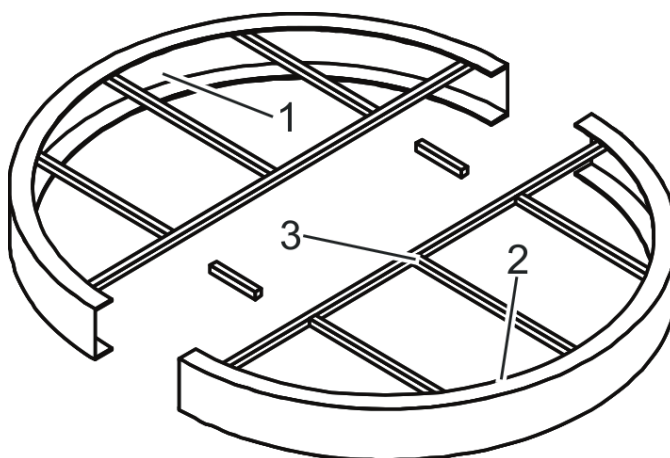


**Fig. 3** Canopy

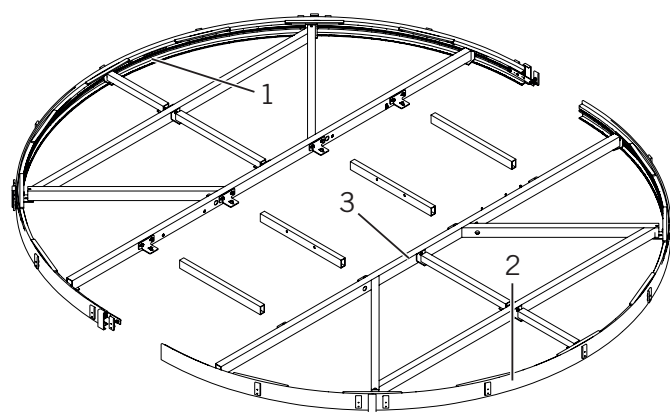
Canopy covers (Fig. 3) seal the outside circumference of the ceiling halves to the building and protect wiring located inside.

For revolving doors with motion sensors, the canopy covers also house the motion sensors.

#### Ceiling structure



**Fig. 4** Standard ceiling structure



**Fig. 5** Ceiling structure with 100 mm canopy height and KT FLEX Direct Operator

The ceiling structure (Fig. 4 and Fig. 5) consists of 2 ceiling halves (Fig. 4/1 + 2 and Fig. 5/1 + 2), that are bolted together.

In addition to holding the lower and upper ceiling segments, the structure also serves as a mount for the operator, controller and power supply unit. The support beams (Fig. 4/3 and Fig. 5/3) of the structure are utilized for routing the electric cables.

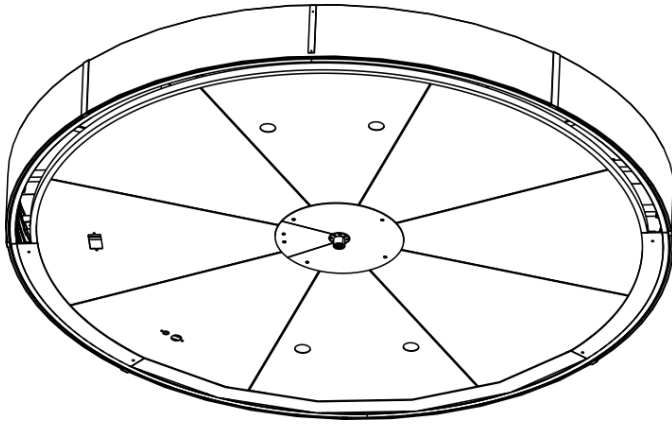
For the ceiling structure with 100 mm canopy height and KT FLEX Direct Operator, pre-assembled cable ducts are used on the carrier (Fig. 5/4) for laying the electrical cables.



The illustrations show the standard ceiling structure in the following.

Differences to the ceiling structure with the 100 mm canopy height and KT FLEX Direct-operator are shown and described accordingly. For a KTV M or a KTV with underfloor drive, the ceiling structure looks the same as shown in Fig. 5.

## Lower ceiling



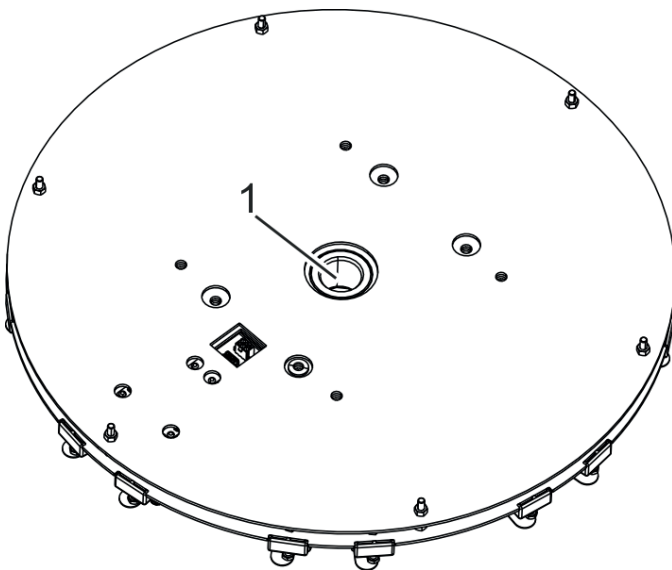
**Fig. 6** Lower ceiling

The underside of the ceiling structure is covered by a lower ceiling (Fig. 6).

The lower ceiling (Fig. 6) consists of eight individual lower ceiling elements. The lower ceiling serves as a screen and protects the installations above it from dirt.

With the optional lighting installation, there are openings in the lower ceiling elements to accommodate ceiling lights.

## Operator



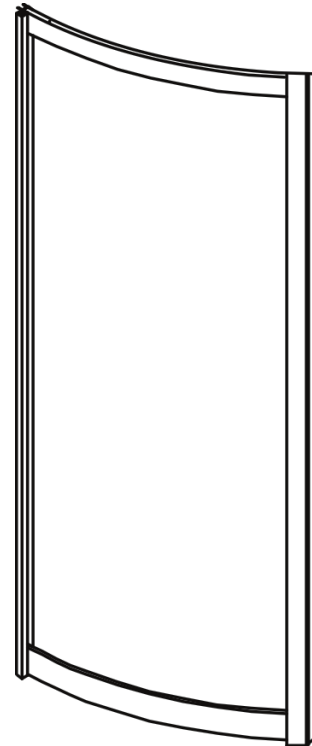
**Fig. 7** Operator

The operator (Fig. 7) is located in the center of the axis over the wings. The recess in the center of the operator (Fig. 7/1) accommodates a toothed shaft. The operator power is transferred to the cross fittings via the toothed shaft.

The operator is a gearless motor. The operator is connected to the controller. In case of power outage, the motor is released and the revolving door can be turned manually.

With a manual revolving door the operator can optionally be used as a speed limiter.

## 2.1.2 Drum wall segments

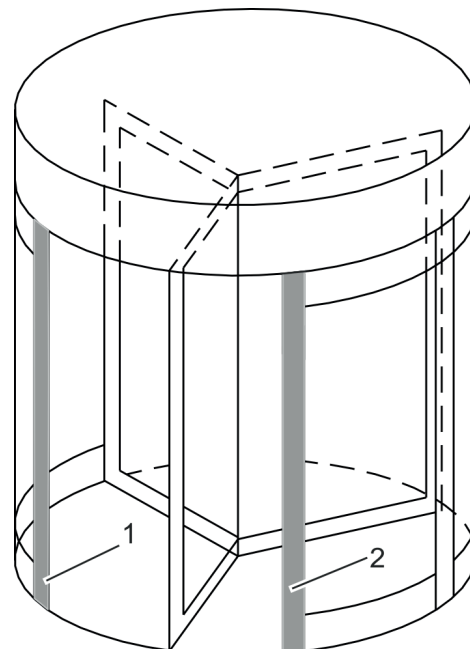


**Fig. 8** Drum wall segment

Drum wall segments (Fig. 8) are mounted in pairs in the middle of the rotation axis of the revolving door and fastened to the floor.

In addition to holding the ceiling structure, the drum wall segments also hold the side façade connection panels.

## 2.1.3 Leading and trailing mullions

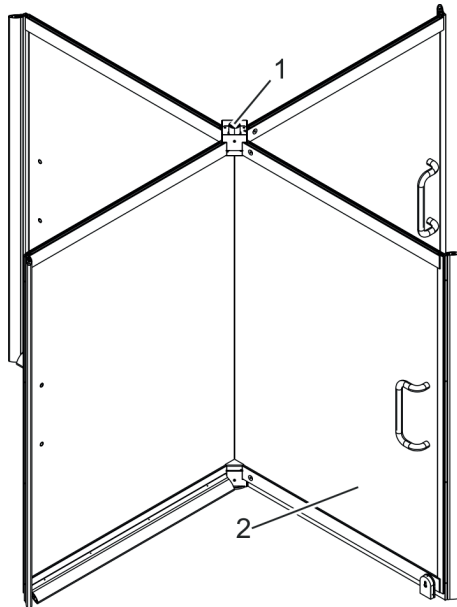


**Fig. 9** Leading and trailing mullion

Leading (Fig. 9/2) and trailing mullions (Fig. 9/1) are located at the entrance and exit of the revolving door. The wings move toward the leading mullion (Fig. 9/2) and away from the trailing mullion (Fig. 9/1).

Depending on how the revolving door is designed, there may be control elements such as emergency stop buttons, disabled access pushbuttons, program switches, etc., on the leading mullion (Fig. 9/2).

## 2.1.4 Wing

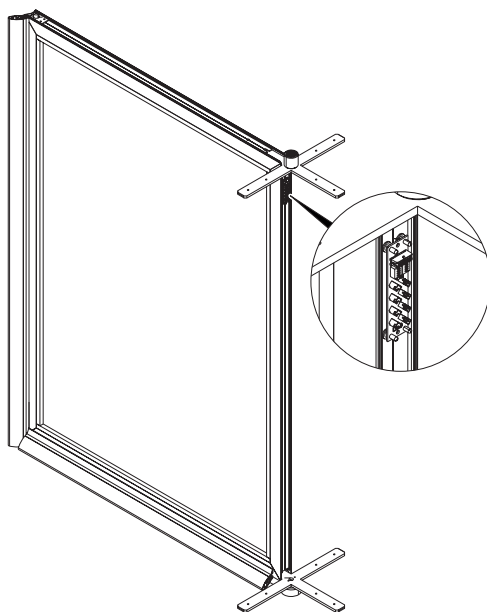


**Fig. 10** Wing (example)

In combination with the cross fittings, the wings (Fig. 10/2) form the turnstile of the revolving door.

In the ceiling the turnstile is connected to the operator via the toothed shaft (Fig. 10/1). The toothed shaft (Fig. 10/1) transfers the operator force to the wing (Fig. 10/2).

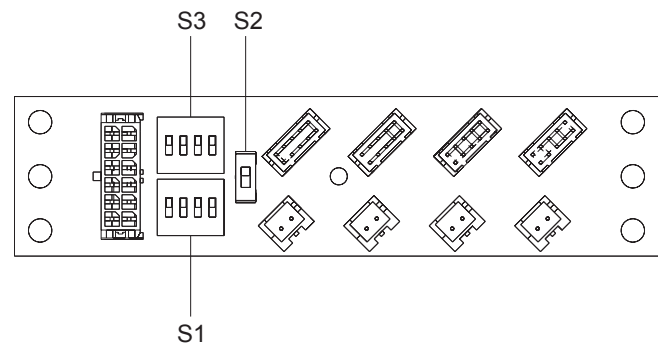
## 2.1.5 Connection unit for safety sensors and safety bumpers



**Fig. 11** Wing with connection unit

For fixed turnstiles with normal frame wings, a connection unit is always attached to one wing (Fig. 10).

It connects the safety sensors and safety bumpers of the wing to the controller.



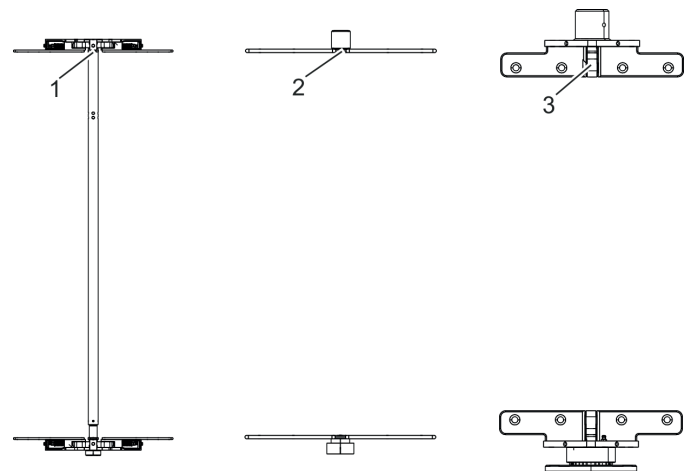
**Fig. 12** Connection unit

The following plug-in connections are activated or deactivated with the DIP switches:

- S1** Activate or deactivate safety sensors
- S2** Deactivate wing sensors
- S3** Activate or deactivate wing sensors

- Connect the connection unit and set DIP switches ("5.9.2 Pushing normal-frame wings onto the turnstile" on page 62).

## 2.1.6 Cross fitting



**Fig. 13** Cross fitting types (example)

Depending on the type of wing, the wings are held by a cross fitting either with (Fig. 13/1) or without a center column (Fig. 13/2 + 3).

Fine-frame (profile) (Fig. 13/3) and normal-frame (Fig. 13/2) wings are held by a cross fitting without a center column.

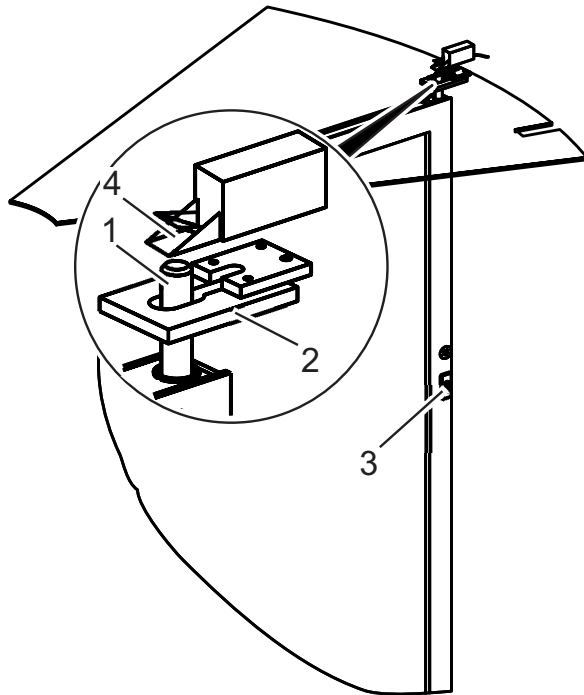
Normal-frame wings that fold to the side (emergency exit) are held by a bookfold hinge with center column (Fig. 13/1).

A foldable fitting enables the revolving door to be used as a transport opening. Bulky objects can then be carried through the transport opening.

## 2.1.7 Wing locking devices

### 2.1.7.1 Manual locking device (Option)

#### Rod locking device (option)



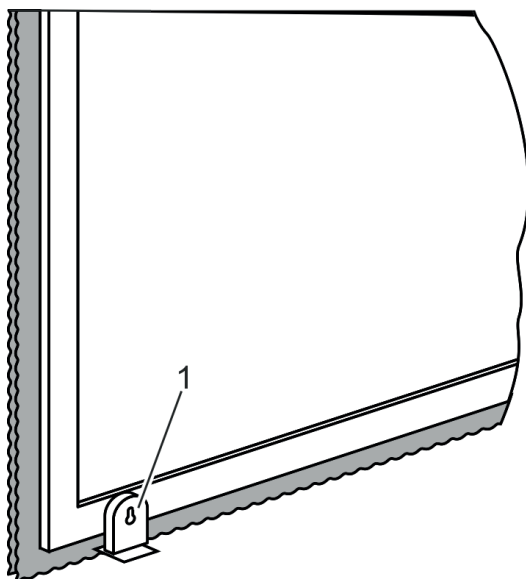
**Fig. 14** Rod locking device

The rod locking device for a wing (Fig. 14) has a locking rod (Fig. 14/1) in the wing.

The locking device rod is pulled out or pushed in using a square handle. The square handle is released and locked again by means of the lock cylinder (Fig. 14/3). The feedback that the door is locked (option) is sent via switch (Fig. 14/4).

A locking plate (Fig. 14/2) for locking the wing is located in the ceiling.

#### Floor locking device (option)



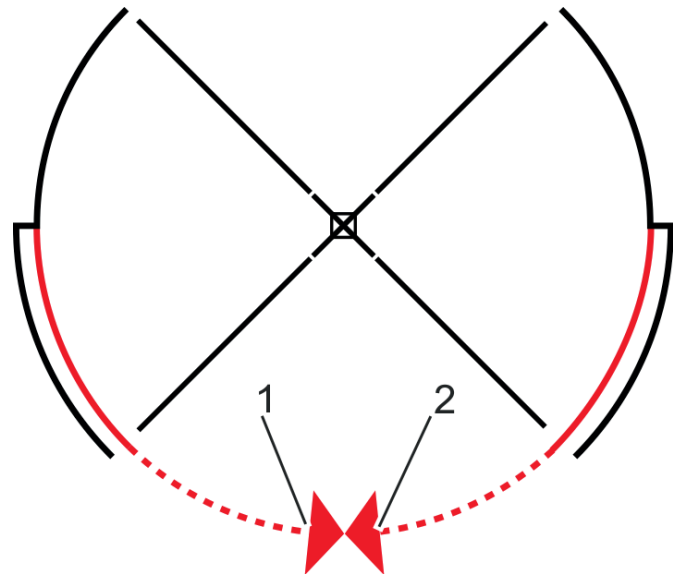
**Fig. 15** Floor locking device

If the floor locking device (Fig. 15) is installed, a lock cylin-

der will be located in the lower part of the wing.

The lock cylinder (Fig. 15/1) is used to move a pin into and out of a floor sleeve.

### 2.1.7.2 Night shield (option)



**Fig. 16** Night shield (example)

A night shield (Fig. 16) closes off the exterior of the building and prevents unauthorized access to the building through the revolving door. The night shield consists of 2 night shield segments (Fig. 16/1 + 2).

This night shield is operated manually or electrically. With the manual version, the night shield is pulled closed and locked manually. With the electric night shield, the revolving door closes and locks itself using an additionally installed motor with separate controller.



Only one night shield segment is used when there are 3 wings.

### 2.1.7.3 Proximity sensor for manual night shield

The number of proximity sensors depends on the number of night shield wings.

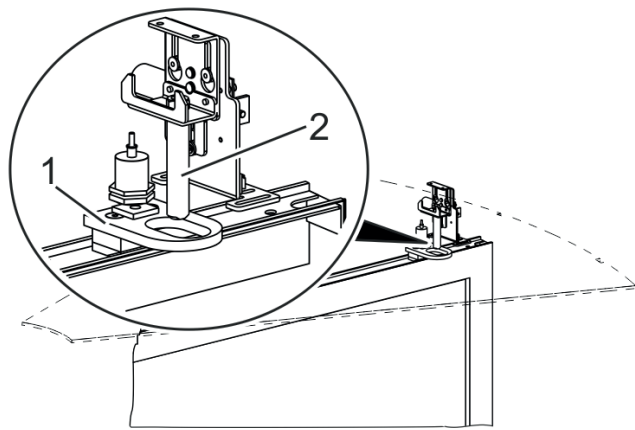


3-wing units have 1 night shield wing and one proximity sensor.  
4-wing systems have 2 night shield wings and 2 proximity sensors.

When the night shield is fully open, the proximity sensor outputs a signal to the control and the turnstile is driven.



### 2.1.7.4 Electromechanical locking device (option - KTV P/S/A)



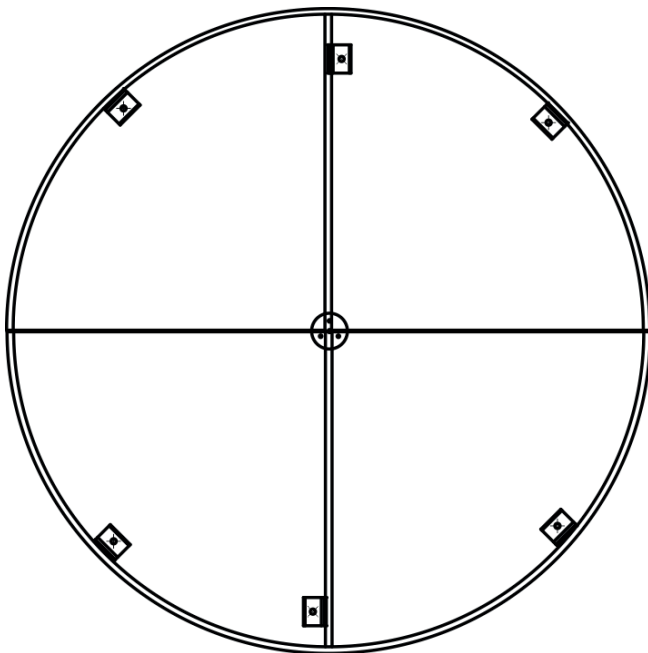
**Fig. 17** Electromechanical locking device

The electromechanical locking device (Fig. 17) is located in the ceiling of the revolving door.

Once the program switch has been turned to "Off", the revolving door will rotate at positioning speed to its locking position. The pin (Fig. 17/2) will then be pushed into the locking plate (Fig. 17/1) on the wing.

The electromechanical locking device will unlock itself as soon as the program switch is used to switch the revolving door to automatic mode.

### 2.1.8 Assembly surface



**Fig. 18** Floor ring

The revolving door can be installed over a raw floor or finished floor.

When installing it over a raw floor, a floor ring (Fig. 18) is first affixed to the raw floor. The floor ring is then worked into the raw floor. Once it is finished, only the fasteners for the drum wall segments and the floor bearing or the fasteners for the subsurface operator should be visible.

If it is installed over finished flooring, the fasteners are

mounted on the finished flooring.

## 2.2 Scope of delivery and equipment features



The scope of delivery and the equipment features of the revolving door are described in the attached door system guide.

## 2.3 Tools and materials

### Tools required

#### Laser leveling device with stand

The laser leveling device is used for fine adjustment of the floor ring and to check the assembly surface.

#### Leveling staff

The leveling staff is a tool for leveling. It describes the perpendicular distance between the horizontal beam of the laser leveling device and the support point for the leveling staff.

#### Hand brush and dustpan

A standard hand brush and dustpan to sweep away any dirt created during assembly.

#### Plastic hammer

For knocking in components with delicate surface finishes.

#### Vacuum lifting tool

For lifting and transporting large components with a smooth surface with a load-bearing capacity of up to 100 kg.

1 vacuum lifting tool can be used per person.

#### Screw clamp

Screw clamp for pressing the drum wall segments together during positioning and alignment. At least 2 screw clamps are required.

#### Lift trucks

2 lift trucks for transporting, lifting and lowering heavy components, with a load-bearing capacity of at least 500 kg.

#### Bearing blocks

Bearing blocks with sufficient load-bearing capacity and stability. Two are required to support one ceiling half.

#### Spirit level 2 m long

Spirit level with a length of 2 m for horizontal and vertical alignment of components.

#### Ladder

Safety ladder with stable position.

#### Wooden blocks

For protecting delicate surface finishes or to place under components. Several blocks may be required, depending on the component that requires support.

#### **Core hole drill Ø82 mm**

Core hole drill for drilling the hole for the bearing shell during assembly of a bookfold turnstile without floor ring.

#### **Plumb line**

A pendulum weight attached to a string at least 5 m in length. The plumb line is used to align the operator and the bearing shell.

#### **Belt straps**

2–3 straps to secure the upper cross fitting when pulling the wings up or down with a turnstile without center column.

#### **Standard degreaser**

#### **Lint-free cloth straps**

#### **Fiber-tipped pen (water-resistant)**

Water-resistant fiber-tipped pen with which permanent markings can be made on metallic bases.

#### **Circlip pliers**

Circlip pliers for circlips 40 mm x 2.5 mm.

#### **90 degree countersink**

90 degree countersink for deburring holes.

#### **Cartridge gun**

Standard cartridge gun for silicone cartridges.

#### **Scissors**

A standard pair of scissors for trimming the bristles on the wings.

#### **Manual deburrer Ladder**

Manual deburring tool for deburring holes manually.

#### **Equipment for safe climbing up/down when working on revolving door roof (e.g. working platform or stepladder)**

#### **Files**

Files (flat and round) for deburring edges and openings.

## **Materials**



All fixing materials are supplied for assembly by dormakaba.

#### **Screw pack S002-425**

#### **Screw pack S002-421**

#### **Screw pack S002-400**

#### **Screw pack S002-401**

#### **Screw pack S002-402**

#### **Cable ties**

Standard cable ties for fixing the lines.

#### **Cable tie holders**

The cable tie holder is an adhesive pad to which the cable tie is fixed.

#### **Screw pack S002-103**

#### **Screw pack S002-104**

#### **Screw pack S002-410**

#### **Screw pack S002-408**

#### **Screw pack S002-409**

#### **Screw pack 34053601150**

#### **Silicone spray**

Silicone spray is an oil-free lubricant that is used for various materials (e.g. rubber, plastics).

#### **Factory-supplied sealing compound**

#### **Screw pack S002-412**

#### **Screw pack S002-120**

#### **Screw pack S002-416**

#### **Screw pack S002-415 for exterior night shield**

#### **Screw pack S002-416 for interior night shield**

#### **Screw pack S002-417**

#### **Screw pack S002-418**

#### **Screw pack S002-419**

#### **Screw pack S002-424**

#### **Screw pack 34053501150**

#### **Screw pack S002-025**

## 2.4 Program switch KTV P/S/A








The program switch is located inside the building on the leading mullion or attached separately within sight of the revolving door. A key or code secures the program switch against unauthorized access.

**i** A program switch with code entry will automatically lock itself 60 seconds after the last entry.

The following program symbols may be shown on the program switch, depending on which options are selected for the order:

**i** A locked revolving door with bookfold turnstile cannot be used as an emergency exit.  
Only if the programs "Summer", "Automatic 1" or "Automatic 2" are selected can the revolving door be used as an emergency exit.



-  – "Off": The revolving door will stay in the starting position. Any internal lighting is switched off. If equipped with electromechanical wing locking device, the revolving door stops in the locking position and locks the wings. After a set period of time, the interior lighting will switch off.
-  – "Automatic 1": The revolving door will stay in the starting position as long as there are no people within range of the sensors at the entry and exit. As soon as people are within range of the sensors, the revolving door will start to rotate at walking speed.
-  – "Automatic 2": The revolving door rotates continuously at positioning speed and accelerates to walking speed as soon as someone is within range of the sensors at the entry or exit. The revolving door will then continue to rotate at positioning speed.
-  – "Summer": The revolving door stops at the starting position and the operator is disengaged. The door wings can be rotated manually. If foldable wings have been installed, the wings can be folded to the side in this program setting.
-  – "Night bank" (optional): The revolving door is locked in its locking position by the electromechanical locking device. Access to the revolving door is controlled using a door opener, card reader, etc. When an authorized person tries to open the door, the interior lighting will turn on and the revolving door will rotate for a preset number of revolutions. The revolving door will then return to its locking position and lock the entry. After a specified time, the interior lighting will switch off.

**i** Installed security devices (P. 18) are deactivated when the "Summer" program is selected.

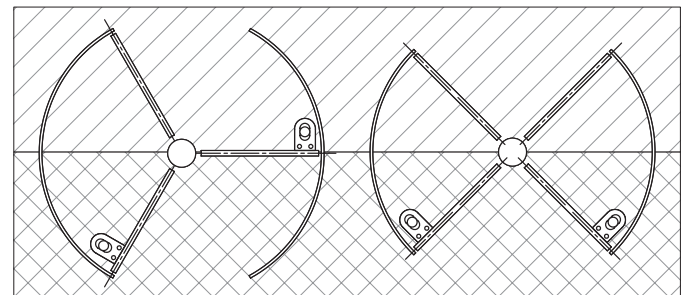
## 2.5 Locking device

The number of locked wings depends on whether a rigid or foldable cross fitting has been installed in the revolving door.

**i** The illustrations show the electromechanical locking device. The position and the number are the same for mechanical locking devices. The positions of the locking devices depend on the design of the system ("9.13 Wing locking device (diagram)" on page 116).

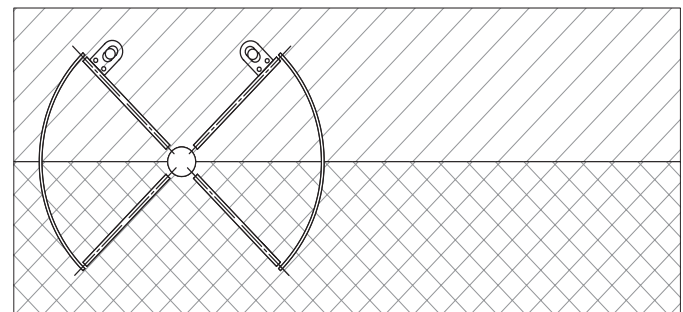
 Building interior  
 Building exterior

### 2.5.1 Bookfold turnstile with electromechanical or manual locking device



**Fig. 19 KTV-3/4 - Locking device position without night shield or night shield situated on the outside**

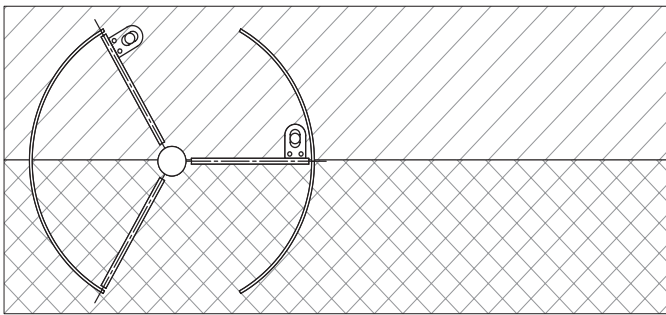
Two wings get locked with a bookfold turnstile (Fig. 19). In order to do so, the wings without a locking device must be folded to the side in order to reach the wings with locking devices.



**Fig. 20 KTV-4 - Locking device position with night shield inside**

With a night shield on the inside, the door wings with locking device are directly accessible from the inside of the building (Fig. 20).

## 2.5.2 Bookfold turnstile with manual locking device



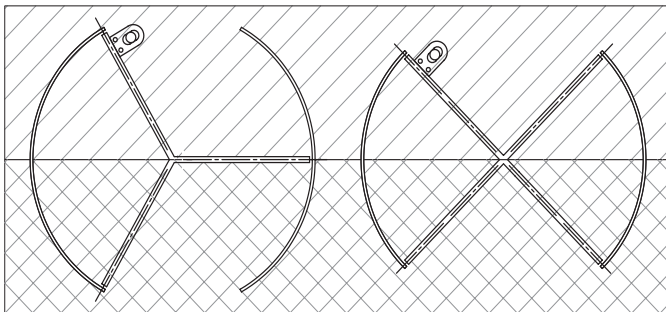
**Fig. 21** KTV-3 – Locking device position with night shield on the inside

Revolving doors with a manual locking device must be moved to the locking position (Fig. 21) manually. The door wings with locking device are located on the building interior.



Electromechanical locking is not possible with a KTV-3 with interior night shield.

## 2.5.3 Rigid turnstile with electromechanical or manual locking device



**Fig. 22** KTV-3/4 - Locking device position without night shield, or with exterior or interior night shield

With a rigid turnstile (Fig. 22), only one wing will be locked. The door wing with the locking device is located on the building interior.

## 2.6 Technical information

### 2.6.1 Mechanical data

#### Dimensions

Measurement	Value	Unit
Door height	2100–4000	mm
Door diameter	1600–3800	mm
Wing count	3 or 4	

#### Weight information

Measurement	Value	Unit
Night shield for 4 wings	max. 210	kg
Night shield for 3 wings	max. 130	kg
Foldable wings	max. 90	kg
Fine-frame (profile) wings	max. 125	kg
Normal-frame wings	max. 100	kg
Turnstile	max. 450	kg

### 2.6.2 Operator information

#### Power supply unit

Measurement	Value	Unit
Power supply	100–240 ± 10%	V AC
Power frequency	50/60	Hz
Fuse provided by the customer	10	A
Max. starting current	18	A
Control voltage	24 ± 10%	V DC
Max. supply current for external connections	3	A DC
Connection potential equalization	1 x 6	mm <sup>2</sup>

#### Power consumption KTV A (without lighting, incl. sensor technology)

Measurement	Value	Unit
Positioning speed	88	W
Automatic mode	102	W
Speed limiter	8	W
Servomatic	58	W

**Power consumption KTV P/S (without lighting, incl. sensor technology)**

Measurement	Value	Unit
Positioning speed	58	W
Automatic mode	102	W
Speed limiter	8	W
Servomatic	58	W

**Operator**

Measurement	Value	Unit
Type	Synchronous motor with continuous magnet rotor	
Nominal voltage	24 V	DC
Nominal output	0.58	kW
Nominal torque	40	Nm
Nominal current	4	A
Starting current	max. 18	A
Torque	max. 185	Nm
Rotations per minute	max. 18	rpm
Protection class	IP 20	
Insulation class	B	
Gear ratio	1	
Operating noise LAeq	<50	dB(A)

**2.6.3 Environmental conditions**

Measurement	Value	Unit
Temperature range	-40 – +60	°C
Relative humidity (non-condensing)	<90	%

**2.6.4 Identification label****Revolving Door**

Made by DORMA

dormakaba

month year

DORMA Deutschland GmbH  
DORMA Platz 1  
58256 Ennepetal  
Germany

**KTV FLEX Direct**

Com.-No.:

100 - 240V ~ 50/60 Hz

-40 - +60°C

System:  
(Data without lighting)

☐ Speed Limiter: 8 W

☐ KTV P: 58 W

☐ KTV S: 58 W

☐ KTV A: 102 W

5 3 5 0 1 2 3 0 4 DIN 18650

IP20

CE

**Fig. 23 Identification label revolving door (example)**

The identification label for the revolving door (Fig. 23) is located inside the building near the façade on the drum wall profile and contains the following information:

- Name and address of the manufacturer
- Revolving door type
- Year of manufacture
- Connection values
- Performance data
- Environmental conditions
- IP protection class
- Designation

**Operator**

KT FLEX Direct drive system

Art.Nr.: 34050001150

dormakaba

Made in Germany

month year

DORMA Deutschland GmbH  
Dorma Platz 1  
58256 Ennepetal  
Germany

100 - 240V ~ 50/60 Hz

-40 - +60°C

System:

☐ Speed Limiter: 8 W

☐ Positioning Automatic:  
Static force: 58 W  
67 N

☐ Servomatic:  
Static force: 58 W  
67 N

☐ Automatic:  
Static force: 102 W  
150 N

5 3 5 0 1 2 3 0 4 DIN 18650

IP20

CE

**Fig. 24 Identification label operator (example)**

The identification label for the drive system (Fig. 24) is located on the support beams of the ceiling structure and includes the following information:

- Name and address of the manufacturer
- Drive system model
- Year of manufacture
- Connection values
- Performance data
- Environmental conditions
- IP protection class
- Designation

## 3 Safety

This section provides an overview of all important safety aspects for personal protection and for safe, fault-free assembly. Other task-related safety instructions are included in the sections on the individual phases of the door's life.

### 3.1 Safety equipment

**WARNING!**

**Non-functional safety equipment can pose a life-threatening hazard!**

When the safety equipment is not functional or is deactivated, there is the danger that extremities or people may be crushed in the revolving door, possibly leading to serious injury or death.

- Constantly check to make sure that all safety equipment is functional.
- Never deactivate or bypass safety equipment.
- Ensure that all safety equipment is always accessible.

#### In operation

**WARNING!**

**Life-threatening hazard posed by deactivated safety equipment!**

If the emergency stop button is in use, the "Emergency StopSummer" program mode is activated, or a wing is folded to the side, then existing safety equipment is not in operation. This can cause serious injuries if attempts are made to turn it manually.

- Before turning it manually, check to make sure that no one could be injured.
- With foldable wings, make sure that the revolving door continues with the current program setting as soon as all wings are in the starting position again.



3.1.1 Overview of safety equipment  
and controls

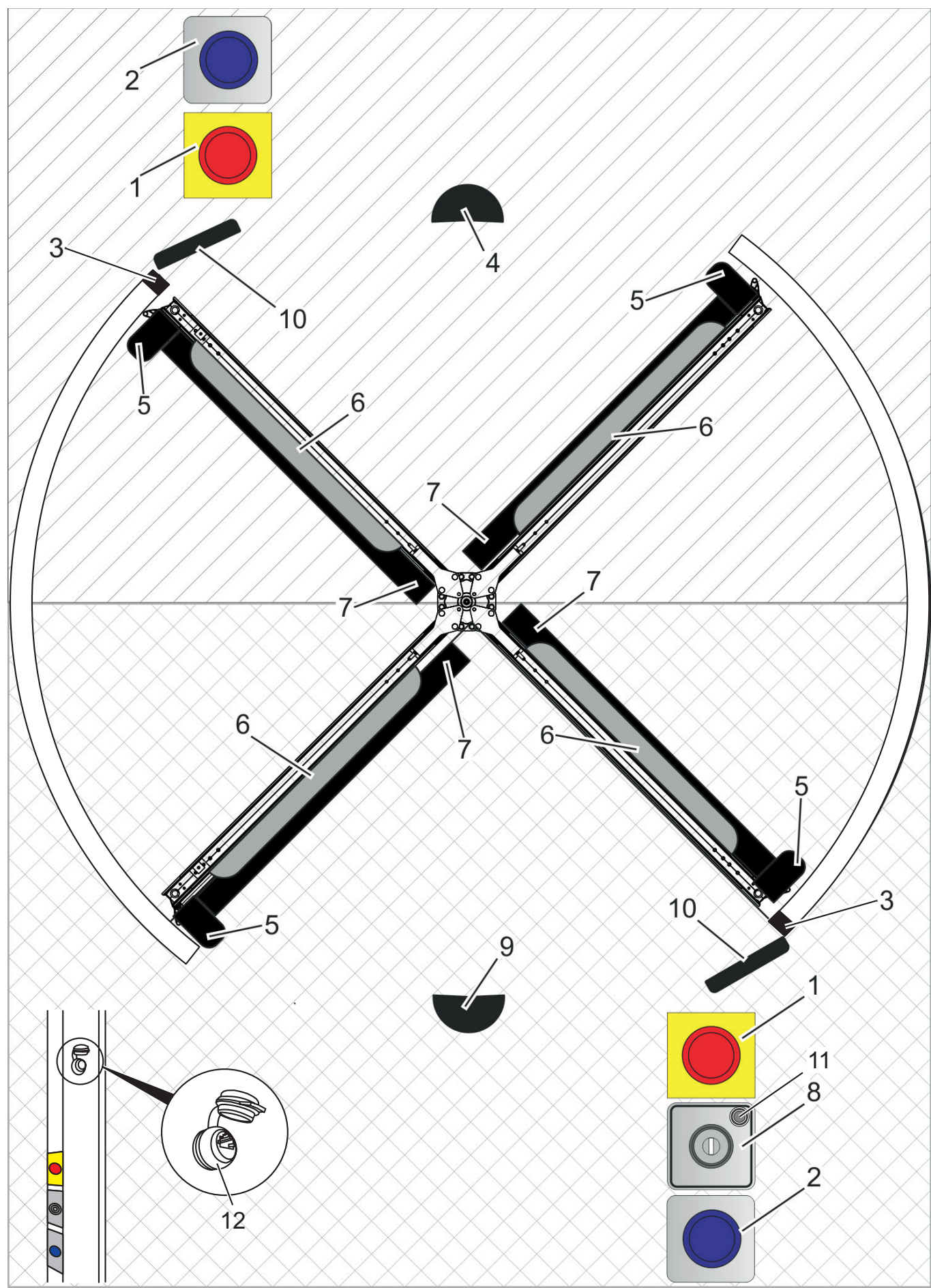


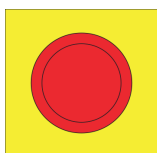
Fig. 25 Safety equipment and controls (example)





- Building exterior
- Building interior
- 1** Emergency stop button
- 2** Disabled access pushbutton
- 3** Active/passive safety bumper
- 4** Motion sensor
- 5** Active safety bumper – vertical
- 6** Wing sensor
- 7** Active safety bumper – horizontal
- 8** Program switch
- 9** Motion sensor
- 10** Canopy sensor
- 11** Fault LED
- 12** Connector for the handheld

### 3.1.2 Emergency stop button



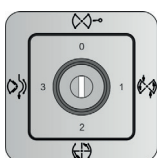
An emergency stop button is located on the inside of the building on the leading mullion and possibly also on the outside of the building, depending on the options selected for the order.

When the emergency stop is activated, the revolving door stops immediately and the operator is disengaged. It will then be possible to turn the wings manually.

The emergency stop can be reset by pulling the emergency stop button, and the revolving door will resume operation according to its current program settings.

**i** Only available with KTV P/S/A, the KTV M does not have an emergency stop button.

### 3.1.3 Program switch KTV P/S/A



The program switch is located inside the building on the leading mullion of the revolving door or within view of the revolving door on a separate control console.

Depending on the program switch type, a key may be used or code entered in order to gain access.

### 3.1.4 Disabled access pushbutton



Depending on the order options selected, there may be a disabled access pushbutton at the entrance and exit of the revolving door.

When pushed, the disabled access pushbutton will reduce the current speed of the revolving door. This allows people with physical impairments (e.g. people in a wheelchair, using a walker, etc.) more time to pass through the revolving door.

The disabled access pushbutton can be used in program setting "Automatic 1" and "Automatic 2".

**i** After one full revolution at the reduced speed, the revolving door will resume operation at normal walking speed.

**i** Optionally available with the KTV A.

### 3.1.5 Spring contact pins

**i** Spring contact pins are only found on wings installed with a bookfold hinge.

Spring contact pins are found on the back for wings installed with a bookfold hinge. If a wing folds to the side during operation, contact is broken. The revolving door will stop immediately and the operator will be disengaged. It will then be possible to turn the wings manually.

Contact will be restored once all wings are returned to their starting positions. After a set restart time, the revolving door will resume operation with the current program settings. The restart time is specified by the facility operator during installation.

### 3.1.6 Speed limiter

The speed limiter monitors the set rotation speed and keeps the door from exceeding the maximum rotation speed. When the maximum speed is exceeded, the speed limiter produces a counterforce to reduce the rotation speed.

The speed limiter function is available as an optional feature. With the KTV M/P/S, the speed limiter function can be parameterized according to the customer's wishes. Limiter function is controlled automatically and cannot be parameterized.

### 3.1.7 Motion sensor KTV A/S

Depending on the order options selected, there may be a motion sensor at the entrance and exit (Fig. 25/4 + 9) of the revolving door.

When it senses an approaching person, the motion sensor transmits a start command to the controller. The revolving door will then accelerate its rotation speed to walking speed. If there are no longer any people within range of the motion sensor, the revolving door will slow to its positioning speed and move to the next closest starting position.



In Automatic 2 mode, the revolving door will continue rotating at positioning speed even after all persons have left the range of the motion sensor.

### 3.1.8 Wing sensor KTV A

The KTV A has wing sensors (Fig. 25/6) on the wings. The sensors detect anyone who approaches the revolving wings.

As soon as anyone enters the range of the sensor, the revolving door will slow to a lower speed. If anyone remains within range of the sensors, the revolving door will stop immediately or after a set period of time.

As soon as the people have left the range of the pre-detection sensors, the revolving door will continue with its current program settings after a restart period.



For the KTV A, the pre-detection sensors beyond 3000 mm are included in the safety packet "Plus" (EN 16005/DIN 18650).

### 3.1.9 Safety bumpers

Depending on the order options selected, the revolving door may feature active or passive safety bumpers.

When a passive safety bumper is touched, the revolving door will not stop. The passive safety bumpers serves merely to cushion impacts.

An active safety bumper is a safety bumper. In the safety bumper there is a contact that is broken when touched. As soon as the contact is broken, the revolving door will stop. Once contact has been restored in the safety bumper, the revolving door will resume operation according to its current program settings after an adjustable waiting period.



Order options for safety bumpers:

- KTV P/S: passive safety bumper (Fig. Fig. 25/3) on the leading mullion of the entrance and exit
- KTV A, standard safety package (non-EU): active safety bumpers (Fig. 25/3) on the leading mullion of the entrance and exit and horizontally on the wings (Fig. 25/7)
- KTV A, safety package plus (EN 16005/DIN 18650): passive safety bumpers (Fig. 25/3) on the leading mullion of the entrance and exit and active safety bumpers vertically and horizontally on the wings (Fig. 25/5 + 7)

### 3.1.10 Canopy sensor KTV A

On a KTV A, there are canopy sensors (Fig. 25/10) in the entrance and exit areas.

The canopy sensors are used to secure the entrance area in front of the leading mullion. As soon as anyone enters the range of a canopy sensor, the revolving door will slow to a lower speed.

### 3.1.11 Fault LED

The fault LED is located at the program switch (Fig. 25/11). The faults (errors) are indicated with combinations of slow and fast flashing codes (5.15 Assembling sensors KTV P/S/A, p. 74).

### 3.1.12 Connector for handheld

The connector for the handheld is located on the side of the leading mullion (Fig. 25/12). The handheld offers the option to set up door operators individually and to parameterize them on-site.

### 3.1.13 Potential equalization



#### **WARNING!**

#### **Danger of death from contact voltages and electric arcs!**

As a result of missing or defective potential equalization of the power supply unit, contact voltages and electric arcs may come about. This results in a risk of injury or even death.

- Never put the revolving door into operation without potential equalization connected to grounding terminal.
- Before commissioning, ensure that the following components have potential equalization and are connected to the grounding terminal (5.16 Connect power supply unit, controller, potential equalization and collector, p. 76):
  - Controller
  - Power supply unit
  - Ceiling structure

## 3.2 Safety information

### Illegible labeling



#### **WARNING!**

#### **Danger of illegible labeling!**

Over time, stickers and signs may become dirty or otherwise illegible, so that dangers can no longer be recognized and essential operating instructions cannot be followed. This could put someone at risk for injury.

- Always keep all safety, cautionary, and operating instructions in legible condition.
- Immediately replace damaged labels or instruction plates.

### Labeling on KT FLEX Direct operator



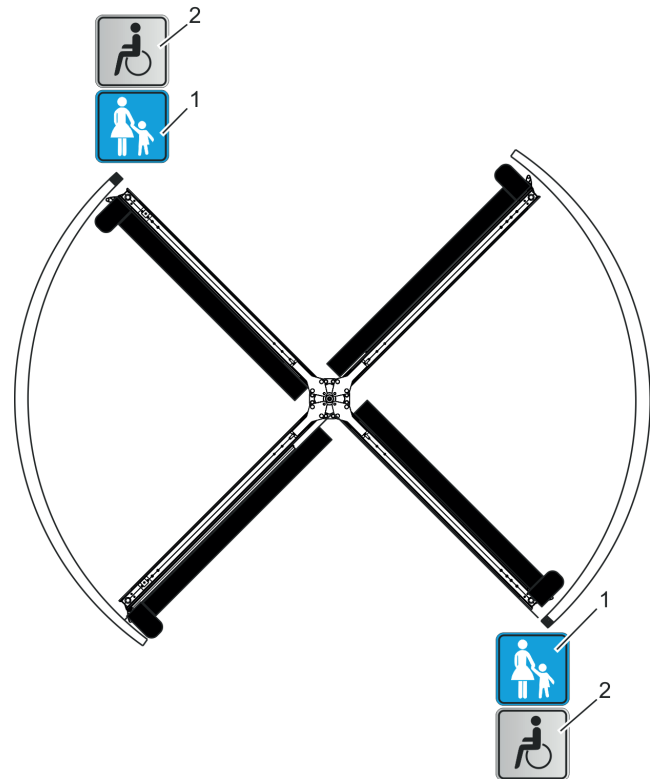
#### **Warning for people with pacemakers and other active medical implants**

This sign is located on the operator of the KTV FLEX Direct and warns of the hazards for people with pacemakers and other active medical implants.

