

Operations and maintenance manual

Automatic and manual sliding doors

Content

General precautions	3
General information	3
Warnings	3
Sliding door use	4
Limited use	4
Unpacking	5
Fitting the sliding door.....	5
Power-up of automatic door.....	5
Disposal.....	5
General information about sliding doors	5
Technical specifications.....	6
Sliding door projection	7
Definition of sliding directions	7
Definition of capacity measure and frame measure	8
Technical projection.....	9
Functional descriptions (options).....	11
Operating panel	11
Pull chord switch.....	11
Radar	11
Radio control	12
Induction loop	12
ABDL.....	12
Other options.....	12
Operations and maintenance	13
Repairing faults	16
Spare part list.....	16

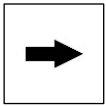
General safety precautions

General information

This operations and maintenance manual applies to both manual and automatic sliding doors and must be read carefully before putting the door into operation. Be particularly attentive to safety information.

Automatically operated sliding doors; door users should receive thorough door operation instructions.




It is important to adhere to the service intervals to achieve the longest possible service life. Sliding doors should be serviced by authorised services engineers.



Sliding doors have a compulsory annual service inspection.

Warnings

This manual contains warnings in the text at certain points, where the reader should be particularly attentive to personal safety or in relation to the operations of the equipment. Warnings are displayed in the following levels:

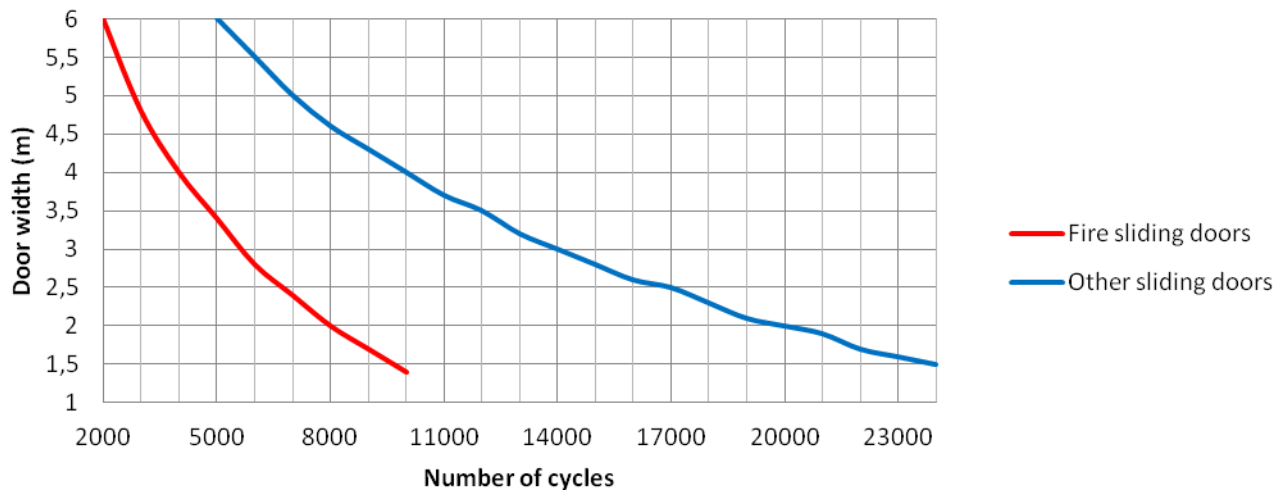
 Caution	<p>Caution Potentially harmful situation. Possible consequences: slight or minor damages. Products or items close by could be damaged.</p>
 Warning	<p>Warning Potentially dangerous situation. Possible consequences: bodily harm or serious equipment damage.</p>
 Note	<p>Note Important information about a product or parts of the user manual, requiring special attention.</p>

Sliding door use

The sliding door can be used in all industries for separation of 2 spaces.


In principle, there are no limits as to how often the door is opened and closed, however, the time intervals between service and maintenance may vary depending on the door usage. Door system recommend a preventive service and maintenance depending of the door width after the following number of cycles:

Automatic sliding doors - recommended service and maintenance



If the recommended service and maintenance are not preformed, Door System disclaims all guarantees for damages caused by the lack of service and maintenance.