Strong electromagnetic or magnetic fields may be present in the vicinity of this sign and these may disrupt pacemakers and other active medical implants or cause them to malfunction. People wearing pacemakers and other active medical implants should not approach components with this safety marking.

People with pacemakers and other active medical implants should not come within 0.5 m of the operator.

### Overview of revolving door labeling



**Fig. 26 Overview of labels/instruction plates**

- Hold children by the hand (Fig. 26/1)
- Disabled access pushbutton\* (Fig. 26/2)

\*Disabled access pushbutton only available with the KTV A.

## 3.3 Residual risks during assembly

The following section describes the residual risks that can come about during assembly of the revolving door.

In order to reduce the risk of personal injury, damage to property and dangerous situations, follow the safety instructions detailed here and the safety instructions in the other sections of this manual.

### 3.3.1 General hazards at the assembly and installation location

#### Weather conditions

**WARNING!****Danger to life due to bad weather conditions!**

Performing assembly work in bad weather conditions (e.g. thunderstorms, lightning, storms, rain, hail or snow) may lead to life-threatening injury or death.

- Check the weather conditions before carrying out any work.
- Do not carry out any work in bad weather or thunderstorms.
- Ensure that the work can be carried out safely in the given weather conditions.

#### Use of lift trucks

**WARNING!****Risk of injury due to improper use of lift trucks!**

Lift trucks are required to lift certain components to the required working height. If the components fall, this can cause serious injury.

- During lifting work ensure that the lift truck is securely positioned on firm, even ground.
- Always take account of the center of gravity of the components during lifting work.
- Never exceed the permitted lifting weight of a lift truck.
- Lift trucks must be in perfect working order.
- Only lower raised loads if no one is in the lowering area.
- Ensure that no one is present under suspended loads during lifting work.

#### Risk of falling

**WARNING!****Risk of injury due to careless work from a ladder!**

Because of the height of the revolving door, a ladder is required for some assembly work. Falls from ladder can cause serious injury.

- When working from a ladder, ensure that the ladder is securely positioned on firm, even ground.
- When working from a ladder, ensure that no one is underneath the ladder.
- Ladders must be in perfect condition.
- If necessary, have a second person secure the ladder.

#### Suspended loads

**WARNING!****Risk of injury from suspended loads!**

Improper handling of suspended loads can lead to serious or life-threatening injury.

- Transport raised loads as close to the ground as possible.
- Never stand under or in the swinging range of suspended loads.
- Ensure that the suspended load is transported with sufficient load-bearing capacity.
- Only use approved lift trucks and lifting gear with sufficient load-bearing capacity.
- Do not use damaged or frayed lifting gear such as ropes and straps.
- Move loads only under supervision.
- Set the load down before leaving the workplace.
- Ensure that the working area is free from obstacles.

## Heavy components



### **WARNING!**

#### **Risk of crushing injuries to limbs when working with heavy components!**

Heavy components can cause serious injury if they are set down incorrectly.

- Lift and lower heavy components carefully using approved lift trucks only.
- Always wear protective equipment when working with heavy components: Safety shoes and protective gloves.
- Never move heavy components with sudden movements.

## Dirt and objects lying around



### **CAUTION!**

#### **Risk of injury due to falling over dirt, cables and objects left lying around!**

Loosely laid cable and remains of packaging and other items left lying around constitute a tripping risk. Such a fall may cause injury.

- Lay cables in such a way that they are always on the ground and do not form loops.
- Tie several lines running in parallel together with cable ties.
- Remove remains of packaging from the working area immediately and dispose of them at the appointed locations.
- Mark items that represent a tripping risk clearly.
- Remove items that are no longer required from the working area, especially the floor.

## Risk of cuts



### **CAUTION!**

#### **Risk of cuts during assembly work on revolving door!**

Risk of injury when working on components with sharp recesses and edges.

- Always take note of sharp recesses and edges on components before starting work.
- Always wear safety gloves to move components with sharp recesses and edges or transport them to the working area.

## 3.3.2 Hazards posed by mechanics

### Improper disposal



### **WARNING!**

#### **Risk of injury due to improper installation and commissioning!**

Improper assembly can lead to serious injury and significant material damage.

- Before commencing work, ensure that there is enough space for assembly.
- Handle open, sharp-edged components with care.
- Maintain order and cleanliness at the assembly location.
- Assemble components correctly.
- Secure components so that they do not fall down or tip over.

## 3.3.3 Hazards posed by chemical substances

### Lubricants



### **CAUTION!**

#### **Danger of damage to health from lubricants!**

Contact with lubricants can trigger allergies and skin irritations.

- Wear safety gloves when handling lubricants.
- Do not swallow lubricants, do not inhale fumes.
- On accidental contact with the eyes, rinse lubricant away thoroughly with plenty of water and consult a doctor as necessary.
- On contact with the skin, wash off thoroughly with soap and plenty of water.
- Observe safety datasheet of the lubricant manufacturer (5.16 [Connect power supply unit, controller, potential equalization and collector, p. 76](#)).
- Always have the latest version of the lubricant manufacturer's safety datasheet to hand.

### 3.4 Responsibility of the facility operator

#### Facility operator

The facility operator is the person who operates the revolving door for commercial or business purposes themselves or allows third parties to use it and carries the legal product responsibility for protection of the users, personnel, or third parties during operation.

#### Facility operator duties

The revolving door is used in commercial buildings. The facility operator of the revolving door is therefore subject to the legal obligations that apply to occupational safety.

In addition to the safety instructions in this manual, the safety, occupational health and environmental protection regulations applicable for the area where the revolving door is used must be observed.

In the process, the following applies in particular:

- The facility operator must stay informed about the applicable occupational health and safety regulations and carry out a hazard evaluation to investigate additional hazards caused by the special working conditions at the specific place of use of the revolving door. The results must be utilized in the form of a user's guide for the operation of the revolving door.
- For the entire period during which the revolving door is in use, the facility operator must ensure that the user's guide provided corresponds to current regulations and must adapt them as necessary.
- The facility operator must clearly regulate and establish responsibilities for installation, operation, repair of faults, maintenance and cleaning.
- The facility operator must ensure that persons can safely access the revolving door. This includes keeping the revolving door as well as the entrance and exit of the revolving door clear of litter, snow or ice.
- The facility operator must ensure that safety equipment such as the emergency stop button, disabled access pushbutton, etc. is always accessible.
- The facility operator must ensure that a revolving door suitable for use as an emergency exit is marked as such, if the revolving door is to be used as an emergency exit.
- The facility operator must ensure that the tests requested in the inspection log are carried out. The facility operator must commission DORMA to this end at the specified intervals.

Furthermore, the facility operator is responsible for ensuring that the revolving door is always in perfect technical condition. Therefore the following applies:

- The facility operator must have all safety equipment checked for proper functionality and completeness at least once a year.
- The facility operator must make available a main earthing terminal for connection of the potential equalization mechanism of the revolving door.
- The facility operator must ensure that the results of the locally required tests are entered into the test log.

- The facility operator must check the labeling for legibility and completeness and replace it if necessary.
- The facility operator must ensure that the cleaning plan for the revolving door is adhered to.
- The facility operator must retain the assembly and transport securing screws for the KT FLEX Direct operator supplied by dormakaba.
- On completion of assembly of the revolving door, the facility operator was instructed by dormakaba in the operation and function of the revolving door and received a handover certificate thereof, which he confirmed with his signature.

### 3.5 Personnel qualification

#### Inadequate qualifications



#### **WARNING!**

#### **Risk of injury due to inadequately qualified personnel!**

Inadequately qualified personnel cannot assess the risks associated with handling the revolving door, thus putting themselves or others at risk of serious or life-threatening injury. If unqualified personnel work on the system or stay in the danger zone of the system, this could give rise to a risk of serious injury and considerable damage to property.

- Arrange for all work described in this manual to be carried out by dormakaba assembly personnel or companies appointed by dormakaba.
- Arrange for commissioning to be carried out only by personnel who have participated in the associated commissioning training course run by dormakaba.
- Keep inadequately qualified personnel away from the danger zones.
- Contact dormakaba in case of any uncertainties.



## Personnel requirements

Only persons who can be expected to carry out the work reliably should be allowed to do any of the work described. Persons whose ability to respond is affected e.g. by drugs, alcohol, or medication are not authorized to carry out such work.



Comply with all age-related and professional regulations applicable at the location of use.

### Crane operators

Crane operators are physically and mentally capable of operating a crane system independently within its performance limits and carrying out maintenance work on the crane system.

Crane operators are instructed in operating and maintaining a crane system and have demonstrated these capabilities to the facility operator.

Crane operators carry out the tasks assigned to them in a reliable way.

Crane operators have been appointed to carry out their work by the facility operator.

They must be over the age of 18.

### Forklift drivers

The forklift driver must be authorized to drive ground conveyors with a driver's seat or driver's station in accordance with applicable local regulations.

### Mechanics

Due to his or her professional training, knowledge, experience, and knowledge of the pertinent norms and requirements, the mechanic is capable of carrying out work on mechanical systems while recognizing and avoiding hazards of his or her own accord. Mechanics are specially trained for the working environment in which they work and are familiar with the relevant norms and regulations.

### Welders

Welding work may be carried out only by qualified welders with valid certification. A welding supervisor and a lagger must be involved in all welding work.

Due to his or her professional training, knowledge, experience, and knowledge of the pertinent requirements, the welder is capable of carrying out the work assigned to him or her while recognizing and avoiding hazards of his or her own accord.

### Electricians

Due to his or her professional training, knowledge, experience, and knowledge of the pertinent norms and requirements, the electrician is capable of carrying out work on electrical systems while recognizing and avoiding hazards of his or her own accord.

Electricians are specially trained for the working environment in which they work and are familiar with the relevant norms and regulations.

They have certifiably been trained by dormakaba in commissioning the revolving door and already have experi-

ence in this area.

## 3.6 Personal protective equipment

Personal protective equipment is used to protect personnel against dangers that could have a detrimental effect on their safety or health when carrying out work.

Personnel must wear personal protective equipment when carrying out the various tasks on and with the system. Specific reference is made to this in the individual sections of this manual. Explanation:

### Protective clothing



Protective clothing is closely fitting work clothing with low tear resistance, narrow sleeves and no protruding parts.

### Industrial safety helmet



Industrial safety helmets protect the head against falling objects, swaying loads and impacts with fixed objects.

### Protective gloves



Protective gloves protect the hands against friction, abrasion, puncture wounds and deeper injuries and against contact with hot surfaces.

### Safety shoes



Safety shoes protect the feet against crushing, falling parts and slipping on slippery surfaces.



**Safety glasses**

Safety glasses protect the eyes against flying parts and spraying liquids.

**Welder's protective apron**

A welder's protective apron protects the body against sparks and hot objects.

**Welding mask**

A welding mask protects the eyes and face against flash burns and flying particles.

**3.7 Risk of material damage****Floor finish and floor cracks**

**NOTE!**  
**Property damage due to uneven flooring and floor cracks!**

Uneven or loose flooring can lead to inaccurately aligned components during positioning. This can cause material damage.

- Assemble only on an even, firm floor finish.
- Ensure that there are no gaps in the flooring wider than 4 mm.

**Objects left lying around and loose materials**

**NOTE!**  
**Material damage due to objects left lying around and loose materials!**

Objects left lying around (e.g. tools) or materials that are not fixed in place (e.g. cables) in the area of the floor or ceiling may move out of control on commissioning the revolving door and become jammed in the revolving door. This can cause material damage.

- Remove items that are no longer required, such as tools, materials, etc. from the working area of the revolving door immediately.
- Remove objects and dirt from the rotation radius of the wings before commissioning.
- Ensure that there are no loose elements or cables hanging from the ceiling before commissioning.

**3.8 Environmental protection**

**ENVIRONMENTAL PROTECTION!**  
**Danger to the environment due to improper handling of packaging materials and environmentally hazardous substances!**

If packaging materials and environmentally hazardous substances are handled incorrectly, in particular if they are disposed of incorrectly, significant damage can be caused to the environment.

- Always comply with the instructions on handling and disposing of environmentally hazardous substances given below.
- If environmentally hazardous substances accidentally escape into the environment, take appropriate action immediately. If in doubt, notify the relevant local authorities about the damage and obtain advice about appropriate action to take.
- Dispose of packaging materials in an environmentally friendly manner.
- Observe the disposal regulations that apply locally. Appoint a specialist company to carry out disposal if necessary.

**The following environmentally hazardous substances are used:**

**Electric and electronic components**

Electric and electronic components may contain toxic materials. These components must be collected separately and disposed of at community collection sites or through a company that specializes in disposing of this type of waste.

### Lubricants

Lubricants such as fats and oils contain poisonous substances. They must not escape into the environment. A specialized disposal company must be hired for disposal.

### Batteries (optional)

The optional UPS contains batteries. Batteries contain poisonous heavy metals. This type of waste is subject to special treatment and must be disposed of at community collection sites or through a company that specializes in disposing of this type of waste.

## 3.9 Replacement parts

### Incorrect replacement parts



#### **WARNING!**

**Using the wrong replacement parts can cause a risk of injury!**

Using incorrect or faulty replacement parts can result in a risk to personnel and also the risk of damage, malfunction, or complete failure.

- Only use original replacement parts from dormakaba or approved by dormakaba.
- Always contact dormakaba in case of any uncertainties.

### Ordering replacement parts



#### **Invalidation of guarantee**

If unauthorized replacement parts are used, the manufacturer's guarantee is invalidated.

Complaints about incorrectly delivered, damaged or missing components and materials can be made to dormakaba Customer Service ([About this manual, p. 5](#)).

### Replacement parts list

A list of the replacement parts recommended by dormakaba can be obtained from dormakaba Customer Service.



## 4 Delivery and transport

### 4.1 Safety during transport

#### Heavy loads



##### **WARNING!**

##### **Risk of injury from heavy loads!**

Manual lifting of loads that are too heavy can lead to injury.

- Use appropriate equipment such as lift trucks and other lifting devices.
- Always lift or transport loads over 25 kg with 2 people.

#### Suspended loads



##### **WARNING!**

##### **Danger of death from suspended loads!**

When lifting loads there is a danger of death from falling parts or parts swinging out of control.

- During transport, ensure that no persons, objects or obstacles are in the swaying range of the object being transported.
- Only use approved lifting equipment and tackle with sufficient load-bearing capacity.
- Do not attach to fitted components.
- Ensure that the tackle is securely in place.
- Do not use torn or frayed cords and straps.
- Do not allow cords and belts to lay against sharp edges and corners, do not allow them to become knotted or twisted.

#### Improper lowering



##### **WARNING!**

##### **Risk of injury when lowering the load!**

Incorrect lowering of the load can cause serious injury.

- Do not lower load onto live parts/cables.
- Lower load only onto a secure, level surface with adequate load-bearing capacity.
- Never stand under or in the swinging range of suspended loads.

#### Improper attachment and movement



##### **WARNING!**

##### **Risk of injury due to improper attachment and movement of load!**

Incorrect attachment and movement of loads can cause life-threatening injury.

- Use lifting equipment and tackle with sufficient load-bearing capacity only.
- Lift load only when it is balanced.
- Never stand under or in the swinging range of suspended loads.
- Do not use torn or frayed lifting tackle.

#### Centers of gravity not marked



##### **WARNING!**

##### **Risk of injury due to unmarked centers of gravity!**

Missing marking of centers of gravity on loads can cause serious injury as a result of uncontrolled behavior when lifting.

- Find centers of gravity when attaching components.
- Secure load-bearing and lifting tackle to the components to prevent it from slipping.
- Remove persons from the danger area.

#### Improper transport



##### **NOTE!**

##### **Material damage due to improper transport!**

If transport is not carried out properly, loads can fall or tip over. Significant material damage can be caused as a result.

- When unloading the loads, proceed carefully and comply with the symbols and instructions on the packaging.
- Use only the attachment points provided.
- Remove packaging just before assembly.

## 4.2 Delivery and storage

### Type of delivery

The revolving door is delivered broken down into packages by the shipping company appointed by dormakaba.

### Storage of packages

**NOTE!**

**Material damage due to standing water caused by weather!**

- As far as possible, store packages securely indoors.
- If outdoor storage is unavoidable, protect packages against the weather.
- Place packages on a dry base on which no moisture can collect.

Generally store packages under the following conditions:

- Do not expose to aggressive media.
- Protect against direct sunlight.
- Place level with the ground on suitable bases (e.g. squared timber).
- Avoid mechanical vibration.



The packages may carry instructions on storage which go beyond the requirements specified here. Comply with these.

### Symbols on the packaging

The following symbol appears on the packaging of the KT FLEX Direct operator. Always comply with this symbol during transport.



This symbol warns of the dangers for people with pacemakers and other active medical implants. Persons affected may not come within 0.5 m of the operator area. The symbol is located on the operator packaging.

## 4.3 Inspection on delivery

### Check delivery for absence of damage and completeness

The scope of delivery is documented in the enclosed door system guide. Check the delivery upon receipt without delay for completeness and shipping damages.

Proceed as follows if external shipping damages are detected or if there are signs of rough handling on the package during shipping:

- Do not accept the delivery or accept it only conditionally.
- Note the extent of damage on the shipping documents or the bill of lading of the freight company.
- Initiate a complaint in case of incompleteness or shipping damages ([Customer service, p. 5](#)).



Register complaint of any defect as soon as it is detected. Damage compensation claims can be filed only within the applicable complaint periods.

## 4.4 Transporting packages

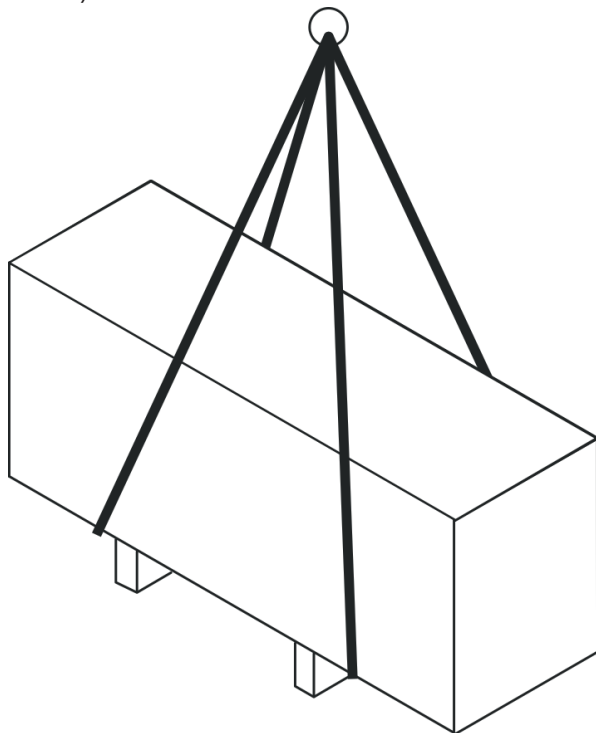
### Transport by crane

Packages can be transported directly by crane under the following conditions:

- Crane and lifting tackle must be designed for the weight of the package.
- Lifting accessories must be designed for the weight of the package.
- The crane operator must be authorized to operate the crane.

#### Requirements

- Crane operators
- Protective clothing
- Industrial safety helmet
- Protective gloves
- Safety shoes



**Fig. 27** Transport of package by crane

1. Attach with ropes, straps or multipoint suspension gear in accordance with Fig. 27. If necessary, observe suspension markings on the package.
2. Ensure that the package is hanging straight, take note of eccentric center of gravity as appropriate.
3. Lift package and transport to destination.

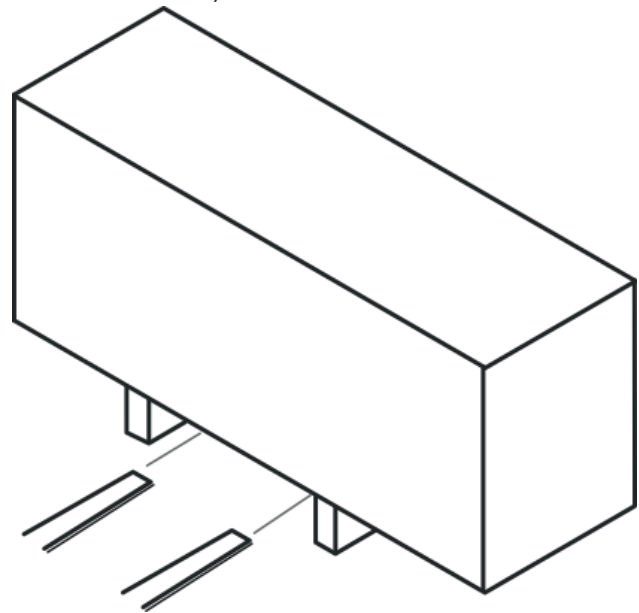
### Transport by forklift

Under the following conditions, the packages may be transported by forklift:

- The forklift must be designed for the weight of the packages.
- The forklift driver must be authorized to drive ground conveyors with a driver's seat or driver's station in accordance with applicable local regulations.

### Requirements

- Forklift drivers
- Protective clothing
- Protective gloves
- Safety shoes
- Industrial safety helmet



**Fig. 28** Transport by forklift

1. Move the forks of the forklift between the crosspieces of the package in accordance with Fig. 28.
2. Move the forks in until they protrude on the opposite side.
3. If the package has an eccentric center of gravity, ensure that it cannot tip over.
4. Lift package and transport to destination.

## 4.5 Removing packaging

### For packaging

The individual packages are shrink-wrapped in film and/or packed on wooden frames, in crates or wooden boxes.

Only environmentally friendly materials are used for packaging.

The packaging is intended to protect the individual components against shipping damage, corrosion and other damage until assembly takes place. Do not therefore destroy the packaging and remove it just before assembly.

### Handling of packaging materials

Dispose of packaging materials in accordance with the relevant statutory provisions and local regulations.



#### **NOTE!**

#### **Hazard to the environment through improper disposal!**

Packaging materials are valuable raw materials and in many cases they can be re-used or effectively processed and recycled. Improper disposal of packaging materials can endanger the environment.

- Dispose of packaging materials in an environmentally friendly manner.
- Observe the disposal regulations that apply locally. Appoint a specialist company to carry out disposal if necessary.



## 5 Assembly

### 5.1 Safety during assembly

#### Proper assembly



#### **WARNING!**

#### **Incorrect assembly can put lives at risk!**

If assembly does not take place in an approved area or if the materials and components supplied are used for purposes other than to assemble the revolving door, this can lead to serious injury and significant material damage.

- Assemble revolving door in approved areas only.
- Use materials and components supplied for assembly of the revolving door only.
- Never construct or configure the revolving door other than as described in this document.
- Never use equipment other than that described in this document for assembly.
- Do not install the revolving door over soft flooring (e.g. carpeting).
- Never affix additional objects to the revolving door or suspend objects from it.
- Never use replacement parts that are not approved by the manufacturer.

#### Electrical cables



#### **WARNING!**

#### **Life-threatening danger due to electricity!**

Operator, controller and power supply unit are energized. Touching the components poses an immediate risk of death from electric shock.

- When laying cables, ensure that the insulation is not damaged.
- Replace components and cables with damaged insulation immediately.
- Do not place or set down loads on cables.

#### Heavy components



#### **WARNING!**

#### **Risk of injury from heavy components!**

Manual lifting of heavy components can lead to injury.

- Use appropriate equipment such as lift trucks and other lifting devices.
- Never lift alone.

#### Adequate lighting



#### **WARNING!**

#### **Risk of injury due to inadequate lighting during assembly!**

Inadequate or nonexistent lighting at the assembly location can lead to personal injury.

- Always ensure there is adequate lighting at the assembly location.
- Never carry out assembly with defective or missing lighting at the installation location.

#### Welding work



#### **WARNING!**

#### **Risk of injury when welding!**

There is a risk of eye injury during welding as a result of flash burns, burns caused by contact with hot surfaces, spatter and sparks and breathing problems caused by inhalation of welding smoke.

- Wear personal protective equipment.
- Ventilate the working area well. For lengthy welding work in enclosed spaces, use an extraction system.
- If adequate ventilation or extraction cannot be ensured, wear breathing apparatus.

#### Sharp edges and pointed corners



#### **CAUTION!**

#### **Risk of injury on sharp edges and pointed corners!**

Sharp edges and pointed corners on components can cause abrasions and cuts.

- When handling sharp or pointed components, wear protective gloves and safety shoes.
- Handle components carefully and properly.
- When transporting components, take account of the weight.

## Local regulations



### NOTE!

#### Risk of material damage if local regulations are not observed!

Deviations from the local regulations when assembling the revolving door can lead to material damage.

- Assemble revolving door in the intended position only.
- If anything is unclear, please consult the facility operator.

## 5.2 Prepare the assembly surface

The revolving door may be assembled either on a raw or a finished floor.

For assembly on a raw floor, the floor ring is worked into the screed.

Assembly on a finished floor is carried out without a floor ring. The fixing components of the revolving door are screwed into the finished floor.

### 5.2.1 Assembly with floor ring

#### Assembling the floor ring

#### Requirements

- Mechanic
- Protective gloves
- Protective clothing
- Safety shoes



### NOTE!

#### Material damage due to improper assembly of the floor ring!

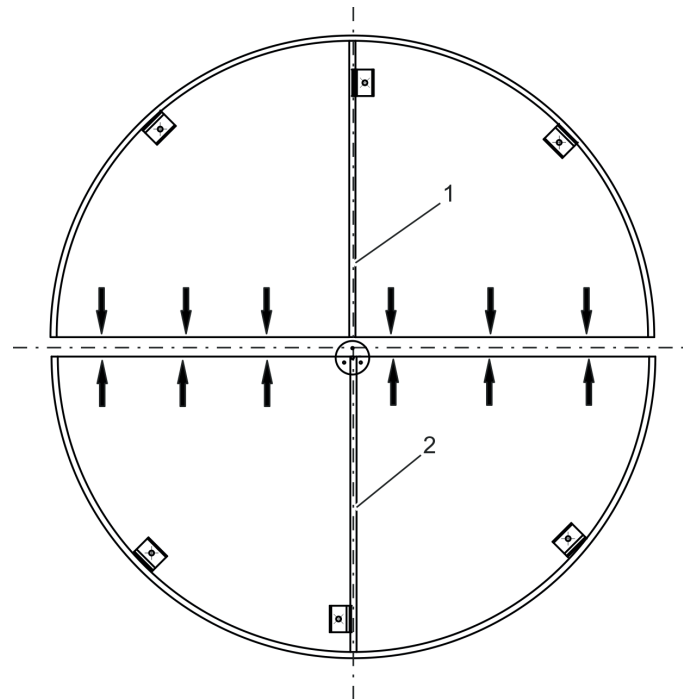
Improper alignment of the floor ring can lead to defective assembly of the revolving door.

- Always position the floor ring on the assembly surface in accordance with local specifications.
- When laying the floor ring, ensure that it is level.

The floor ring is supplied in 2 halves. The halves are screwed together. The floor ring is then positioned on the upper edge of the finished floor.

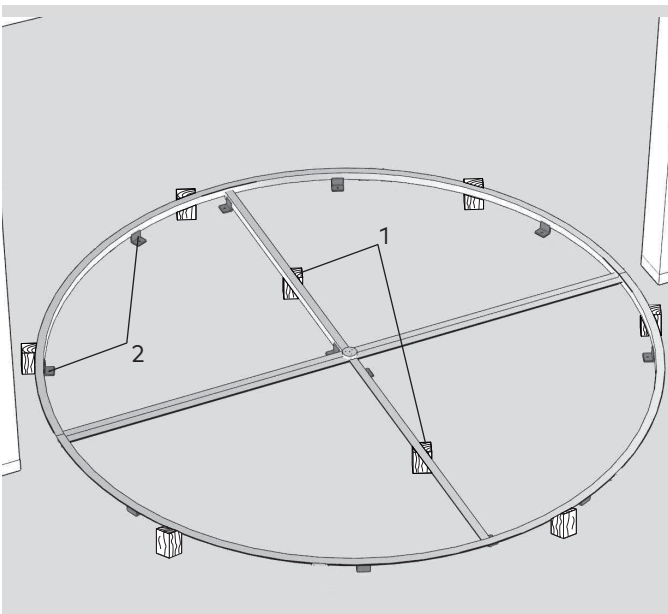
Make sure:

- Details of the assembly location of the revolving door are available.
- Information from facility operator about the finished floor (upper edge of the finished floor) is available.
- Blocks (e.g. wooden) to align the floor ring with the top edge of the finished floor are available.
- Checklist for floor ring assembly has been completed ([9.2 Floor ring dimensional check, p. 96](#)).



**Fig. 29 Floor ring halves**

1. Screw together floor ring halves ([Fig. 29/1 + 2](#)) at the marked points ([Fig. 29/↑ + ↓](#)).
2. Position the floor ring so that it is level, taking account of the local information about the assembly surface. If there is a night shield, ensure that there is the corresponding offset on the outside.



**Fig. 30 Floor ring**

3. Floor ring evenly with the upper edge of the finished floor with blocks (Fig. 30/1), as shown in Fig. 30.
4. Check and record details of the floor ring (9.2 Floor ring dimensional check, p. 96).

### Leveling the floor ring

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Laser leveling device with stand
- Leveling staff



#### **WARNING!**

##### **Risk of injury due to improper leveling!**

If the floor ring is not level, the revolving door may be damaged during operation and personal injury may result.

- Never continue with assembly if floor ring has not been leveled.



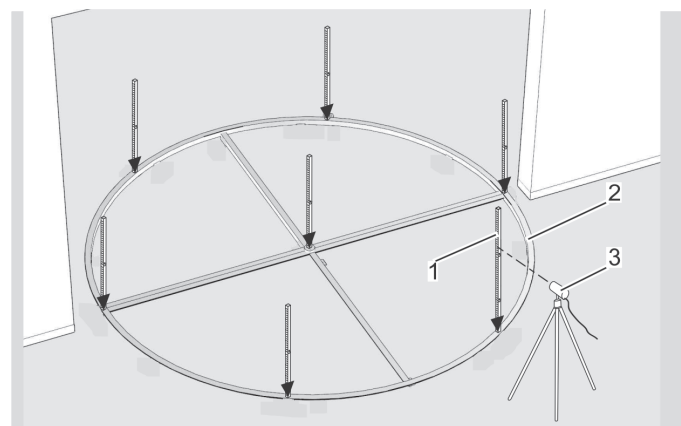
#### **NOTE!**

##### **Material damage due to improper leveling!**

Improper positioning of the stand or leveling staff may lead to measurement errors when leveling. Measurement errors can lead to incorrect assembly of the revolving door. This will result in material damage.

- Before leveling, ensure that the stand is securely positioned on the ground and cannot wobble or tilt.
- Before leveling, ensure that the laser leveling device is aligned horizontally on its stand.
- Always position the leveling staff vertically during leveling.
- After leveling note the tolerance of  $\pm 2$  mm for the individual measured values to the reference value.

The floor ring is aligned with the upper edge of the finished floor on site. The level positioning of the floor ring is then checked.



**Fig. 31 Leveling the floor ring**

1. Position the laser leveling device (Fig. 31/3) in front of the floor ring (Fig. 31/2).
2. Select a reference point, then position the leveling staff (Fig. 31/1) vertically at any point on the floor ring.

3.



The reference point is used for the following measuring points.

Measure reference point and note the reading.

4. Repeat the measurement at a minimum of 6 different points distributed over the circumference and center of the floor ring. Note the measurements and positions.
5. Compare measurements with reference value. The deviation tolerance for measurements is  $\pm 2$  mm.
6. Adjust measurement points that lie outside the tolerance.
7. Repeat measurement as per steps 3–6 until the levelness of the floor ring is within the tolerance.

## Fitting the floor ring

### Requirements

- Mechanic
- Welders
- Protective clothing
- Safety glasses
- Protective gloves
- Welder's protective apron
- Welding mask
- Safety shoes
- Leveling staff
- Laser leveling device with stand
- Hand brush and dustpan



#### NOTE!

#### Material damage due to improper filling of the floor ring!

Improper filling of the floor ring can lead to material damage during subsequent fitting of the revolving door.

- Always arrange for a specialist company to fill the floor ring.
- When filling, always ensure that measurement C is observed.

Depending on the deviation from the height to the subsequent finished floor, the base of the floor ring is welded directly to the floor ring or adjusted with a spacer plate for the height difference.

As an option, the floor ring is fitted with a center or circumferential clamping flange to which a sealing film provided by the customer can be attached.

1. Depending on the height difference, place the base on the floor ring (Fig. 32) according to variant 1 or 2 (Fig. 32/1 or 2).
2. Mark base holes on floor.
3. Remove base section.
- 4.



#### CAUTION!

Risk of injury from flying chips during drilling!

Drill marked holes. The hole depth is determined by the screw length. Wear safety glasses.

5. Clean out the holes.
6. Insert dowels into the holes.
7. Align base (Fig. 32/1 or 2) with holes and floor ring (Fig. 32).
8. Fit base (Fig. 32/1 or 2) in ground.
- 9.



#### WARNING!

Risk of injury when welding!

Weld base (Fig. 32/1 or 2) to floor ring (Fig. 32), wear welding mask and protective apron when doing so.

10. Check upper edge of finished floor measurement and measurement C again (Leveling the floor ring, p. 35) and adjust as necessary by shimming the floor ring.

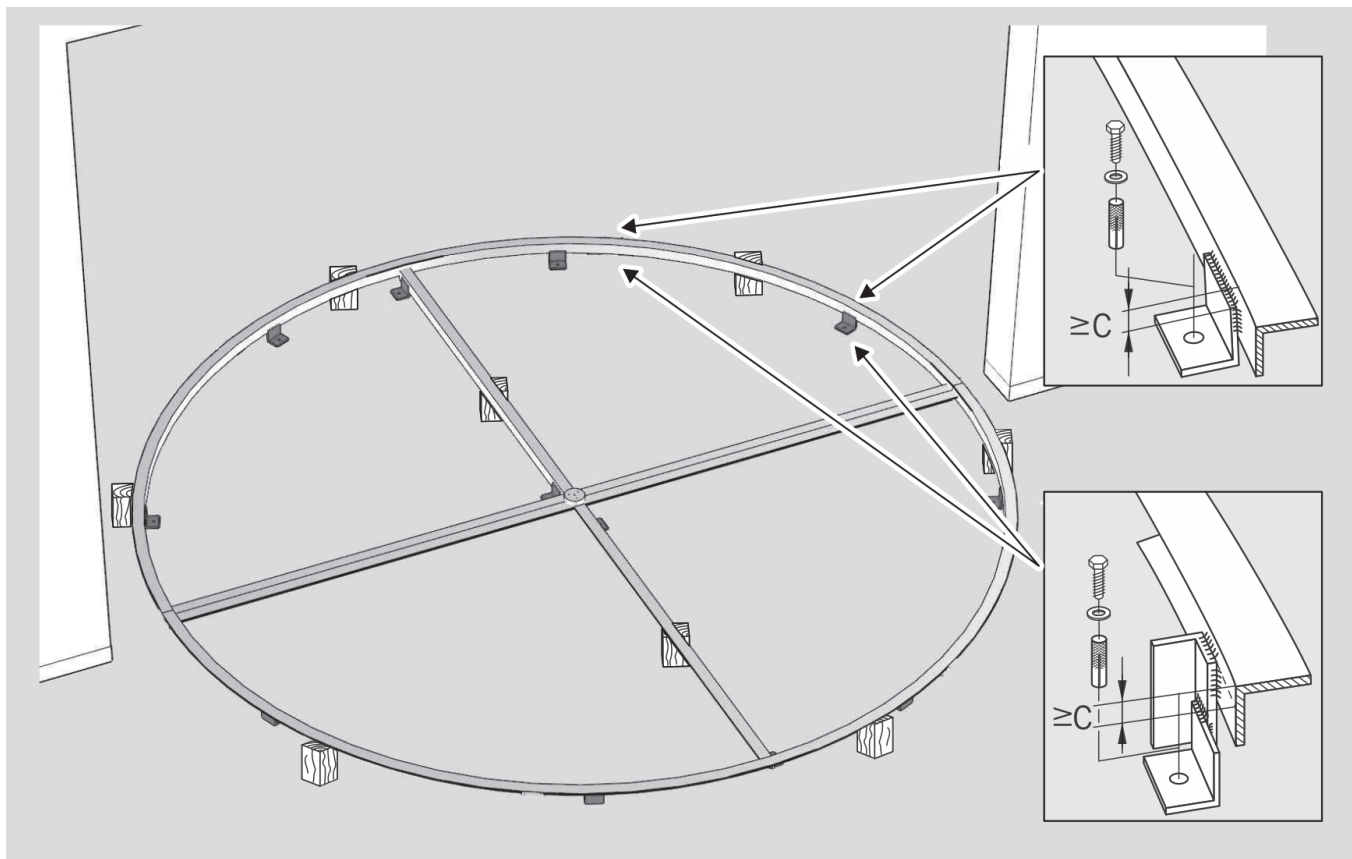
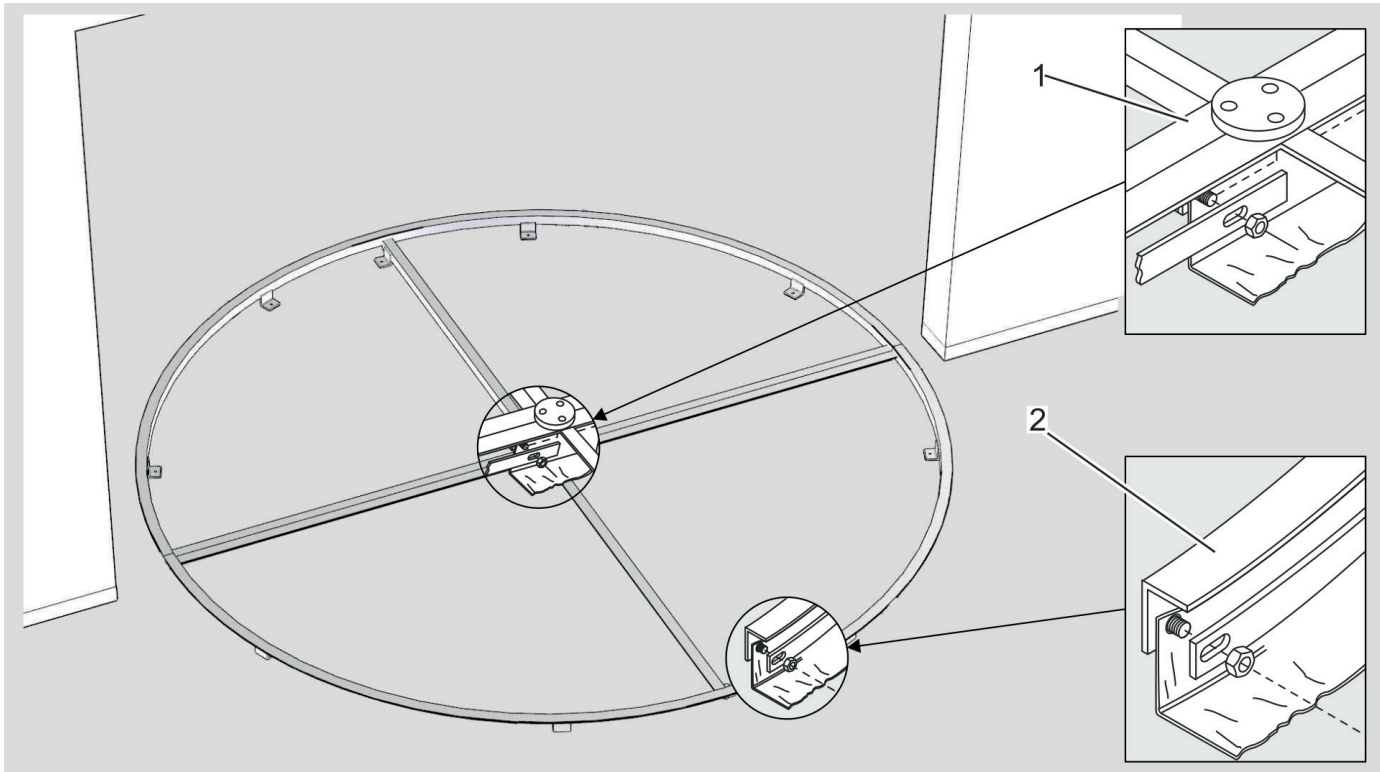


Fig. 32 Floor ring height adjustment

## Sealing the floor ring



**Fig. 33** Sealing the floor ring

1. Seal floor ring with clamping flange in the center or on the outer circumference, depending on variant (Fig. 33/1 or 2).
2. Check floor ring in accordance with Test Protocol A (9.3 Test Log A – Floor ring before filling, p. 97).
3. Arrange for a specialist company to fill the floor ring in the screed. Ensure that measurement C is maintained during filling.
4. Check floor ring in accordance with Test Protocol B (9.4 Test Log B – Floor ring after filling, p. 98).



### **WARNING!**

#### **Risk of injury due to improper leveling!**

If the finished floor is not leveled before assembly, faults can occur during subsequent operation of the revolving door. This can lead to dangers that can cause serious injury and significant material damage.

- Always level finished floor before assembly.
- Never assemble without first leveling.

## 5.2.2 Assembly on a finished floor

### Preparing finished floor

#### Requirements

- Mechanic
- Protective clothing
- Safety glasses
- Protective gloves
- Safety shoes
- Hand brush and dustpan
- Plastic hammer
- Laser leveling device with stand



### **NOTE!**

#### **Material damage due to improper leveling!**

Improper positioning of the stand or leveling staff may lead to measurement errors when leveling. Measurement errors can lead to incorrect assembly of the revolving door. This will result in material damage.

- Before leveling, ensure that the stand is securely positioned on the ground and cannot wobble or tilt.
- Before leveling, ensure that the laser leveling device is aligned horizontally on its stand.
- Always position the leveling staff vertically during leveling.
- After leveling note the tolerance of  $\pm 2$  mm for the individual measured values to the reference value.

**NOTE!****Material damage due to inaccurate marking of axis center!**

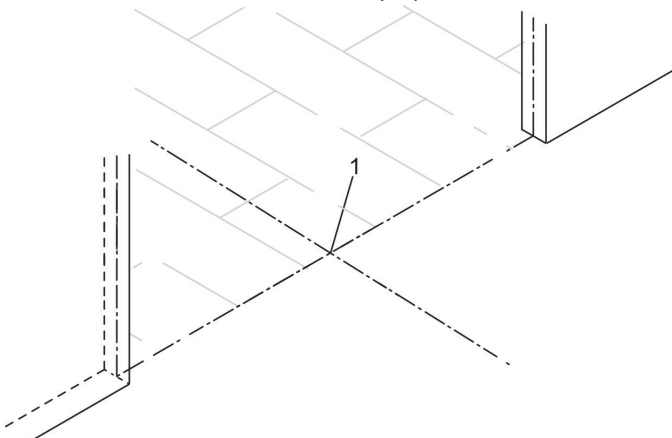
Inaccurate marking of the center of the axis on the assembly surface can lead to subsequent discrepancies during assembly. This can result in faults and material damage.

- Always mark the axis center accurately.
- Always use the drilling template provided to mark the holes.

The holes for the fixing components and bearing shell must first be drilled into the finished floor. The fixing components are then fitted into the holes with dowels.

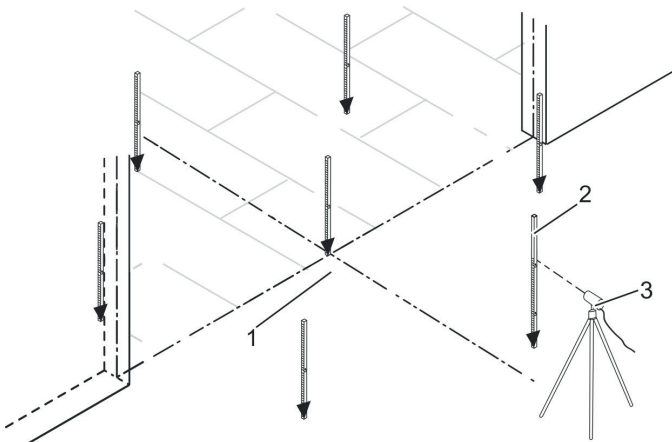
Make sure that:

- Details of the assembly location of the revolving door are available from the facility operator.



**Fig. 34** Center of axis

1. Mark center of axis (Fig. 34/1) accurately on assembly surface.



**Fig. 35** Leveling finished floor

2. Position the laser leveling device (Fig. 35/3) horizontally in front of the assembly surface (Fig. 35/1).
3. Position the leveling staff (Fig. 35/2) vertically at any point on the assembly surface to select a reference point.

4.



The reference point is used for the following measurements.

Measure reference point and note the reading.

5. Take measurements at a minimum of 6 different points, as shown in the example in Fig. 35 and note the readings.
6. Compare measurements with reference value. The deviation tolerance for measurements is  $\pm 2$  mm. If the measurements are outside the tolerance the finished floor must be reworked or re-prepared by a specialist company.

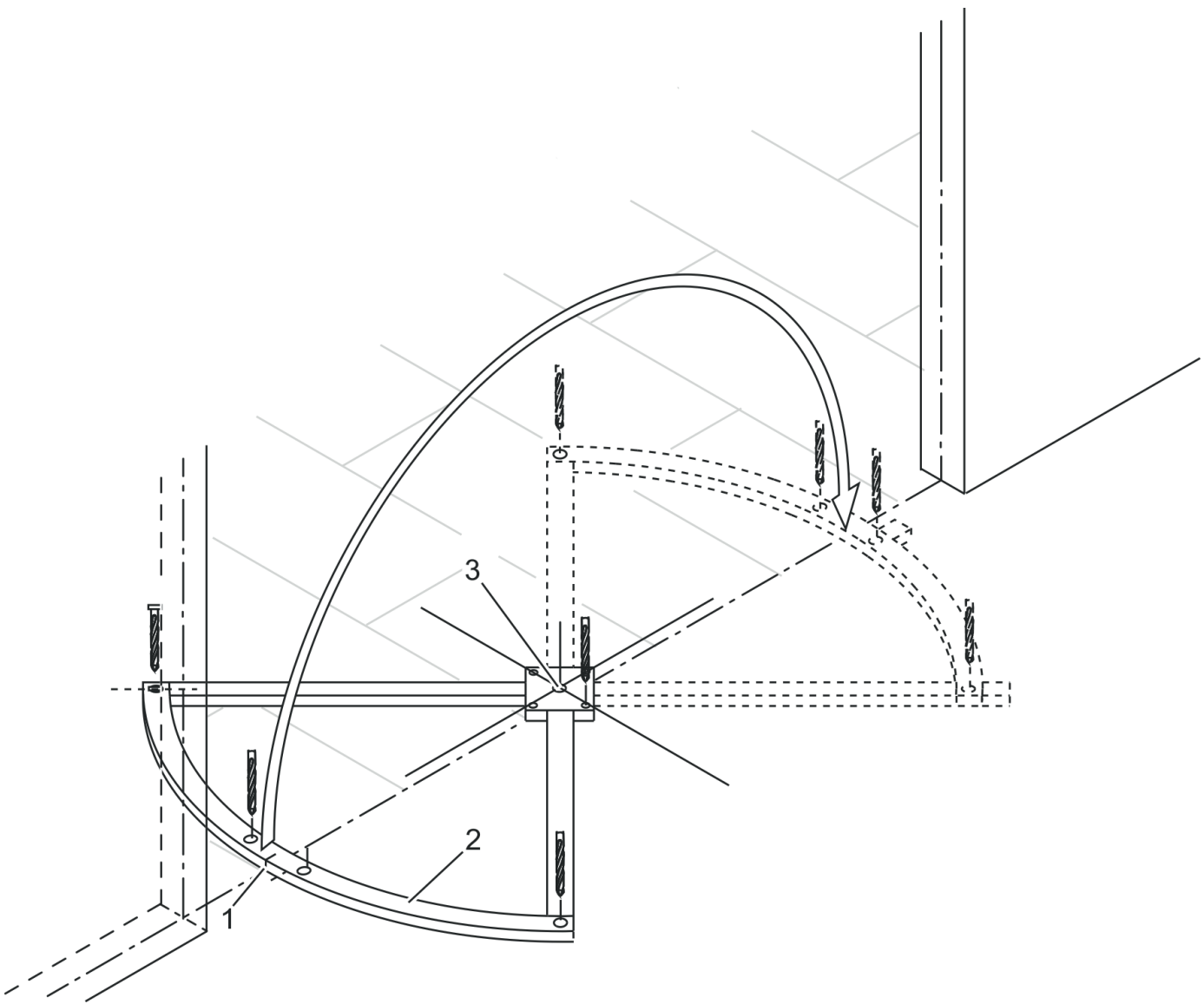
7.

**CAUTION!**

**Risk of injury due to improper drilling!**

Drill in the center point. The hole depth is determined by the screw length. Wear safety glasses.

8. Clean the hole.
9. Insert dowels into the holes.



**Fig. 36** Use drilling template

10. Align drilling template (Fig. 36/2):
  - with center point (Fig. 36/3)
  - Notch (Fig. 36/1) at center of axis
11. Fix drilling template (Fig. 36/2) in center (Fig. 36/3) with screw.
12. Mark holes on floor.
13. Loosen screw.
14. Turn drilling template (Fig. 36/2) over onto the opposite side.
15. Align drilling template (Fig. 36/2):
  - with center point (Fig. 36/3)
  - Notch (Fig. 36/1) at center of axis
16. Fix drilling template (Fig. 36/2) with screw.
17. Mark holes on floor.
18. Loosen screws and move drilling template (Fig. 36/2) away from the working area.
- 19.



**CAUTION!**  
Risk of injury due to improper drilling!

Drill marked holes and wear safety glasses while doing so.

20. Clean out the holes.
21. Insert dowels into the holes.
22. Align fixing components on the drum wall segments with the circumference of the assembly surface using dowels.
23. Assemble fixing components.
- 24.



Only if a rigid, fine-frame (profile) turnstile is supplied.

Fit lower bearing plate in center of axis.



## 5.3 Assembling the drum wall segments

### Requirements

- Mechanic
- Protective clothing
- Protective gloves
- Safety shoes
- Vacuum lifting tool
- Plastic hammer
- Screw clamp
- Screw pack S002-425
- Screw pack S002-421

The drum wall segments are assembled in pairs. At least 2 people are required to move the segments.



#### **WARNING!**

#### **Risk of injury due to improper handling of drum wall segments!**

Improper lifting of a drum wall segment can lead to accidents involving serious injury. If a segment is set down incorrectly, the glass may shatter and cause material damage.

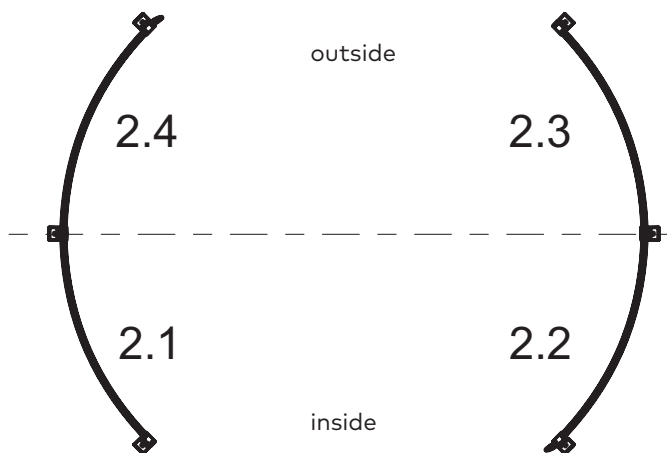
- Always lift and transport segments with the aid of vacuum lifting tool.
- At least 2 people are always required to lift or transport segments.
- Never lift or lower segments with sudden movements.
- Always lift and transport segments separately.
- Clean dirty glass surfaces to prevent the vacuum lifting device from slipping/coming away.



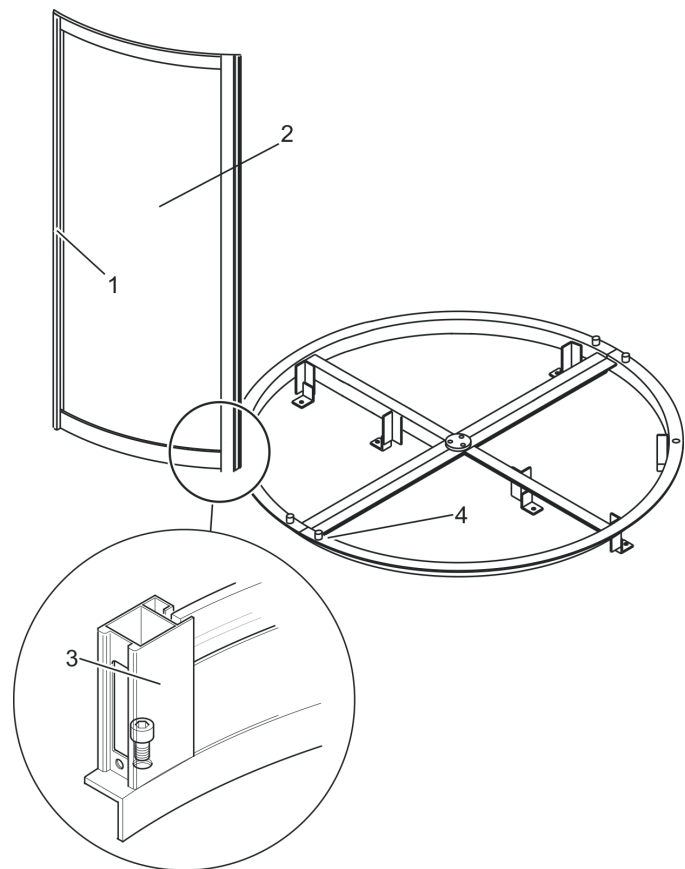
#### **NOTE!**

#### **Property damage through wrong arrangement of the drum wall segments**

Note the arrangement of the segments (Fig. 38/1) when mounting the drum wall segments.



**Fig. 37** Assembling the drum wall segments



**Fig. 38** Assembling the drum wall segments

1. Carefully position drum wall segment (Fig. 38/2) on fixing component (Fig. 38/4).

2.



#### **WARNING!**

#### **Risk of injury due to a drum wall segment falling over!**

Align rear recess (Fig. 38/3) of the drum wall segment with hole and tighten hand-tight.

3. Push rubber seal evenly into the groove in the side drum wall (Fig. 38/1). If necessary, make holes in the rubber seal for screw heads.
4. Set up the next drum wall segment alongside the assembled drum wall segment. In doing so, ensure that the rubber seal sits evenly.
5. Check that the rubber seal sits evenly. If necessary, Press in the rubber seal.

6.

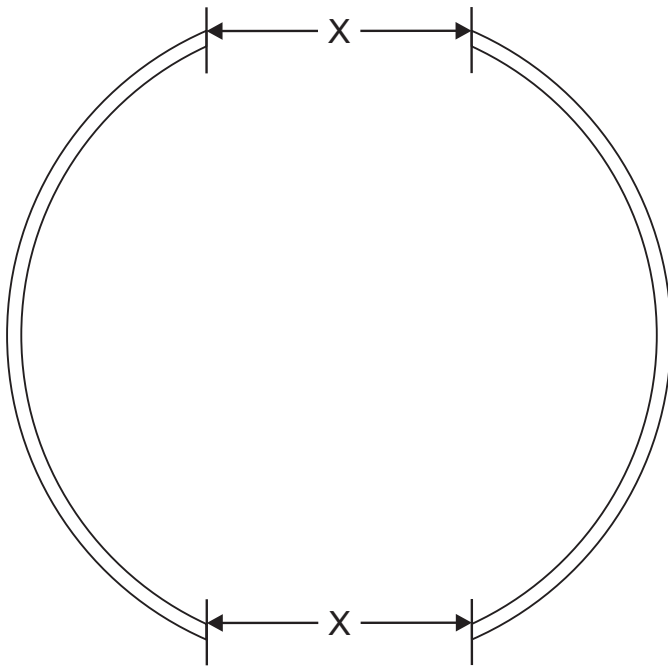


#### **WARNING!**

#### **Risk of injury due to a drum wall segment falling over!**

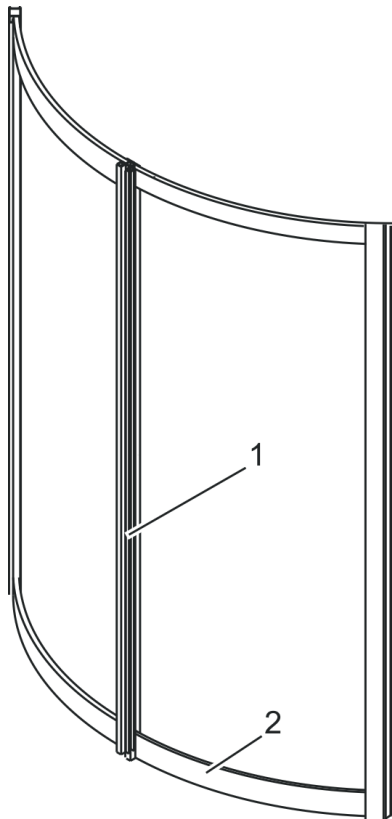
Align rear recess of the drum wall segment (Fig. 38/3) with hole and tighten hand-tight.

7. Set up opposite drum wall segment as described in steps 1–6.



**Fig. 39** Check clearance

8. Check clearance X (Fig. 39) between drum wall segments at the entrance and exit against the drawing specifications.
9. If there is a discrepancy, slightly loosen drum wall fastening and align to clearance dimensions.
10. Check clearance again. If necessary, re-align drum wall segments.
11. Tighten drum wall segments.



**Fig. 40** Drum wall pair

12. Press together both drum wall pairs (Fig. 40/2) on the assembled side with a screw clamp (Fig. 40/1) in the center of each.

## 5.4 Install the proximity sensor for the manual night shield

### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety glasses
- Safety shoes
- Manual deburrer Ladder
- Ladder



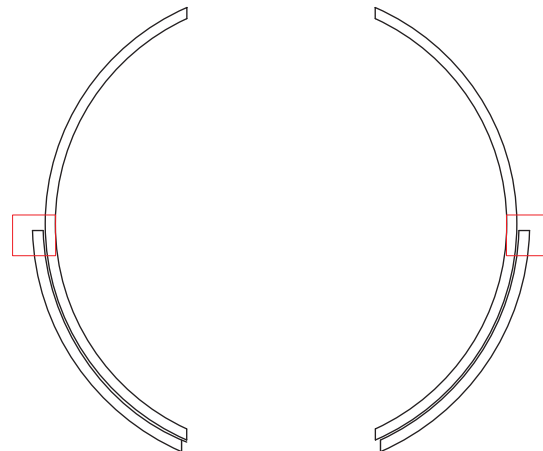
#### NOTE!

**Material damage due to improper connection of the sensors!**

Sensors that are connected incorrectly can lead to damage to the controller or sensors.

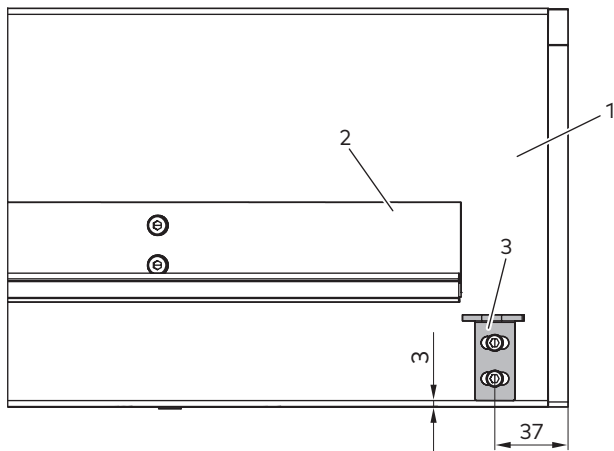
- Connect the sensors to the controller according to the wiring diagram.

### 5.4.1 Install the exterior night shield



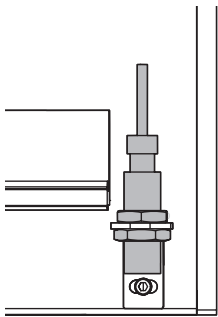
**Fig. 41** Position of the external proximity sensors in a KTV 4

Fit the proximity sensor on the outside of the ceiling structure and on the end profile of the night shield wing (Fig. 41).



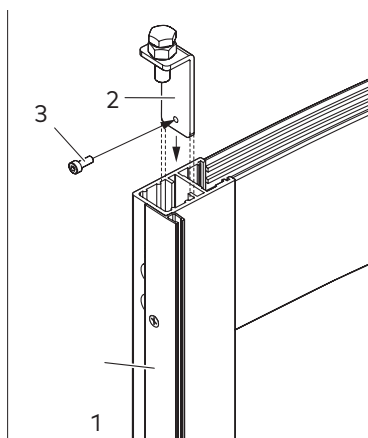
**Fig. 42** Mount the outer angle bracket

1. Fit the angle bracket (Fig. 42/3) to the ceiling half (Fig. 42/1) on which the track (Fig. 42/2) for the night shield is mounted.
2. Position the angle bracket as in Fig. 42.
3. Mark the mounting points and pre-drill ( $\varnothing 3,6$ ).
4. Screw the angle bracket to the ceiling structure using the self-tapping screws.



**Fig. 43** Install the proximity sensor on the outside

5. Attach the proximity sensor as shown in Fig. 43 with the nut (1x top and 1x bottom) to the angle bracket.
6. Drill a hole  $\varnothing 10$  mm from the inside to the outside in the ceiling structure to connect the cable from the sensor to the controller.



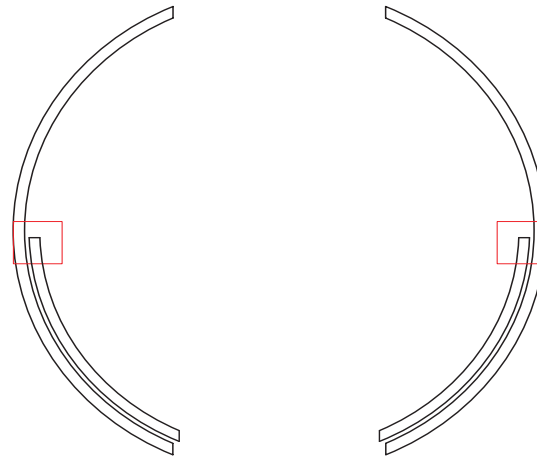
**Fig. 44** Mount the detector bracket on the night finisher

7. Remove the brush holder profile (Fig. 44/1).
8. Screw the enclosed screw into the angle slightly (Fig. 44/3).
9. Insert the detector angle (Fig. 44/2) into the end profile of the night shield wing. The short end of the angle points away from the wing.
10. Fix the detector angle with the screw (Fig. 44/2) in

the profile through the upper hole.

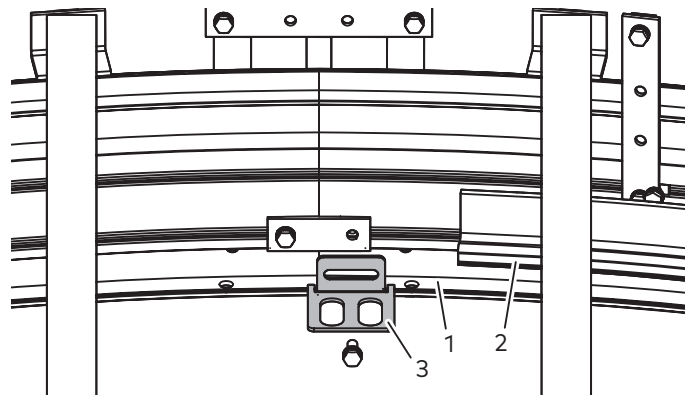
11. Reassemble the brush holder profile (Fig. 44/1).

#### 5.4.2 Install the interior night shield



**Fig. 45** Position of the interior proximity sensors

Mount the holder of the proximity sensor on the inside of the ceiling structure and the detector angle at the end profile of the night shield (Fig. 45).



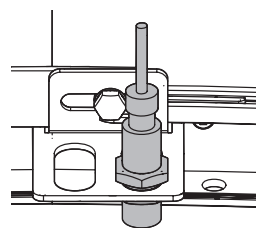
**Fig. 46** Mounting of inside angle brackets

Connect the two ceiling halves in the lower area with a short connector. Attach the angle bracket to this connector.

1. Attach the angle bracket (Fig. 46/3) to the ceiling half (Fig. 46/1) using the screw supplied, to which the track (Fig. 46/4) for the night shield is also mounted.



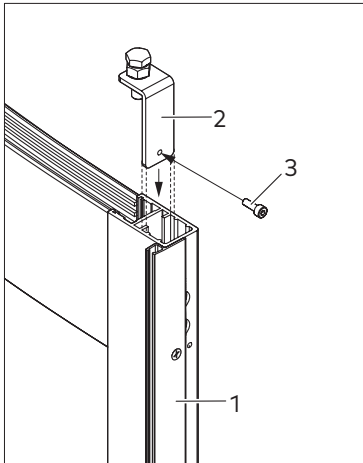
If the two ceiling halves are already connected, the screw must be replaced by the enclosed screw on the ceiling half (Fig. 46/1), which is also fitted with the night shield rail (Fig. 46/4).



**Fig. 47** Installation of the proximity sensor on the inside

2. Mount the proximity sensor as shown in Fig. 47 with

the nuts (1x top and 1x bottom) to the angle bracket.



**Fig. 48** Mounting of the proximity sensor on the night shield

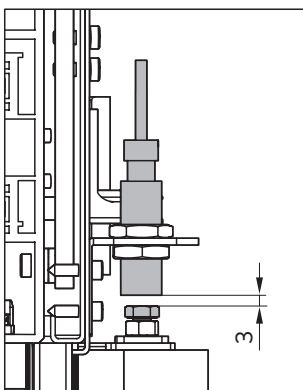
3. Remove the brush holder profile (Fig. 48/1).
4. Screw the enclosed screw into the mounting bracket slightly (Fig. 48/3).
5. Insert the detector angle into the end profile of the night shield. The short end of the detector angle points to the wing (Fig. 48/2).
6. Fix the detector angle through the upper hole in the profile with the screw (Fig. 48/2).
7. Reassemble the brush holder profile (Fig. 48/1).

### 5.4.3 Set and connect the proximity sensor

#### Requirements

- The proximity sensors are now mounted.
- Wiring diagram is available.
- Overview of controller connections is available (9.12 Overview of controller, p. 115).

Whether the sensor is mounted inside or outside, the height can be adjusted.



**Fig. 49** Adjusting the proximity sensor

1. Adjust the height of the sensor using the screw and the nuts. The optimum distance is 3 mm (Fig. 49).

**i** Adjust the height of the screw so that the screw does not collide with the end stop on the guide rail when the night shield is closed.

2. Adjust the height of the sensor with the nuts.
3. Feed the sensor cable through the cable ducts to the control unit. Follow the wiring diagram.
4. Connect the sensor to the control using the wiring diagram.

## 5.5 Assembling the ceiling structure

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Lift trucks
- Bearing blocks
- Spirit level 2 m long
- Ladder
- Screw pack S002-400
- Screw pack S002-401
- Screw pack S002-402
- Screw pack S002-421



#### NOTE!

**Material damage due to improper transport or assembly of the ceiling halves!**

Improper transportation of a ceiling half can cause material damage.

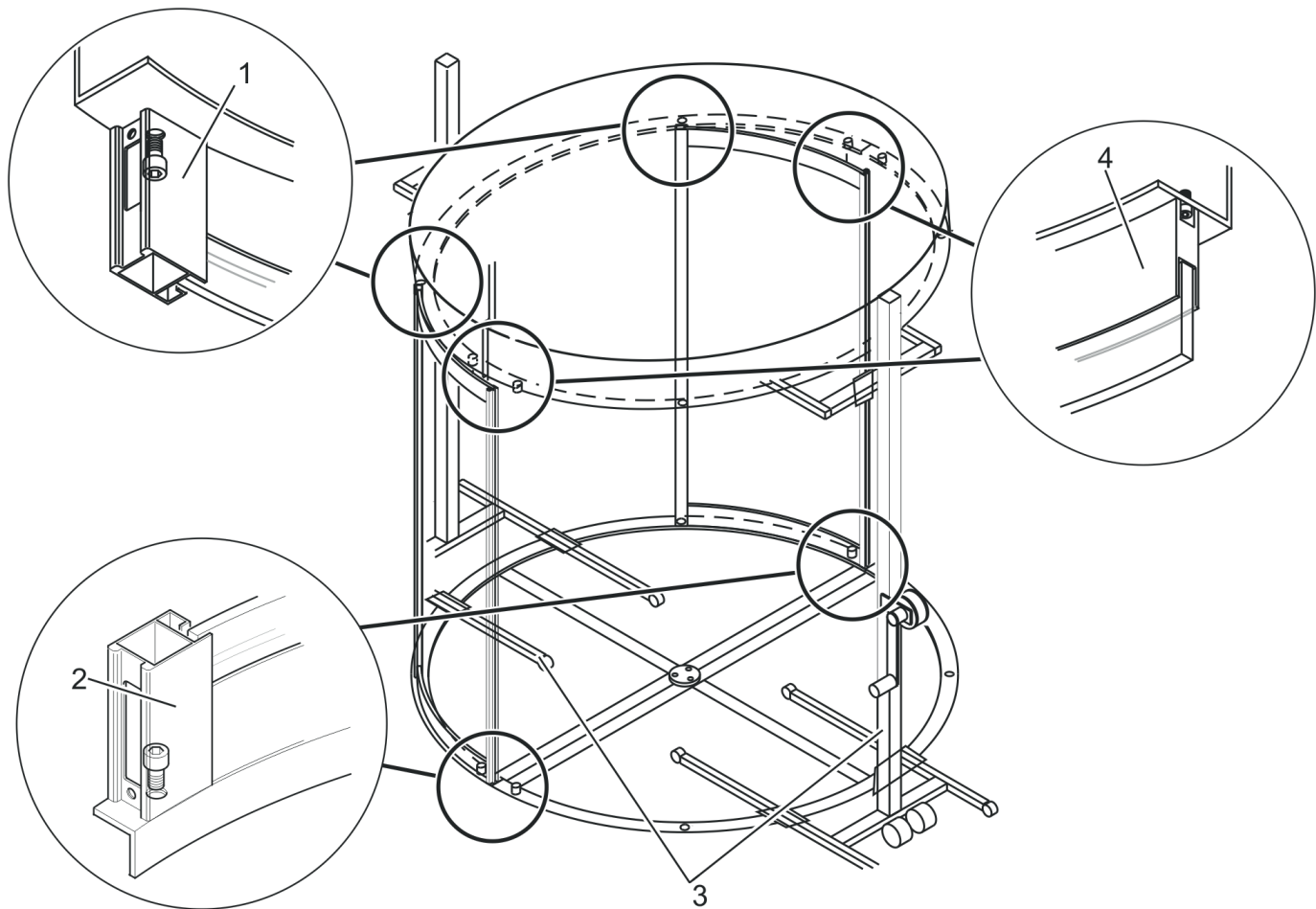
- At least 2 people are required to transport ceiling half.
- Do not place the ceiling halves directly on the ground but on a wooden support (e.g. bearing blocks).
- If one of the ceiling halves has track rails for a night shield on the inside, ensure that the ceiling half is on the outside of the building.

The ceiling structure comprises 2 ceiling halves. The ceiling halves are lifted onto the drum walls individually with the aid of lift trucks. The ceiling halves are then screwed together.



The order may differ for revolving doors with a smaller diameter. The ceiling structure can be screwed together at the bottom, and the drum walls are placed only after this.

1. Place ceiling halves on bearing blocks at the assembly location.
2. If necessary, remove protective film from the ceiling halves.
3. Position lift truck in front of the first ceiling half.
4. Lift ceiling half on lift truck.



**Fig. 50** Ceiling halves on drum wall (example)

5.



**WARNING!**  
Risk of injury if height of lift truck is insufficient!

Raise lift truck (Fig. 50/3) until the first ceiling half can be pushed over the drum wall segments.

6. Push raised ceiling half over drum walls and align as shown in Fig. 50. With an inside night shield, ensure that the track rail is on the outside of the building.

7.

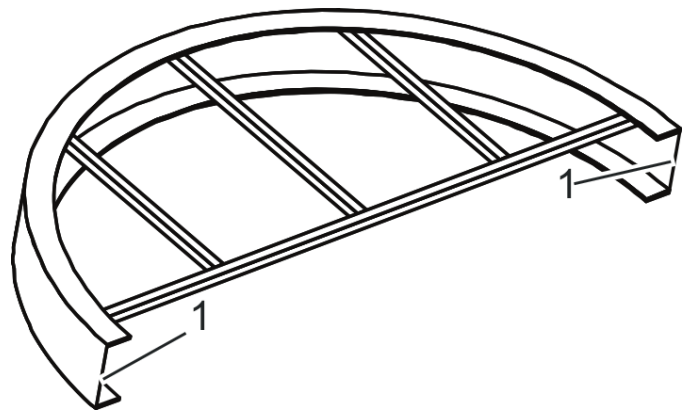


**WARNING!**  
Risk of injury due to incorrect lowering of the ceiling structure!

Lower ceiling half evenly and carefully onto drum walls.

8. Check that ceiling half is positioned evenly on the drum walls (Fig. 50/4).

9. If necessary, slightly raise ceiling half, re-align and lower.



**Fig. 51** Ceiling half (example)

10. On the two edges (Fig. 51/1) of the raised ceiling half (Fig. 51), insert a connecting bracket into the grooves on the inside.

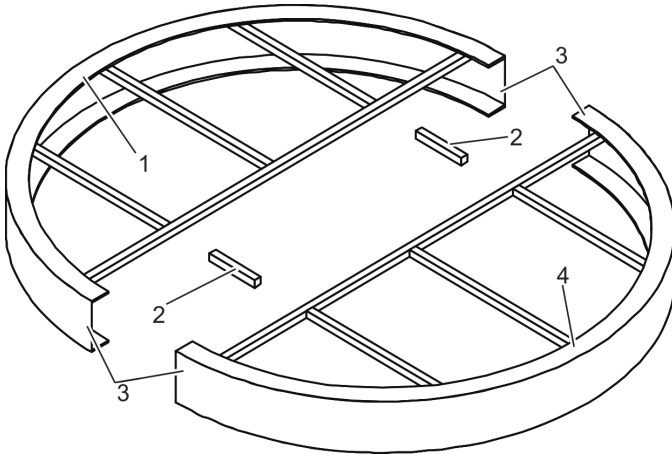
11. Lower lift truck completely and position in front of the second ceiling half.

12. Lift second ceiling half on lift truck.

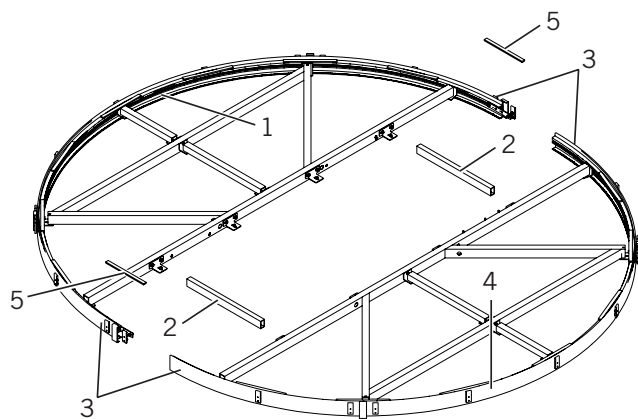
13. Raise lift truck (Fig. 50/3) until the second ceiling half can be pushed over the drum wall segments.

14. Push raised ceiling half over drum walls and align as shown in Fig. 50. With an inside night shield, ensure that the track rail is on the outside of the building.

15. Lower ceiling half evenly and carefully onto drum walls.
16. Check that ceiling half is positioned evenly on the drum walls (Fig. 50/4).
17. If necessary, slightly raise ceiling half, re-align and lower.
18. Lower lift truck completely and move out of working area.
19. Check that ceiling half is positioned evenly on the drum walls (Fig. 50/4).
20. If necessary, slightly raise ceiling structure, re-align and lower.
21. Lower lift truck completely and move out of working area.

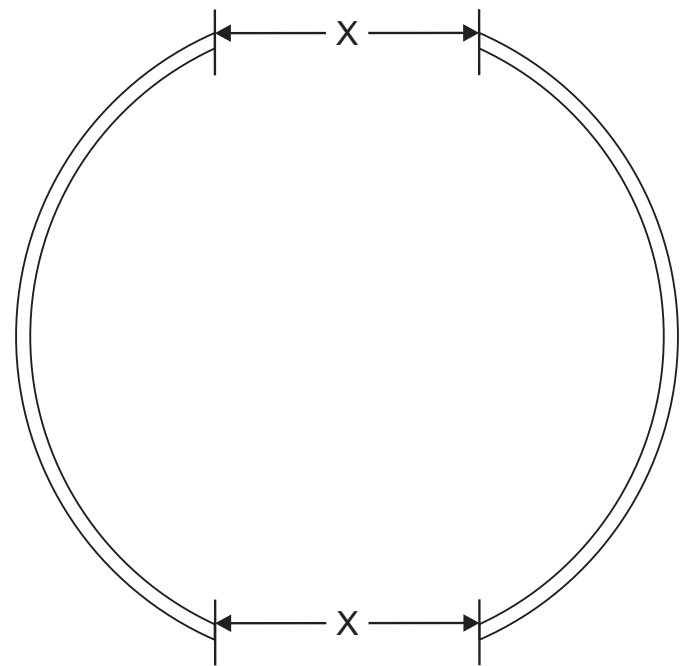


**Fig. 52** Ceiling structure (example)



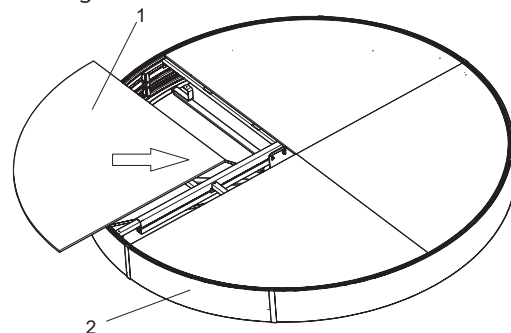
**Fig. 53** Ceiling structure with 100 mm canopy height and KT FLEX Direct Operator

22. Connect ceiling halves (Fig. 52/1 + 4 and Fig. 53/1 + 4) with 2 struts (Fig. 52/2 and Fig. 53/2) in the center.
23. Align both connecting brackets from the first ceiling half between the edges (Fig. 52/3 and Fig. 53/3) of both ceiling halves.
24. Fasten aligned connecting brackets with mounting screws in the sliding nuts.
25. Affix spacers (Fig. 53/5) after joining the ceiling halves (bag 9501900275800). Use a suitable construction adhesive.
26. Assemble ceiling structure hand-tight with drum walls (Fig. 50/1).



**Fig. 54** Clearance

27. Check clearance X between drum walls at entrance and exit (Fig. 54).
28. If there is a discrepancy, slightly loosen drum walls until hand tight (Fig. 50/2) and align to clearance dimensions.
29. Check clearance again. If necessary, Re-align drum walls.
30. Check that drum wall pairs are perpendicular with spirit level and align as necessary.
31. Tighten drum walls in the ground (Fig. 50/2).
32. Tighten all connections on the ceiling halves.
33. Tighten ceiling structure on drum walls (Fig. 50/1).
34. Tighten connecting elements between the edges of the ceiling halves.



**Fig. 55** Positioning the upper ceiling

35. Position upper ceiling elements (Fig. 55/1) (4x) from above in ceiling structure (Fig. 55/2).

## 5.6 Suspending the night shield

### Requirements

- Mechanic
- Electrician
- Protective clothing
- Safety shoes
- Cable ties
- Cable tie holders

**i** Available only for standard ceiling structures.



**NOTE!**  
**Material damage due to incorrect adjustment of the carriages!**

If the carriages on the night shield are not adjusted as specified, the night shield may jam, which can result in material damage.

- Always adjust the carriages to the specified spacing height of 7 mm (Fig. 57).

The night shield is suspended in the track rail of the ceiling structure. Depending on whether the night shield is inside or outside, the track rail is either inside or outside the ceiling structure.

**i** Only one night shield segment is used with 3-wing systems.

1.



**CAUTION!**  
**Risk of injury due to improper transport!**



Suspend night shield outside in outside track rail.

Suspend the night shield in the track rail with 2 persons. Make sure that the carriages (2x) rest evenly on the track rail and the lower guide rail of the night shield is correctly aligned with the floor guide.

2.



Suspend outside night shield in outside track rail.

Suspend the night shield in the track rail with 2 persons. Make sure that the carriages (2x) rest evenly on the track rail and the lower guide rail of the night shield is correctly aligned with the floor guide.

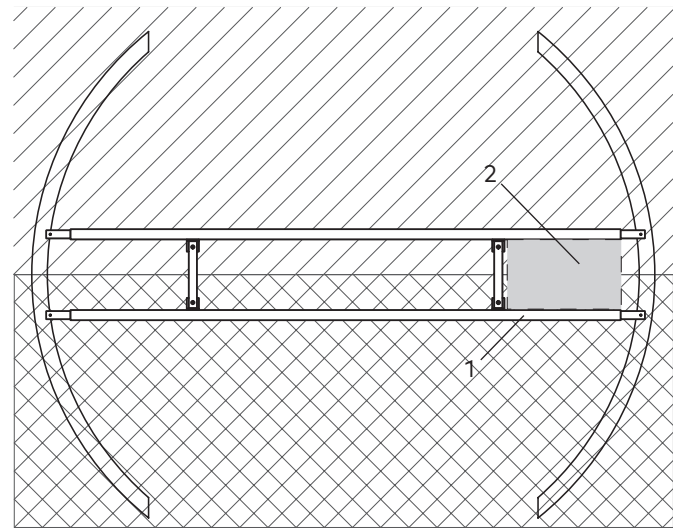
3. Fit end stops to track rails.

4.



Stages 4–6 are required only with an electric night shield.

Fit operator motor for night shield.

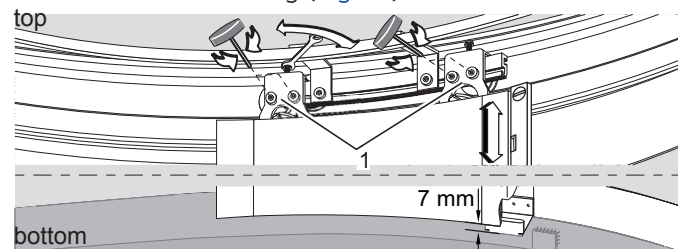


**Fig. 56** Assembling the controller and power supply unit for night shield



Building exterior  
Building interior

5. Fix controller and power supply unit (Fig. 56/2) for the night shield on center support (Fig. 56/1) on the inside of the building (Fig. 56).



**Fig. 57** Adjusting the carriages

6. Adjust carriages to spacing height of 7 mm (Fig. 57/1), as shown in Fig. 57.



## 5.7 Assembling the operator

### 5.7.1 Screw tightening torques



#### **WARNING!**

#### **Danger from wrong screw tightening torques!**

If the mounting screws for the operator or the bearing shell are tightened with the wrong tightening torque, components may detach causing injuries and material damage.

- Never exceed the maximum permissible screw tightening torque specified.
- Contact dormakaba in case of any uncertainties.

The table shows the maximum permitted screw tightening torques of the mounting screws when installing the operator and the bearing shell.

Diameter	Maximum permissible screw tightening torques [Nm]
M 8	25
M 10	40

### 5.7.2 Prepare operator for ceiling structure with 100 mm canopy height and KT FLEX Direct Operator

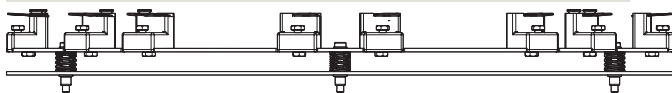
#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Assembly trestle



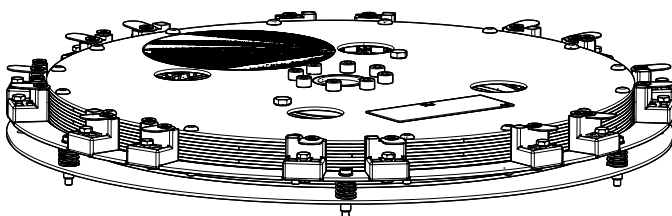
#### **NOTE!**

**Material damage due to improper preparation!**



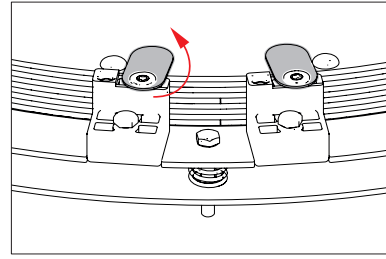
**Fig. 58 Adapter**

1. Place the adapter (Fig. 58, preassembled at factory) on an assembly stand.



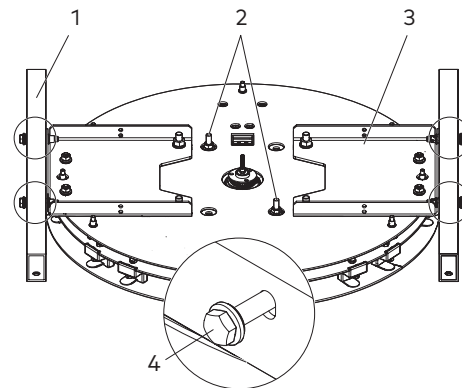
**Fig. 59 Operator with adapter**

2. Place the operator in the adapter (Fig. 59).



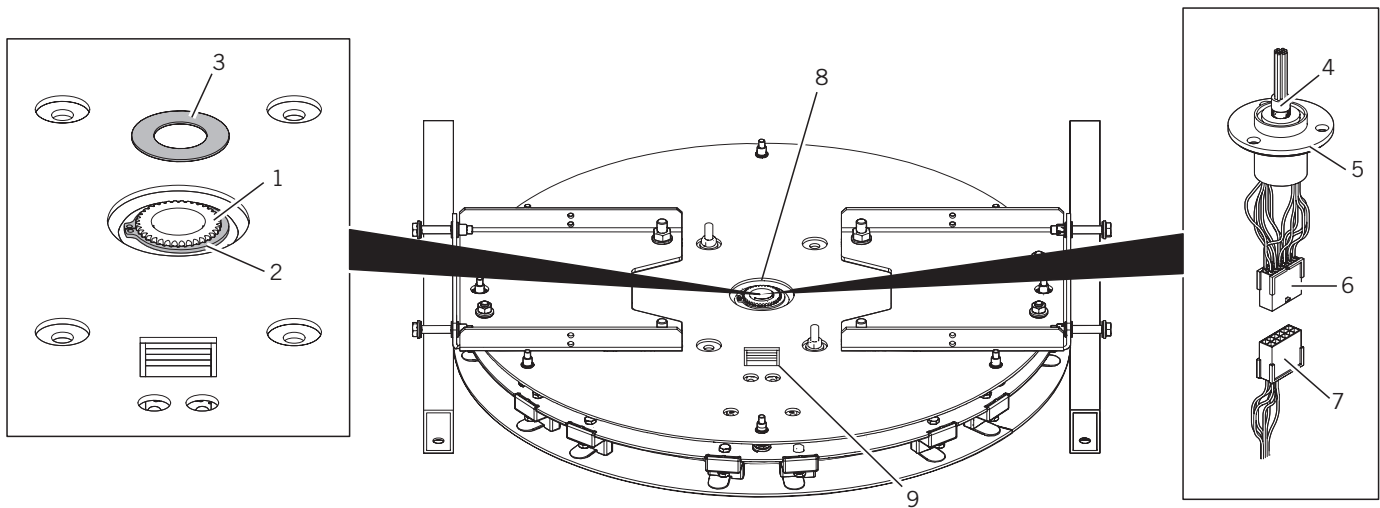
**Fig. 60 Sheet metal lugs**

3. Turn the sheet metal lugs of the operator in the direction of the operator (Fig. 60) and fix with the screws. The rotor will be secured that way after the transport securing devices are removed.

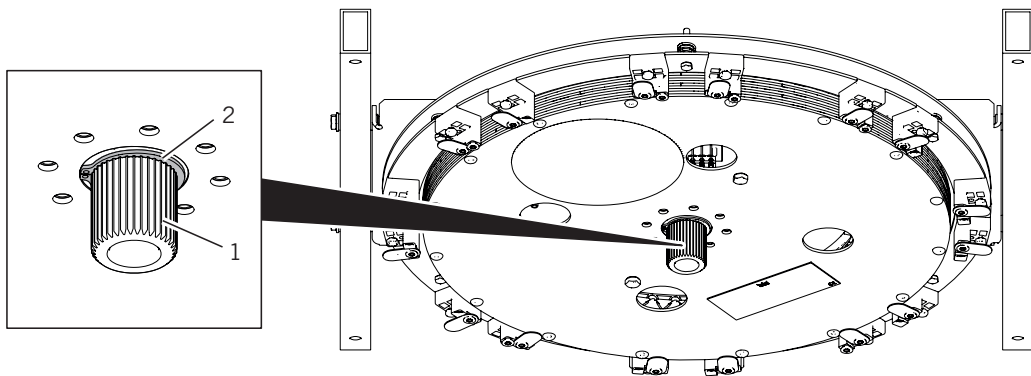


**Fig. 61 Prepared operator**

4. Remove the transport braces (Fig. 61/2).
5. Turn over the operator so that the adapter plate faces up. Secure the 2 braces (Fig. 61/1) to the 2 angle plates (Fig. 61/3) using the screws so that the screw is at the upper end of the slot (Fig. 61/4). (Screw pack 9501900275600). Observe the screw tightening torques.

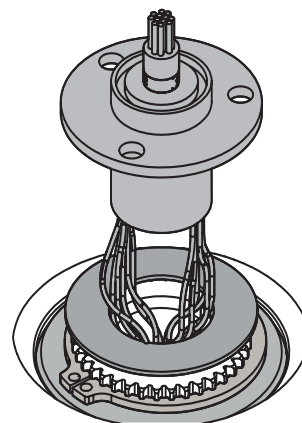


**Fig. 62** Operator (top view)



**Fig. 63** Operator (bottom view)

6. Lubricate the lower toothing of the toothed shaft (Fig. 63/1), insert into the operator center (Fig. 62/8) and secure with 2 securing rings (Fig. 62/2 and Fig. 63/2).
7. Clean the top side of the inserted toothed shaft (Fig. 62/1) with a cloth and degreaser.
8. Remove the foil from the adhesive side of the Velcro ring (Fig. 62/3) and fix to the toothed shaft.
9. Mount the slip ring.
10. Let the slip ring cable hang down next to the operator (on the motor / Hall sensor connector Fig. 62/9 side) and connect it to the control unit after the motor is installed.
11. Connect the motor and Hall effect sensor cables to the operator (Fig. 62/9).

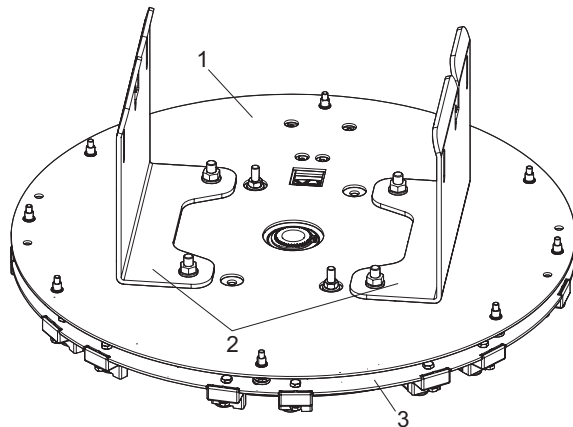


**Fig. 64** Slip ring body



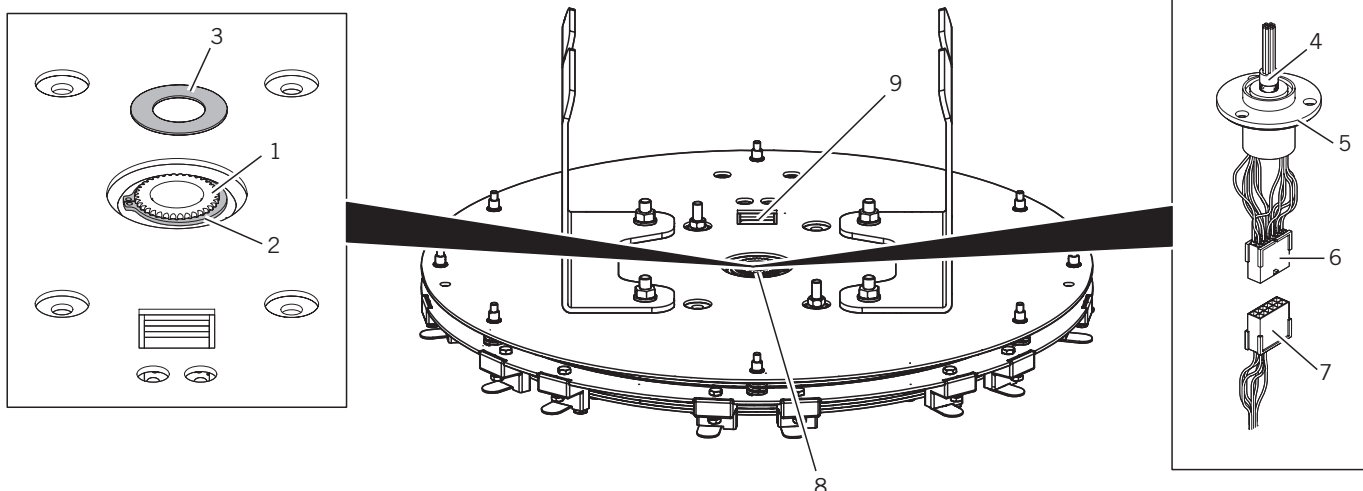
In case of a bookfold turnstile, the wing connection cable is mounted to the center column. Only when the turnstile is installed, can the connection cable be connected. (5.8.3 Inserting a bookfold turnstile (option), p. 58).