Fire doors/fire adapted doors are in principle always open and only in case of fire they automatically closes.

 If fire doors/fire adapted doors or very heavy doors are used as regular sliding doors and thus, experience many cycles, you must expect to change wear parts often.

Limited use



Staying in the door opening is discouraged, as you risk the door closing if the photocells are not activated.



Do not stay at the back rim of the door when it is moving, as you risk squeezing injuries between the door leaf and wall, when the door opens. Can be warded off by mounting a truck guard.



Be aware of regulations concerning escape routes and the use of sliding doors.

Unpacking

Usually, the doors are delivered in a crate wrapped in plastic.

If the door is not mounted upon receipt, it should be stored indoor and protected against moisture and variation in temperature.

Check if the packaging is intact before unpacking the door. If the packaging is damaged, thoroughly examine the content for damages.

In case of damages, inform both the haulage contractor and Door System. The damages must be documented in a report and including pictures to be sent immediately to Door System.

Mounting the sliding door

In cases, where the sliding door is not mounted by Door System's own service engineers, instructions for mounting are included in the package. Also available at www.doorsystem.dk



It is the customer's responsibility that the wall opening measurements matches the order confirmation, unless it is measured by Door System's own staff.

Power-up of automatic door

We refer to a separate door control manual found in the electrical control box.

Disposal

The door must be disposed off according to the national current environmental legislation and regulations in force at the time in question.

General information about sliding doors

By default, the doors are supplied in a side sliding configuration, but can also be made as vertically sliding doors.

The doors are supplied either as manually or automatically operated doors.

If you choose automatic operation, the sliding doors are either driven by means of a belt drive or rack drive. A rack drive is used for cold store or freezer rooms as well as for very heavy doors.

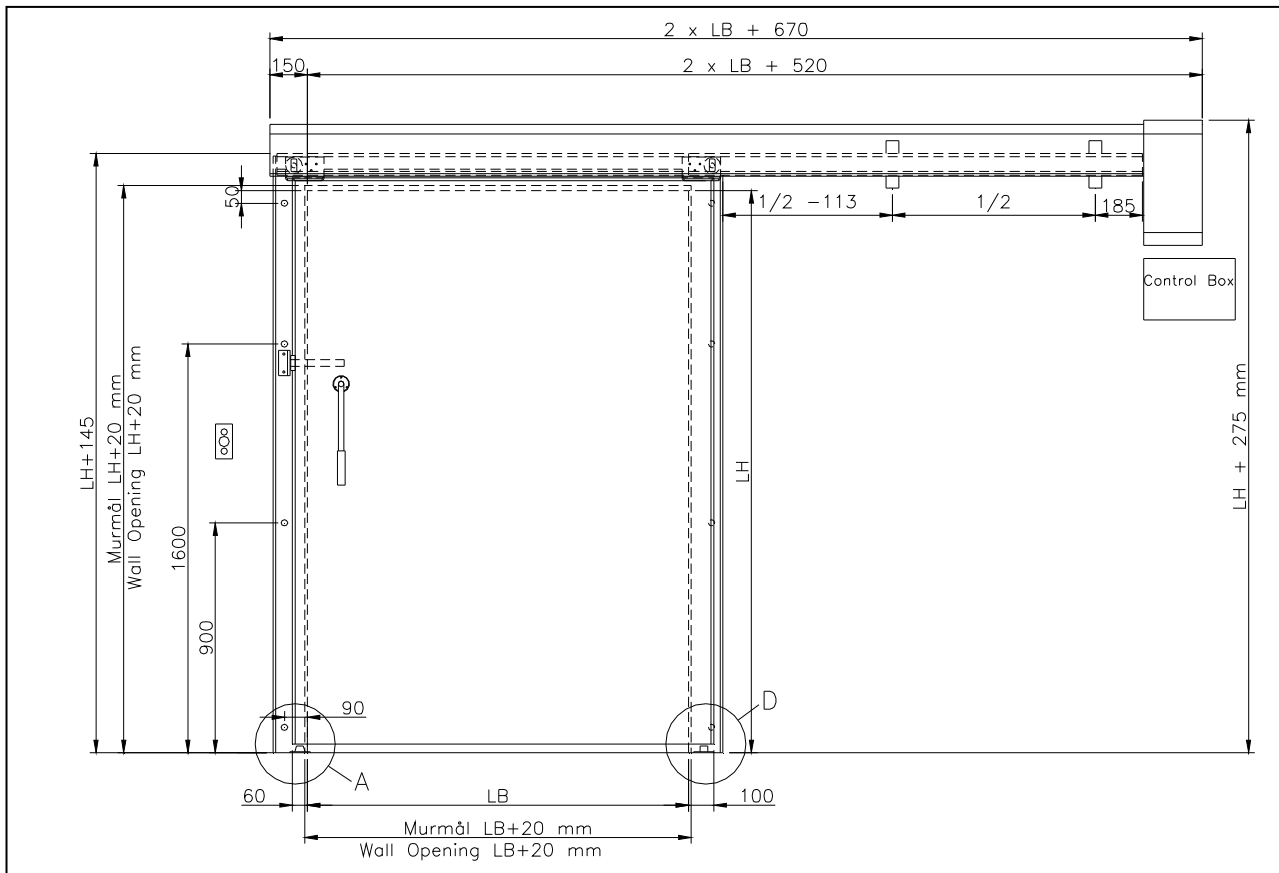
The door leaf is mounted with wheels within the guide rails at the top of the door leaf. The frame is mounted around the wall opening. The A-rail is where the door leaf rests when the door is closed. The B-rail is where the door leaf rests when the door is open. Depending on the door's width, the B-rail may be supported by a rail support. The motor is either placed at the end of the A-rail or at the end of the B-rail.