### 5.7.3 Preparing the standard operator



**Fig. 65** Top side of operator

1. Mount the adapter plate (Fig. 66/1) and angle bracket (Fig. 66/2) on the top side of the operator (Fig. 66/3) as shown in Fig. 66 (screw pack 34053201150).. Observe the screw tightening torques.



**Fig. 66** Operator (top view)

2. Mount the safety ring on the top of the toothed shaft (Fig. 66/2).
3. Grease the lower toothing of the toothed shaft (Fig. 70/1) and insert into the operator center (Fig. 66/8).
4. Clean the top side of the inserted toothed shaft (Fig. 66 /1) with a cloth and degreaser.
5. Remove the foil from the adhesive side of the Velcro ring (Fig. 66/3) and fasten to toothed shaft.



The slip ring body is assembled after the turnstile has been inserted.

### 5.7.4 Hooking in the operator

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Lift trucks
- Wooden blocks

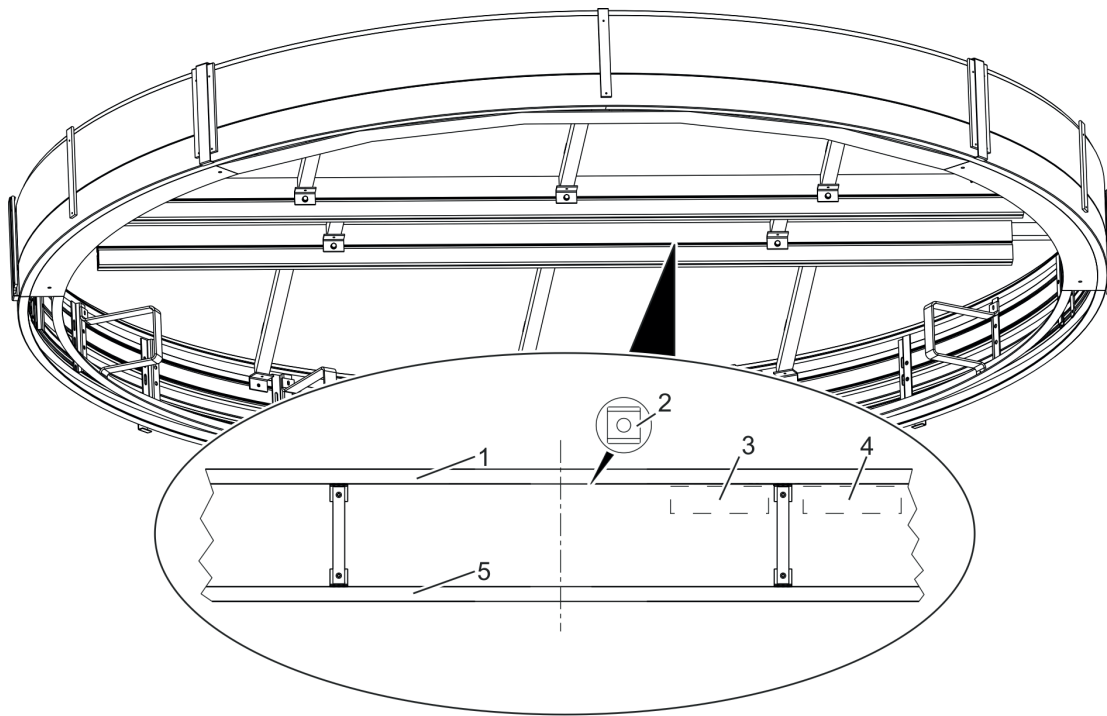


#### WARNING!

**Life-threatening danger posed by electromagnetic fields!**

Electromagnetic fields may form in the operator.

- People with pacemakers and similar implants are not allowed to touch or be near (distance of less than 0.5 m) the operator.



**Fig. 67** Distributing the sliding nuts



**WARNING!**

**Risk of injury caused by removal of the assembly and transport securing screws in the operator!**

Removing the assembly or transport securing screws before hooking in the operator and pushing on the wings can lead to serious injury and property damage.

- Do not remove the assembly and transport securing screws until the wings have been pushed on.
- Never transport or affix the operator without the assembly and transport securing screws.

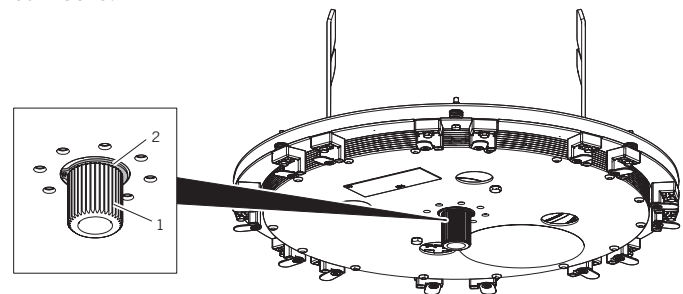
The operator is fastened centered between center beams and ceiling structure. For this purpose, the sliding nuts are distributed in the ceiling structure. In addition to positioning the operator, the sliding nuts are distributed for subsequent assembly of the controller and the power supply unit.

Make sure:

- Wiring diagram is available.
  - Screw tightening torques are available (5.7.1 Screw tightening torques, p. 47).
1. Distribute the sliding nuts (Fig. 65/2) in the center beams (Fig. 65/1) so that 4 sliding nuts are in position for subsequent assembly of the controller (Fig. 65/3) and the power supply unit (Fig. 65/4). Observe the position information in the wiring diagram.
  2. Align and fasten 1 sliding nut each in the grooves of the center beams (Fig. 65/1 + 5) to the center marked.

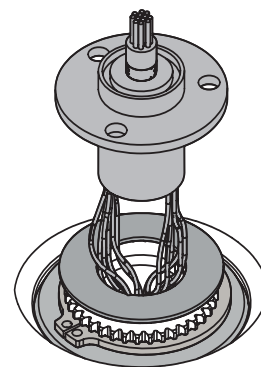
### 5.7.4.1 Prepare standard operator for Bookfold turnstile

In addition to preparing the standard operator, the following steps must be performed for the Bookfold turnstile.



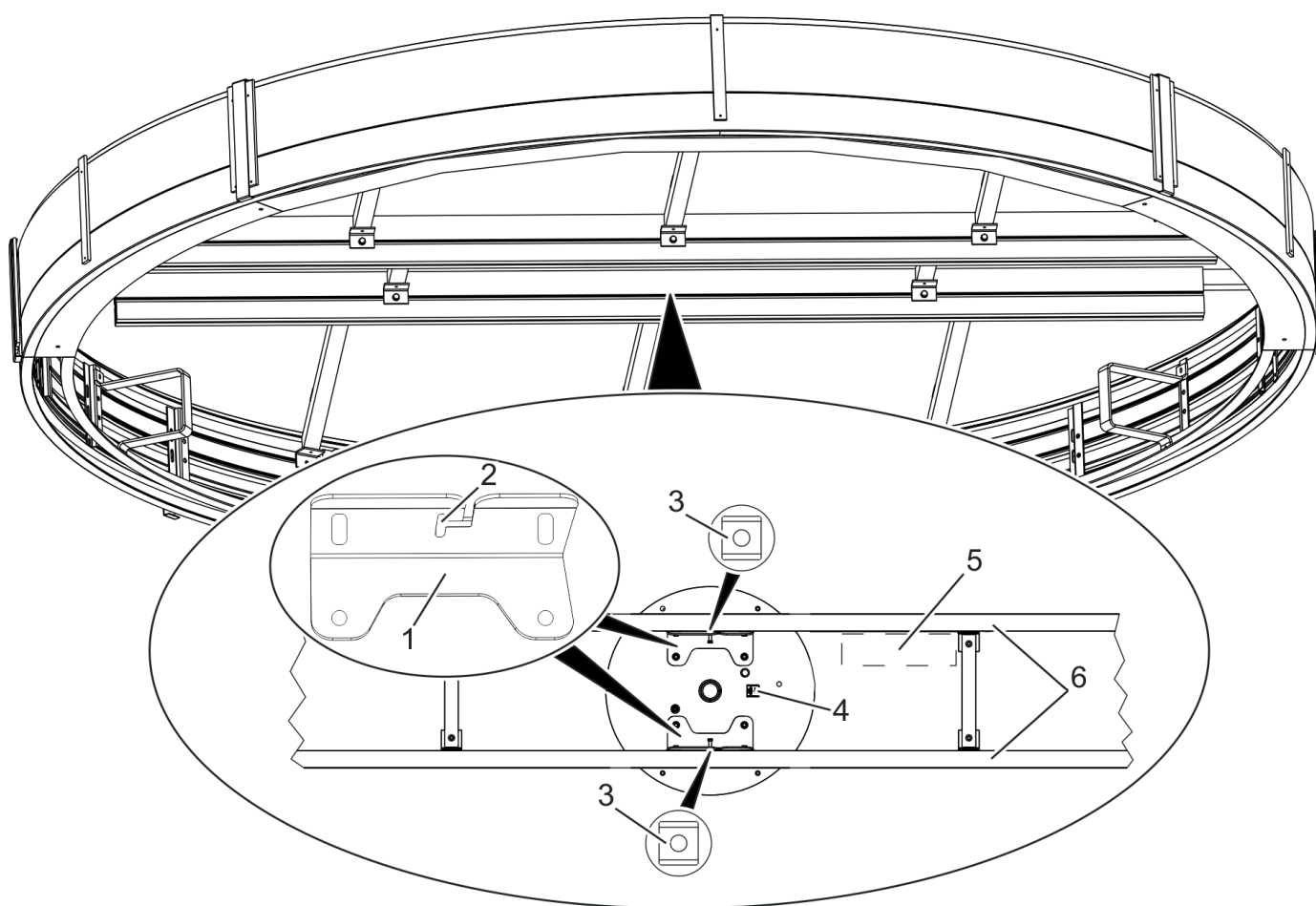
**Fig. 68** Operator (bottom view)

1. Secure the toothed shaft (Fig. 68/1) with a securing ring (Fig. 68/2) from below.



**Fig. 69** Slip ring body

2. Mount the slip ring body.
3. Let the slip ring cable hang down next to the operator (on the motor / Hall sensor connector Fig. 67/ 9 side) and connect it to the control unit after the motor is installed.
4. Connect the motor and Hall effect sensor cables to the operator (Fig. 67/9).



**Fig. 70** Insert the operator

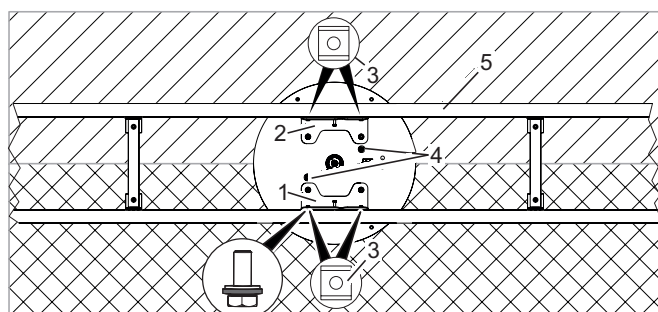
5. Align one slide nut (Fig. 70/3) in each of the center beams (Fig. 70/6) as close to the center as possible and screw one screw into the sliding nuts (screw pack 34053401150).

6.





**WARNING!**  
Risk of injury when lifting the operator!

Lift the operator with 2 persons, guide it centered between the center beam (Fig. 70/6) and hook it on the screws by means of the grooves (Fig. 70/2).



**Fig. 71** Aligning the sliding nuts

 Building exterior  
 Building interior

7. Align sliding nuts (Fig. 71/3) with angle bracket (Fig. 71/1 + 2) as shown in Fig. 71.
8. Tighten the mounting screws hand-tight over the sliding nuts (Fig. 71/3) (screw pack 34053301150)..
9. Loosen the mounting screws from the grooves of the

angle brackets (Fig. 70/2).

10. Align the operator as close as possible to the center of the ceiling structure.
11. Also check the lateral distance between drum walls and operator.
12. If there is a discrepancy, insert shims between angle bracket (Fig. 70/1 + 2) and center beam (Fig. 70/5).
13. Tighten the mounting screws of the operator hand-tight in the sliding nuts (Fig. 71/3).

#### 5.7.4.2 Connect the ceiling structure with 100 mm canopy height with KT FLEX Direct Operator

##### Requirements

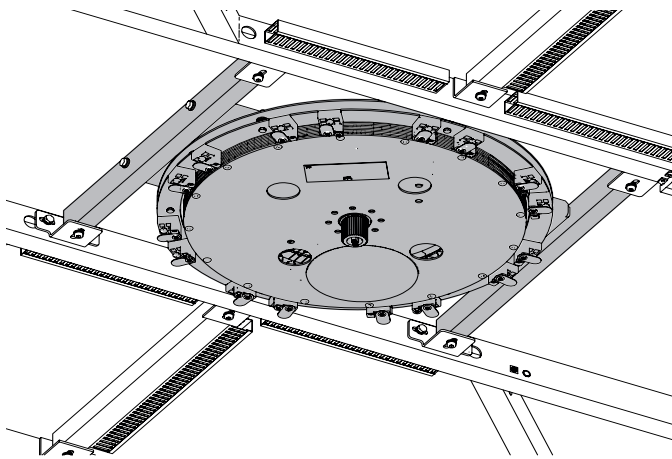
- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves



**WARNING!**  
Life-threatening danger posed by electromagnetic fields!

Electromagnetic fields may form in the operator.

- People with pacemakers and similar implants are not allowed to touch or be near (distance of less than 0.5 m) the operator.



**Fig. 72** Hooking in the operator

1.



**WARNING!**  
Risk of injury when lifting the operator!

Lift the prepared operator with 2 persons, guide it centered between the center beam (Fig. 70) and deposit it on the angle brackets. Fasten with the screws (screw bag 9501900275700).

2. Tighten the mounting screws of the operator by hand, allowing the operator to still be adjusted.

## 5.7.5 Aligning the operator

### Requirements

- Mechanic
- Protective clothing
- Safety glasses
- Safety shoes
- Core hole drill bit  $\varnothing$  82 mm
- Plumb line
- Plastic hammer
- Hand brush and dustpan
- Lift trucks
- Ladder



**NOTE!**  
Material damage through improper plumb alignment of the operator!

Inaccurate plumb alignment of the operator can lead to material damage during fitting of the wing or operation of the revolving door.

- Make sure during plumb alignment that the plumb line does not touch the bearing shell or other objects.



**NOTE!**  
Material damage from improper lifting of the operator!

If the operator is lifted directly with a lift truck, the underside of the operator may sustain damage.

- Never lift the operator directly but always place a wooden block or similar on the support surface of the lift truck.

### 5.7.5.1 Aligning the operator with a book-fold turnstile

Make sure:

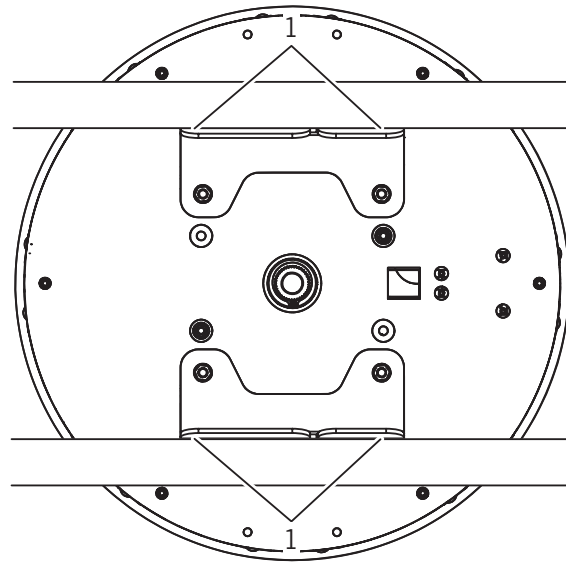


**NOTE!**  
Make sure that the control connection (Fig. 70/4) points in the direction of the future controller (Fig. 70/5).

- Screw tightening torques are available (5.7.1 Screw tightening torques, p. 47).

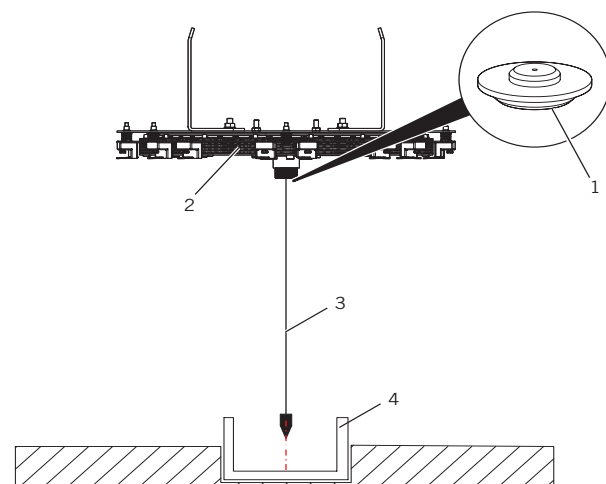
The operator is aligned against the bearing shell. The operator is aligned using a plumb line.

1. Drill a hole in the floor at the center point.
2. Clean out the hole.
3. Drill the center point with core drill. The hole depth is 22 mm from the upper edge of the finished floor.
4. Clean out the hole.



**Fig. 73** Operator angle bracket

5. Slightly loosen the angle bracket (Fig. 73/1) of the operator (Fig. 73).
- » The operator settles over the length of the elongated holes of the angle brackets toward the floor.



**Fig. 74** Aligning the operator



6.



**NOTE!**  
**Material damage due to improper alignment!**

Insert bearing shell (Fig. 74/4) into hole and align with center of drum wall axis.

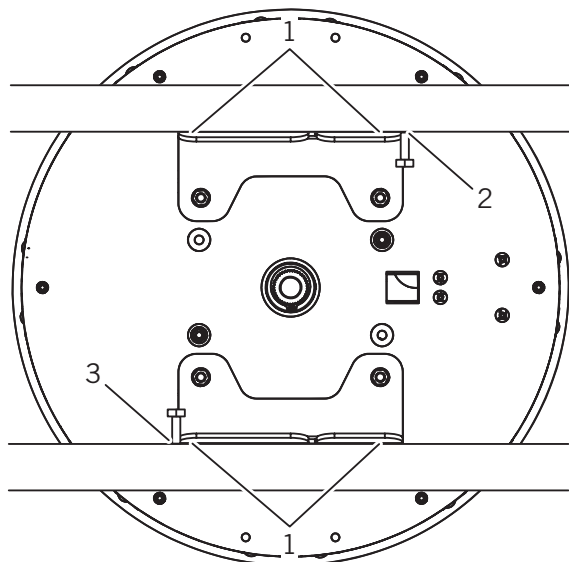
7. Mark fixing holes for bearing shell (Fig. 74/4) on the ground.
8. Drill marked holes. Hole depth as per drawing specifications.
9. Clean the holes.
10. Insert dowels into the holes.
11. Align bearing shell (Fig. 74/4) on dowels.
- 12.



**WARNING!**  
**Risk of injury due to improper assembly!**

Mount bearing shell (Fig. 74/4) with mounting screws. Observe the screw tightening torques.

13. Insert the enclosed plumb aid from the top into the center of the operator (Fig. 73/1).
14. Guide the plumb line (Fig. 74/3 from the top through the center of the operator.
15. Lower the plumb line (Fig. 74/3) via the bearing shell (Fig. 73/4) as shown in Fig. 74.
16. Allow the plumb line (Fig. 74/3) to stop swinging over the bearing shell (Fig. 74/4).
17. Align the operator (Fig. 74/2) with the bearing shell (Fig. 74/3) using the plumb line (Fig. 74/4).
18. Remove the plumb line (Fig. 74/3) and plumb aid from the center of the operator (Fig. 74/1) and the bearing shell (Fig. 74/4).



**Fig. 75** Fixing the angle bracket

19. Once aligned, secure the operator (Fig. 75) to prevent movement.  
To do so insert two sliding blocks in the grooves of the ceiling structure next to the angle brackets (Fig. 75/1) and fix with a screw (Fig. 75/2 + 3).
20. Position the lift truck underneath the operator (Fig. 74/1).
21. Lift operator with lift truck until the operator is against the ceiling beams. Do not lift the operator di-

rectly with the lifting truck but place a wooden block, for example, between the support surfaces.

22.



**WARNING!**  
**Risk of injury due to improper assembly!**

Tighten the mounting screw of the operator (Fig. 75/1). Observe the screw tightening torques.

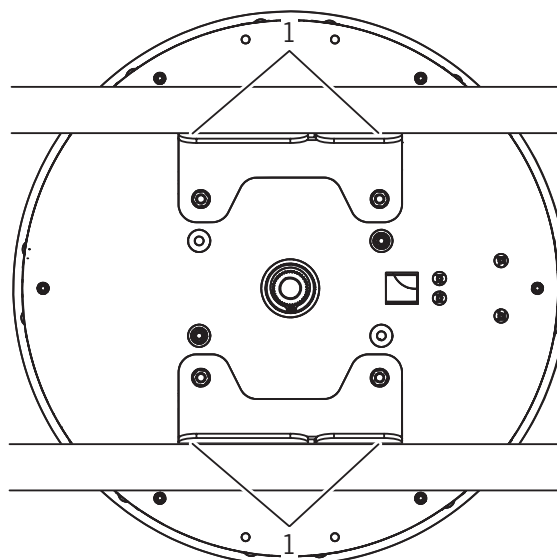
23. Lower and remove the lift truck.

### 5.7.5.2 Aligning the operator with a turnstile without center column

With a turnstile without center column the bearing shell is fastened on the floor in the center of the axis. The operator is aligned via the opening in the center of the operator using a plumb line.

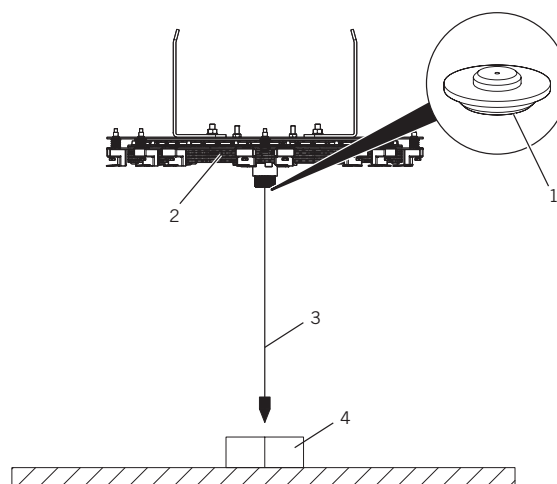
Make sure:

- Screw tightening torques are available (5.7.1 Screw tightening torques, p. 47).



**Fig. 76** Operator angle bracket

1. Slightly loosen the angle bracket (Fig. 76/1) of the operator (Fig. 76).  
» The operator settles over the length of the elongated holes of the angle brackets toward the floor.



**Fig. 77** Aligning the operator



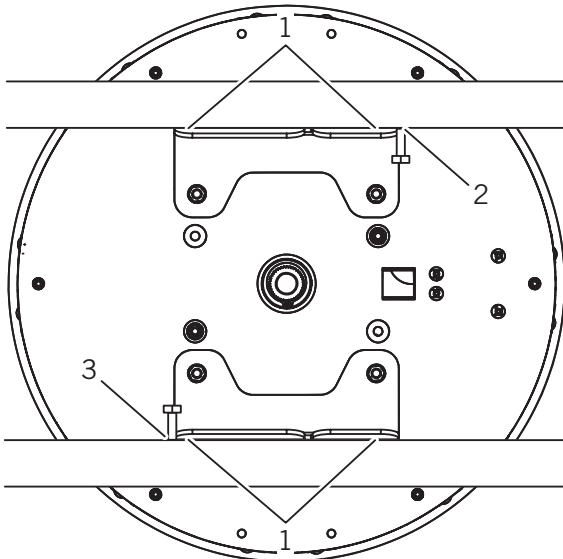
2. Align bearing shell (Fig. 77/4) to axis center of drum walls and mark mounting holes on the floor.
3. Drill marked holes. Hole depth as per drawing specifications.
4. Clean the holes.
5. Insert dowels into the holes.
6. Align bearing shell (Fig. 77/4) on dowels.
- 7.



**WARNING!**  
Risk of injury due to improper assembly!

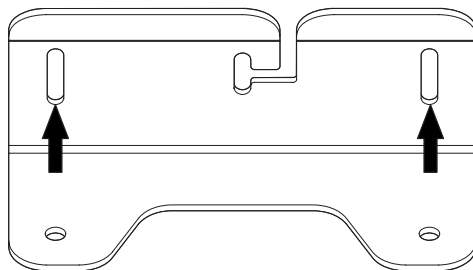
Mount bearing shell (Fig. 77/4) with mounting screws. Observe the screw tightening torques.

8. Insert the enclosed plumb aid from the top into the center of the operator (Fig. 77/1).
9. Guide the plumb line (Fig. 77/3) from the top through the center of the operator (Fig. 77/1).
10. Lower the plumb line (Fig. 77/3) via the bearing shell (Fig. 77/4) as shown in Fig. 77.
11. Allow the plumb line (Fig. 77/2) to stop swinging over the bearing shell (Fig. 77/3).
12. Align the operator (Fig. 77/2) with the bearing shell (Fig. 77/3) using the plumb line (Fig. 77/4).
13. Remove plumb line (Fig. 77/3) and plumb aid from the center of the operator (Fig. 77/1).



**Fig. 78** Fixing the angle bracket

14. Once aligned, secure the operator (Fig. 78) to prevent movement. To do so, fix the angle brackets (Fig. 78/1) at the side with a screw (Fig. 78/2+3).
15. Position the lift truck underneath the operator (Fig. 77/1).



**Fig. 79** Elongated holes of angle bracket

16. Lift the operator with angle bracket (Fig. 79) using the lift truck until the underside of the elongated

holes (Fig. 79) is reached. Do not lift the operator directly with the lifting truck but place a wooden block, for example, between the support surfaces.

17.



**WARNING!**  
Risk of injury due to improper assembly!

Tighten the mounting screw of the operator (Fig. 78/1). Observe the screw tightening torques.

18. Lower and remove the lift truck.

### 5.7.5.3 Align the operator for ceiling structure with 100 mm canopy height and KT FLEX Direct Operator

#### Requirements

- Mechanic
- Protective clothing
- Safety glasses
- Safety shoes
- Core hole drill bit  $\varnothing$  82 mm
- Plumb line
- Plastic hammer
- Hand brush and dustpan
- Lift trucks
- Ladder



**NOTE!**  
Material damage through improper plumb alignment of the operator!

Inaccurate plumb alignment of the operator can lead to material damage during fitting of the wing or operation of the revolving door.

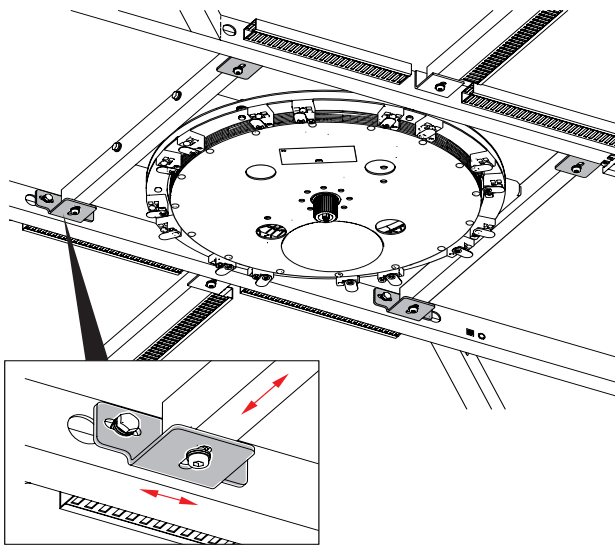
- Make sure during plumb alignment that the plumb line does not touch the bearing shell or other objects.



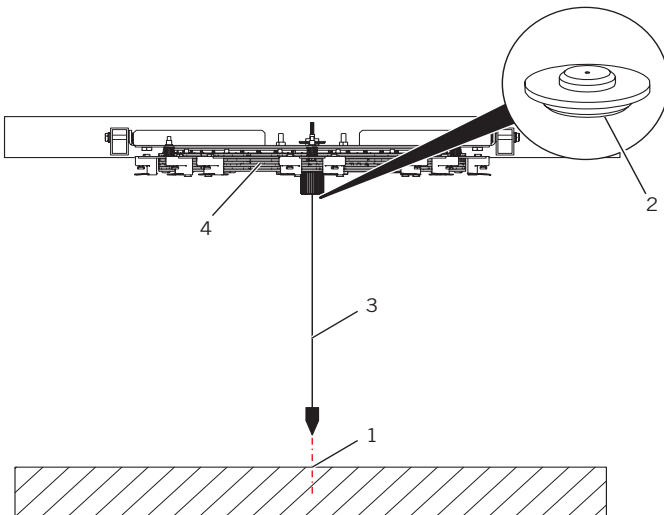
**NOTE!**  
Material damage from improper lifting of the operator!

If the operator is lifted directly with a lift truck, the underside of the operator may sustain damage.

- Never lift the operator directly but always place a wooden block or similar on the support surface of the lift truck.



**Fig. 80** Mounting screws and angle brackets



**Fig. 81** Aligning the operator

1. Slightly loosen the mounting screws and angle brackets (Fig. 80) of the operator ().  
» The operator sinks towards the floor.
2. Insert the enclosed plummet aid (Fig. 81/2) into the toothed shaft from underneath.
3. Lower the plummet and allow the pendulum movements to subside (Fig. 81).
4. Align operator to the center point (Fig. 81/1).
5. Remove the plummet and plummet aid from the toothed shaft.
6. Tighten the angle bracket of the operator (Fig. 80). Observe the screw tightening torques.
7. Position the lift truck underneath the operator (Fig. 81/4).
8. Move the operator to the highest position using the lift truck. Do not lift the operator directly with the lifting truck but place a wooden block, for example, between the support surfaces.
- 9.



**WARNING!**  
Risk of injury due to improper assembly!

Tighten the mounting screws of the operator (Fig. 80).

10. Lower and remove the lift truck.

## 5.8 Inserting the turnstile

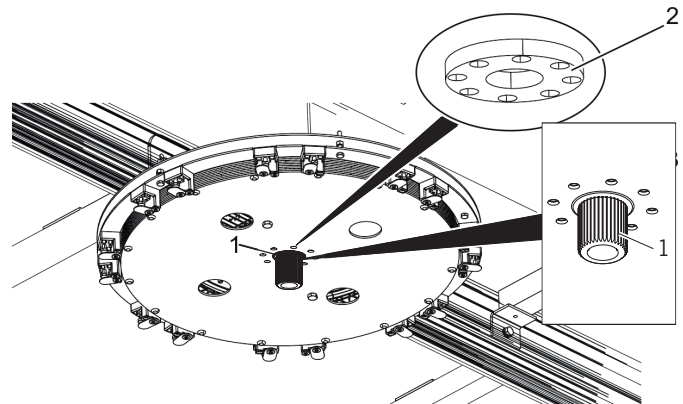


The motor can be lowered onto the turnstile after the turnstile has been installed.

### 5.8.1 Insert rigid turnstile (option)

#### Requirements

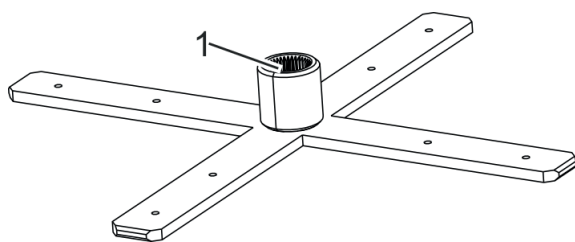
- Mechanic
- Protective gloves
- Protective clothing
- Safety shoes
- Plastic hammer
- Belt straps
- Standard degreaser
- Lint-free cloth straps
- Screw pack S002-103
- Screw pack S002-104
- Screw pack S002-410



**Fig. 82** Mounting washer

1. Place the mounting washer provided (Fig. 82/2) over the screw heads in the holes on the underside of the operator (Fig. 82/1) in accordance with the following table.

Mounting washer	Turnstile	Article number
Mounting washer 1 (height = 12 mm)	fine-frame (profile) fixed turnstile	34051701140
Mounting washer 2 (height = 8 mm)	framed rigid turnstile and foldable turnstile	34054501140
Mounting washer 2 (height = 8 mm)	Ceiling structure with 100 mm canopy height and KT FLEX Direct Operator and a fine-framed rigid turnstile and a normal-framed rigid turnstile	34054501140



**Fig. 83** Upper cross fitting (rigid turnstile)

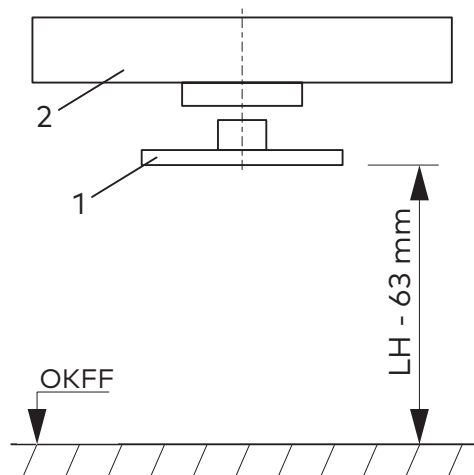
2.



Position upper cross fitting (Fig. 83) with mounting (Fig. 83/1) upwards under the operator.

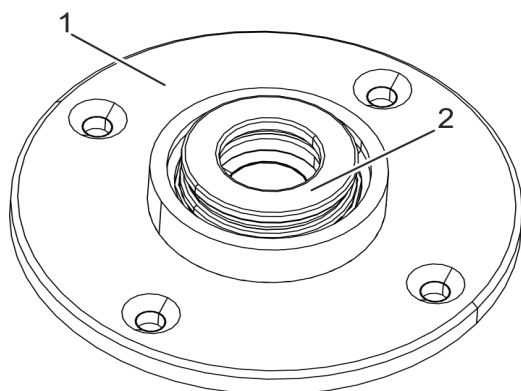
Suspend upper cross fitting (Fig. 83) with at least 2 lashing straps in the ceiling structure under the center of the operator (Fig. 82/1).

3. Degrease the face of the toothed shaft provided (Fig. 82/1) and attach Velcro strip.



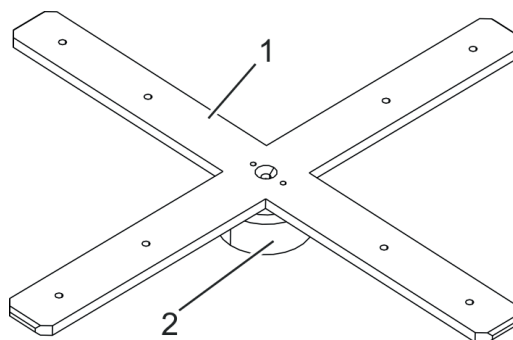
**Fig. 84** Distance to the floor

4. Connect the connecting cable of the wing to the slip ring body.  
5. Align upper cross fitting (Fig. 84/1) at the distance of the clear height (LH) - 63 mm to the floor as shown in Fig. 84.  
6. Position the upper cross fitting (Fig. 84/1) under the operator (Fig. 84/2) so that both components (Fig. 84/1 + 2) are directly under one another.



**Fig. 85** Floor bearing

7. Insert the floor bearing (Fig. 85/2) into the bearing shell (Fig. 85/1) according to the manufacturer's instructions provided and lubricate it.



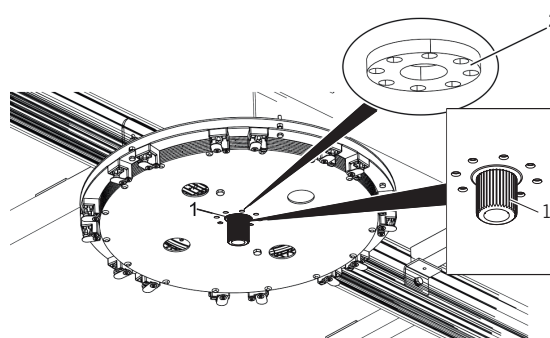
**Fig. 86** Lower cross fitting (rigid turnstile)

8. Place the lower cross fitting (Fig. 86/1) on the floor bearing (Fig. 86/2).

### 5.8.2 Inserting a fine-frame (profile) turnstile (option)

#### Requirements:

- Mechanic
- Protective gloves
- Protective clothing
- Safety shoes
- Plastic hammer
- Belt straps
- Standard degreaser
- Lint-free cloth straps
- Screw pack S002-103
- Screw pack S002-104
- Screw pack S002-410

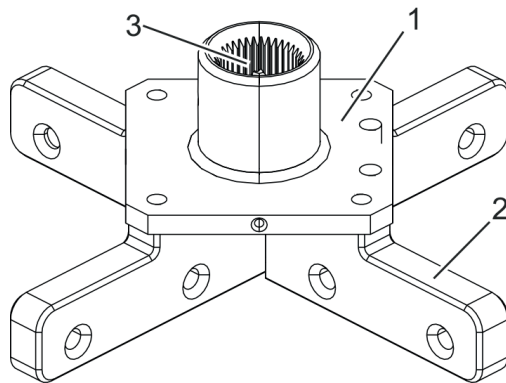


**Fig. 87** Mounting washer

1. Place the mounting washer provided (Fig. 87/2) over the screw heads in the holes on the underside of the operator (Fig. 87/1) in accordance with the following table.

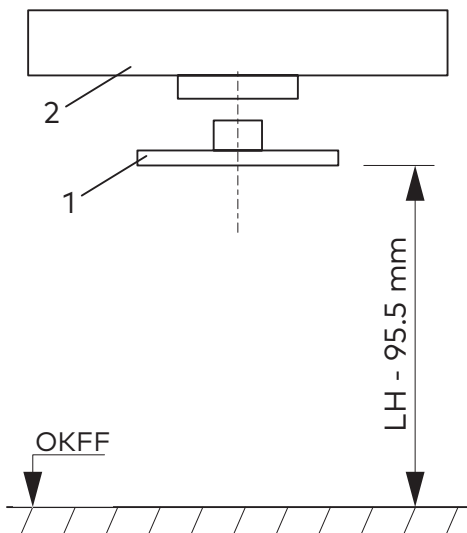
Mounting washer	Turnstile	Article number
Mounting washer 1 (height = 12 mm)	fine-frame (profile) fixed turnstile	34051701140

Mounting washer	Turnstile	Article number
Mounting washer 2 (height = 8 mm)	framed rigid turnstile and foldable turnstile	34054501140
Mounting washer 2 (height = 8 mm)	Ceiling structure with 100 mm canopy height and KT FLEX Direct Operator and a fine-framed rigid turnstile and a normal-framed rigid turnstile	34054501140



**Fig. 88** Upper cross fitting with bearing plate

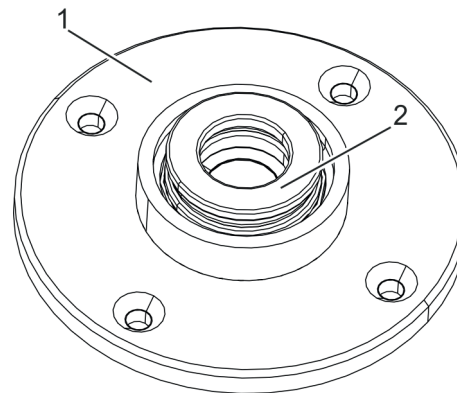
2. Fix bearing plate (Fig. 88/1) on upper cross fitting (Fig. 88/2), as shown in Fig. 88.
3. Suspend upper cross fitting (Fig. 88/2) with at least 2 lashing straps in the ceiling structure under the center of the operator (Fig. 87/1).
4. Degrease the face of the toothed shaft provided (Fig. 87/1) and attach Velcro strip.



**Fig. 89** Distance to the floor

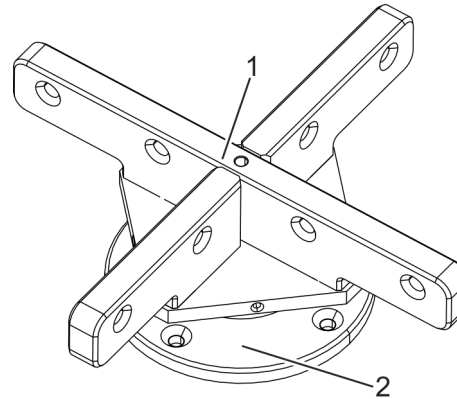
5. Connect the connecting cable of the wing to the slip ring body.
6. Align the upper cross fitting (Fig. 89/1) to the distance of the clearance height (LH) - 95.5 mm toward the floor as shown in Fig. 89.

Position the upper cross fitting (Fig. 89/1) under the operator so that both components are directly under one another.



**Fig. 90** Floor bearing

7. Insert the floor bearing (Fig. 90/2) into the bearing shell (Fig. 90/1) according to the manufacturer's instructions provided and lubricate it.



**Fig. 91** Cross fitting on floor bearing

8. Place the lower cross fitting (Fig. 91) on the floor bearing (Fig. 91).

### 5.8.3 Inserting a bookfold turnstile (option)

#### Requirements

- Mechanic
- Electrician
- Protective gloves
- Protective clothing
- Safety shoes
- Fiber-tipped pen (water-resistant)
- Circlip pliers
- Plastic hammer
- Ladder
- Lint-free cloth straps
- Standard degreaser
- Screw pack S002-103
- Screw pack S002-104
- Screw pack S002-410



#### **WARNING!**

##### **Risk of injury from heavy loads!**

The bookfold turnstile is lifted and moved during assembly. Improper lifting and transport operations may cause accidents with serious injuries and material damage.

- Two people are always required to lift or move the bookfold turnstile.



#### **NOTE!**

##### **Damage to the floor bearing due to incorrect assembly!**

Defective assembly of the floor bearing can damage the floor bearing when the revolving door is in operation.

- Always observe the manufacturer's instructions provided when assembling the floor bearing.



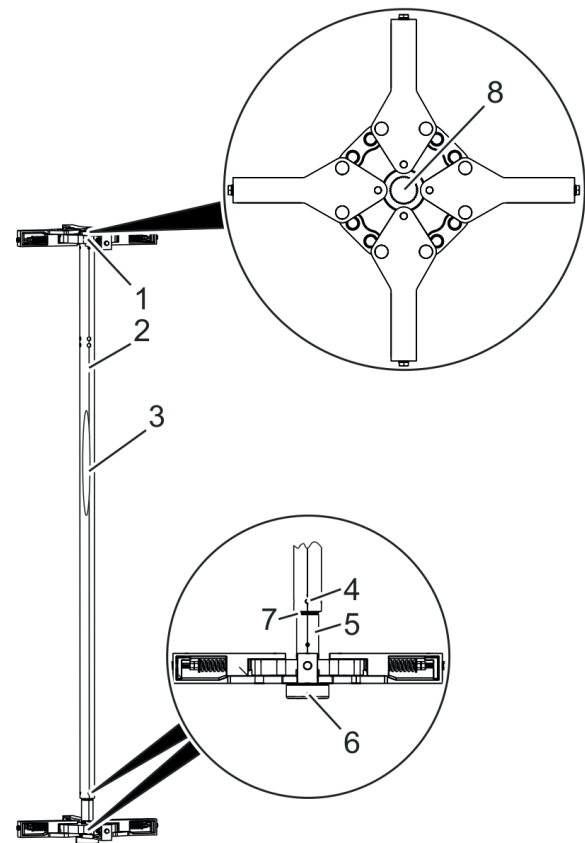
#### **NOTE!**

##### **Damage to the floor bearing due to incorrect insertion of the center column of the bookfold!**

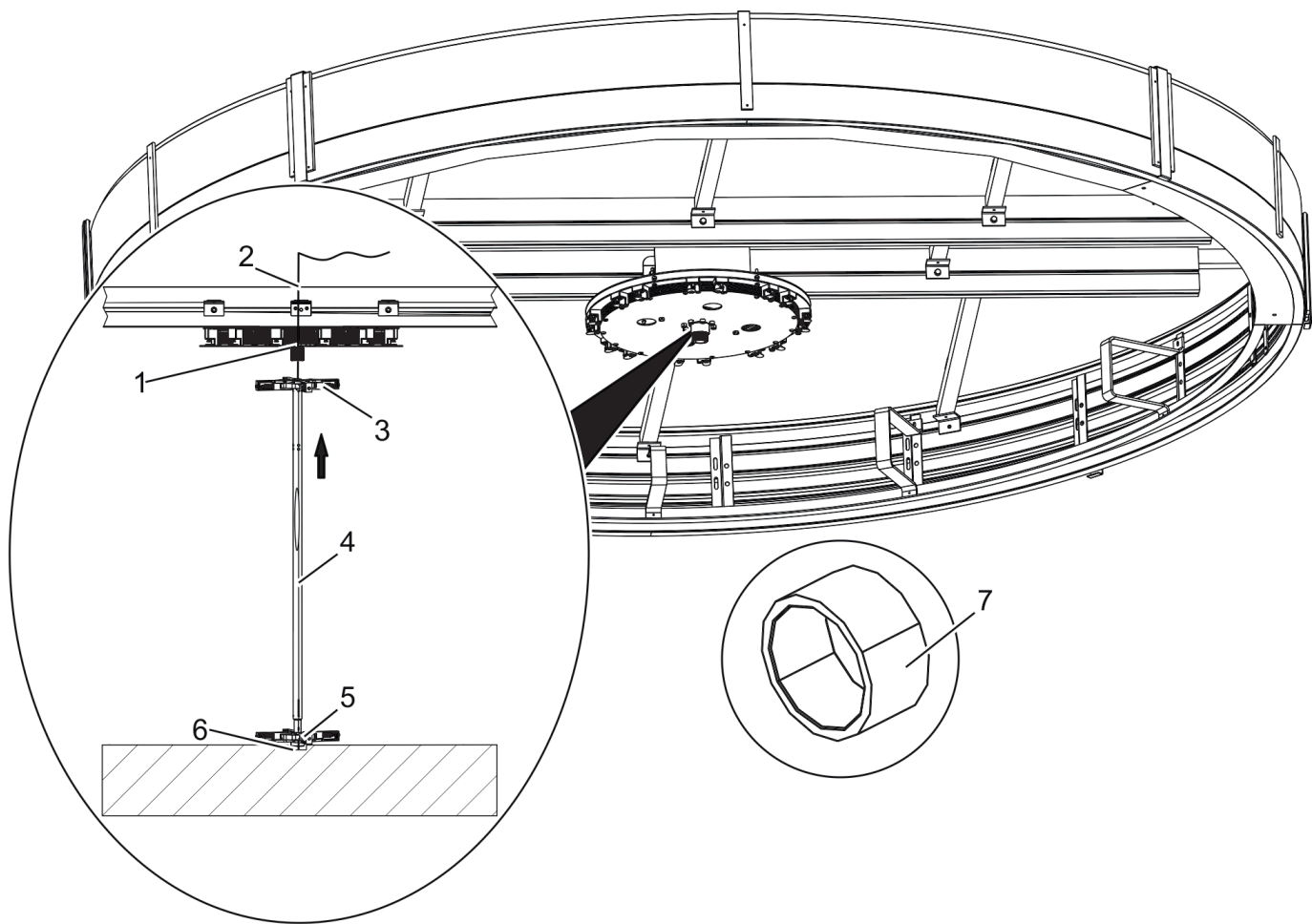
Incorrect insertion of the bookfold center column can damage the floor bearing.

- Always insert the floor bearing vertically.

1. Insert the floor bearing into the bearing shell according to the manufacturer instructions and lubricate it.

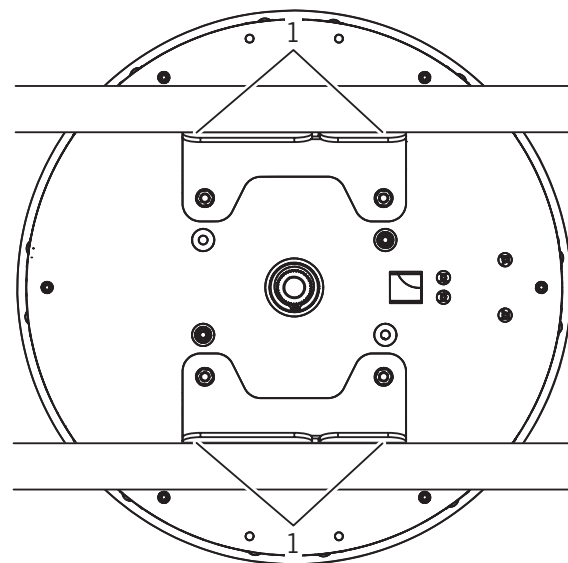


**Fig. 92** Bookfold center column



**Fig. 93** Inserting bookfold center column and fittings

2. Mark the shaft (Fig. 92/2) and insert (Fig. 92/5) with a fiber-tipped pen on the surface to facilitate future alignment.
3. Loosen the mounting screws (4x) at the circumference of the shaft (Fig. 92/4) and unscrew them.
4. Remove the circlip (Fig. 92/7).
5. Push the shaft (Fig. 92/2) and insert (Fig. 92/5) together.
6. Slide the bookfold sleeve onto the toothed shaft (Fig. 93/7).
7. Insert the lower cross fitting (Fig. 93/5) vertically into the floor bearing (Fig. 93/6).
8. Pull the center column (Fig. 93/3) apart in the direction of the arrow and insert the bookfold fitting with the toothed shaft of the operator.
9. Align the shaft (/ 2) at the lower end (/ 5) with the mounting holes and the felt tip mark. Fig. 92 Fig. 92
10. Insert the mounting screws (4x) at the circumference of the shaft (Fig. 92/4) in the existing holes and tighten them.
11. Slide the circlip (Fig. 92/7) onto the shaft (Fig. 92/2).



**Fig. 94** Lowering the operator

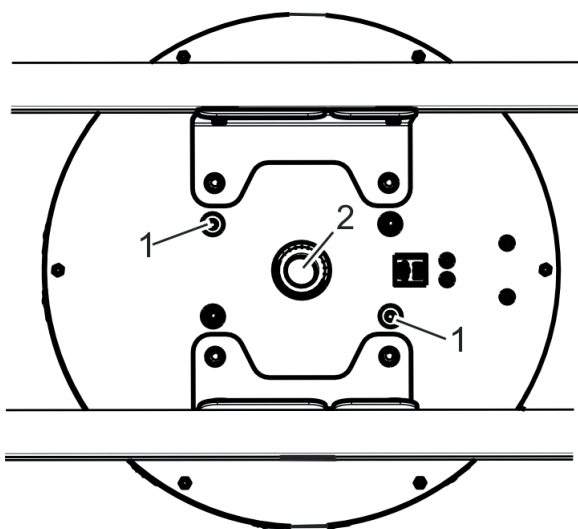
12.



**CAUTION!**  
Risk of crushing from improper lowering!

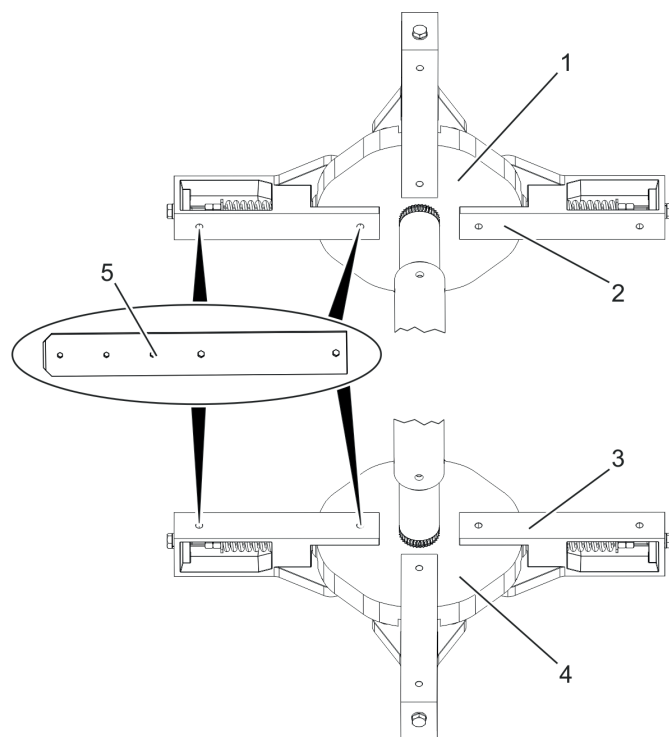
Loosen the mounting screws (Fig. 94/1) of the operator slightly and uniformly and lower the operator carefully onto the bookfold sleeve.





**Fig. 95** Operator (top view)

13. Guide cable for spring contact pins from underneath up through the center of the operator (Fig. 95/2).
14. Remove the mounting and transport securing screws (Fig. 95/1) from the top side of the operator (Fig. 95). Do not dispose of the transport securing screws but save them and hand them to the facility operator during the facility operator instruction session.
15. Fix the connection cover supplied over the inspection opening (Fig. 92/3).
16. Tighten the mounting screws of the operator brackets (Fig. 94/1).



**Fig. 96** Cross fitting (example)

17. Assemble the wing fittings (4x) (Fig. 96/5) on the upper and lower cross fitting (Fig. 96/3 + 4) with the chamfered edge on the outside.

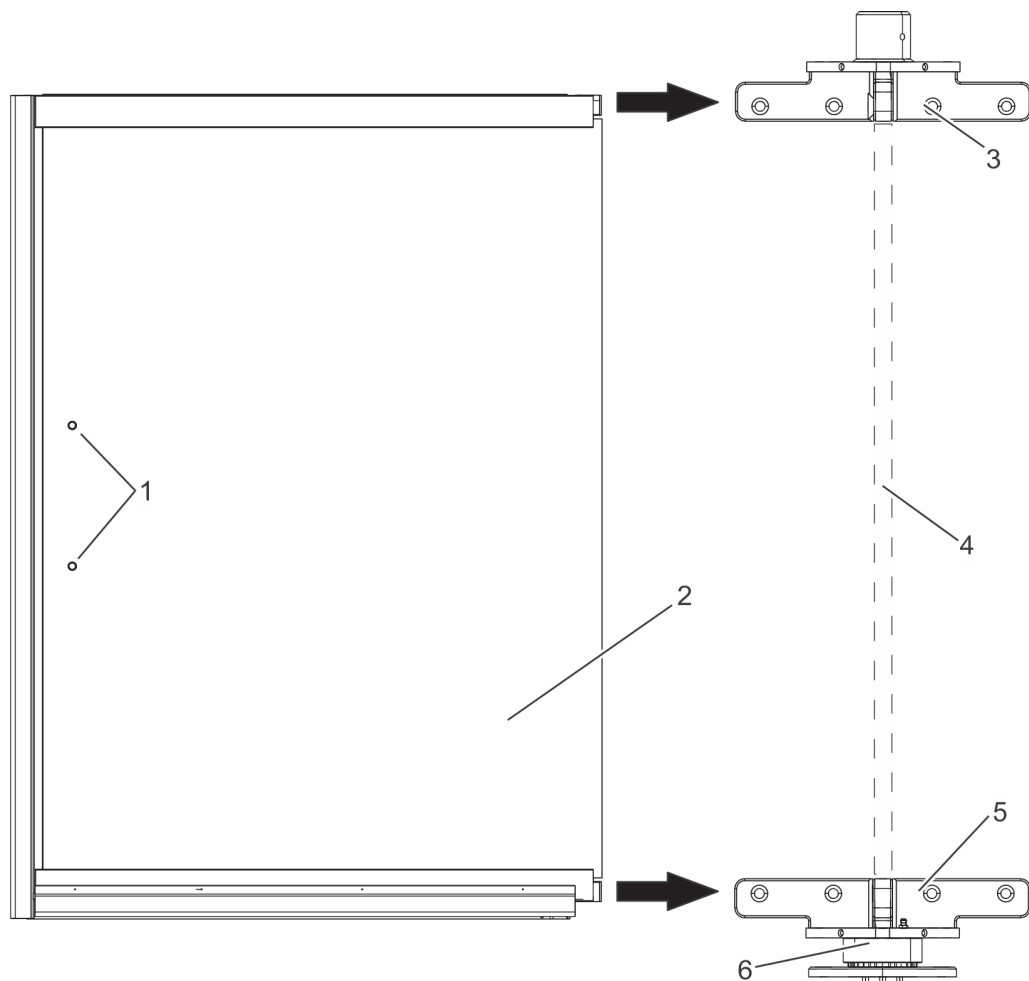
## 5.9 Pushing wings onto a turnstile

### 5.9.1 Pushing light-frame wings onto the turnstile

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Vacuum lifting tool
- Ladder
- Wooden blocks
- Screw pack S002-408
- Screw pack S002-409
- Screw pack S002-410





**Fig. 97 Pushing wings on without turnstile**



**WARNING!**

**Risk of injury due to improper transport of the wings!**

The wings are large, heavy components with smooth surface finish. Improper transport of the wings may lead to serious injury and material damage.

- At least 2 people are required to transport and push the wing on.
- Use suitable equipment such as vacuum lifting tools for transport.
- If necessary, clean the suction area for the vacuum lifting tool first to prevent the tool from sliding off.
- Always wear personal protective equipment such as safety shoes and protective gloves when transporting the wings.



**NOTE!**

**Damage to the floor bearing due to incorrect assembly!**

Defective assembly of the floor bearing can damage the floor bearing when the revolving door is in operation.

- Always observe the manufacturer's instructions provided when assembling the floor bearing.



**NOTE!**

**Damage to the floor bearing due to incorrect assembly!**

Defective assembly of the floor bearing can damage the floor bearing when the revolving door is in operation.

- Always observe the manufacturer's instructions provided when assembling the floor bearing.

1. Insert the floor bearing into the bearing shell (Fig. 97/6) according to the manufacturer's instructions provided and lubricate it.
2. Remove the transport securing devices on the lower and upper edge of the wing (Fig. 97/2).
3. Position the 1st wing (Fig. 97/2) with the back in front of the upper and lower cross fitting (Fig. 97/3 + 5) as shown in Fig. 97. In doing so, lower and re-adjust the upper cross fitting (Fig. 97/3) as necessary.

4.



**WARNING!**

**Risk of injury when pushing on the wing!**

Carefully push the wing (Fig. 97/2) onto the lower and upper cross fitting (Fig. 97/3 + 5). If necessary, Adjust the strap when pushing on the wing (Fig. 97/2).

5. Connect the upper cross fitting (Fig. 97/3) with the wing.
6. Connect the lower cross fitting (Fig. 97/5) with the wing.
7. Push on the 2nd wing (Fig. 97/2) as described in steps 3–7 and connect with cross fittings (Fig. 97/3 + 5).

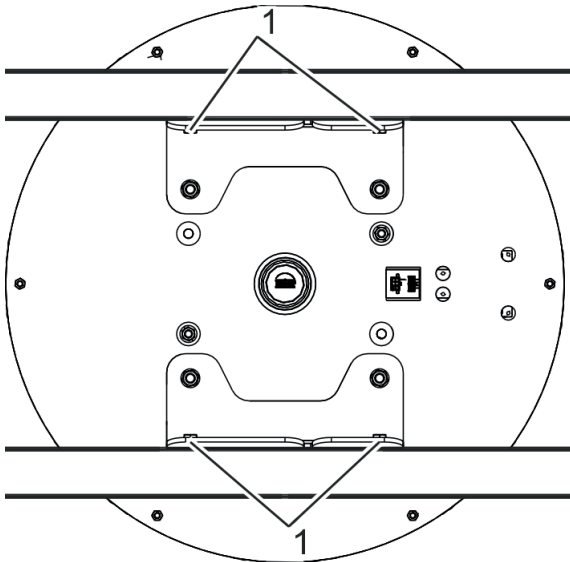
Remove the strap from the upper cross fitting (Fig. 97/3)

8. Insert the PVC cover strip (Fig. 97/4) in the center of the axis between the cross fittings (Fig. 97/3 + 5).
9. Push on the remaining wings as described in steps 3–7 and connect with cross fittings (Fig. 97/3 + 5).
- 10.



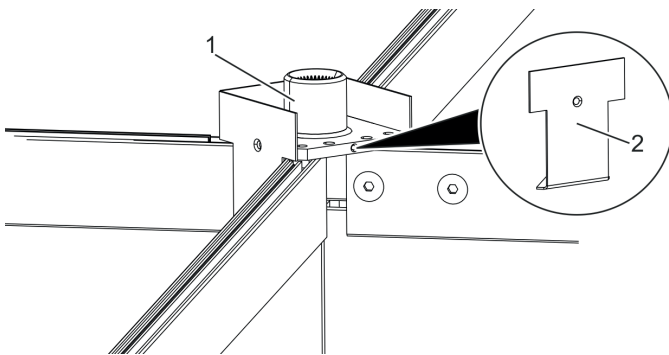
**NOTE!**  
Material damage due to improper shimming!

Shim all of the wings over the whole surface with wooden blocks or similar.



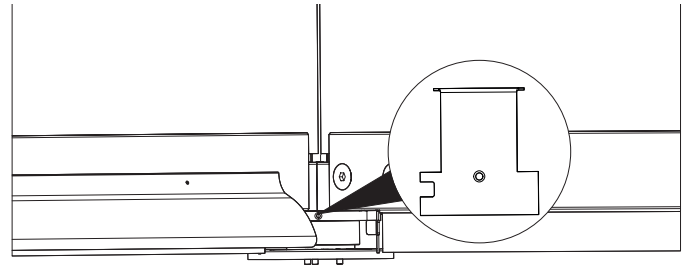
**Fig. 98** Operator

11. Loosen operator mounting screws (Fig. 98/1) slightly and lower operator onto flange of upper cross fitting.
12. Check if the toothed shaft is completely inserted into the operator and the turnstile fitting (circlip is flush with the operator flange). If necessary, insert the toothed shaft further.
13. Check if the operator above the mounting washer rests evenly on the turnstile fitting (no gap or tolerance between the components). If necessary, lower the operator further.
14. Tighten the operator mounting screws (Fig. 98/1).
15. Remove wooden blocks from under all wings.



**Fig. 99** Mount the covers on the upper cross fitting

16. Mount the covers (Fig. 99/2) on the outside of the upper cross fitting (Fig. 99/1). If necessary, Shorten covers first.



**Fig. 100** Mount the covers on the lower cross fitting

17. Mount the covers (Fig. 100/2) on the outside of the lower cross fitting (Fig. 100/1). If necessary, Shorten covers first.

#### Mounting the handles

18. If necessary, Mount the handles to the pre-drilled holes (Fig. 97/1) in the wings (Fig. 97/2).

### 5.9.2 Pushing normal-frame wings onto the turnstile

#### Requirements:

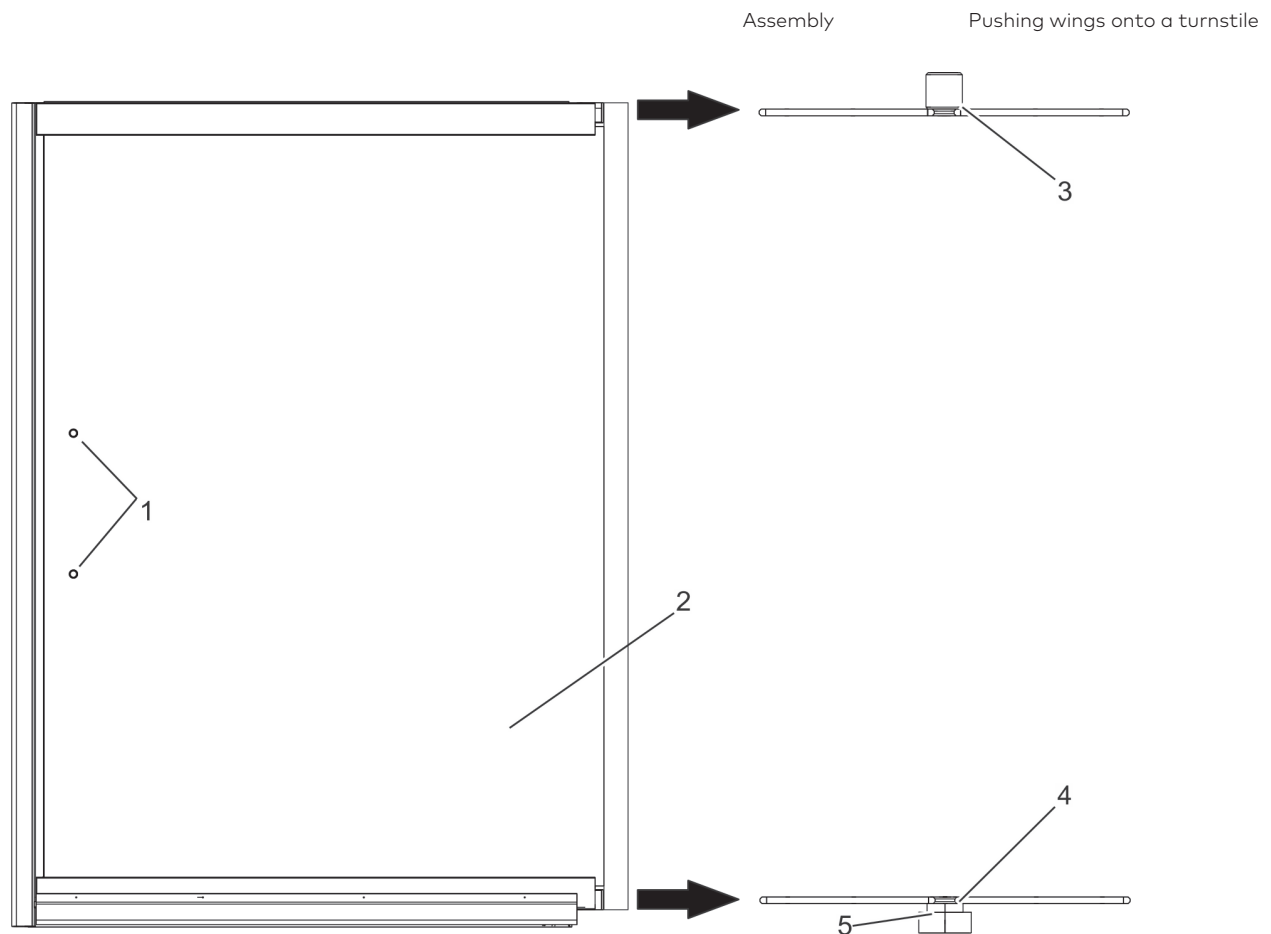
- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Wooden blocks
- Vacuum lifting tool
- Ladder
- Screw pack S002-408
- Screw pack S002-409
- Screw pack S002-410



**WARNING!**  
Risk of injury due to improper transport of the wings!

The wings are large, heavy components with smooth surface finish. Improper transport of the wings may lead to serious injury and material damage.

- At least 2 people are required to transport and push the wing on.
- Use suitable equipment such as vacuum lifting tools for transport.
- If necessary, clean the suction area for the vacuum lifting tool first to prevent the tool from sliding off.
- Always wear personal protective equipment such as safety shoes and protective gloves when transporting the wings.



**Fig. 101 Pushing on wing (rigid turnstile)**




**NOTE!**  
**Damage to the floor bearing due to incorrect assembly!**


Defective assembly of the floor bearing can damage the floor bearing when the revolving door is in operation.

- Always observe the manufacturer's instructions provided when assembling the floor bearing.

1. Insert the floor bearing into the bearing shell (Fig. 101/5) according to the manufacturer's instructions provided and lubricate it.
2. Remove the transport securing devices on the lower and upper edge of the wing (Fig. 101/2).

3.  The last step is the installation of the wing with connection unit (turnstile lift).

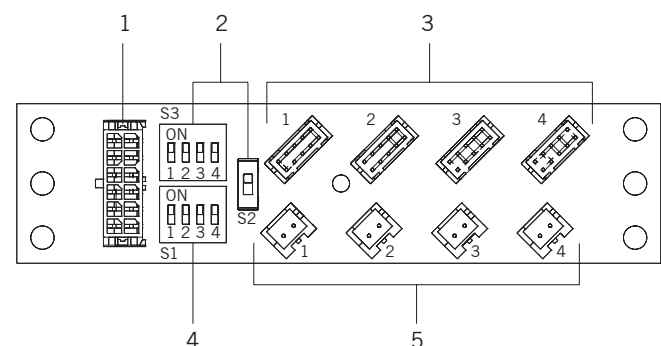
Position the 1st wing (Fig. 101/2) with the back in front of the upper and lower cross fitting (Fig. 101/3 + 4) as shown in Fig. 101. In doing so, lower and re-adjust the upper cross fitting (Fig. 101/3) as necessary.

4.  **WARNING!**  
**Risk of injury when pushing on the wing!**

Carefully push the wing (Fig. 101/2) onto the lower and upper cross fitting (Fig. 101/3 + 4). If necessary, Remove the strap from the upper cross fitting (Fig. 101/3) when pushing on the wing (Fig. 101/2).

5. Connect the upper cross fitting (Fig. 101/3) with the wing.

6. Connect the lower cross fitting (Fig. 101/4) with the wing.
7. Push on the 2nd wing (Fig. 101/2) as described in steps 3–6 and connect with cross fittings (Fig. 101/3 + 4).
8. Push on the 3rd wing according to steps 3–6 and connect with cross fittings (Fig. 101/3 + 4).
9. If necessary, Guide wing connecting cable from above through the toothed shaft in the operator to the upper cross fitting (Fig. 101/3) and connect to wing cables.
10. Position the 4th wing (Fig. 101/2) with the back in front of the upper and lower cross fitting (Fig. 101/3 + 4) as shown in Fig. 101. In doing so, lower and re-adjust the upper cross fitting (Fig. 101/3) as necessary.
11. Connect the cables of the other wings according to the connection diagram.



**Fig. 102 Connection unit**

- 1 Plug connection for slip ring body
- 2 DIP switches for wing sensors (DIP switches S3 and S2)
- 3 Plug connection for wing sensors

- 4 DIP switches for safety bumpers  
(DIP switch S1)
- 5 Plug connection for safety bumpers

12. Set the DIP switch block S1 of the connection unit according to the table below.

Switch S1	ON	OFF	Function
1		X	activated
	X		deactivated
2		X	activated
	X		deactivated
3		X	activated
	X		deactivated
4		X	activated
	X		deactivated

activated = function used

deactivated = function not used

13. Set the DIP switch block S3 and DIP switch S2 of the connection unit according to the table below.

Switch S3				Function
1	2	3	4	
ON	ON	ON	ON	1-4 deactivated
OFF	OFF	OFF	OFF	1-4 activated
OFF	OFF	OFF	ON	1-3 activated
				4 deactivated

Switch S2	Function
OFF	1-4 deactivated for door systems $\leq 3$ m
ON	1-4 activated for door systems $\geq 3$ m
ON	1-3 activated, 4 deactivated For three-wing door systems $\geq 3$ m

activated = function used

deactivated = function not used



No wing sensors are needed for door systems with a diameter  $\leq 3$  m. All plug connections can be deactivated in this case.

14. Connect collector to connection unit.

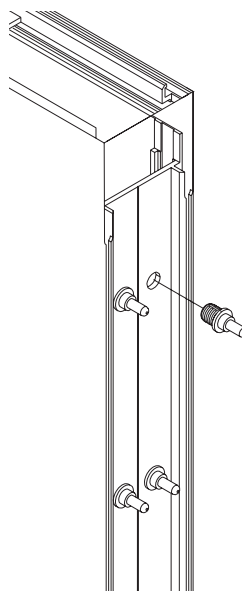


Fig. 103 Spacer

15. Insert the spacer into the profile (Fig. 103)

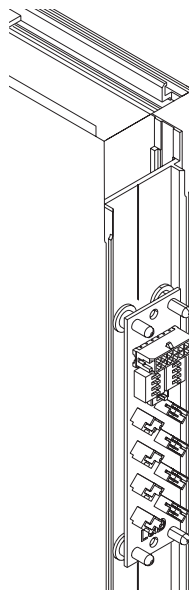


Fig. 104 Connection unit

16. Snap the connection unit on the spacer (Fig. 104).
17. Connect the upper cross fitting (Fig. 101/3) with the wing.
18. Connect the lower cross fitting (Fig. 101/4) with the wing.

19.

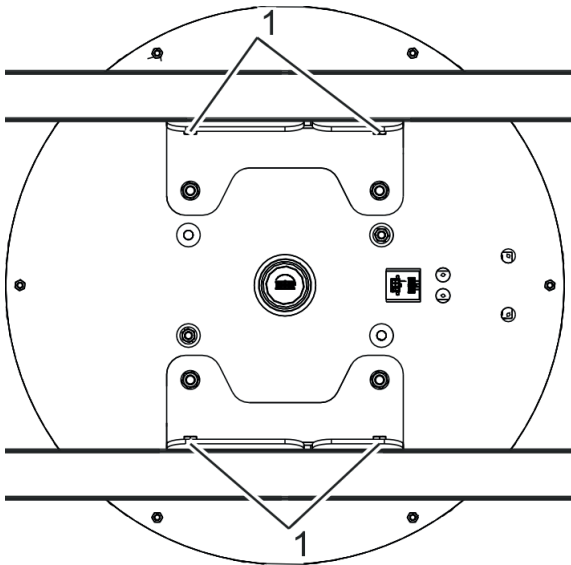


**NOTE!**

**Material damage due to improper shimming!**

Shim all of the wings over the whole surface with

wooden blocks or similar.



**Fig. 105 Operator**

20. Loosen operator mounting screws (Fig. 105/1) slightly and lower operator onto flange of upper cross fitting.
21. Check if the toothed shaft is completely inserted into the operator and the turnstile fitting (circlip is flush with the operator flange). If necessary, insert the toothed shaft further.
22. Check if the operator above the mounting washer rests evenly on the turnstile fitting (no gap or tolerance between the components). If necessary, lower the operator further.
23. Tighten the operator mounting screws (Fig. 105/1).
24. Remove wooden blocks from under all wings.

#### Mounting the handles

25. If necessary, Mount the handles to the pre-drilled holes (Fig. 101/1) in the wings (Fig. 101/2).

### 5.9.3 Pushing the wing onto the book-fold turnstile

#### Requirements:

- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Vacuum lifting tool
- Fiber-tipped pen (water-resistant)
- Screw pack S002-408

The wings are pushed onto the cross fittings of the turnstile and then screwed down.

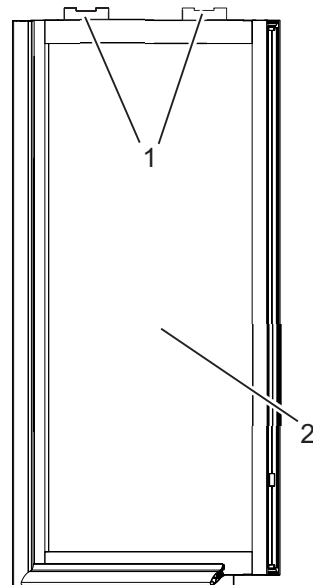


#### WARNING!

**Risk of injury due to improper transport of the wings!**

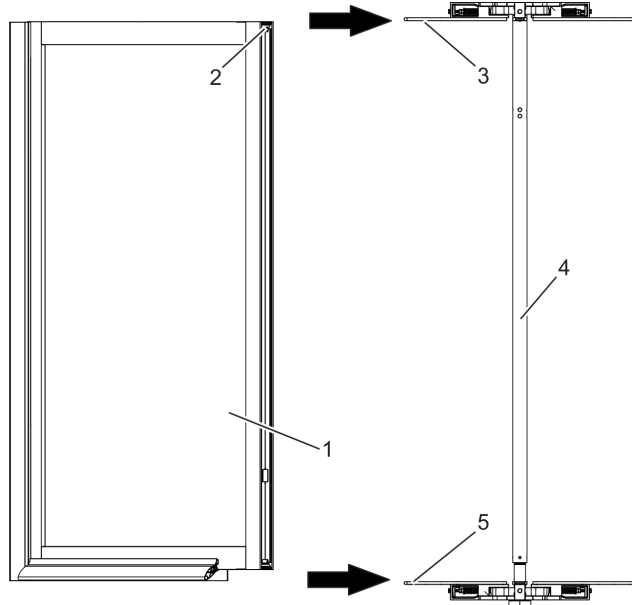
The wings are large, heavy components with smooth surface finish. Improper transport of the wings may lead to serious injury and material damage.

- At least 2 people are required to transport and push the wing on.
- Use suitable equipment such as vacuum lifting tools for transport.
- If necessary, clean the suction area for the vacuum lifting tool first to prevent the tool from sliding off.
- Always wear personal protective equipment such as safety shoes and protective gloves when transporting the wings.



**Fig. 106 Wing transport securing devices**

1. Remove the transport securing devices (Fig. 106/1) on the lower and upper edge of the wing (Fig. 106/2).



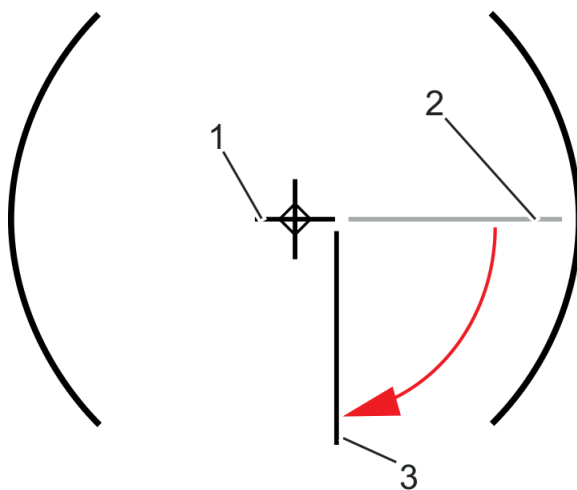
**Fig. 107 Pushing on the wing**

2. Position the wing (Fig. 107/1) vertically with the back in front of the turnstile (Fig. 107/4) as shown in Fig. 107.
3. Remove the upper brush inserts at the back (Fig. 107/2) and mark them for future allocation (e.g. with left/right).

4. **WARNING!**  
Risk of injury when pushing on the wing!

Carefully slide the wing (Fig. 107/1) with the back onto the upper and lower cross fitting (Fig. 107/3 + 5) in the direction of the arrow.

5. Connect the upper cross fitting (Fig. 107/3) with the wing.
6. Connect the lower cross fitting (Fig. 107/5) with the wing.



**Fig. 108 Folding the wing**

7. Counter the turnstile (Fig. 108/1) with one person.
8. Push the wing (Fig. 108/2) in short bursts.

9. **i** If the wing does not immediately fold to the side, repeat the process with more force. Have another person assist if necessary.

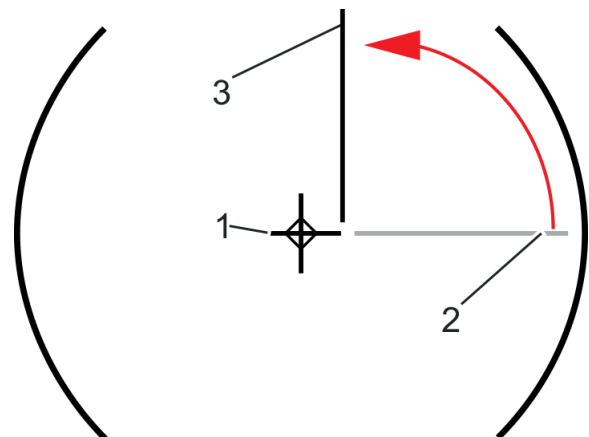
» The wing folds to the side (Fig. 108/3).

10. **i** Note the marking of the brush inserts.

Insert the 2nd marked brush insert at the back of the wing. If necessary, divide them in the center if the distance to the ceiling structure is too low.

11. Counter the turnstile (Fig. 108/1) with one person.
12. Fold the wing in the starting position (Fig. 108/2).

» The wing engages in the starting position.



**Fig. 109 Folding the wing**

13. Counter the turnstile (Fig. 109/1) with one person.
14. Push the wing (Fig. 109/2) in short bursts.
- 15.

- i** If the wing does not immediately fold to the side, repeat the process with more force. Have another person assist if necessary.

» The wing folds back.

16. **i** Note the marking of the brush inserts.

Insert the 2nd marked brush insert at the back of the wing. If necessary, divide them in the center if the ceiling height is too low.

17. Counter the turnstile (Fig. 109/1) with one person.
18. Fold the wing in the starting position (Fig. 109/2).
- » The wing engages in the starting position.
19. Push on the remaining wings as with steps 1–16 and connect with cross fittings (Fig. 107/3 + 5).

#### Mounting the handles

20. If necessary, mount the handles to the pre-drilled holes of the wings.



## 5.10 Assembling the controller and power supply unit

### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety shoes
- Screw pack 34053601150



**NOTE!**  
**Damage to controller and power supply unit due to incorrect connection!**

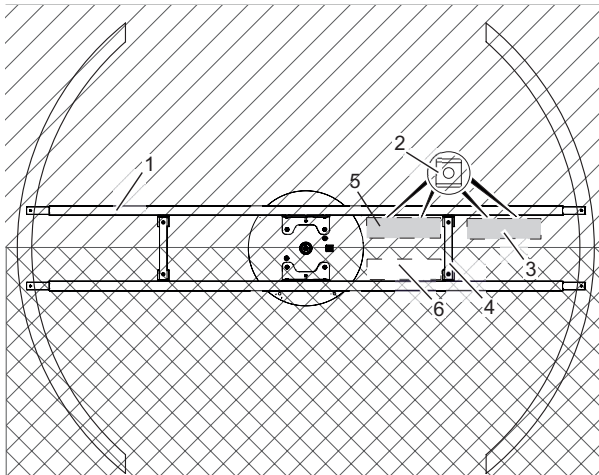
Incorrect connection can cause damage to components and make replacement necessary.

- When connecting the power supply unit to the controller, always follow the wiring plan.

Power supply unit and controller are fastened in the ceiling structure on the center beam. The sliding nuts distributed when the operator was hooked in are pushed to the spacing of the mounting holes for the controller and the power supply unit. Next, the components are bolted down with the sliding nuts.

### Requirements

- Installation diagram is available.
- Wiring diagram is available.



**Fig. 110** Sliding nuts for controller and power supply unit



Building exterior  
Building interior

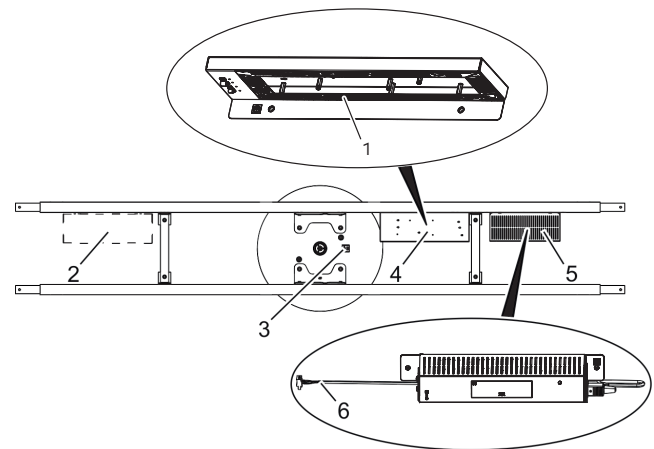
1.



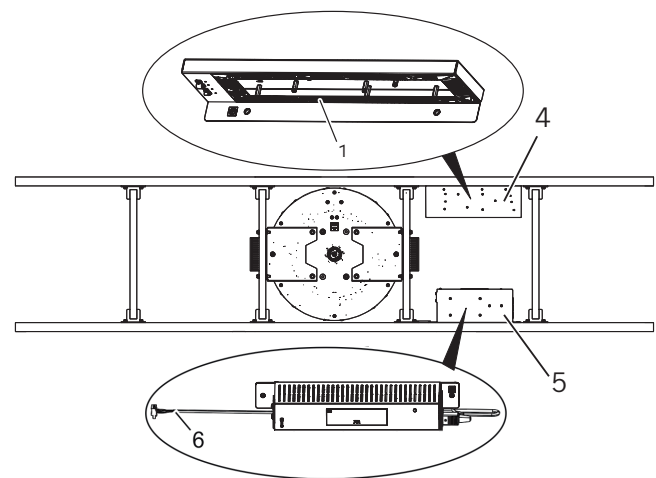
Observe the information on positioning controller and power supply unit in the wiring diagram. For doors with a diameter smaller than 2.7 m, mount the power supply unit to this (Fig. 110/6) position.

Push the sliding nuts (2x) (Fig. 110/2) in the center beam groove (Fig. 110/1) to the spacing of the mounting holes for the power supply unit (Fig. 110/3).

- Slide the sliding nuts (2x) (Fig. 110/2) in the center beam groove (Fig. 110/1) to match the spacing of the mounting holes for the controller (Fig. 110/4).



**Fig. 111** Fastening the controller and power supply unit in the standard version



**Fig. 112** The control unit and the power supply unit are fastened to the ceiling structure with a 100 mm canopy and KT FLEX Direct Operator

3.



Fasten the controller (Fig. 111/4) with the connection side (Fig. 111/1) facing down in the ceiling structure.

Fasten the controller (Fig. 111/2) with mounting screws in sliding nuts (screw pack **34053601150**).

4.



With revolving doors with smaller diameters the power supply unit (Fig. 111/2) may also be fastened on the opposite side of the controller (Fig. 111/4). The strut (Fig. 110/4) may have to be moved before assembly.

Attach the power supply unit (Fig. 111/5) with controller connection

(Fig. 111/6) facing the controller (Fig. 111/4) (screw pack **34053601150**).

- Connect the power supply unit (Fig. 111/3) to the controller (Fig. 111/2). Follow the wiring diagram.
- Connect the operator (Fig. 111/1) to the controller (Fig. 111/2). Follow the wiring diagram.

## 5.11 Fixing the safety bumpers

### Requirements


- Mechanic
- Electrician
- Protective clothing
- Safety shoes
- Ladder
- Silicone spray
- Cable tie holders
- Cable ties
- Screw pack S002-412

The safety bumper is attached to the side of the leading mullion on the entrance and exit side of the revolving door. The safety bumper consists of a holder and a rubber lip. In an active safety bumper, there is a cable in the rubber lip. The cable is fed into the ceiling structure at the entrance and exit.

Requirement (active safety bumper):

- Wiring diagram is available.
1. Assemble the safety bumper for entrance and exit as follows before mounting it:
    - Lubricate one side of the safety bumper (rubber lip) with silicone spray.
    - Slide lubricated side of safety bumper into the aluminum holder profile.
  2. Screw aluminum holder profile together with the safety bumpers.
  3. Screw aluminum holder profile to the side of the entrance and exit using the holes in the leading mullion provided.

### Active safety bumper

4.  Steps 3–4 are only required if an active safety bumper is mounted.

Drill through the leading mullion into the ceiling structure at the entrance and exit from the inside to subsequently guide the cable of the active safety bumper into the ceiling structure.

5. Lay safety bumpers in the ceiling structure according to the wiring diagram.
6. Lubricate open side of the safety bumper (rubber lip).
7. Push open side of the safety bumper (rubber lip) at the entrance and exit into the aluminum holder profile.

## 5.12 Suspending the canopy cover

### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Safety glasses
- Ladder
- Hand brush and dustpan

- 90 degree countersink
- Cartridge gun
- Silicone



### CAUTION!

#### Risk of cuts on canopy covers!

When transporting the canopy covers, there is a risk of injury on sharp corners and edges.

- Always take note of sharp openings and corners/edges before starting work.
- If necessary, wear protective gloves.



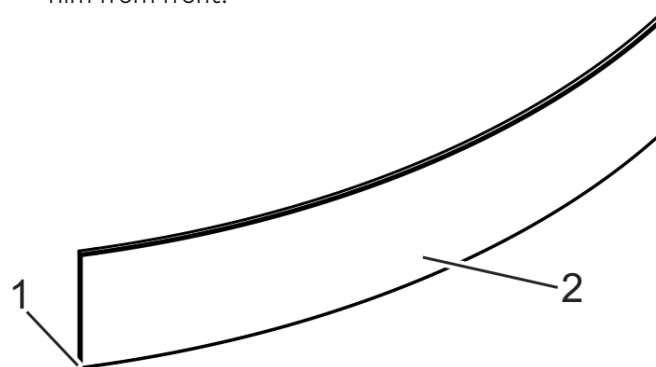
### NOTE!

#### Damage to canopy covers due to incorrect procedure!

Incorrect procedures when preparing or assembling the canopy covers can lead to damage to the canopy covers.

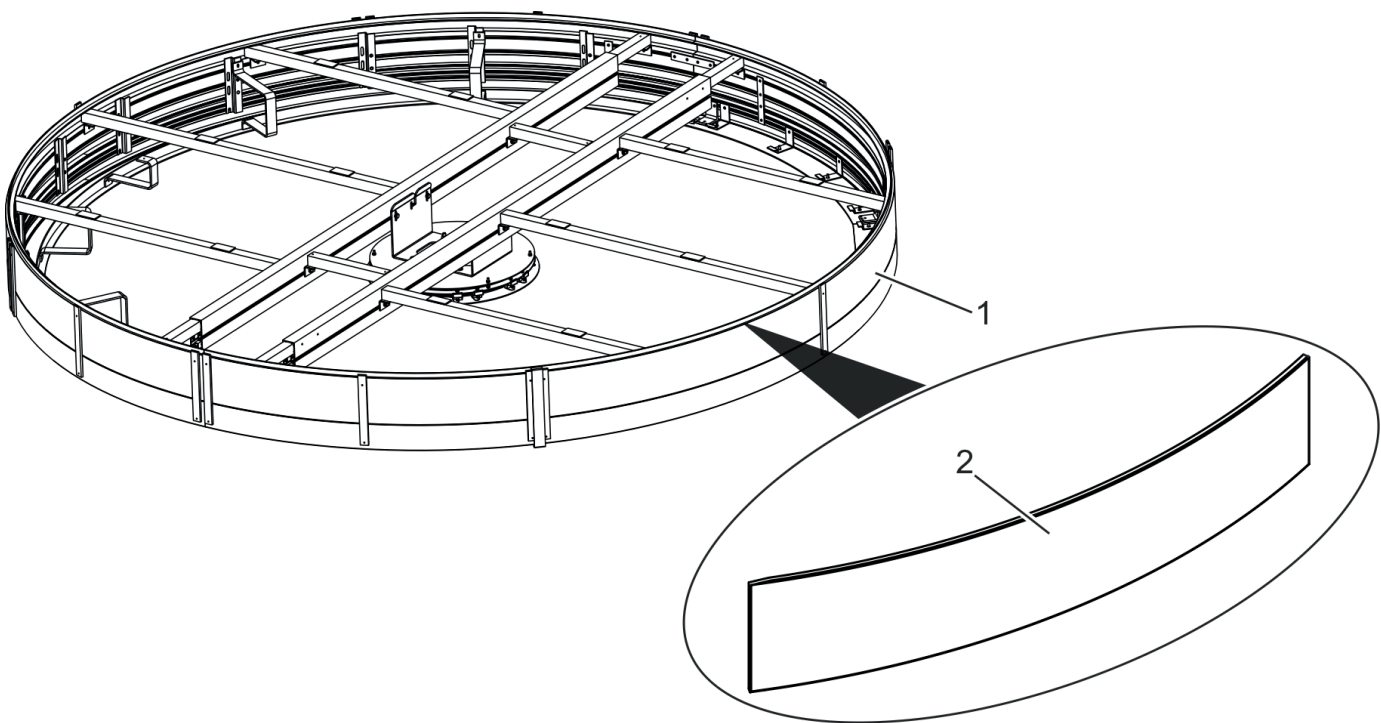
- Do not lay canopy covers on dirty working surfaces.
- Remove protective film on the front only after assembly.
- Stick glazing tape evenly to the back.
- After suspension, push the canopy covers on manually only.

1. Clean working surface as necessary so that canopy covers are not damaged if set down temporarily.
2. Unpack all canopy covers. Do not remove protective film from front.



**Fig. 113** Canopy cover

3. Stick glazing tape evenly to all canopy covers (Fig. 113/3) along the back bottom edge (Fig. 113/1).
4. Remove protective film on Velcro on back of canopy covers (Fig. 113).



**Fig. 114** Suspending the canopy covers

### 5.13 Assembling the post cover

5.



**WARNING!**

**Risk of injury due to incorrect suspension of large canopy covers!**

Attach canopy covers on the outside of the building (Fig. 114/2) in succession to the ceiling structure (Fig. 114/1) by means of the Velcro. 2 people are required to suspend large canopy cover.

6.



No canopy is suspended in the intended position of an air curtain.

Attach canopy covers (Fig. 114/2) on the inside of the building in succession to the ceiling structure (Fig. 114/1) by means of the Velcro. 2 people are required to suspend large canopy cover.

7. Check that suspended canopy covers (Fig. 114/2) are positioned evenly and adjust as necessary. Lift the lower edge of the canopy covers slightly and move to the side.
8. Remove front protective film from the canopy covers (Fig. 114/2).
9. Press canopy covers (Fig. 114/2) on evenly manually.

#### Outside night shield

10.



If there is no outside night shield, omit this stage!

If necessary, Fit track rails for the outside night shield to pre-drilled holes on the outside.

#### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety shoes
- Protective gloves
- Screw pack S002-120
- Screw pack S002-412
- Screw pack S002-416



**NOTE!**

**Damage to post covers due to incorrect procedure!**


Incorrect procedures when preparing or assembling the post covers can lead to damage to the post covers or controls.

- Always insert controls into the post cover in accordance with the stickers provided.
- Press post covers evenly onto the retaining profiles.
- Always connect the controls to the controller according to the wiring diagram.
- Always deburr holes for the control cables on the revolving door housing.

Before fitting the post covers, the controls (program switch, emergency stop button, etc. [3.1.1 Overview of safety equipment and controls, p. 18](#)) for the revolving door are inserted into the gaps in the post covers. The post covers are attached to retaining profiles on the front side of the leading mullion at the entrance and exit.


Make sure that:

- Wiring diagram is available.
  - Installation diagram is available.
1. Fit retaining profiles (3x) into threaded holes provided on the leading mullion at the entrance and exit.


2.  The stickers on the post cover indicate the position of the respective controls.

Insert controls into gaps in the post covers. Take note of the stickers when inserting the controls.

3. Position post cover with program switch on leading mullion next to retaining profiles on the entrance side.
4. Position post cover without program switch on leading mullion next to retaining profiles on the exit side.
5. Drill a hole in the ceiling structure in the center above the upper retaining profiles at the entrance and exit to feed the cables for the controls inside. If necessary, drill several holes next to each other.
6. Deburr holes at the entrance and exit from inside and outside.
7. Connect controls at entrance and exit in accordance with installation and wiring plan.
8. Feed the cables in through the holes at the entrance and exit.
9. Press post cover at entrance evenly onto retaining profiles.
10. Press post cover at exit evenly onto retaining profiles.

11.  Lay cables with cable ties and cable tie holders.


Lay cables flush to controller in ceiling structure. Follow the installation and wiring diagram.