Sliding doors can be combined with other automatic systems e.g. belt conveyors, lock systems or washing machines. Likewise, the sliding doors can be fitted with various operation options for the automatic open/close function.

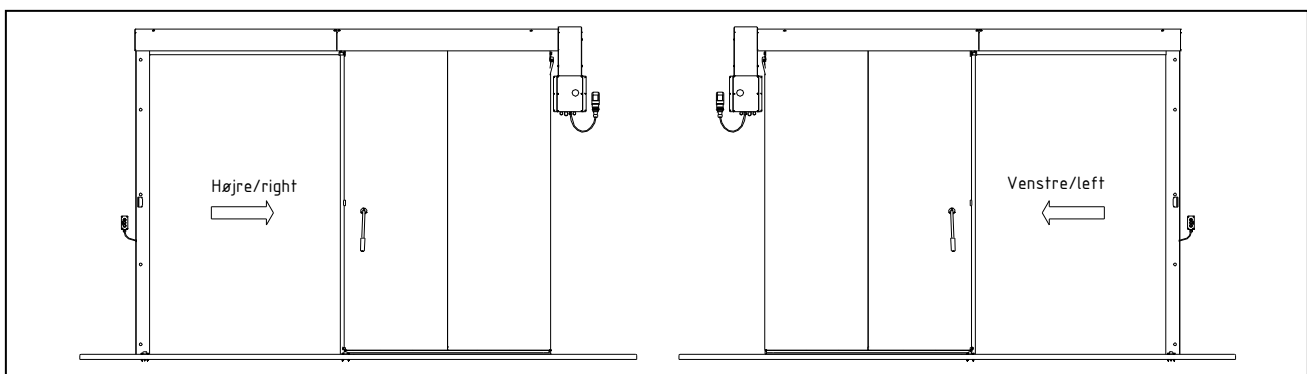
Technical specifications

Door types:	Manual operation Automatic operation Fire door
Door thickness:	40, 60, 80, 100, 150 mm
Design:	Door leaf made with a 78° chamfer on the top and side.
Insulation types:	Polyurethane (PUR) foam Polyisocyanurate (PIR) foam. Firebatts for fire doors.
Plate material:	Galvanised steel Painted steel Stainless steel AISI304 Stainless and acid-proof steel AISI316.
Frame material:	Strong stainless steel profile.
Guide rail material:	Extruded anodised aluminium.
Safety devices:	Photocells on door leaf Photocell in frame leg Motor surveillance