12.  **NOTE!**  
**Material damage due to improper connection!**

Connect the lines to the controller according to the wiring diagram.

## 5.14 Assembling the wing locking devices


### 5.14.1 Assembling the locking plate for rod locking device (option)

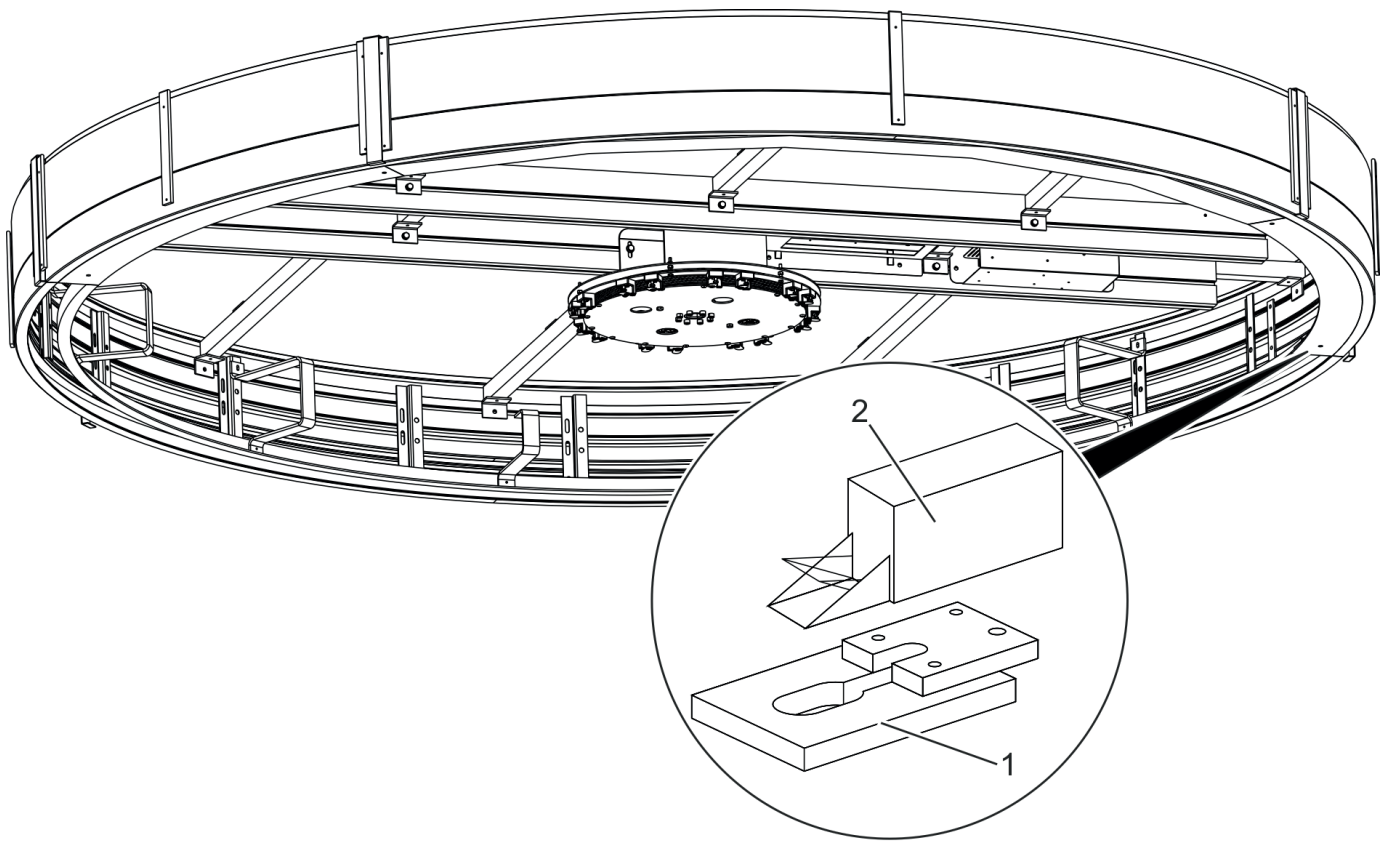
-  The rod locking device is pre-assembled in the wing.

-  The floor bushing for the rod locking device is already integrated into the floor ring.

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Ladder
- Screw pack S002-415 for exterior night shield Screw pack S002-416
- Screw pack S002-416 for interior night shield Screw pack S002-417
- Wing locking device (diagram) ("[9.13 Wing locking device \(diagram\)](#)" on page 116) is available.

-  For a rigid turnstile, 1 locking plate is fitted for the rod locking device and for a bookfold turnstile, 2 locking plates are fitted.



**Fig. 115** Fitting rod locking device

1. Fit locking plate (Fig. 115/1) to underside of lower ceiling ring.
2. Fix bolt contact (Fig. 115/2) to underside of locking plate (Fig. 115/1).
3. If necessary, fit another locking plate to lower ceiling ring following steps 1-2. Follow the wing locking device diagram.

### 5.14.2 Assembling locking plate (electro-mechanical locking device)

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Scissors
- Ladder
- Screw pack S002-417

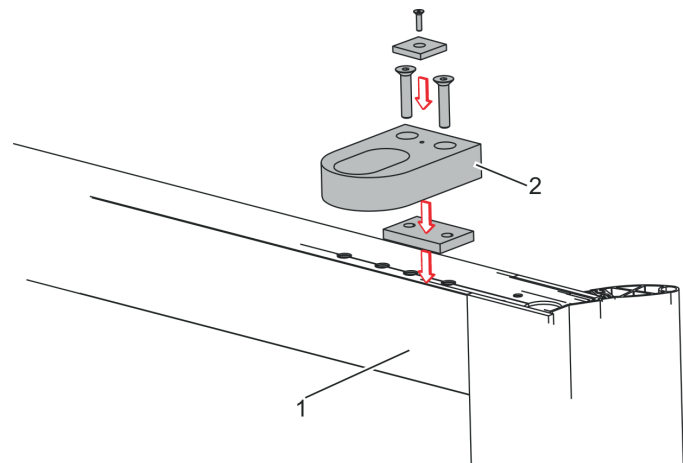
The locking plates for the electromechanical locking device are fitted as follows:

Make sure:

- Wing locking device (diagram) ("9.13 Wing locking device (diagram)" on page 116) is available.



For a rigid turnstile, 1 locking plate is fitted and for a foldable turnstile, 2 locking plates get fitted.

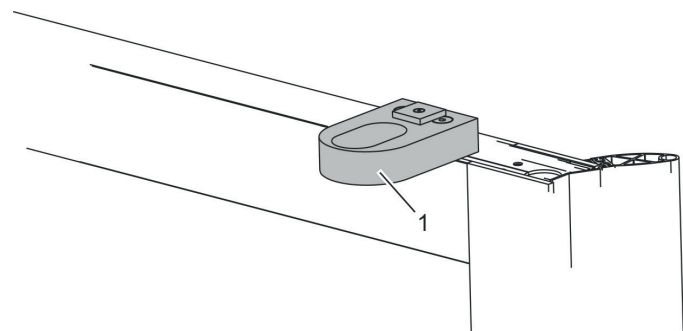


**Fig. 116** Fitting locking plate



Note information in door system guide.

1. Fix locking plate (Fig. 116/2) on upper edge of wing (Fig. 116/1), as shown in Fig. 116.



**Fig. 117** Bristles protruding from locking plate

2. Cut off bristles protruding from locking plate (Fig. 117/1).
3. Fit other locking plates as necessary (Fig. 116 Fitting locking plate, p. 71).

### 5.14.3 Assembling the electromechanical locking device (option)

#### Requirements

- Mechanic
- Electrician
- Protective clothing
- Safety shoes
- Ladder
- Cable ties
- Cable tie holders
- Screw pack S002-418
- Screw pack S002-419



Available only for standard ceiling structures.



#### NOTE!

**Material damage due to improper assembly of the lower ceiling elements!**

Improper fitting of the lower ceiling elements or incorrect connection of the lock control can lead to material damage to the lower ceiling elements or controller.

- Always insert lower ceiling elements with openings for electromechanical locking device in accordance with overview plan.
- Always connect the electromechanical locking device to the controller according to the wiring diagram.

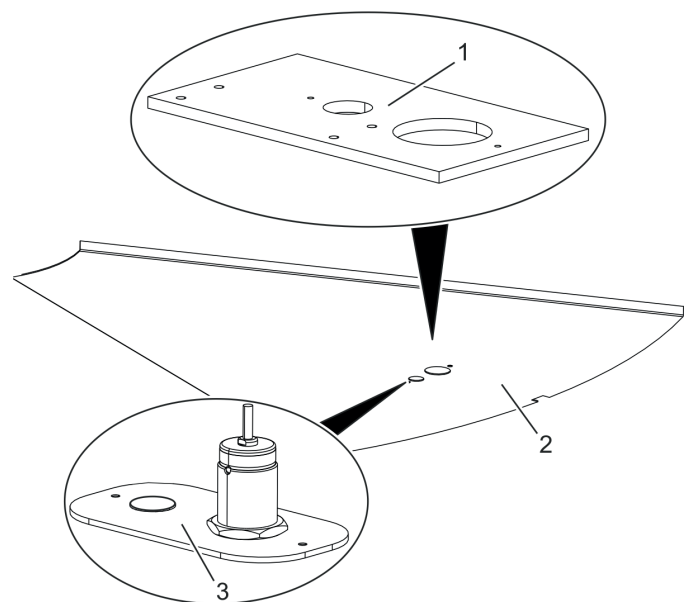
Make sure:

- Locking plates have been assembled (5.15 Assembling sensors KTV P/S/A, p. 74).
- Diagram for wing locking device ("9.13 Wing locking device (diagram)" on page 116) is available.
- Wiring diagram is available.



#### Wing locking devices

With a fixed turnstile, 1 electromechanical locking device is installed. With a bookfold turnstile, 2 electromechanical locking devices are installed.



**Fig. 118 Fitting mounting plates**

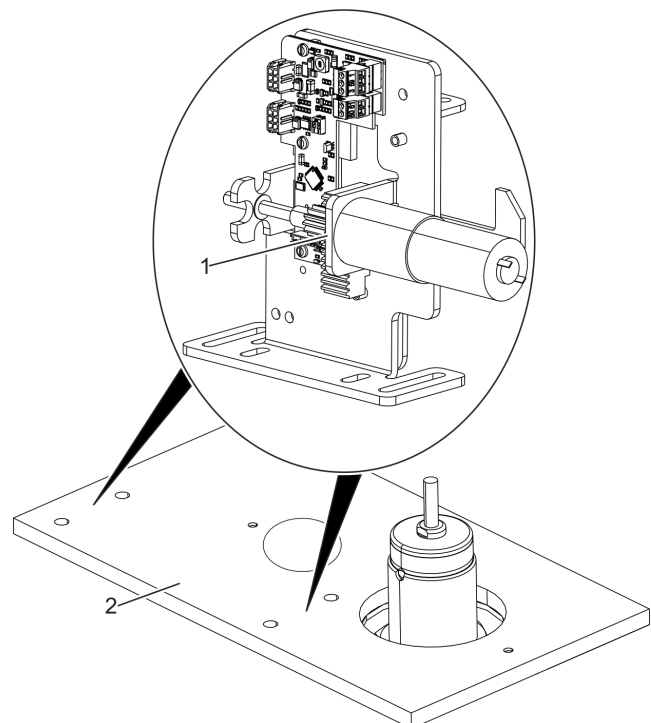
1.



The holes in the lower ceiling element (Fig. 118/2) correspond to the holes in the mounting plates (Fig. 118/1 + 3).

Position mounting plate with sensor (Fig. 118/3) over the holes in the lower ceiling element from the underside (Fig. 118/2).

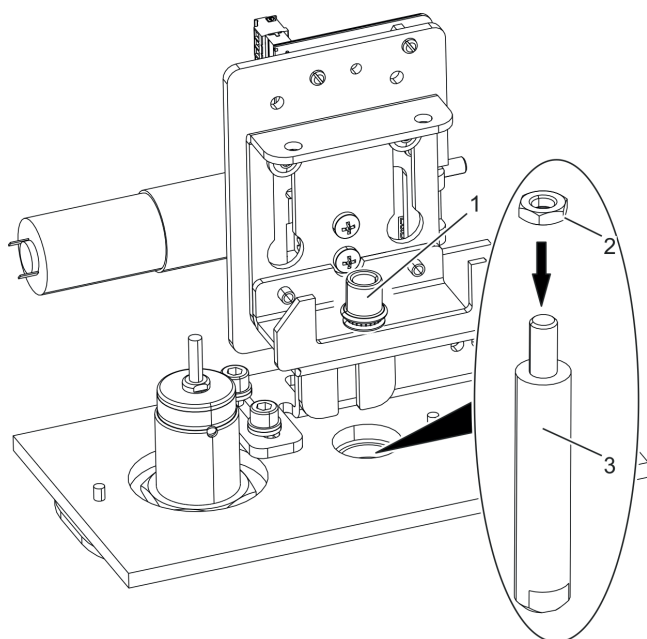
2. Position upper mounting plate (Fig. 118/1) over the holes in the lower ceiling element (Fig. 118/2) from above.
3. Screw the two mounting plates (Fig. 118/1 + 3) together through the lower ceiling element
4. Fit the electromechanical locking device (Fig. 119/1) on the upper mounting plate (Fig. 119/2) on the top of the lower ceiling element in the holes provided, as shown in Fig. 119.



**Fig. 119 Electromechanical locking device**



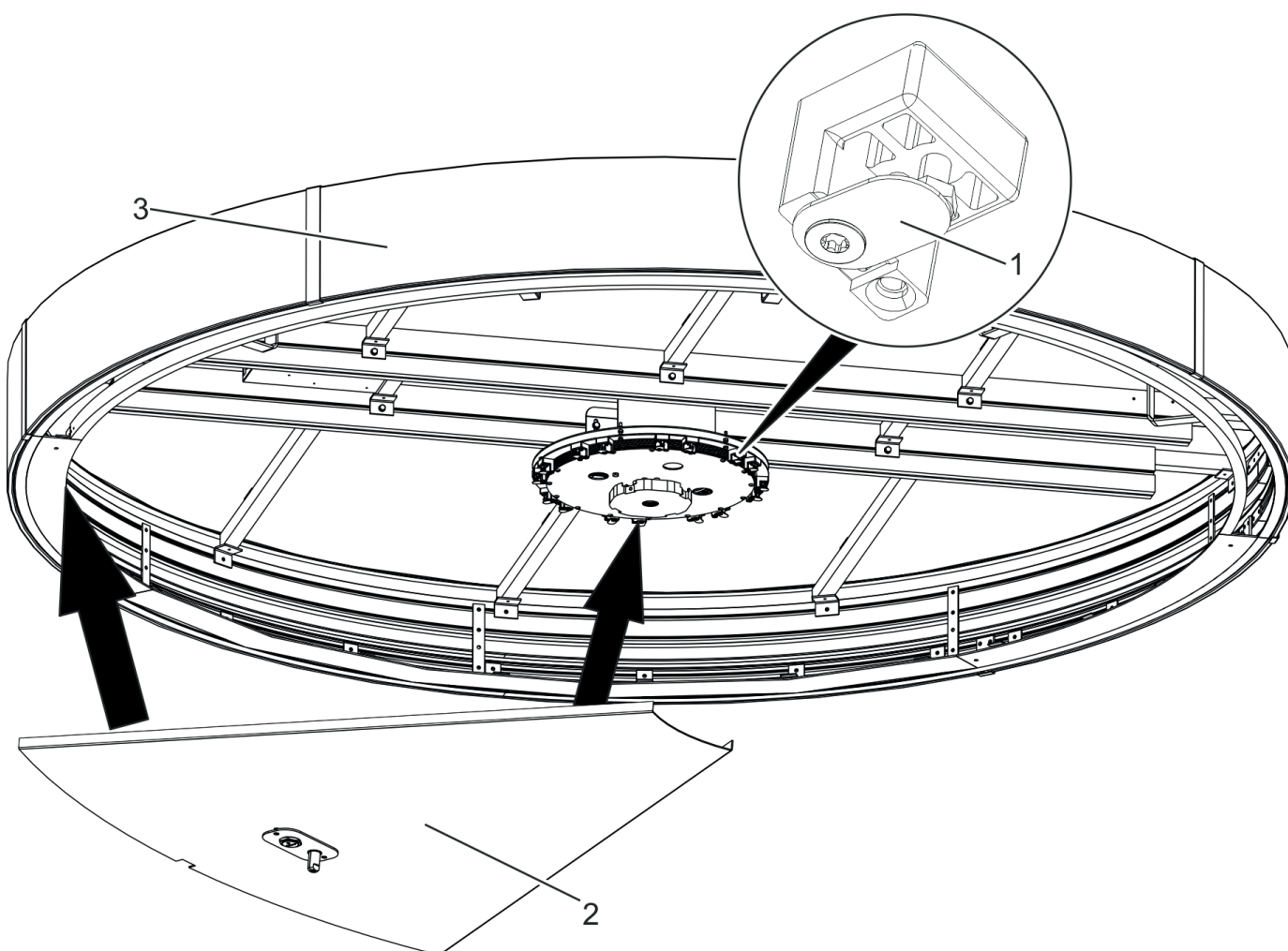
### Wooden lower ceiling



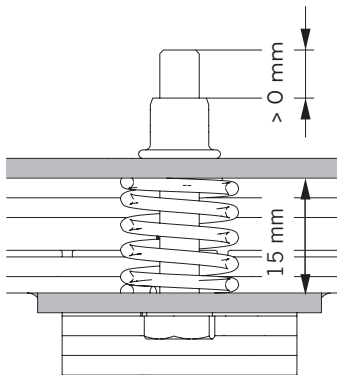
1. Mount the washer /nut (Fig. 120/2) onto the pin (Fig. 120/3).
2. Slide the pin (Fig. 120/3) from the underside through the recess. Once it has come through, screw the pin (Fig. 120/3) to the blind rivet nut (Fig. 120/1).
3. If necessary, fasten another electromechanical locking device on the lower ceiling device as outlined below.
4. Turn the metal shim (Fig. 121/1) toward the center of the operator.

**Fig. 120** Inserting the pin

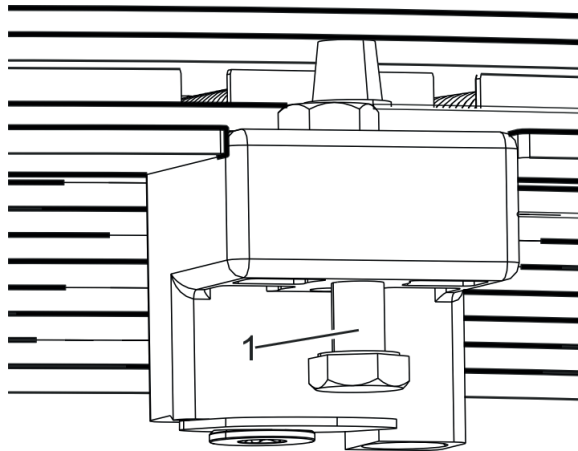
5. **i** This stage is required only with a wooden lower ceiling and can be omitted if the lower ceiling is made of metal.



**Fig. 121** Hooking in the lower ceiling elements

**Height adjustment of the lower ceiling****Fig. 122** Height adjustment

1. Preset adapter plate of the operator via the height adjustment (6x) (Fig. 122) on the circumference of the operator to approx. 15 mm.
2. Insert the lower ceiling element with electromechanical locking device (Fig. 121/2) on the support points marked by arrows between holder (Fig. 121/1) and ceiling structure (Fig. 121/3) and turn the fixing lug (Fig. 121/1) back. Observe the overview plan when inserting the ceiling elements.
3. Turn the wings until one wing is located under the inserted lower ceiling element.
4. Adjust the adapter plate on the operator via the height adjustment (Fig. 122) on the circumference (6x) of the operator so that the wing brushes on the top touch the lower ceiling element.

**Fig. 123** removal protection

5. Adjust the removal protection (Fig. 123/1) to the material thickness of the inserted lower ceiling element.

**Bookfold turnstile**

1. Insert an additional lower ceiling element with electromechanical locking device as per steps 9–11.
2. Turn the wing and check that the wing brushes on the top touch the inserted lower ceiling elements. If necessary, readjust the height setting.
3. Tighten the height adjustment (6x) (Fig. 122) on the circumference of the operator with nuts.

4.



If there are 2 lower ceiling elements with electromechanical locking devices, the locking devices are connected on the back by a cable.

Run the cables of the electromechanical locking device in the ceiling structure to the controller. Follow the wiring diagram.

5. Connect the lines to the controller according to the wiring diagram.

**5.15 Assembling sensors KTV P/S/A****Requirements**

- Electrician
- Mechanic
- Protective clothing
- Safety glasses
- Safety shoes
- Manual deburrer Ladder
- Ladder
- Cable tie holders
- Cable ties
- Screw pack S002-424

**NOTE!**

**Material damage due to improper connection of the sensors!**

Sensors that are connected incorrectly can lead to damage to the controller or sensors.

- Always connect the sensors to the controller according to the wiring diagram.

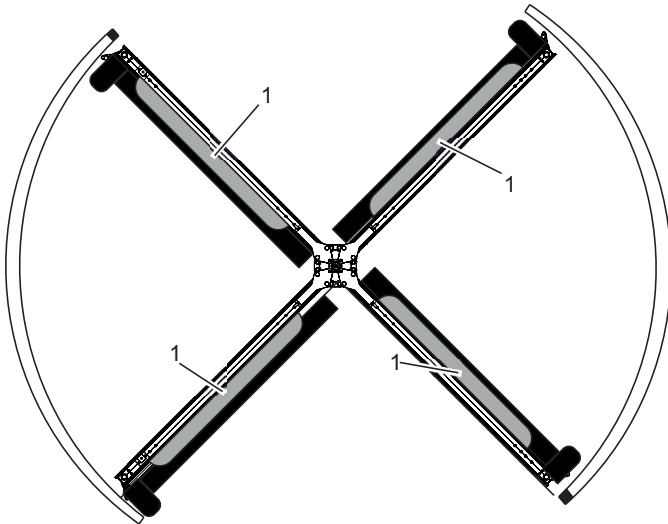
The housings for the pre-detection sensors are pre-fitted to the wings. The sensors only require insertion into the housings according to the documentation provided.

The motion sensors are fitted to the canopy covers above the entrance and exit area.

**Requirements**

- Wiring diagram is available.
- Overview of controller connections is available ("9.12 Overview of controller" on page 115).

## Pre-detection sensors



**Fig. 124** Pre-detection sensors (example)

1. Remove housing cover (Fig. 124/1) on pre-detection sensors.
2. Insert pre-detection sensors in pre-fitted housing (Fig. 124/1). Note information on supplier documentation.

## Motion sensors

1. Drill through holes provided between the threaded holes on the canopy covers over the entrance and exit in the ceiling structure.
2. Deburr holes from inside and outside.
3. Feed cables for the sensors through the holes and allow to protrude approx. 30 cm on the outside.
- 4.



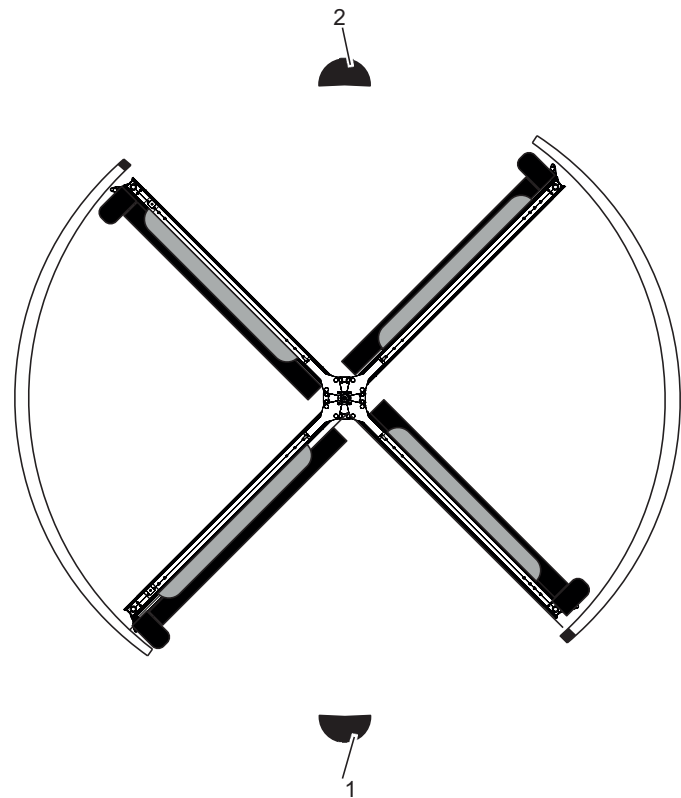
Lay cables with cable ties and cable tie holders.

Run the cables in the ceiling structure to the controller. Follow the wiring diagram.

5. Connect the lines to the controller according to the wiring diagram.
6. Connect and fit motion sensors at entrance (Fig. 125/1).
7. Connect and fit motion sensors at exit (Fig. 125/2).

Assembly

Connect power supply unit, controller, potential equalization and collector



**Fig. 125** Motion sensor



### Number of motion sensors

For larger doors two motion sensors must be inserted for each side.

## 5.16 Connect power supply unit, controller, potential equalization and collector

### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety glasses
- Safety shoes
- 90 degree countersink
- Lint-free cloth straps
- Standard degreaser
- Cable tie holders
- Cable ties



#### **WARNING!** **Risk to life due to electric shock!**

If the line-cord is connected to the local power supply before it is connected to the power supply unit, there is a risk of electric shock. Electric shock can cause serious or fatal injuries.

- Before connecting the line-cord to the power supply unit, ensure that the line-cord is not connected to the local power supply.
- Line-cord must be connected by a qualified electrician only.

Make sure:

- The line-cord of the power supply unit is not connected to the local power supply.
- Wiring diagram is available.
- Installation diagram is available.
- Overview of controller is available ("9.12 Overview of controller" on page 115).

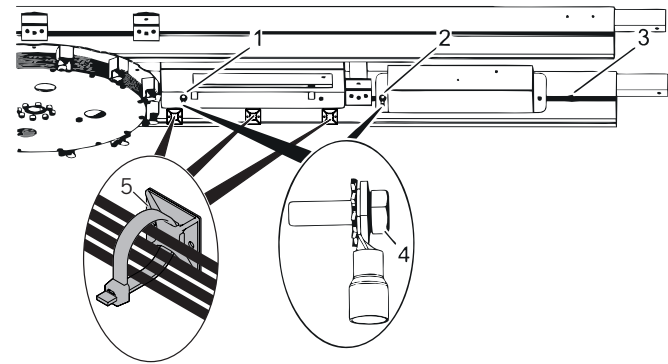
1.



#### **NOTE!** **Material damage from improperly laid cables!**

Check that all cables have been properly laid and connected in accordance with the wiring and installation plan. Fasten supplied cable clips as needed with double-sided adhesive tape underneath the control unit and re-route the cables (Fig. 126/5) or connect them. Lay the cables so that they will not be damaged by the ceiling plates.

### Connecting the potential equalization



**Fig. 126 Connecting the potential equalization**

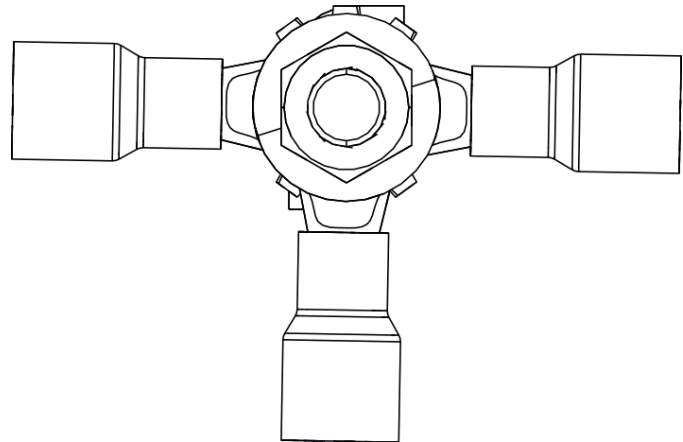
2.



The potential equalization line for the power supply unit and the controller is pre-assembled and already fitted with cable lugs at the ends.

Fasten the potential equalization (Fig. 126/4) of the power supply unit (Fig. 126/2) and the controller (Fig. 126/1) on existing mounting screws in the ceiling structure.

3. Fasten the (hammer head) screw in the ceiling structure next to the power supply unit (Fig. 126/3).



**Fig. 127 Potential equalization**

4. Fasten the loose ends of the potential equalization for power supply unit and controller on the hammer head screw (screw pack **34053801150**) in the following order (Fig. 127):
- Large washer/toothed washer (100 mm canopy and KT FLEX Direct Operator)
  - Potential equalization of the controller
  - Toothed washer
  - Potential equalization of the power supply unit
  - Toothed washer
  - Line of the building's potential equalization
  - Small washer
  - Lock nut

## Mounting the slide ring body

**i** The slip ring has already been installed on a bookfold turnstile ("5.7.4.1 Prepare standard operator for Bookfold turnstile") and the ceiling structure with 100 mm canopy height and KT FLEX Direct Operator ("5.7.2 Prepare operator for ceiling structure with 100 mm canopy height and KT FLEX Direct Operator").

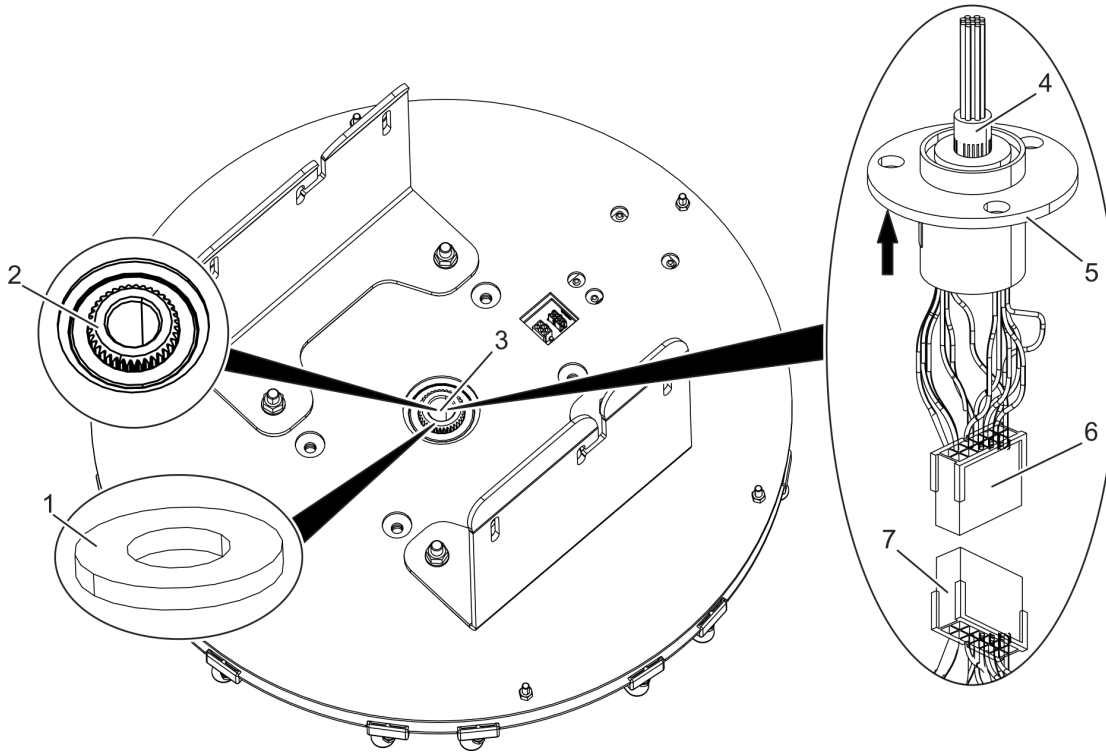


Fig. 128 Operator (top view)

5. Clean the top side of the inserted toothed shaft (Fig. 128/2) in the center of the operator (Fig. 128/3) with a cloth and degreaser.
6. Remove the foil from the adhesive side of the Velcro ring (Fig. 128/1) and clean the adhesive side with a cloth and degreaser.
7. Guide the wing connection cable (Fig. 128/7) from the center of the operator through the Velcro ring (Fig. 128/1) and bond the Velcro ring (Fig. 128/1) with the adhesive side to the top side of the toothed shaft (Fig. 128/2).
8. Connect the wing connection cable (Fig. 128/7) with the slip ring (Fig. 128/6).
9. Place the slip ring with the connected wing connection cable (Fig. 128/7) on the Velcro ring (Fig. 128/1) with the Velcro side in the center of the operator (Fig. 128/3).
10. Guide the slip ring line (Fig. 128/4) to the controller.



**NOTE!**  
Material damage due to improper connection!

Connect all lines that are not yet connected to the controller (Fig. 129). Follow the wiring diagram.

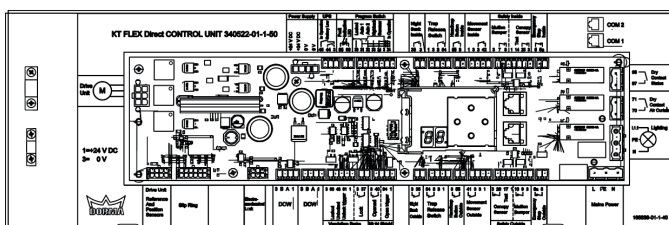


Fig. 129 Controller connections

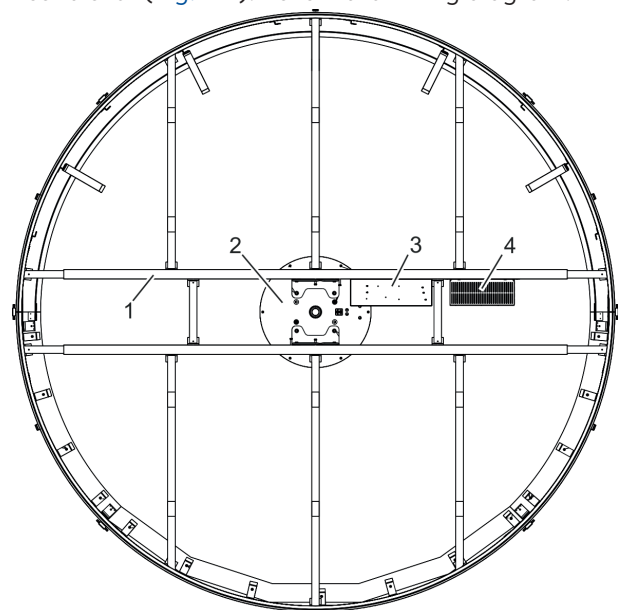
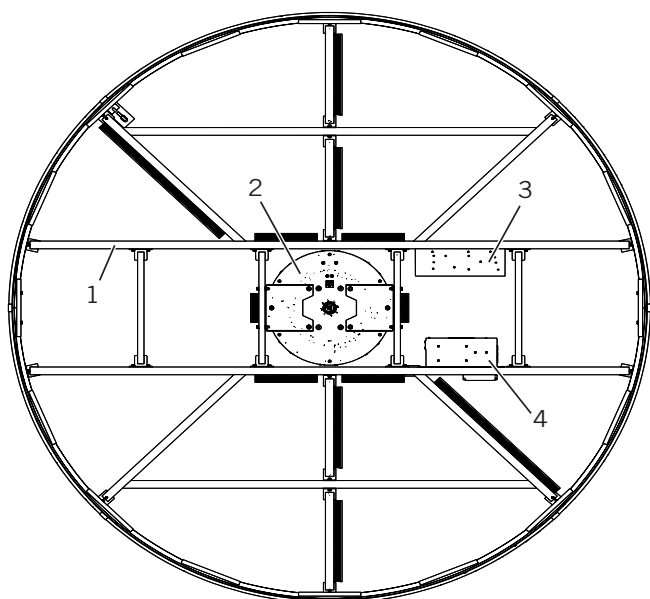


Fig. 130 View from above (standard)



**Fig. 131** Top view (ceiling structure with 100 mm canopy height and KT FLEX Direct Operator)

11.



**NOTE!**

**Material damage due to improper drilling!**

If necessary, Drill through hole near the power supply unit (Fig. 130/4 and Fig. 130/4) above center beam (Fig. 131/1 and Fig. 131/1). During drilling, ensure that no shavings get into the power supply unit or controller.

12. If necessary, deburr through hole.

13. Route the building's potential equalization line to the (hammer head) screw (Fig. 126/3) in the ceiling structure and connect it.

14.



**WARNING!**

**Life-threatening danger through improper connection!**

Route the building's power supply to the power supply unit (Fig. 130/4 and Fig. 131/4) and connect it. Observe the wiring and installation diagram.



## 6 Commissioning

### 6.1 Safety during commissioning

#### Electrical components



#### **DANGER!**

#### **Life-threatening danger due to electricity!**

Operator, controller and power supply unit are energized. Touching the components poses an immediate risk of death from electric shock.

- Replace components and cables with damaged insulation immediately.
- Make sure that all cables are routed flush on the structure and cannot come into contact with other components (e.g. wings).

#### Automatic startup KTV P/S/A



#### **WARNING!**

#### **Risk of injury due to automatic start-up of the revolving door!**

The revolving door can set itself in motion automatically. If there are people in the revolving door, they may be at risk of injury.

- Never turn the revolving door on or off when people are in it.
- Only release the emergency stop button once there are no longer any people in the revolving door and the issue causing the emergency stop has been resolved.
- Wait until there are no longer any people in the revolving door before folding the wings back into the starting position.

#### Safety equipment not yet in operation KTV P/S/A



#### **WARNING!**

#### **Safety equipment not yet in operation on commissioning!**

During the learning cycle, the safety equipment required for normal operation is not yet operational. This may result in entanglement and crushing hazards at the closing edges, which may cause injuries.

- Start the learning cycle only after everyone has left the danger zone.
- Ensure that no one is present in the area of the closing edges.

### 6.2 Before commissioning

#### Check the revolving door

The revolving door must be checked for the following points before commissioning:

- The local power supply is connected but not yet turned on.
- The structure is intact (e.g. no crack in the glass of the wing).
- The assembly and transport securing device of the operator has been removed.
- Wings can be turned manually.
- Lower ceiling elements with electromechanical locking device\* have been inserted and secured by the removal protection.
- The distance of the bottom edges of the wings to the top edge of the finished floor is max. 8 mm.

\*Optional

### 6.3 Configuring the electromechanical locking device (option with bookfold turnstile)

#### Requirements

- Electrician
- Protective clothing
- Safety shoes
- Ladder

A revolving door with a bookfold turnstile is equipped with two electromechanical locking devices. The locking devices have a DIP switch at the back. The address range is set via the DIP switch. The address range signals to the controller how many electromechanical locking devices are in place.

Make sure that:

- One electromechanical locking device is connected to the controller.
- The second electromechanical locking device is connected to the first locking device.

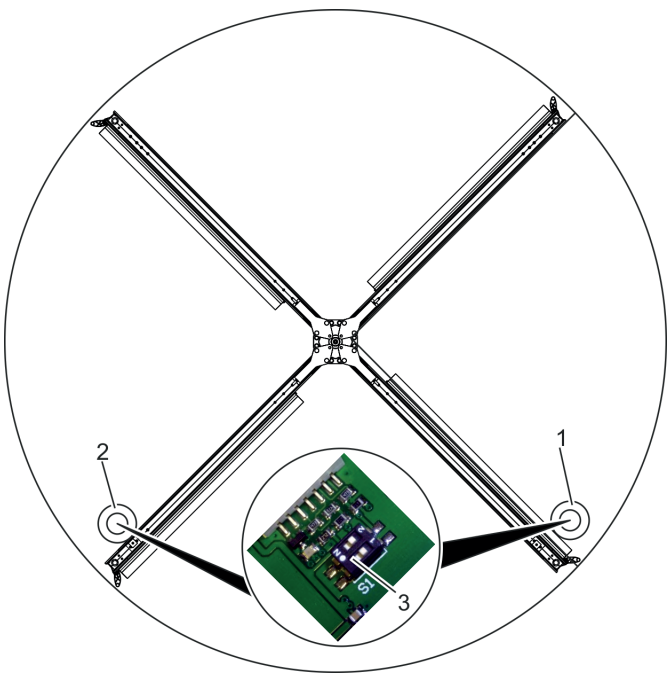


Fig. 133 DIP switch (example)

1. **i Rigid turnstile**  
With a fixed turnstile both DIP switches of the locking device control are set to 0.

With a bookfold turnstile set the DIP switch according to the table:

Locking device	DIP switch 1 (Fig. 133/3) Ad- dress	DIP switch 2 (Fig. 133/3) Ad- dress
1 (Fig. 133/1)	0	0
2 (Fig. 133/2)	1	0

## 6.4 Commissioning

### 6.4.1 Operation of the controller

The controller is parametrized via the keypad (Fig. 134/2). Settings and phases of the learning cycle are shown on the display (Fig. 134/1).

The following functions can be executed by pressing the keys ▼, ▲, ► and ◀ (Fig. 134/2):

Key ▼

- Adjusting the mounting direction after a mains reset.
- Scrolling through parameters and error messages.
- Reducing the parameter value.
- Opening pulse.
- N Start the learning cycle, press ▼ > 3 s for this purpose.
- Perform reset to factory settings, press ▼ > 8 s for this purpose.

Key ▲

- Scrolling through parameters and error messages.
- Increasing the parameter value.

Key ►

- Access the parameter menu, press ► > 3 s for this purpose.
- Change the selected parameter.
- Save the changed value.

Key ◀

- Cancel the parameter change process.
- Close the parameter menu.

Keep keys ◀ and ► pressed simultaneously

- Error acknowledgement, keep keys pressed > 3 s.
- Reset, keep keys pressed <3 s.

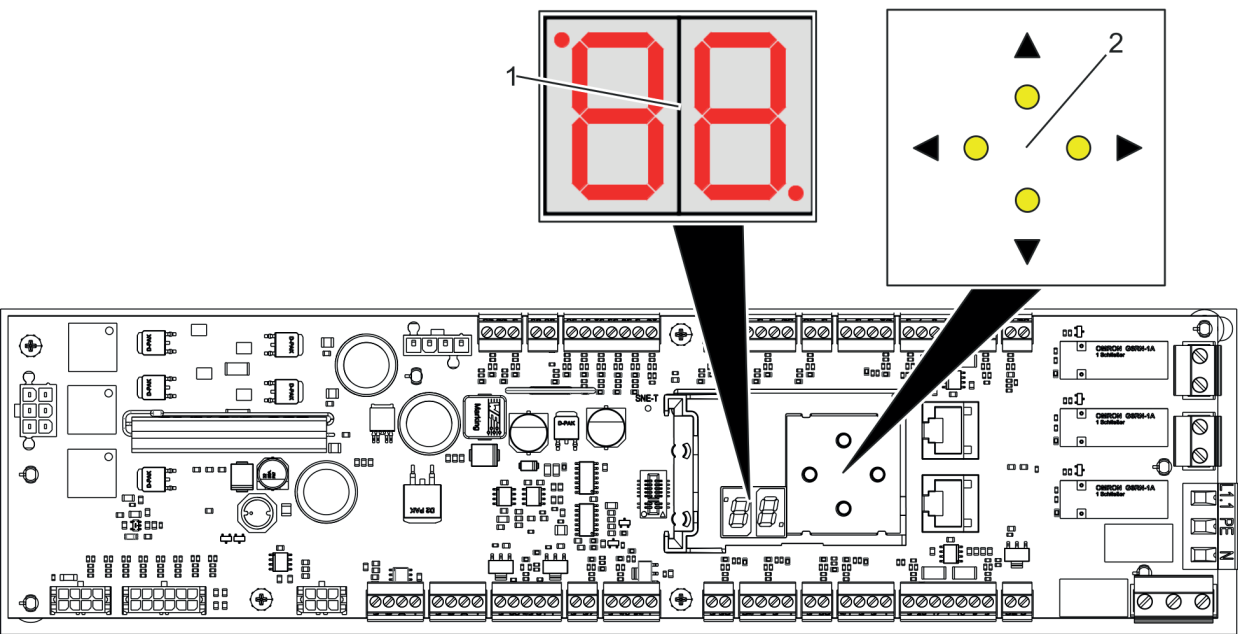


Fig. 134 Controller

## 6.4.2 Acknowledging error messages

### Requirements:

- Electrician
- Protective clothing
- Safety shoes



#### **WARNING!**

#### **Risk of injury when eliminating fault with unknown error message!**

Unauthorized fault elimination of an error message not described may result in serious injuries.

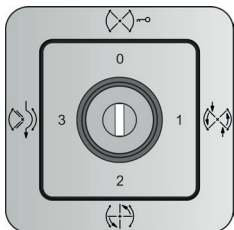
- If the error message is not in dormakaba's error list (9.9 Error list, p. 103) always contact dormakaba to correct it.
- Never attempt to eliminate an unknown error message on your own.

Errors occurring during the learning cycle or commissioning of the sensors are shown on the display of the controller with an error number. The "Error No." column of the error list (9.9 Error list, p. 103) shows which error message this is.

The "Acknowledgement" column of the error list indicates whether an error message is acknowledged automatically (A) or needs to be acknowledged with the program switch (M).

Proceed as follows to acknowledge an error message (M) via the program switch:

1. Check the error number on the display of the controller and correct it according to the error list (9.9 Error list, p. 103).
2. Ensure that no one is in the revolving door.



**Fig. 135** Program switch

3. Set the program switch (Fig. 135) to 0 – "Off".
4. After a waiting period of at least 3 seconds, restart the revolving door using the program switch (Fig. 135).
5. If necessary, Perform the learning cycle or commissioning of the sensors again.

## 6.4.3 Carrying out a learning cycle KTV P/S/A

### Inactive safety equipment



#### **WARNING!**

#### **Life-threatening danger due to inactive safety equipment!**

During the learning cycle, the safety equipment required for normal operation is not yet operational. Persons present in the revolving door during the learning cycle may sustain injuries.

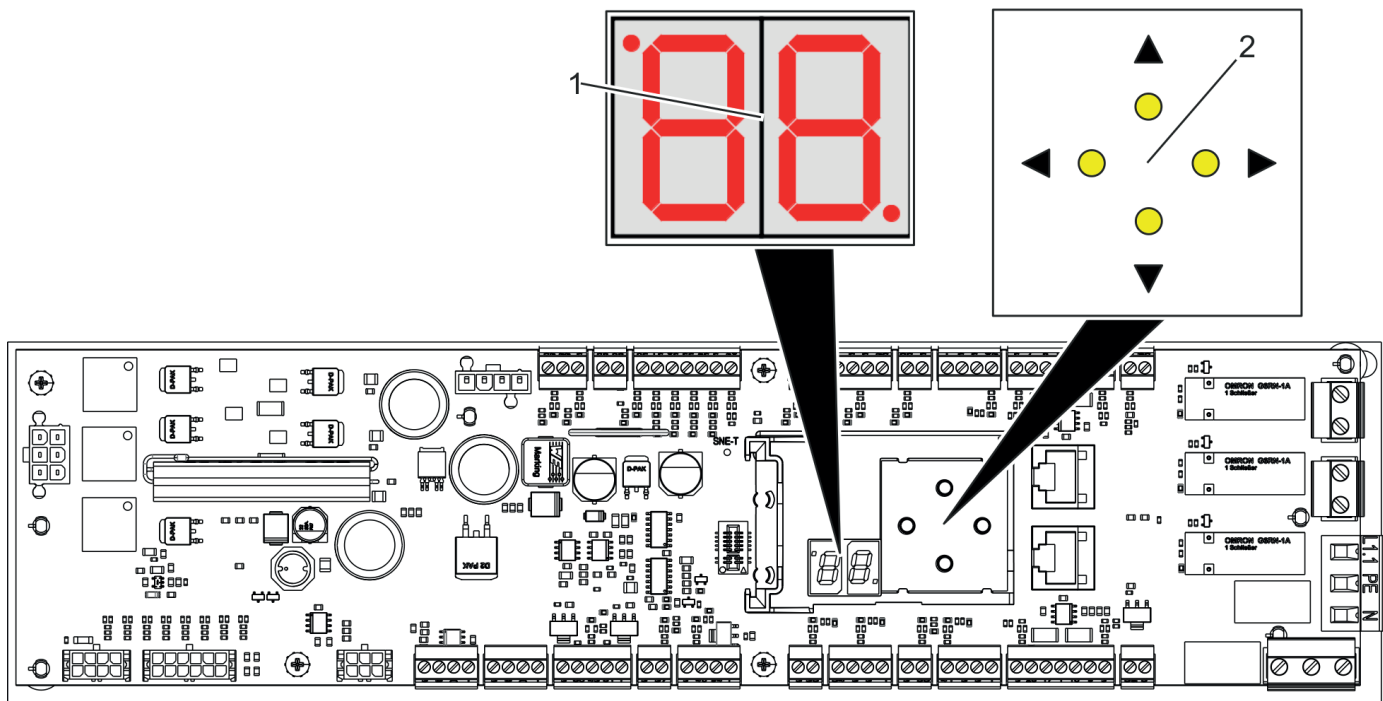
- Ensure that no one is present in the area of the wings.
- Start the learning cycle only after everyone has left the area.

### Requirements

- Electrician
- Protective clothing
- Safety shoes
- Ladder



The learning cycle and subsequent parametrization can also be carried out using the separately available handhelds from dormakaba.



**Fig. 136 Controller**

The following phases are passed through during the learning cycle depending on the options ordered and are shown on the controller display (Fig. 136/1) as follows:

Phases and displays during the learning cycle:

- Phase 1 : Detection of the locking position with 0°
- Phase 2 : Calculation of path measurement between sensors and locking position
- Phase 3 : Determining the inertia while the wings are turning

Before the learning cycle starts, the basic parameters for the revolving door must first be entered.

1. Press the emergency stop button at the entrance or exit.



The program switch has no function during the learning cycle.

#### Bookfold turnstile (option)

2. Check if all wing deflection contacts are closed (no wing is folded).
3. Switch on the local power supply.
  - » The controller is initialized. All segments of the display will briefly light up until the display appears.
4. Select the display presentation and operating direction of the keypad with ▲ or ▼.



- ▲: Display and operation (Fig. 136/1 + 2) inverted.
- ▼: Display and operation (Fig. 136/1 + 2) remain unchanged.

- » After the selection the firmware version installed appears as ticker. This is followed by the display .

5. Access the parametrization level with ►.
6. Select the basic parameters with ▲ and ▼.
- 7.



#### NOTE!

**Material damage through improper input of the basic parameters!**



Refer to the enclosed wing system guide for the basic parameters.

Change the basic parameters with ▲ and ▼.

8. Save the inputs. Press ► to do so.
9. Start the learning cycle. Press ▼ longer than 3 s for this purpose.
  - » The controller is ready to start the learning cycle as soon as the display appears.
10. Align the revolving door manually to the locking position ("9.13 Wing locking device (diagram)" on page 116).
- 11.



#### NOTE!

**Material damage due to objects in the revolving door!**

If necessary, Remove objects from the area of the revolving door.


12.

**WARNING!**

**Life-threatening danger due to automatic startup of the revolving door!**

Ensure that no one is present in the revolving door and unlock the emergency stop buttons.

- » The revolving door starts the learning cycle. The current phase is shown on the display during the learning cycle. The learning cycle is terminated as soon as an error occurs during the learning cycle.

13. If the learning cycle is terminated, press the emergency stop button and perform the fault correction according to the error list (9.9 Error list, p. 103).
14. Start the learning cycle again from step 9 and correct additional errors, if necessary.
  - » The learning cycle is completed as soon as the display  appears.

#### 6.4.4 Commissioning sensors KTV P/S/A

##### Requirements:

- Electrician
- Protective clothing
- Safety shoes
- Ladder

The connected sensors are only operational after their function test.

##### Requirements

- Error table is available (9.9 Error list, p. 103).
- Diagnostics table is available (9.6 Diagnostics, p. 100).

1.

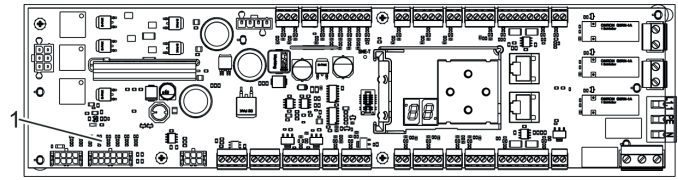
**NOTE!**

**Material damage due to improper configuration!**

Configure the pre-detection sensors individually according to the enclosed manufacturer documentation (9.8 Configuration, p. 101).

2. Configure the motion sensors at the entry and exit according to the enclosed manufacturer documentation.

#### Function test of sensors



**Fig. 137 Status LED of the controller**

3.



Refer to the connection diagram of the controller for the allocation of the status LEDs.

Check the status LEDs (Fig. 137/1) of the motion sensors according to the following specifications:

- Green: Motion sensor is active
  - Off: Motion sensor is not active
4. Check the status LEDs (Fig. 137/1) of the safety sensors according to the following specifications:
    - Off: Safety sensor is active
    - Green: Safety sensor is not active
  - » When all status LEDs indicate "green" when activated, the function test of the sensors is completed.
  5. Check the error messages on the display and observe the error tables from the appendix and supplier documentation of the safety sensors.
  6. Check the safety sensors again until all status LEDs have the status "green".

#### 6.4.5 Setting travel parameters according to customer specifications KTV P/S/A

##### Requirements:

- Electrician
- Protective clothing
- Safety shoes
- Ladder



Parametrization can also be performed using the separately available handhelds from dormakaba.

The travel parameters for the revolving door are entered after the learning cycle and commissioning of the sensors. The travel parameters are set according to the local specifications of the facility operator.

**NOTE!**

**Material damage due to improper parametrization!**

If travel parameters are not set according to the specifications of the facility operator they may possibly need to be reset later, which means additional costs.

- Set the travel parameters only according to facility operator specifications.
- Contact dormakaba if no information is available ( Customer service, p. 5).

Make sure:

- Travel parameters (9.7 Travel parameters, p. 101) are available.

### Accessing the parametrization level

1. u longer than 3 s to access the parameter level.  
» The parameters accessed appear as symbol.

### Select parameter

2. p or q to select the next or previous parameter.

### View parameter value

3. u to view the selected parameter value.  
» The preset value is displayed.

### Change parameter value

4. p or q to change the next or previous parameter.

### Save parameter value

5. u to save the parameter value.

### Leave parameter level

6. t to exit the parameter level.

## 6.5 Carrying out a functional test KTV P/S/A

### Functional test overview

The function of the revolving door must be tested after the learning cycle and commissioning of the sensors.

Depending on the actual revolving door versions, the following functions must be tested in the course of commissioning:

- Emergency stop button
- Restart of the revolving door after an emergency stop
- Disabled access pushbutton\*
- Active safety bumper – Leading mullion\*
- Motion sensors on entry and exit
- Pre-detection sensor on the wing
- Active safety bumper – horizontal\*
- Active safety bumper – vertical\*
- Programs of the program switch
- Function of the night shield switch\*
- Electromechanical locking device\*
- Manual locking device (floor or rod locking device)\*
- Manual or electrical night shield\*
- Emergency stop when folding a wing in operation\*
- Transport opening of the revolving door\*
- Emergency exit opening of the revolving door\*

\*Optional

### Performing a functional test



#### WARNING!

#### Risk of injury due to improper function test!

It may happen during the functional test that safety equipment does not function because it may have been connected incorrectly. This can cause serious injury.

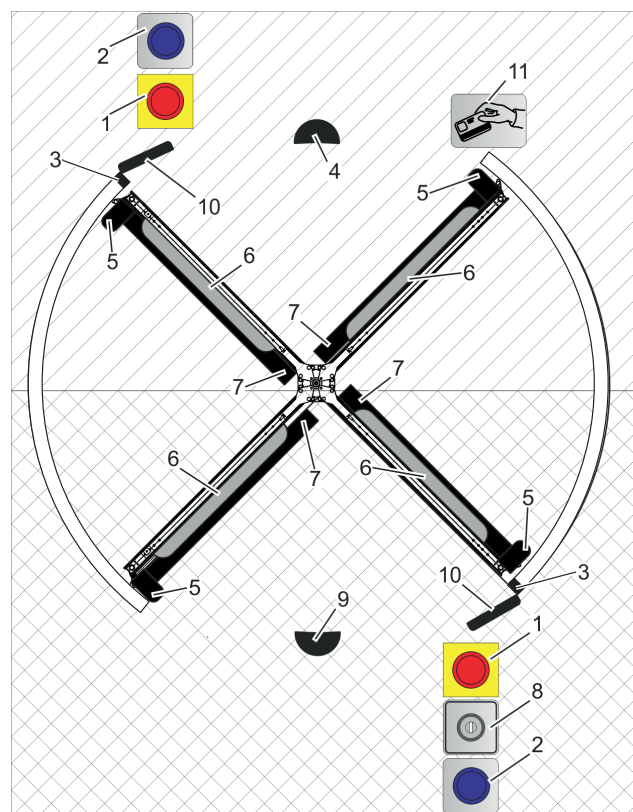
- Ensure that no one is present in the danger zone before starting the functional test.
- Leave the danger area immediately if safety equipment does not work/respond as intended.

### Requirements

- Electrician
- Mechanic
- Protective clothing
- Safety shoes



Optional functions are marked with \*.




**Fig. 138** Functional test overview



Building exterior  
Building interior




### Automatic 1 mode

- Set the program switch (Fig. 138/8) to .
  - The revolving door runs in Automatic 1 mode.

### Emergency stop button

- Test the emergency stop buttons provided (Fig. 138/1).
  - When the emergency stop is activated, the revolving door stops immediately and the operator is disengaged. It will then be possible to turn the wings manually.

### Restart after emergency stop

- 

All Emergency Stop button must be unlocked to test the restart.


Unlock the emergency stop button and test the restart of the revolving door.

- The revolving door will continue with the current program settings.


### Disabled access pushbutton\*

- Test disabled access pushbuttons provided (Fig. 138/2).
  - The revolving door reduces the current speed for one revolution and then continues with the current speed.

### Wing\*

- 

**WARNING!**  
Risk of injury due to improper testing!

- 

Check each of the wings individually.

Check the reliable response of the following functions of the wings while the revolving door is turning:

- Safety bumper – horizontal (Fig. 138/7)
- Safety bumper – vertical (Fig. 138/5)
- Pre-detection sensor on the wing (Fig. 138/6)


### Leading mullion\*

- Check the active safety bumper – leading mullion (Fig. 138/3) for reliable response on entry and exit.

### Folding the wing\*


- Check folding forward and backward of wings during running operation.

### Automatic 2 mode

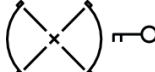
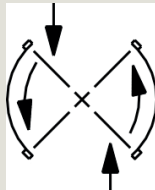
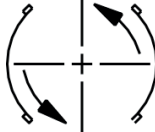
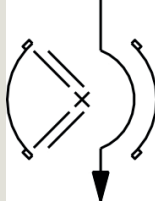

- Set the program switch (Fig. 138/8) to .
  - The revolving door runs in Automatic 1 mode.
- Repeat steps 2–6.

### Program switch

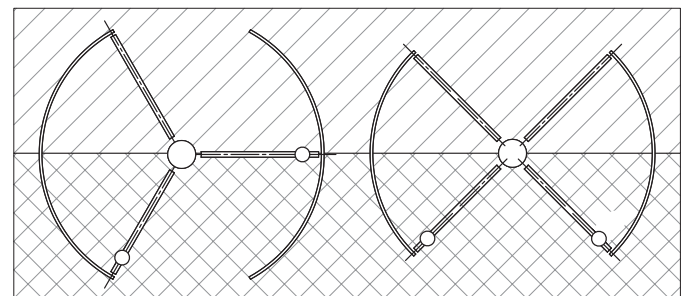
### 10. Check program modes:

- 



Some symbols and program modes may not be available, depending on the options selected in the order.


Symbol	Program mode
	Off
	Automatic 1
	Automatic 2
	Summer
	Night bank

### Manual locking device\*




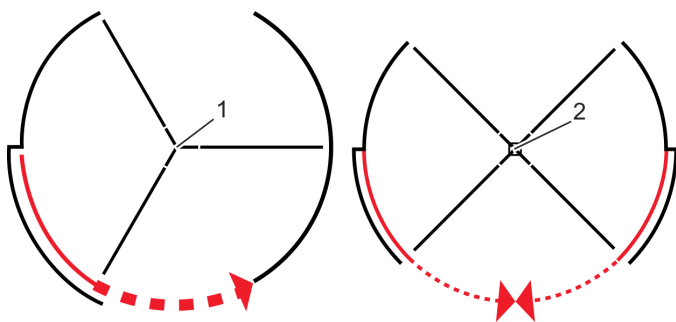
**Fig. 139** Locking position

	Building interior
	Building exterior

- 

Position and number of locking devices, see "2.5 Locking device" on page 14.

- Set the program switch (Fig. 138/8) to . Align the revolving door manually to the locking position ("9.13 Wing locking device (diagram)" on page 116).
- Lock wing using floor or rod locking device, then unlock.

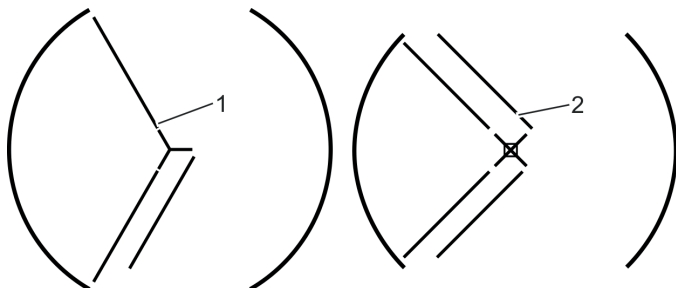
**Manual night shield\*****Fig. 140 Manual night shield**

- 1 Night shield with 3 wings
- 2 Night shield with 4 wings
- 13. Set the program switch (Fig. 138/8) to Close and lock night shield (Fig. 140/1 or 2) manually. Then unlock night shield and push back.

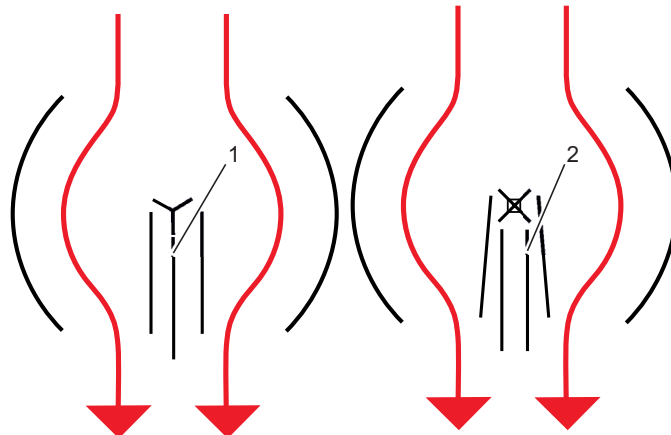
**Electric night shield\***

- 14. **WARNING!**  
**Risk of injury due to improper testing!**

Set the program switch (Fig. 138/8) to Close and re-open night shield (Fig. 140/1 or 2) using separate key switch. Ensure that no one is present in the area of movement of the night shield (Fig. 140/1 or 2).

**Transport opening\*****Fig. 141 Transport opening**

- 1 Transport opening with 3 wings
- 2 Transport opening with 4 wings
- 15. Set the program switch (Fig. 138/8) to Fold wing, then align with transport opening (Fig. 141/1 or 2). Following alignment, fold wing back into starting position.

**Emergency escape opening\*****Fig. 142 Emergency escape opening**

- 1 Emergency exit opening with 3 wings
- 2 Emergency exit opening with 4 wings
- 16. Set the program switch (Fig. 138/8) to Fold wing, then align with emergency exit (Fig. 142/1 or 2). Following alignment, fold wing back into starting position.
- 17. Switch off the revolving door. Set the program switch (Fig. 138/8) to .

## 7 Completion of assembly

### 7.1 Safety during completion of assembly

#### Test not carried out



#### **WARNING!**

#### **Danger of death if test not carried out!**

On completion of all assembly and installation work, the revolving door must undergo an acceptance test in accordance with the relevant regulations.

- Check revolving door in accordance with EN16005 and, if appropriate, DIN 18650.

#### Facility operator instruction not carried out



#### **WARNING!**

#### **Danger of death if facility operator instruction not carried out!**

On completion of all assembly and installation work, the facility operator must receive instruction in accordance with handover certificate.

- Carry out operator instruction in accordance with handover certificate.
- Arrange for facility operator to sign handover certificate.

### 7.2 Inserting lower ceiling segments

#### Requirements

- Electrician
- Mechanic
- Protective clothing
- Industrial safety helmet
- Safety shoes
- Cable tie holders
- Cable ties
- Screw pack 34053501150



#### **WARNING!**

#### **Risk of fire due to wrong lighting!**

Depending on the design, in particular with a wooden lower ceiling or brush seal on the wings, installation of unauthorized lighting can cause a fire.

- Only ever use the lighting supplied.
- Use other lighting elements only after consultation with dormakaba.



#### **WARNING!**

#### **Risk of injury due to improper installation of the lower ceiling!**

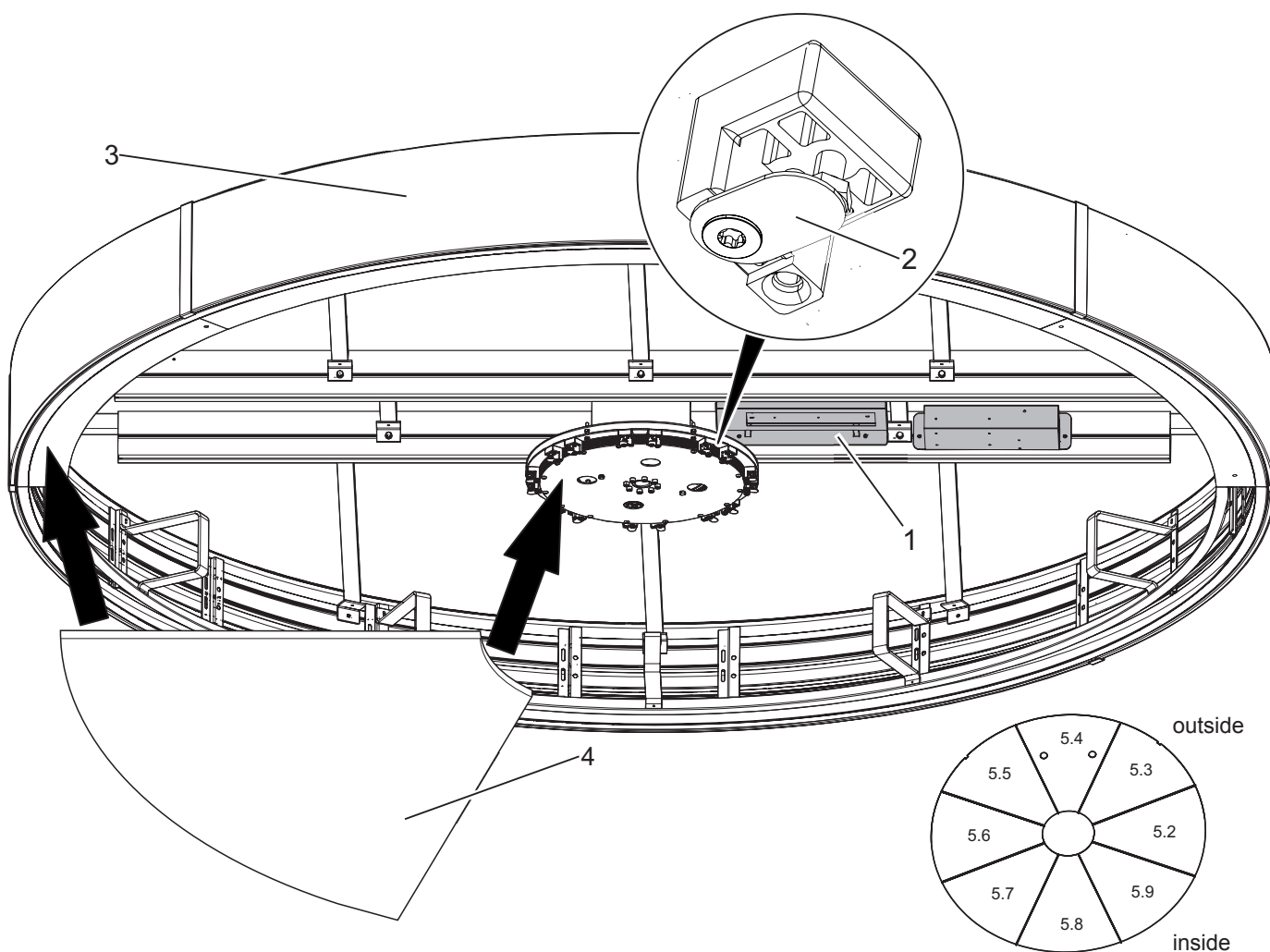
Improperly inserted lower ceiling segments may detach during operation causing serious injury as well as considerable material damage.

- When fitting, always ensure even positioning between ceiling structure and operator.
- Always follow the specifications regarding the lower ceiling in the overview plan.

The segments of the lower ceiling are numbered with labels. An overview plan in the door system guide shows the arrangement of the lower ceiling segments in the ceiling structure. The holes in the lower ceiling segments are for inside lighting.

Make sure that:

- Wiring diagram is available.
  - Installation diagram is available.
  - The power supply unit is disconnected from the local power supply.
1. Shorten the rectangular pipes on all lower ceiling elements to 100 mm on the operator side.



**Fig. 143** Inserting lower ceiling elements

2.

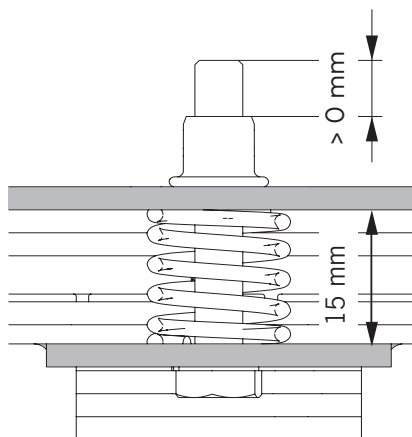


**NOTE!**  
**Material damage due to improper connection!**

3. Preset adapter plate of the operator via the height adjustment (6x) (Fig. 144) on the circumference of the operator to approx. 15 mm.
4. Turn the metal shim (Fig. 143/2) toward the center of the operator.

Lay cables for light installation to controller (Fig. 143/1) in ceiling structure (Fig. 143/3) and connect. Follow the installation and wiring diagram.

#### Height adjustment of the lower ceiling



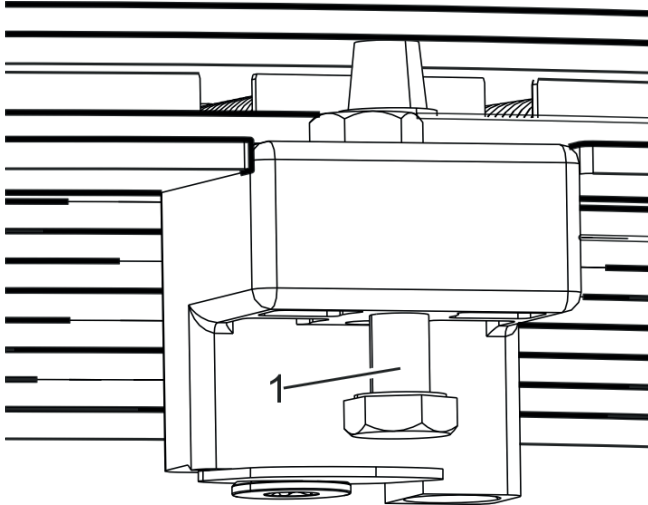
**Fig. 144** Height adjustment

5. Insert the lower ceiling element (Fig. 143/4) on the support points marked with arrows between holder (Fig. 143/2) and ceiling structure (Fig. 143/3) and turn the metal shim (Fig. 143/2) back.

**NOTE!**

**Follow the overview plan (Fig. 143) for insertion of the lower ceiling elements!**

6. Tighten fixing screw in the metal shim (Fig. 143/2).
7. Turn the wings until one wing is located under the inserted lower ceiling element.
8. Adjust the adapter plate of the operator via height adjustment (6x) (Fig. 144) on the circumference of the operator so that the wing brushes on the top touch the lower ceiling element.
9. Insert remaining lower ceiling elements into the ceiling structure.
10. Turn the wing and check that the wing brushes on the top touch the inserted lower ceiling elements. If necessary, readjust the height setting.
11. Tighten the height adjustment (6x) (Fig. 143/1) on the circumference of the operator with nuts.



**Fig. 145** Removal protection

12. Adjust the removal protection (Fig. 145/1) to the material thickness of the inserted lower ceiling element.
- 13.

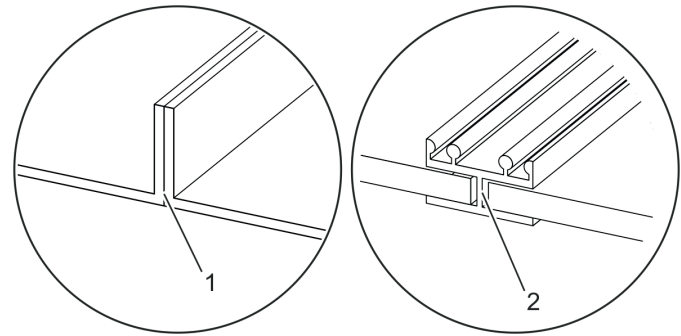
**NOTE!**

**Material damage due to improper assembly!**

Insert the remaining lower ceiling elements (Fig. 143/4) on the support points marked with arrows between metal shim (Fig. 143/2) and ceiling structure (Fig. 143/3) and turn the removal protection (Fig. 143/2) back.

14. Tighten the removal protection (Fig. 143/2) and adjust to the material thickness of the lower ceiling element.

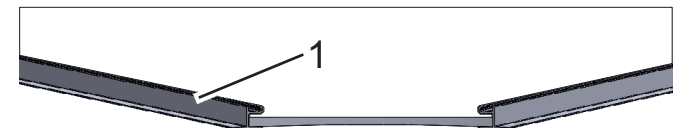
### Sheet metal lower ceiling



**Fig. 146** Sheet metal / wooden lower ceiling

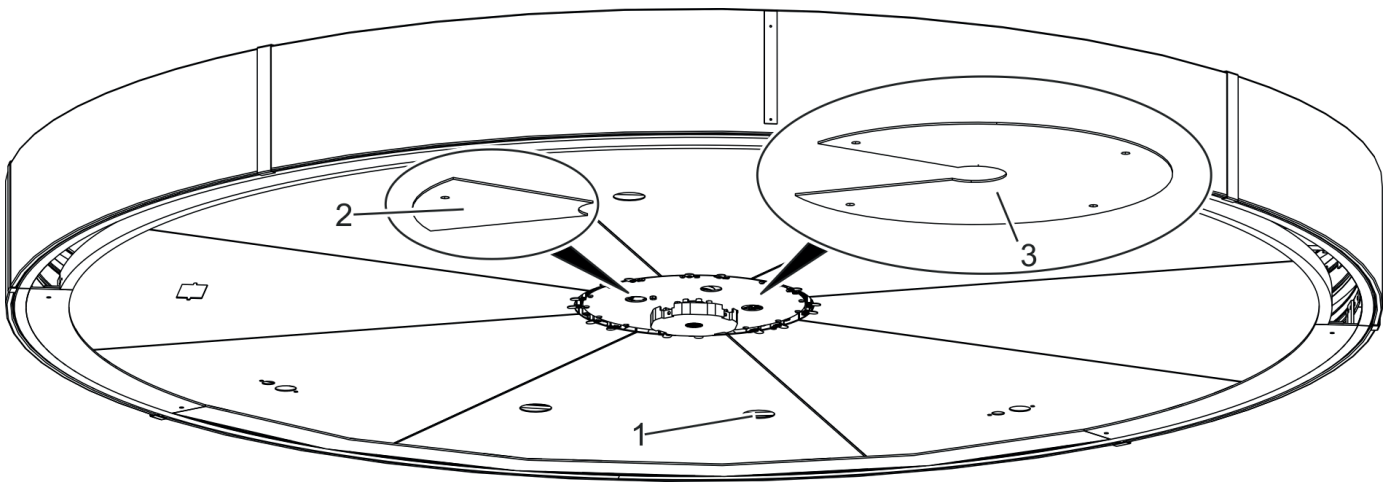
15. With a lower ceiling from sheet metal, insert the individual lower ceiling elements (Fig. 143/4) flush next to each other (Fig. 146/1).

### Wooden lower ceiling



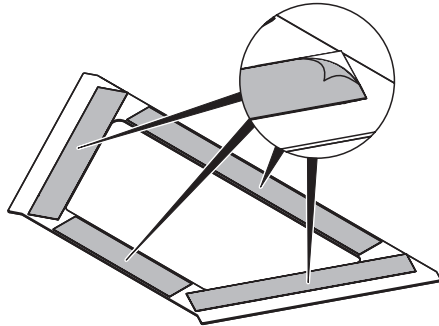
**Fig. 147** Joint cover

16. With a wooden lower ceiling, cover the joint between the lower ceiling elements (Fig. 143/4) with a joint cover (Fig. 146/2). Use a joint cover as shown in Fig. 147/1 for the last lower ceiling element.
17. Tighten screws in the metal shim (Fig. 143/2).



**Fig. 148** Covering the operator

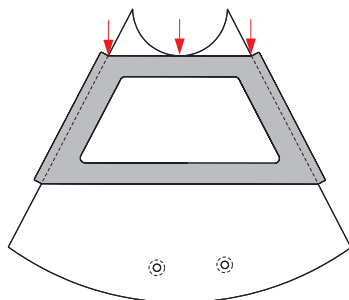
18. If necessary, Insert the spotlights into the existing openings in the lower ceiling (Fig. 148/1).
19. Fix cover discs (Fig. 148/3) into the holes provided from the controller side to the underside of the operator (screw pack 34053501150).



**Fig. 149** Preparing the guide plate

20. Remove the film strips from the adhesive tape (Fig. 149).
21. Attach the guide plate onto the cover plate (Fig. 148/2).

**i** Do not stick the guide plate on the visible surface as the visible surface is painted, coated, etc. The holes on the visible surface are countersunk.



**Fig. 150** Position of the guide plate

22. Observe the position of the guide plate (Fig. 150).
23. Insert the cover disk (Fig. 148/2) with the affixed guide plate on the right and left under the cover plate (Fig. 148/3) and push it to the center.
24. Fix cover discs (Fig. 148/2) into the existing holes (screw pack 34053501150).

25. Carry out a new learning cycle with the handheld ("6.4.3 Carrying out a learning cycle KTV P/S/A" on page 81).

If there is no handheld, the lower ceiling element should only be used in the control area after the learning cycle.

**i** In case of a P or S door variant, check whether the door is difficult to move if the learning cycle is interrupted with a "15" fault ("9.9 Error list" on page 103). Correct the door alignment or shorten the brushes that are too long as needed.

## 7.3 Assembling the upper ceiling

### 7.3.1 Safety when assembling the upper ceiling

#### Risk of falling



#### WARNING!

#### Risk of falling when assembling the upper ceiling

When assembling the upper ceiling, there is a risk of falling and, depending on the installation height, this can result in serious or even fatal injury.

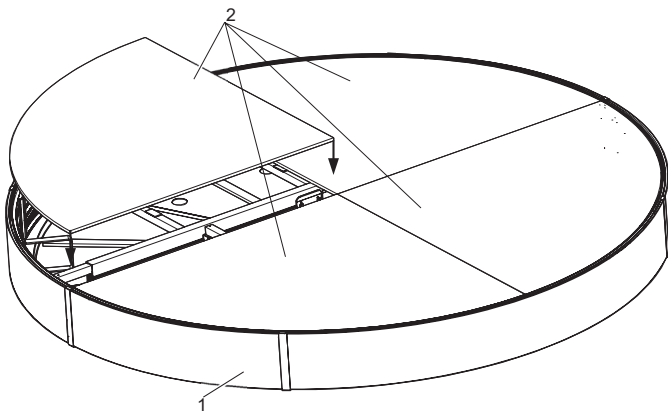
- For upper ceilings that are not accessible with a working platform, ladder or similar, wear fall arrester.
- Never stand on the upper ceiling of the 100 ceiling.
- Always keep access routes free of obstacles.
- Remove tripping hazards.

### 7.3.2 Assembling wooden upper ceiling


#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Equipment for safe climbing up/down when working on revolving door roof (e.g. working platform or stepladder)
- Screw pack S002-025

The upper ceiling of the revolving door is first covered with upper ceiling sheets of wood. The upper ceiling is then made ready by means of one of the three following options.



**Fig. 151** Assembling wooden upper ceiling

1.  **WARNING!**  
Risk of falling if not properly secured!

Place upper ceiling plates (Fig. 151/2) on ceiling structure (Fig. 151/1). Depending on working height, use stepladder or platform.

2. Assemble upper ceiling sheets with fixing materials.

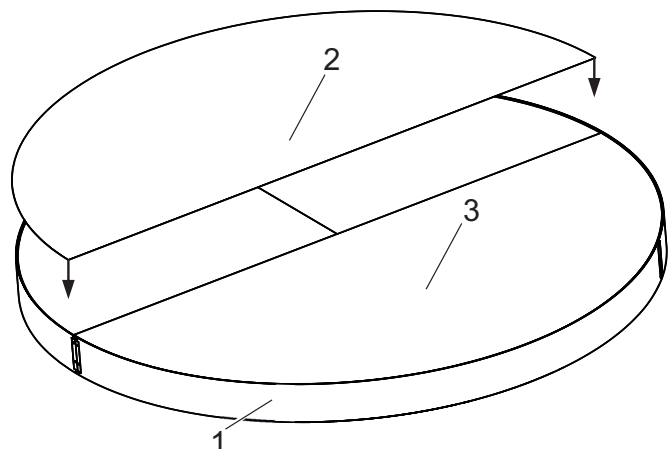
### 7.3.3 Assembling metal upper ceiling without rainproofing (option)

#### Requirements


- Mechanic
- Protective clothing
- Safety shoes
- Equipment for safe climbing up/down when working on revolving door roof (e.g. working platform or stepladder)

Make sure:

- Wooden upper ceiling is assembled (7.4 Completion, handover and operator training, p. 93).




**Fig. 152** Assembling upper ceiling metal sheet

1.  **WARNING!**  
Risk of falling if not properly secured!

Spread adhesive for first upper ceiling metal sheet (Fig. 152/2) evenly over the contact surface. Depending on working height, use stepladder or platform.

2. Position 1st upper ceiling sheet (Fig. 152/2) onto adhesive surfaces on upper ceiling (Fig. 152) Depending on working height, use stepladder or platform.

1.  **WARNING!**  
Risk of falling if not properly secured!

3. Spread adhesive for 2nd upper ceiling sheet (Fig. 152/3) evenly over the contact surface. Depending on working height, use stepladder or platform.
4. Position 2nd upper ceiling sheet onto adhesive surfaces on upper ceiling (Fig. 152/3). Depending on working height, use stepladder or platform.
5. Position profile for connection to the façade on upper ceiling (Fig. 152) in accordance with customer specifications and glue in place.

### 7.3.4 Assembling metal upper ceiling with rainproofing (option)

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Equipment for safe climbing up/down when working on revolving door roof (e.g. working platform or stepladder)
- Fiber-tipped pen (water-resistant)
- Files
- Sealing compound (factory-supplied)

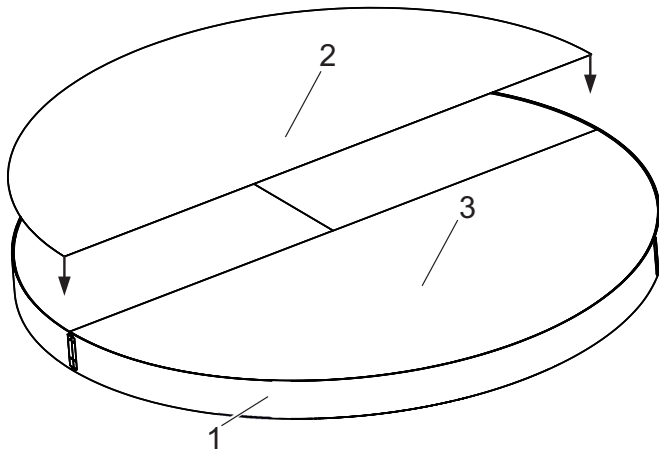
The rain-tight metal upper ceiling is covered with an upper ceiling plate on the outside of the building and glued in place. A profile for connection to the façade seals the outside edges.

As per customer request, the wooden upper ceiling is also covered on the inside of the building with a metal cover.

Make sure:



- Wooden upper ceiling is assembled (7.4 Completion, handover and operator training, p. 93).



**Fig. 153** Assembling metal upper ceiling with rain-proofing

1.



**WARNING!**  
Risk of falling if not properly secured!

Glue upper ceiling plate (Fig. 153/2) for outside of building evenly at several points to outside of wooden upper ceiling (Fig. 152). Check alignment with connection to the façade as you do so. Depending on working height, use stepladder or platform.

#### Optional

2.



Observe specification in door system guide provided.

3. Seal wooden upper ceiling on inside of building with upper ceiling plate. Check alignment with connection to the façade as you do so.
4. Position profile for connection to the façade on upper ceiling (Fig. 153) in accordance with customer specifications.
5. Mark dimensions of waterspout on adapter plate in accordance with customer specifications and cut out.
6. Take off profile for connection to the façade and work in openings according to markings.

7.



**CAUTION!**  
Risk of injury from edges that have not been deburred!

Deburr openings in profile for connection to the façade.

8. Glue profile for connection to the façade to the metal upper ceiling on the outside of the building in accordance with customer specifications.
9. Seal profile around façade connection with factory-supplied sealing compound.
10. Glue profile for connection to the façade and seal with factory-supplied sealing compound.
11. Glue waterspout into openings of façade connection profile, fix with screws, and seal.

12.



**NOTE!**  
Material damage due to improper sealing!

Seal the water spout with the factory-supplied sealing compound.

### 7.3.5 Rain-tight preparation of the upper ceiling (option)

#### Requirements

- Mechanic
- Protective clothing
- Safety shoes
- Equipment for safe climbing up/down when working on revolving door roof (e.g. working platform or stepladder)
- Fiber-tipped pen (water-resistant)
- Files
- Sealing compound (factory-supplied)

Make sure:

- Wooden upper ceiling is assembled (7.4 Completion, handover and operator training, p. 93).

1.



**WARNING!**  
Risk of falling if not properly secured!

Align façade connection panel on upper ceiling in accordance with customer specifications and fit. Depending on working height, use stepladder or platform.

2. Fit façade connection panels to drum walls towards building closure in accordance with customer specifications. If necessary, adjust façade connection panels.

3.



**NOTE!**  
Material damage due to improper assembly!

Put 2 mm spacing blocks under retaining bracket at a distance of 500 mm on the edge of outside of the upper ceiling and fit.

4. Fit adapter plate to retaining bracket.
5. Mark dimensions of waterspout on adapter plate and cut out. Note the information in dormakaba's approval drawing.

6.



**CAUTION!**  
Risk of injury from edges that have not been deburred!

Deburr openings in adapter plate.

7. Seal edges of height extension plate and ceiling structure with factory-supplied sealing compound.
8. Transfer opening size for waterspout to canopy height extension allowing for slightly larger dimensions.

sions, in accordance with the on-site circumstances, and cut out.

9.



**CAUTION!**

**Risk of injury from edges that have not been deburred!**

Deburr openings in canopy height extension.

10. Glue waterspout in openings in height extension plate and fit.
11. Fit canopy height extension with openings for waterspout.
12. Fit cover frame for waterspout.
13. Fit cover profile on canopy height extension.
14. Fit film flange to height extension plate.

15.



**NOTE!**

**Material damage due to improper sealing!**

Arrange for specialist company to seal upper ceiling with film or bitumen.

## 7.4 Completion, handover and operator training

1. Fix the identification label to the operator and complete the data on it.
2. Fix identification label for revolving door to façade of drum wall profile on inside of building and complete.
3. Carry out and document tests according to the test log.
4. Hand the assembly and transport securing screw for the operator to the facility operator with the instruction that the facility operator must retain the assembly and transport securing screws.
5. Check handover protocol and get facility operator to countersign.
6. Instruct facility operator in operation of the revolving door.
7. Hand the test book and log to the system operator and inform the latter of the obligation to retain the test log.
8. Hand CE declarations to facility operator.

## 8 Disassembly and disposal

### Improper disassembly

**DANGER!****Risk of injury due to improper disassembly!**

Components that fall over or fall down can cause serious or even fatal injuries.

- Carry out disassembly of the revolving door only in accordance with the specifications in the operating instructions.

### Incorrect disposal

**ENVIRONMENTAL PROTECTION!****Hazard to the environment through improper disposal!**

Hazard to the environment through improper disposal!

- Observe specifications for disposal of components in the operating instructions.

## 9 Appendix

### 9.1 Check list for floor ring assembly

**In case of incorrect floor ring mounting and concrete / concrete plaster filling, the revolving door system / curved sliding door system cannot be mounted.**

It is essential to pay particular attention to the careful execution of the mounting and check / record the work steps.

In case of deviations from the specifications, please contact your dormakaba contact person immediately to coordinate the relevant actions.

The separate inspection logbook of the floor ring serves as a control of critical points during the floor ring mounting and helps to avoid expensive and time-consuming refinishing work later.

On the separate inspection logbook of the floor ring the measuring points to be checked are marked. The lateral cut depicted in the inspection logbook shows the levels to be checked and the areas of the floor ring to be molded.

Without the molding with concrete / concrete plaster and the underlining of the outer ring with concrete / concrete plaster, the floor ring is not able to take a load. Until molding, the elevated construction is to be protected from damages / deformities by appropriate measures. It is highly recommended to mold promptly. Thus an interim damage of the elevated floor ring can be avoided.

The surface of the floor finish being located at the outside of the floor ring shall not be higher than the surface of the ring.

For the mounting of the floor ring please use the relevant mounting instructions.

#### **Checklist before the mounting:**

	Yes	No	Comment
Mounting instructions floor ring are available	<input type="checkbox"/>	<input type="checkbox"/>	
Drawings floor ring are available (plan view, sectioning)	<input type="checkbox"/>	<input type="checkbox"/>	
Installation position clear, installation drawing is available (e.g. customer drawing, consultation with site supervision, possibly dormakaba approval drawing door system)	<input type="checkbox"/>	<input type="checkbox"/>	
Inspection logbook floor ring is available	<input type="checkbox"/>	<input type="checkbox"/>	
Mounting area floor ring cleared and accessible	<input type="checkbox"/>	<input type="checkbox"/>	
Mounting area without interfering edges, without expansion joints	<input type="checkbox"/>	<input type="checkbox"/>	
Floor suitable for mounting (subfloor able to take a load and dowels)	<input type="checkbox"/>	<input type="checkbox"/>	
Distance subfloor to FFL (measurement A) according to specification (e.g. dormakaba approval drawing door system or dormakaba drawings floor ring)	<input type="checkbox"/>	<input type="checkbox"/>	
Work equipment is available Tools and auxiliary means, tape measure, leveling instrument, spirit-level, welding set, angle grinder, drilling machine, protective clothing ...	<input type="checkbox"/>	<input type="checkbox"/>	

**After the mounting of the floor ring and the molding of the floor ring, please return the filled-in inspection logbook A and B for the floor ring to your dormakaba contact person.**

9.2 Floor ring dimensional check

4

3

2

1

D

C

B

A

Kontrollmasse Bodenring  
control dimensions floor ring

Innen  
inside

Aussen  
outside

Kontrolliert durch :  
checked by

Datum :  
Date

3				Toleranzen nach DIN 7168 T1 – mittel			CAD-Erstellt (c) Dorma Automatic GmbH+Co KG KT Systeme				
2					Datum	Name	Kom.-Nr.				
1				Bearb.	17.03.10	Mattern		Ausgabe-Datum :			
0				Gepr.				Format : A4      Index :			
	Aender.-Nr	Tag	Name	Norm.				Ersatz fuer :			
		Orig.Masstab	Bezeichnung				Zeichn.-Nr.	Ident.	Gruppe	lfd.Nr.	Blatt
		ohne	Kontrollmasse Bodenring								Bl.
			KTV								
			Übersicht								
							Pfad:				

### 9.3 Test Log A – Floor ring before filling

<b>Prüfprotokoll A – vor dem Eingießen –</b> <i>inspection record A – before casting –</i>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;"><b>Messung Radius R und Nivellierung Ringfläche / Mittellager</b> <i>measurement radius R and levelling surface of ring / center bearing</i></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>Abweichung zu</b> OKFF (+-mm) deviation to FFL (+-mm)</p> <p>Pos. pos.</p> <p>1 <input type="text"/></p> <p>2 <input type="text"/></p> <p>3 <input type="text"/></p> <p>4 <input type="text"/></p> </div> <div style="width: 45%;"> <p><b>Messung</b> Radius R1 (mm) measurement radius R1 (mm)</p> <p>Pos. pos.</p> <p>1 <input type="text"/></p> <p>2 <input type="text"/></p> <p>3 <input type="text"/></p> <p>4 <input type="text"/></p> </div> </div> </div> <div style="width: 45%;"> <p><b>Abweichung zu</b> OKFF (+-mm) deviation to FFL (+-mm)</p> <p>Pos. pos.</p> <p>5 <input type="text"/></p> <p>6 <input type="text"/></p> <p>7 <input type="text"/></p> <p>8 <input type="text"/></p> <p>9 <input type="text"/></p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p><b>Abweichung zu</b> OKFF (+-mm) deviation to FFL (+-mm)</p> <p>Pos. pos.</p> <p>A <input type="text"/></p> <p>B <input type="text"/></p> <p>C <input type="text"/></p> <p>D <input type="text"/></p> </div> <div style="width: 45%;"> <p><b>Messung</b> Radius R (mm) measurement radius R (mm)</p> <p>Pos. pos.</p> <p>A <input type="text"/></p> <p>B <input type="text"/></p> <p>C <input type="text"/></p> <p>D <input type="text"/></p> </div> </div>
<p>Sichtnähte verputzt planned</p> <p>Ja yes</p> <p>Nein no</p> <p>Gewindebohrungen mit Schrauben geschützt thread holes protected with screws</p> <p>Ja yes</p> <p>Nein no</p>	<p><b>Nivellierung Strebefläche</b> <i>levelling surface of braces</i></p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p><b>Abweichung zu</b> OKFF (+-mm) deviation to FFL (+-mm)</p> <p>Pos. pos.</p> <p>A <input type="text"/></p> <p>B <input type="text"/></p> <p>C <input type="text"/></p> <p>D <input type="text"/></p> </div> <div style="flex: 1;"> <p><b>Messung</b> Radius R (mm) measurement radius R (mm)</p> <p>Pos. pos.</p> <p>A <input type="text"/></p> <p>B <input type="text"/></p> <p>C <input type="text"/></p> <p>D <input type="text"/></p> </div> </div>
<p><b>Schnitt , Lage Bodenring mit Bodenaufbau</b> <i>section , level floor ring and floor composition</i></p> <p style="text-align: center;">schematische Darstellung , zur Vereinfachung ohne Befestigungswinkel dargestellt <i>schematic drawing , shown without support brackets for simplification</i></p>	<p><b>Angaben zum Objekt</b> <i>information about project</i></p> <p>DORMA Auftrags Nr.: _____</p> <p>DORMA order No.: _____</p> <p>Bauvorhaben : _____</p> <p>subject : _____</p> <p>Stadt : _____</p> <p>city : _____</p>
<p><b>Montage ausgeführt und geprüft durch :</b> <i>installation accomplished and checked by :</i></p> <p>Firma : _____</p> <p>company : _____</p> <p>Montageleiter : _____</p> <p>installation manager : _____</p> <p>Datum : _____</p> <p>date : _____</p>	<p><b>Prüfprotokoll A Bodenring KTV</b> <i>inspection record A floor ring KTV</i></p> <p style="text-align: right;">Stand : 08.12.14 status :</p>

#### 9.4 Test Log B – Floor ring after filling

<h2 style="margin: 0;">Prüfprotokoll B – nach dem Eingießen –</h2> <h3 style="margin: 0;">inspection record B – after casting –</h3>		<input type="checkbox"/> Ja yes		<input type="checkbox"/> Nein no		<input type="checkbox"/> Gewindebohrungen freigängig thread holes free and clean		<input type="checkbox"/> Ja yes		<input type="checkbox"/> Nein no																																					
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>Messung Radius R und Nivellierung Ringfläche / Mitteltager</b> <i>measurement radius R and levelling surface of ring / center bearing</i></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>Sollmaß:</b> nominal measure : <span style="border: 1px solid black; padding: 2px 10px;">0 mm</span> </div> <div style="display: flex; justify-content: space-between;"> <div>Abweichung zu OKFF (+/-mm) deviation to FFL (+/-mm)</div> <div>Toleranz: +/- 2mm tolerance :</div> </div> </div> <div style="width: 48%;"> <p><b>C = Freiraum für Bodenbelag, siehe Spezifikation Türanlage / Zeichnung Bodenring</b> <i>C = free space for floor covering, see specification form of door / floor ring drawing</i></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>Sollmaß:</b> nominal measure : <span style="border: 1px solid black; padding: 2px 10px;">0 mm</span> </div> <div style="display: flex; justify-content: space-between;"> <div>Abweichung zu OKFF - C (+/-mm) deviation to FFL - C (+/-mm)</div> <div>Toleranz: +/- 2mm tolerance :</div> </div> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="width: 45%;"> <p><b>Messung Radius R1 (mm)</b> radius R1 (mm)</p> <div style="display: flex; justify-content: space-between;"> <div>Pos. pos.</div> <div>①</div> <div>②</div> <div>③</div> <div>④</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Abweichung zu OKFF (+/-mm) deviation to FFL (+/-mm)</div> <div>Toleranz: +/- 2mm tolerance :</div> </div> </div> <div style="width: 10%; text-align: center;">       innen inside     </div> <div style="width: 45%;"> </div> <div style="width: 10%; text-align: center;">       außen outside     </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="width: 45%;"> <p><b>Messung Radius R (mm)</b> Radius R (mm)</p> <div style="display: flex; justify-content: space-between;"> <div>Pos. pos.</div> <div>⑤</div> <div>⑥</div> <div>⑦</div> <div>⑧</div> <div>⑨</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Abweichung zu OKFF (+/-mm) deviation to FFL (+/-mm)</div> <div>Toleranz: +/- 2mm tolerance :</div> </div> </div> <div style="width: 10%; text-align: center;">       innen inside     </div> <div style="width: 45%;"> </div> <div style="width: 10%; text-align: center;">       außen outside     </div> </div>												<p><b>Nivellierung Strebenfläche</b> <i>levelling surface of braces</i></p> <div style="display: flex; justify-content: space-between;"> <div> <p>Abweichung zu OKFF - C (+/-mm) deviation to FFL - C (+/-mm)</p> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">           Sollmaß: nominal measure : <span style="border: 1px solid black; padding: 2px 10px;">0 mm</span> </div> <div style="display: flex; justify-content: space-between;"> <div>Pos. pos.</div> <div>ⓐ</div> <div>ⓑ</div> <div>ⓒ</div> <div>Ⓒ</div> </div> </div> <div> <p>Abweichung zu OKFF - C (+/-mm) deviation to FFL - C (+/-mm)</p> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">           Sollmaß: nominal measure : <span style="border: 1px solid black; padding: 2px 10px;">0 mm</span> </div> <div style="display: flex; justify-content: space-between;"> <div>Pos. pos.</div> <div>ⓐ</div> <div>ⓑ</div> <div>ⓒ</div> <div>Ⓒ</div> </div> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="width: 45%;"> <p><b>Messung Ströbe</b> Ströbe</p> <div style="display: flex; justify-content: space-between;"> <div>Pos. pos.</div> <div>ⓐ</div> <div>ⓑ</div> <div>ⓒ</div> <div>Ⓒ</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Abweichung zu OKFF (+/-mm) deviation to FFL (+/-mm)</div> <div>Toleranz: +/- 2mm tolerance :</div> </div> </div> <div style="width: 10%; text-align: center;">       innen inside     </div> <div style="width: 45%;"> </div> <div style="width: 10%; text-align: center;">       außen outside     </div> </div>												<p><b>Angebaben zum Objekt</b> <i>information about project</i></p> <p>DORMA Auftrags Nr.: _____ DORMA order No.: _____</p> <p>Bauvorhaben : _____ subject : _____</p> <p>Stadt : _____ city : _____</p>												<p><b>Montage ausgeführt und geprüft durch :</b> <i>installation accomplished and checked by :</i></p> <p>Firma : _____ company : _____</p> <p>Montageleiter : _____ installation manager : _____</p> <p>Datum : _____ date : _____</p>											
<p><b>Schnitt , Lage Bodenring mit Bodenaufbau</b> <i>section , level floor ring and floor composition</i></p> <p style="font-size: small;">schematische Darstellung , zur Vereinfachung ohne Befestigungswinkel dargestellt schematical drawing , shown without support brackets for simplification</p>												<p><b>Prüfprotokoll B Bodenring KTV</b> <i>inspection record B floor ring KTV</i></p>																																			



## 9.5 Special functions

Special functions	Symbol	Description	Unit	Range of values	Default value	M	P	S	A
Follow-up time, warm air	"Y"	Follow-up time warm-air curtain	sec	0 ... 600	10		x	x	x
Lighting	„IL"	Follow-up time lighting/manual		0 ... 60	15		x	x	x
		0 = Light is always on							
		1 - 60 automatic, follow-up time							
Speed limiter	„PG"	Speed limiter		0 ... 1	M: 1	x	x	x	
		0 = deactivated			S: 0				
		1 = active			P: 0				
UPS system	„US"	Is the UPS system connected?		0 ... 1	0	x	x	x	x
		0 = not connected							
		1 = connected							
Load factory settings.		Command: Start factory settings.				x	x	x	x
Learning cycle.		Command: Start learning cycle.				x	x	x	x
Error reset.		Command: Acknowledge error.				x	x	x	x
Lock.		Command: Lock.					x	x	x
Unlock.		Command: Unlock.					x	x	x
Wing sensor is bypassed		Command: Bypass wing sensor!		No	No				x
		Command: Only for service work.		Yes					
Canopy sensor on the inside is bypassed		Command: Bypass canopy sensor!		No	No				x
		Only for service work.		Yes					
Canopy sensor on the outside is bypassed		Command: Bypass canopy sensor on the outside!		No	No				
		Only for service work.		Yes					
Lock settings		Switch key lock on/off		Off	Off	x	x	x	x
				On					

M = Speed limiter

P = Positioning automatic system

S = Servomatic

A = Fully automatic operation



Parameters in table cells shaded grey are available only in handheld.

## 9.6 Diagnostics

Diagnosis	Symbol	Beschreibung	Wertebereich	Default	M	P	S	A
Software version		Displays the current control software version	yyxx e.g., 0100 = Version 1.0	-	x	x	x	x
Rev FW version		Displays the revision number of the firmware	zzz	-	x	x	x	x
Current error status		Displays the current error status		C	x	x	x	x
Revolutions, current		Revolutions in the case of the current error		C	x	x	x	x
Error memory 1 to 9	„E1“ .. „E9“	Old error memory 1 to 9		C	x	x	x	x
Revolutions counter 1 to 9		Revolutions in the case of the old error 1 through 9		C	x	x	x	x
Clear error memory	„EC“	If the parameter "EC" is set to "1" and confirmed, all error memories are deleted. The counter will then count up newly.	0, 1		x	x	x	x
Service reset!	„CS“	If the parameter "CS" is set to "1" and confirmed, all error memories and the maintenance parameters are deleted. The counter will then count up newly.	0, 1		x	x	x	x
# Stop processes	„Ch“	Number of stop processes via the "Stop" safety device						x
# Shock-stop	„Cb“	Number of braking processes using the shock-stop locking device				x	x	x
# Revolutions	„CC“	Number of previously completed revolutions (in 1000 in the case of the internal display)		C	x	x	x	x
DCW reset	„dr“	DCW reset => DCW list is deleted and subsequently all known participants adjusted => set to 1 (DCW is reset)	0 ... 1		x	x	x	x
DCW list		Address list of the DCW bus participants that are logged in			x	x	x	x
COM1	„C1“	COM1 function interface	0 = Disable 1 = Door management system 2 = Motronik debug		x	x	x	x
COM2	„C2“	COM2 function interface	0 = Disable 1 = Handheld 2 = Analysis		x	x	x	x

M = Speed limiter

P = Automated positioning system

S = Servomatic

A = Fully automatic operation



Parameters in table cells shaded grey are available only in handheld.

## 9.7 Travel parameters

Special functions	Symbol	Description	Unit	Range of values	Default	M	P	S	A
Positioning speed	„SP“	Positioning speed	10 mm/s	15...30	25				x
Speed when disability access button engaged	„SH“	Speed when disability access button engaged	10 mm/s	25...40	30				x
Walking speed	„SO“	Walking speed	10 mm/s	35...75 where $d > 3m$ 35...99 where $d \leq 3m$	60				x
Acceleration ramp	„rb“	Acceleration ramp 1 = accelerate slowly 9 = accelerate quickly	---	1 ... 9	5	x	x	x	x
Braking ramp normal	„rn“	Braking ramp normal 1 = brake slowly 9 = brake quickly	---	1 ... 9	5	x	x	x	x
Brake ramp hard	„rh“	Brake ramp hard 1 = brake slowly 9 = brake quickly	---	1 ... 9	5				x
Lower speed for the speed limiter	„Sd“	Lower speed for the speed limiter	10 mm/s	35...99	75	x	x	x	
Counterforce for speed limiter	„rd“	Counterforce for speed limiter 1 = brake softly 9 = brake hard	---	0...9	5	x	x	x	
Holding force in the starting position	„HG“	Maximum holding force in the starting position at the outer door wing	N	1...9	A: 9 S/P: 3		x	x	x

M = Speed limiter

P = Automated positioning system

S = Servomatic

A = Fully automatic operation

## 9.8 Configuration

Special functions	Symbol	Description	Unit	Range of values	Default	M	P	S	A
Type of door	„F“	Number of door wings. Basic parameters		3 ... 4	3	x	x	x	x
Door diameter	„d“	Door diameter. Basic parameters	mm	1600 ... 3800	3800	x	x	x	x
European direction of rotation	„dE“	The direction of rotation is counterclockwise. Basic parameters		0 = off 1 = on	1	x	x	x	x
The number of starting positions to be run	„P“	The number of starting positions to be run in Automatic 1 or 2		3 ... 18	5		x	x	x
Vandalism brake	„SS“	Vandalism brake		0 = no vandalism brake 1 = with vandalism brake	0		x	x	x
Night/bank mode	„b“	Switch night/bank mode in PGS_Aus on/off		0 = off 1 = on	0		x	x	x

Special functions	Symbol	Description	Unit	Range of values	Default	M	P	S	A
Slow-Stop time door wing sensor	"T"	Travel time in positioning speed after activation of the wing sensor Slow-Stop	0,1 sec	0 ... 15.9 sec 16,0 = ∞	16				x
Slow-Stop-Time canopy sensor	"t"	Travel time in V position after activation of the canopy sensor	0,1 sec	0 ... 15.9 sec 16,0 = ∞	16				x
B-position-after-startup-time	"c"	Travel time in V position after starting after stop	0,1 sec	0.0 ... 2.9 sec	2				x
The number of starting positions to be run in night/bank	"h"	The number of starting positions to be run in the case of the night/bank function		3 ... 18	4		x	x	x
Safety margin stop	"S"	Safety margin for canopy sensor Slow-Stop	mm	800 mm.. Upper limit of safety margin	800				x
Polarity wing sensor test	"-d"	Polarity of the tests of the rotating Slow-Stop sensors		0: Test signal 24V 1: Test signal 0V	1		x	x	x
Polarity canopy sensor test	"-F"	Polarity of the tests of the fixed Slow-Stop sensors (will be implemented later, see Chapter 1)		0: Test signal 24V 1: Test signal 0V	1		x	x	x
Fix starting positions with the vandalism brake	"U"	Basic positions with vandalism brake fix		0: no 1: yes	0		x	x	x
Unlocked time	"A"	Period of time during which the door is unlocked until startup - after a safety stop and subsequent fixing if applicable	0,1 sec	0 ... 9.9 sec	1				x
Function of the status relay	"Sr"	Function of the relay 0 = no function 1 = Door revolves at walking speed 2 = Door revolves at positioning speed 3 = Door revolves at speed when disability access button is engaged 4 = Door is locked 5 = Fault 6 = Mains voltage monitoring 7 = UPS battery is bad		0 ... 7	0	x	x	x	x

M = Speed limiter

P = Automated positioning system

S = Servomatic

A = Fully automatic operation

## 9.9 Error list

### Error no. and blinking codes

The first digit of the error number indicates how frequently the fault LED flashes slowly (approx. 1 Hz). The second digit of the error number indicates how frequently the fault LED flashes rapidly (approx. 2 Hz).

The fault LED flashes, for example, 1 x slow and 4 x fast = error no. 14 (braking distance at safety stop too long).

Error category	Error no.	Error search, cause, situation	Behavior	Behavior after acknowledgment	Acknowledgment
No error	0				
Learning cycle, speed, obstacle	11	Minimum output stage voltage of 20 V exceeded (unless the emergency stop has been pushed or there is a power failure)	Door clear	Door ready	M
	13	Braking distance in the case of a change in speed is too long	Door is ready, limited to positioning speed	The limit on the positioning speed is cancelled again.	M
	14	Braking distance in the case of an emergency stop is too long	Door is ready, however it is limited to positioning speed	The limit on the positioning speed is cancelled again.	M
	15	Obstacle fault; the door has been blocked more than three times within 10°	Door clear	Door ready	M
	15	Motor cable defective	Door clear	Door ready	M
	15	Output stage defective	Door clear	Door ready	M
	17	Output stage IC signals overcurrent or overheating	Door clear	Door ready	M
	18	Output stage IC signals error	Door clear	Door ready	M
	19	Maximum output stage voltage of 50 V exceeded	Door clear	Door ready	M
	20	Maximum motor current exceeded for an extended period of time	Door clear	Door ready	M
Locking device error	21	Door is in the locking position and tries to unlock three times, unsuccessfully	Door can still be moved manually, after manually locking where applicable	Door ready	M
	22	Door is in the locking position and tries to unlock three times, unsuccessfully	Door issues an error, but is ready. In the locking position, the lighting is not switched off	Door ready	M
	23	Both limit switches on a locking device are closed	Door can still be moved manually, after manually locking where applicable	Door ready	M
Locking device error	24	Locking device module is defective	Door clear	Door ready	M

Error category	Error no.	Error search, cause, situation	Behavior	Behavior after acknowledgment	Acknowledgment
Program switch error	31	Program switch is defective or missing	Safety stop - door clear	Door ready	A
	32	In the case of the learned locking, In PGS_Auto1, PGS_Auto2 or PGS_Sommer, the 2nd level is missing	Door stops and is subsequently unlocked	Door ready	M
	33	Upgrade card missing	Door stops and is subsequently unlocked	Door carries out a positioning cycle and is subsequently ready	A
Sensor error	41	Test of canopy sensor slow-stop on the inside has failed	Limit on positioning speed	Door ready	M
	42	Test of canopy sensor slow-stop on the outside has failed	Limit on positioning speed	Door ready	M
	43	Test of wing sensor 1 has failed	Limit on positioning speed	Door ready	M
	44	Test of wing sensor 2 has failed	Limit on positioning speed	Door ready	M
	45	Test of wing sensor 3 has failed	Limit on positioning speed	Door ready	M
	46	Test of wing sensor 4 has failed	Limit on positioning speed	Door ready	M
	47	Test that SKL strut is vertical, 2 x SKL door wings down, door deflection switch	Door clear	Door ready	M
	48	Test that SKL mullion vertical inside failed	Safety stop - door clear	Door ready	M
	49	Test that SKL mullion vertical outside failed	Safety stop - door clear	Door ready	M
Displacement sensor error	51	Failure of at least one hall-effect sensor	Safety stop - door clear	Door carries out a positioning cycle and is subsequently ready	M
	52	At the start of the learning cycle or positioning cycle: No sensor deflection within the first 120 seconds	Door clear	Door carries out a positioning cycle and is subsequently ready	M
		In operation: No sensor deflection at the learned position			
		or sensor deflection at an incorrect position			

Error category	Error no.	Error search, cause, situation	Behavior	Behavior after acknowledgement	Acknowledgement
CPU error / error in the 2nd shut-down method	7	CPU is defective	Safety stop - door clear. The CPU is subsequently shut down. The error display therefore does not blink and simply comprises the number "7".	Acknowledgment only by switching the supply voltage off and on again. The door is subsequently ready.	-
	7	EEPROM is defective (cannot be described)	Safety stop - door clear	Acknowledgment only by switching the supply voltage off and on again. The door is subsequently ready.	-
	71	EEPROM error (checksum incorrect)	Safety stop - door clear	The door is only ready after a successful learning cycle.	M
	72	The test of the 2nd shut-down method has failed	Door clear	The test of the 2nd shut-down method is repeated. If OK, the door is ready.	M
Power failure	81	The power supply has failed with the UPS connected		Is acknowledged by the omission of an error message from the UPS. Door ready	A
Error in the UPS battery	82	The UPS reports a fault in the battery, e.g., Low-Bat.		Is acknowledged by the omission of an error message from the UPS. Door ready	A
DCW error	91	Locking device inside is missing	Safety stop - door clear	Door ready	A
	92	Locking device outside is missing	Safety stop - door clear	Door ready	A

Information no.	Meaning	Acknowledgement
5	Night closure limit switch not actuated	Fully open the night shield
8	Emergency stop switch activated	Reset emergency stop switch

\* - See Section 6.4.2 Acknowledging errors



## 9.10 Lubricant safety datasheet



## Safety data sheet

Version: 02.01/USA

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**SECTION 1: Identification****1.1. Product identifier**

Trade name: LGMT 2

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Recommended uses: Lubricant Fat.

For Chemical Emergency  
Spill, Leak, Fire, Exposure, or Accident  
Call CHEMTREC Day or Night  
Within USA and Canada: 1-800-424-9300  
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Location:  
CHEMTREC  
2900 Fairview Park Drive  
Falls Church VA 22042-4513  
USA

**1.3. Details of the supplier of the safety data sheet**

Supplier: SKF MAINTENANCE PRODUCTS  
Postbus 1008  
NL-3430 BA Nieuwegein  
The Netherlands  
Tel: +31 30 6307200  
Email: sebastien.david@skf.com  
WWW: www.skf.com

**1.4. Emergency telephone number**+31 30 6307200

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**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

Classification:

The product shall not be classified as hazardous according to the national classification and labelling rules.

Most serious harmful effects:

May cause slight irritation to the skin and eyes. Degreases the skin. Long-term exposure may cause irritation and possible infection.

**2.2. Label elements**

The product shall not be classified as hazardous according to the national classification and labelling rules.

**2.3. Other hazards**None known.

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**SECTION 3: Composition/information on ingredients****3.2. Mixtures**

CAS No.	Substance	w/w%	Note
12001-85-3-D	Naphthenic acids, zinc salts	<2,5	.
234-409-2	.	.	.

Other information: Any letters after the CAS number refer to individual data sets.

**SECTION 4: First aid measures****4.1. Description of first aid measures**

Inhalation: Seek fresh air. Seek medical advice in case of persistent discomfort.

Ingestion: Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Seek medical advice in case of discomfort.

Skin: In case of irritation: Remove contaminated clothing. Wash skin with soap and water. Seek medical advice in case of persistent discomfort.

Eyes: Flush with water (preferably using eyewash equipment) until irritation subsides. Seek medical advice if symptoms persist.

Other information: Bring the safety data sheet or label when seeking medical advice

**4.2. Most important symptoms and effects, both acute and delayed**

May cause slight irritation to the skin and eyes. Degreases the skin. Long-term exposure may cause irritation and possible infection.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptoms. No special immediate treatment required.

**SECTION 5: Fire-fighting measures****5.1. Extinguishing media**

Suitable extinguishing media: Extinguish with powder, foam, carbon dioxide or water mist. Use water or water mist to cool non-ignited inventory.

Unsuitable extinguishing media: Do not use a jet of water, as it may spread the fire.

**5.2. Special hazards arising from the substance or mixture**

Not flammable, but combustible. Product decomposes in fire conditions or when heated to high temperatures, and inflammable and toxic gases may be released.

**5.3. Advice for firefighters**

Move containers from danger area if it can be done without risk. Avoid inhalation of vapor and smoke gases – seek fresh air. Wear Self-Contained Breathing Apparatus (SCBA) with chemical resistant gloves.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: Wear safety goggles if there is a risk of eye splash. Wear gloves.

For emergency responders: In addition to the above: Normal protective clothing is recommended.

**6.2. Environmental precautions**

Prevent spillage from entering drains and/or surface water.

**6.3. Methods and material for containment and cleaning up**

Contain and absorb spills using sand or other absorbent material and transfer to suitable waste containers. Wipe up minor spills with a cloth.

**6.4. Reference to other sections**

See section 8 for type of protective equipment. See section 13 for instructions on disposal.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

The product should be used under well-ventilated conditions and preferably under process ventilation. Avoid contact with skin and eyes. See section 8 for type of protective equipment. Running water and eye wash equipment should be available. Wash hands before breaks, before using restroom facilities, and at the end of work.

**7.2. Conditions for safe storage, including any incompatibilities**

The product should be stored safely, out of reach of children and away from food, animal feed, medicines, etc. Do not store with the following: Oxidisers. Keep in tightly closed original packaging. Store in a dry, cool, well-ventilated area. Store at temperatures below 50°C.

**7.3. Specific end use(s)**

None.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Legal basis: ACGIH Threshold Limit Values (TLV's) and Biological Exposure Indices (BEI's), 2014. OSHA 29 CFR part 1910.1000, table Z1-Z3, Limits for Air Contaminants 2006.

Contains no substances subject to disclosure requirements.

**8.2. Exposure controls**

Appropriate engineering controls: Wear the personal protective equipment specified below.

Personal protective equipment, eye/face protection: Wear safety goggles if there is a risk of eye splash.

Personal protective equipment, skin protection: In the event of direct skin contact, wear protective gloves: Type of material and thickness: Nitril rubber. Penetration time: >8 hours.

Personal protective equipment, respiratory protection: In the event of spray-mist hazard, wear respiratory protective equipment with A/P2 filter.

Environmental exposure controls: Ensure compliance with local regulations for emissions.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

State: Paste /Fat.  
 Color: Reddish brown  
 Odour: No data  
 Odour threshold: No data  
 pH (solution for use): No data  
 pH (concentrate): No data  
 Melting point/freezing point: No data  
 Initial boiling point and boiling range: No data  
 Flash point: > 302 °F  
 Evaporation rate: No data  
 Flammability (solid, gas): No data  
 Upper/lower flammability limits: No data  
 Upper/lower explosive limits: No data  
 Vapor pressure: No data  
 Vapour density: No data  
 Relative density: < 1 (77 °F)  
 Solubility: Insoluble in the following: Water.  
 Partition coefficient n-octanol/water: No data  
 Auto-ignition temperature: No data  
 Decomposition temperature: No data  
 Viscosity: No data  
 Explosive properties: No data  
 Oxidizing properties: No data

**9.2. Other information**

None.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Reacts with the following: Oxidisers.

**10.2. Chemical stability**

The product is stable when used in accordance with the supplier's directions.

**10.3. Possibility of hazardous reactions**

<b>10.4. Conditions to avoid</b>	None known.
<b>10.5. Incompatible materials</b>	Avoid heating and contact with ignition sources.
<b>10.6. Hazardous decomposition products</b>	Oxidisers. Product decomposes in fire conditions or when heated to high temperatures, and inflammable and toxic gases may be released.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity - oral:	The product does not have to be classified. Test data are not available. Ingestion of large quantities may cause discomfort. 12001-85-3-D: Rat: LD50 = 4920 mg/kg
Acute toxicity - dermal:	The product does not have to be classified. Test data are not available.
Acute toxicity - inhalation:	The product does not have to be classified. Test data are not available.
Skin corrosion/irritation:	The product does not have to be classified. Test data are not available. Degreases the skin. Long-term exposure may cause irritation and possible infection.
Serious eye damage/eye irritation:	The product does not have to be classified. Test data are not available. Temporary irritation.
Respiratory sensitisation or skin sensitisation:	The product does not have to be classified. Test data are not available.
Germ cell mutagenicity:	The product does not have to be classified. Test data are not available.
Carcinogenic properties:	The product does not have to be classified. Test data are not available.
Reproductive toxicity:	The product does not have to be classified. Test data are not available.
Single STOT exposure:	The product does not have to be classified. Test data are not available. Inhalation of spray mist is irritating to the upper airways.
Repeated STOT exposure:	The product does not have to be classified. Test data are not available.
Aspiration hazard:	The product does not have to be classified. Test data are not available.
Other toxicological effects:	On warming/heating, the vapours emitted may cause irritation to the respiratory organs. May cause coughing and breathing difficulties.

## SECTION 12: Ecological information

### 12.1. Toxicity

The product does not have to be classified according to GHS (Globally Harmonized System of Classification and Labelling of Chemicals). Test data are not available. The product contains small quantities of environmentally hazardous substances.

### 12.2. Persistence and degradability

Test data are not available. Not expected to be biodegradable.

### 12.3. Bioaccumulative potential

Test data are not available.

### 12.4. Mobility in soil

Test data are not available.

### 12.5. Results of PBT and vPvB assessment

No assessment has been made.

### 12.6. Other adverse effects



Oil products may cause soil and water pollution.

German water pollution classification (WGK): 2

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Avoid discharge to drain or surface water. If this product as supplied becomes a waste, it meets the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

ID number: xxxx

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Uncleansed packaging is to be disposed of via the local waste-removal scheme. Empty, cleansed packaging should be disposed of for recycling.

## SECTION 14: Transport information

The product is not covered by the rules for transport of dangerous goods.

14.1. UN number -

14.2. UN proper shipping name -

14.3. Transport hazard class(es) -

14.4. Packing group -

14.5. Environmental hazards -

14.6. Special precautions for user -

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code -

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Special provisions: None.

#### NFPA ratings (scale 0 - 4)

Health Hazard: 0

Flammability: 1

Instability: 0

#### HMIS III ratings (scale 0 - 4)

Health hazard: 0

Flammability: 1

Physical hazard: 0

## SECTION 16: Other information

Changes have been made in the following sections: 3, 15

Abbreviation explanations: PBT: Persistent, Bioaccumulative and Toxic  
vPvB: Very Persistent and Very Bioaccumulative  
STOT: Specific Target Organ Toxicity

Classification method: Calculation based on the hazards of the known components.

Training: A thorough knowledge of this safety data sheet should be a prerequisite condition.

Other information: This safety data sheet has been prepared for and applies to this product only. It is based on our current knowledge and the information that the supplier was able to provide about the product at the time of preparation. The safety data sheet complies with applicable law on preparation of safety data sheets in accordance with CFR29, §1910.1200.

Revision: 27-11-2015

Replaces: 25-05-2015

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9.11 EG declaration of conformity KTV  
3/4 FLEX Direct

de <b>EG-KONFORMITÄTSESKLÄRUNG</b>	en <b>EC DECLARATION OF CONFORMITY</b>
Der Unterzeichner, der den nachstehenden Hersteller vertritt <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>	The undersigned representing the following manufacturer <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b> <b>Germany</b>
erklärt hiermit, dass das Produkt <b>KTV 3/4 FLEX Direct</b>	declares that the product <b>KTV 3/4 FLEX Direct</b>
in Übereinstimmung ist mit den Bestimmungen der in der Anlage aufgeführten EG-Richtlinie(n) und dass die Normen und/oder technischen Spezifikationen zur Anwendung gelangt sind, die in der Anlage in Bezug genommen werden.	complies with the provisions of the EC Directive(s) specified in the Appendix and that the standards and/or technical specifications referred to in the Appendix were applied.

bg <b>ЕС - ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ</b>	cs <b>ES PROHLÁŠENÍ O SHODĚ</b>
Долуподписаният, който представлява производителя <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>	Níže podepsaný, který zastupuje následujícího výrobce <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>
декларира с настоящето, че продуктът <b>KTV 3/4 FLEX Direct</b>	tímto prohlašuje, že výrobek <b>KTV 3/4 FLEX Direct</b>
е в съответствие с разпоредбите на посочените в съоръжението ЕС-директива(директиви) и че стандартите и/или техническите спецификации за приложението, споменати в съответното съоръжение, са изпълнени.	je v shodě s ustanoveními směrnic uvedených v příloze a že byly použity normy a/nebo technické údaje, na které se odkazuje v příloze.

da <b>EF OVERENSSTEMMELSESESKLÆRING</b>	el <b>ΕΕ - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ</b>
Undertegnede, der repræsenterer følgende producent <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 D- Ennepetal</b>	Ο κάτωθι υπογεγραμμένος, ο οποίος εκπροσωπεί τον ακόλουθο κατασκευαστή <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>
erklærer hermed, at produktet <b>KTV 3/4 FLEX Direct</b>	δηλώνει ότι το προϊόν <b>KTV 3/4 FLEX Direct</b>
er i overensstemmelse med bestemmelserne i EU-direktiv(erne), der er anført i tillægget, og at de nævnte standarder og/eller de tekniske specifikationer i tillægget er blevet anvendt.	ανταποκρίνεται στους κανονισμούς των Ευρωπαϊκών Οδηγιών που αναφέρονται στο παράρτημα και ότι πληρούνται οι κανόνες και/ή οι τεχνικές προδιαγραφές, για τις οποίες γίνεται μνεία στο παράρτημα.

es <b>DECLARACIÓN DE CONFORMIDAD CE</b>	et <b>EÜ VASTAVUSDEKLARATSIOON</b>
El contratante en representación del fabricante a continuación <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>	Allakirjutanu, kes esindab alljärgnevat tootjat <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>
declara por la presente que el producto <b>KTV 3/4 FLEX Direct</b>	kinnitab käesolevaga, et toode <b>KTV 3/4 FLEX Direct</b>
está acorde con las disposiciones de la(s) directiva(s) CE indicada(s) en el anexo y que las normas y/o especificaciones técnicas son aplicables al uso al que se hace referencia en el anexo.	on vastavuses lisas kirjasoleva(te) EÜ-direktiivi(de) määrustega ja et lisas mainitud norme ja/või tehnilisi andmeid on tootmisel kasutatud.

fi <b>EU-VAATIMUSTENMUKAISUUSVAKUUTUS</b>	fr <b>DECLARATION CE DE CONFORMITE</b>
Allekirjoittanut, joka edustaa alla mainittua valmistajaa <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>D-58256 Ennepetal</b>	Le signataire, qui représente le fournisseur suivant <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>
vakuuttaa, että tuote <b>KTV 3/4 FLEX Direct</b>	déclare par la suivante que le produit <b>KTV 3/4 FLEX Direct</b>
täyttää laitteessa esitettyjen EU-direktiivien asettamat ehdot ja että vaadittavat standardit ja/tai tekniset määritykset täytetään, jotka laitteen käytössä tulee ottaa huomioon.	est conforme aux règlements de l'installation décrite par la ou les directive(s) CE, et que les normes et/ou les spécifications techniques permettent l'utilisation dont il est fait état dans l'installation.

hu <b>EK MEGFELELŐSÉGI NYILATKOZAT</b>	it <b>DICHIARAZIONE CE DI CONFORMITA'</b>
Alulírott, aki a lenti gyártót képviseli <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>	Il sottoscritto, rappresentante del produttore qui riportato <b>dormakaba Deutschland GmbH</b> <b>DORMA Platz 1</b> <b>58256 Ennepetal</b>
ezenkel kijelenti, hogy az alábbi termék <b>KTV 3/4 FLEX Direct</b>	dichiara con la presente che il prodotto <b>KTV 3/4 FLEX Direct</b>
a mellékletben feltüntetett EK-irányelv(ek) rendelkezéseinek megfelel, és a mellékletben hivatkozott szabványok és/vagy műszaki specifikációk alkalmazására kerültek.	è conforme alle prescrizioni della/e direttiva/e CE riportate in allegato e che le norme e/o specifiche tecniche in esse contenute trovano applicazione per l'impiego per il quale si fa riferimento per l'impianto.



lt <b>EB ATITIKTIES DEKLARACIJA</b>	lv <b>EK-ATBILSTĪBAS DEKLARĀCIJA</b>
Pasirašiusysis, kuris atstovauja toliau nurodytam gamintojui: <b>bendrovi „dormakaba Deutschland GmbH“ DORMA Platz 1 58256 Ennepetal</b>	Ši dokumenta parakstītājs, kurš parstāv zemāk minēto ražotāju: <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>
pareiškia, kad gaminys <b>KTV 3/4 FLEX Direct</b>	apliecina, ka izstrādājums <b>KTV 3/4 FLEX Direct</b>
atitinka priede pateikiamos EB direktyvos (-ų) nuostatas ir kad jam taikomos priede nurodytos normas ir (arba) techninės specifikacijos.	atbilst pielikumā minētajiem EK direktīvu norādījumiem un, ka pielikumā norādītās normas un/ vai tehniskās specifikācijas ir ievērotas.

nl <b>EG-VERKLARING VAN OVEREENSTEMMING</b>	no <b>EF SAMSVARSERKLÆRING</b>
Ondergetekende, optredend namens hiernagenoemd fabrikant <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>	Undertegnøren, som representerer den nedenforstående produsenten <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>
verklaart bij dezen, dat het product <b>KTV 3/4 FLEX Direct</b>	erklærer med dette at produktet <b>KTV 3/4 FLEX Direct</b>
voldoet aan de bepalingen van de in de bijlage vermelde EG-richtlijn(en) en dat de normen en/of technische specificaties zijn toegepast, naar welke in de bijlage wordt gerefereerd.	er i overensstemmelse med de vedlagte bestemmelsene for EF-direktivet (-direktivene) i vedlegget, og at de normene og/eller tekniske spesifikasjonene er lagt til grunn som det henvises til i vedlegget.

pl <b>DEKLARACJA ZGODNOŚCI WE</b>	pt <b>DECLARAÇÃO CE DE CONFORMIDADE</b>
Poniżej podpisany przedstawiciel, który reprezentuje producenta <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>	O Signatário, que representa o fabricante abaixo referido, <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>
deklaruje niniejszym, że produkt <b>KTV 3/4 FLEX Direct</b>	declara pela presente que o produto <b>KTV 3/4 FLEX Direct</b>
jest zgodny z postanowieniami dyrektywy (dyrektyw) WE podanej (podanych) w załączniku i że zastosowano normy i/lub specyfikacje techniczne, do których odniesiono się w załączniku.	cumpré as condições da(s) Directiva(s) CE referida(s) no Anexo e que foram aplicadas as normas e/ou especificações técnicas às quais é feita referência no Anexo.

ro <b>DECLARAȚIE DE CONFORMITATE CE</b>	sk <b>ES VYHLÁSENIE O ZHODE</b>
Subsemnatul, care reprezintă producătorul de mai jos <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>	Podpisujúci, ktorý zastupuje nasledovného výrobcu <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>
declară prin prezenta că produsul <b>KTV 3/4 FLEX Direct</b>	týmto vyhlasuje, že výrobok <b>KTV 3/4 FLEX Direct</b>
îndeplinește prevederile directivei (directivelor) menționate în anexă și că au fost aplicate normele și/sau specificațiile tehnice la care se face referire în anexă.	je v zhode s ustanoveniami smerníc uvedených v prílohe a že boli použité normy a/alebo technické údaje, na ktoré sa odkazuje v prílohe.

sl <b>ES - IZJAVA O SKLADNOSTI</b>	sv <b>EG-FÖRSÄKRAN OM ÖVERENSSTÄMMELSE</b>
Podpisani, ki zastopa sledečega proizvajalca <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>	Undertecknad firma som representerar nedanstående tillverkare <b>dormakaba Deutschland GmbH DORMA Platz 1 58256 Ennepetal</b>
s tem izjavlja, da je proizvod <b>KTV 3/4 FLEX Direct</b>	förklarar härmed att produkten <b>KTV 3/4 FLEX Direct</b>
v skladu z določili v prilogi navedene/ih smernic/e EU ter da so norme in/ali tehnične specifikacije v rabi tako, kot se nanje navezuje v prilogi.	står i överensstämmelse med de bestämmelser i EG-direktivet(-direktiven) som anges i bilagan och att de normer och/eller de tekniska specifikationer till vilka det hänvisas i bilagan har använts.

**Richtlinie / Directive**

	2014/35/EU	Niederspannungsrichtlinie / Low Voltage Directive / Directive basse tension
<b>X</b>	2014/30/EU	Elektromagnetische Verträglichkeit / Electromagnetic compatibility / Compatibilité électromagnétique
<b>X</b>	2006/42/EG	Maschinenrichtlinie / Machinery directive / Directive machine  Die technischen Unterlagen sind erhältlich beim Manager Productcompliance unter: / The technical documentation is available from the Product Compliance Manager at: / Les documents techniques sont disponibles auprès du Manager conformité produit à l'adresse suivante: <a href="mailto:product-compliance.germany@dormakaba.com">product-compliance.germany@dormakaba.com</a>

**Harmonisierte europäische Norm, nationale Regel / Harmonized European standard, national rule / Norme européenne harmonisée, disposition nationale:**

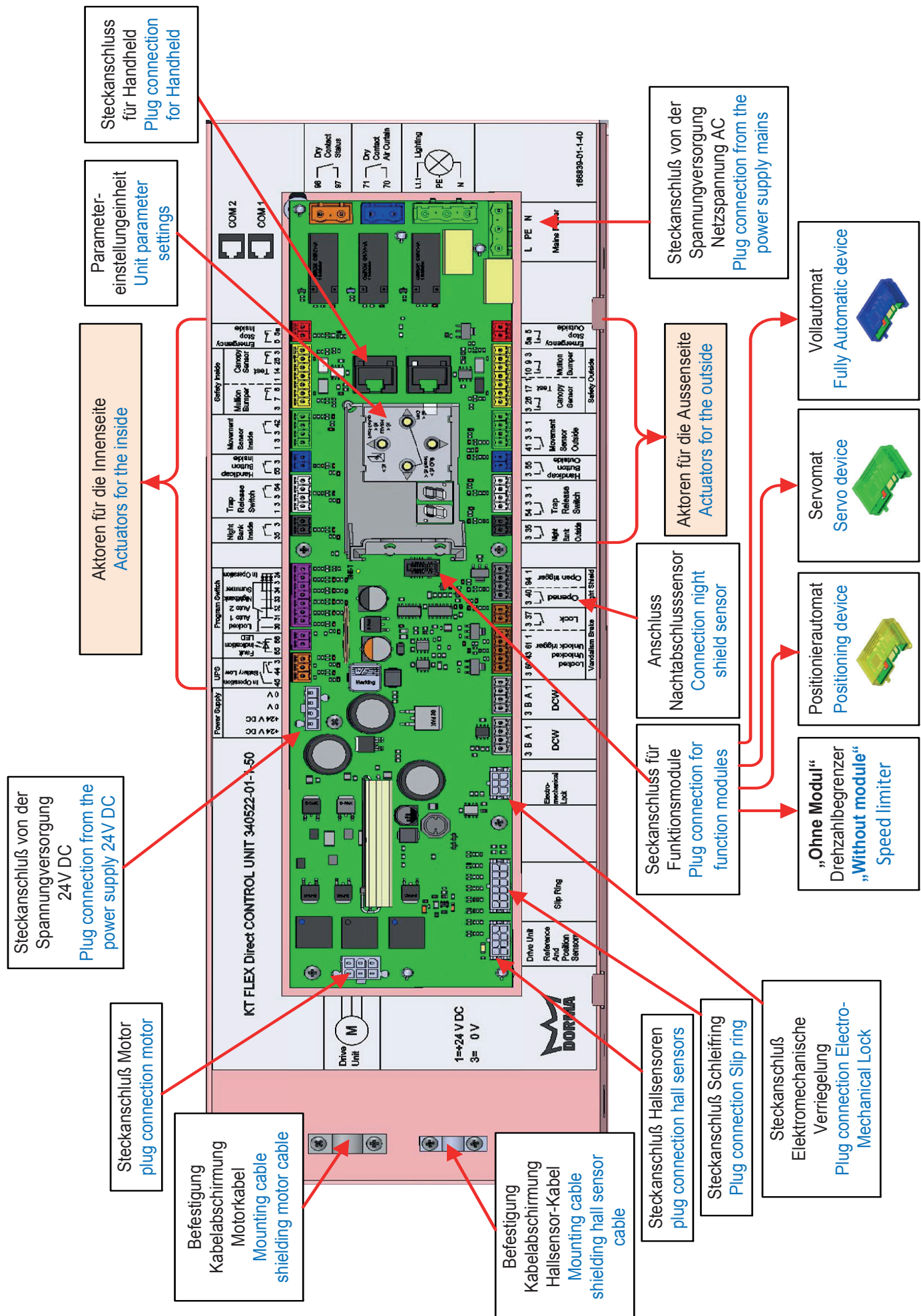
<b>X</b>	EN 13849-1	<b>X</b>	EN 61000 - 6 - 2		
<b>X</b>	EN ISO 12100	<b>X</b>	EN 61000 - 6 - 3		
<b>X</b>	EN 16005	<b>X</b>	EN 61000 - 3 - 2		
		<b>X</b>	EN 61000 - 3 - 3		
<b>X</b>	EN 60335 - 1				
<b>X</b>	EN 60335-2-103				

Andere in Bezug genommene Dokumente oder Informationen, die von den anzuwendenden EG-Richtlinien, Normen und technischen Spezifikationen gefordert werden. / Other references or information required by the applicable EC directive(s), standards and technical specification. / Autres références ou information demandées par la (les) directive(s) CE d'application et que les normes et spécifications techniques:

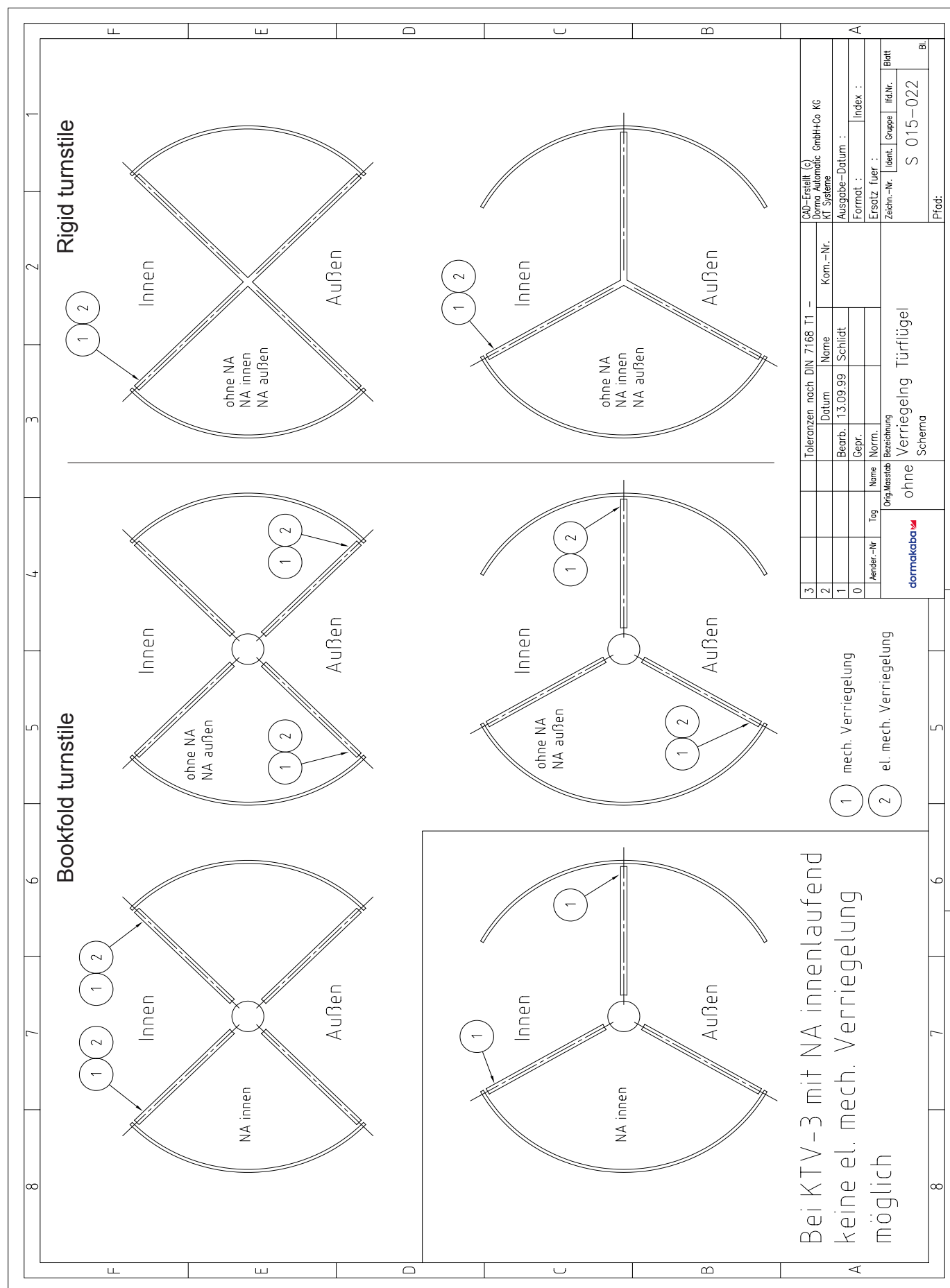
**Systemkomponenten / system components / composants du système**

Ennepetal, 27.10.2016

Michael Hensel  
Senior Vice President Region Germany  
Access Solutions DACH



### 9.13 Wing locking device (diagram)

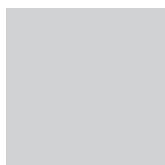












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