Opening speed:	Variable from 0,3-0,6 m/sec. Set to 0,4 m/sec. from the factory.
Closing speed:	Variable from 0,3-0,5 m/sec.
Control unit:	CPU-based. Fault indicator and frequency converter as standard fittings.
Pulse generator:	Push-button panel with emergency stop as standard fitting.
Operating temperature:	-20°C to +40°C.
Options:	Pull chord switch Radar Radio control Induction loop Fire Safe System (ABDL) Window Lock Personnel door/emergency hatch

Sliding door projection



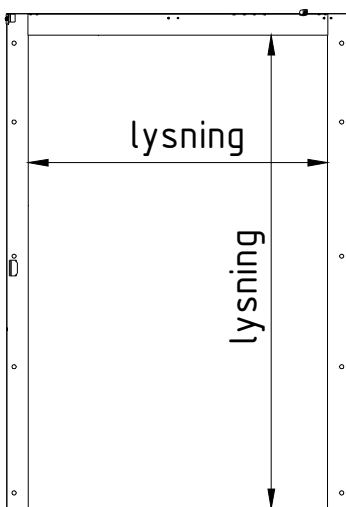
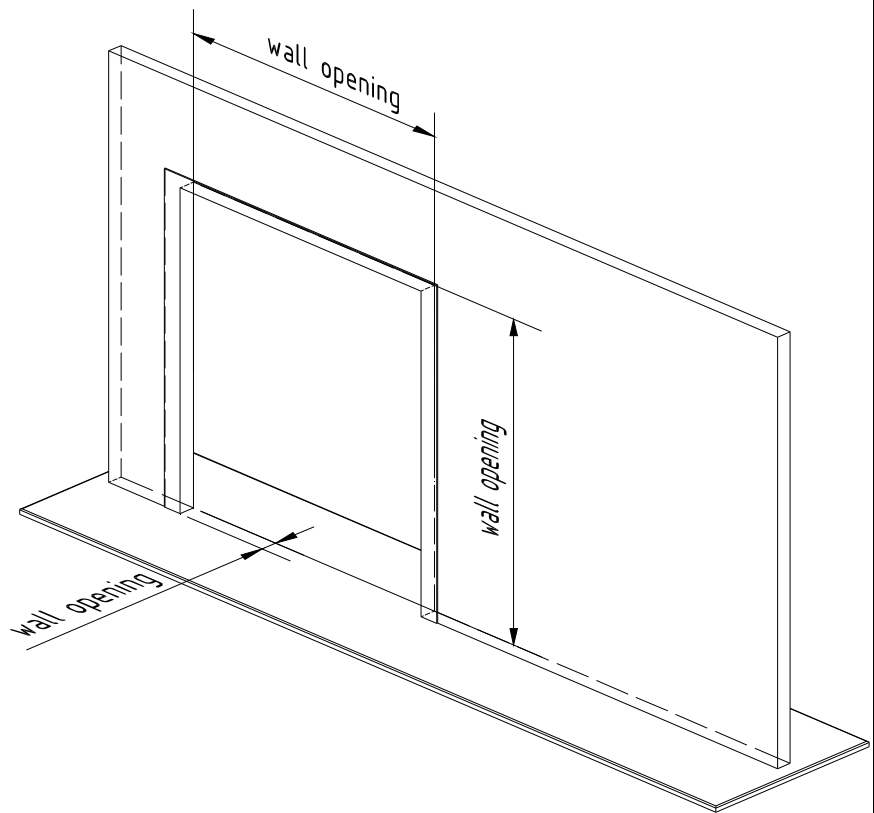
Definition of sliding directions



Definition of wall opening measurement and frame measurement

Wall opening measurement:

Vertical distance between the 2 walls as well as the horizontal distance between the top of the hole and floor, and the thickness of the wall, is called the WALL OPENING MEASUREMENTS.

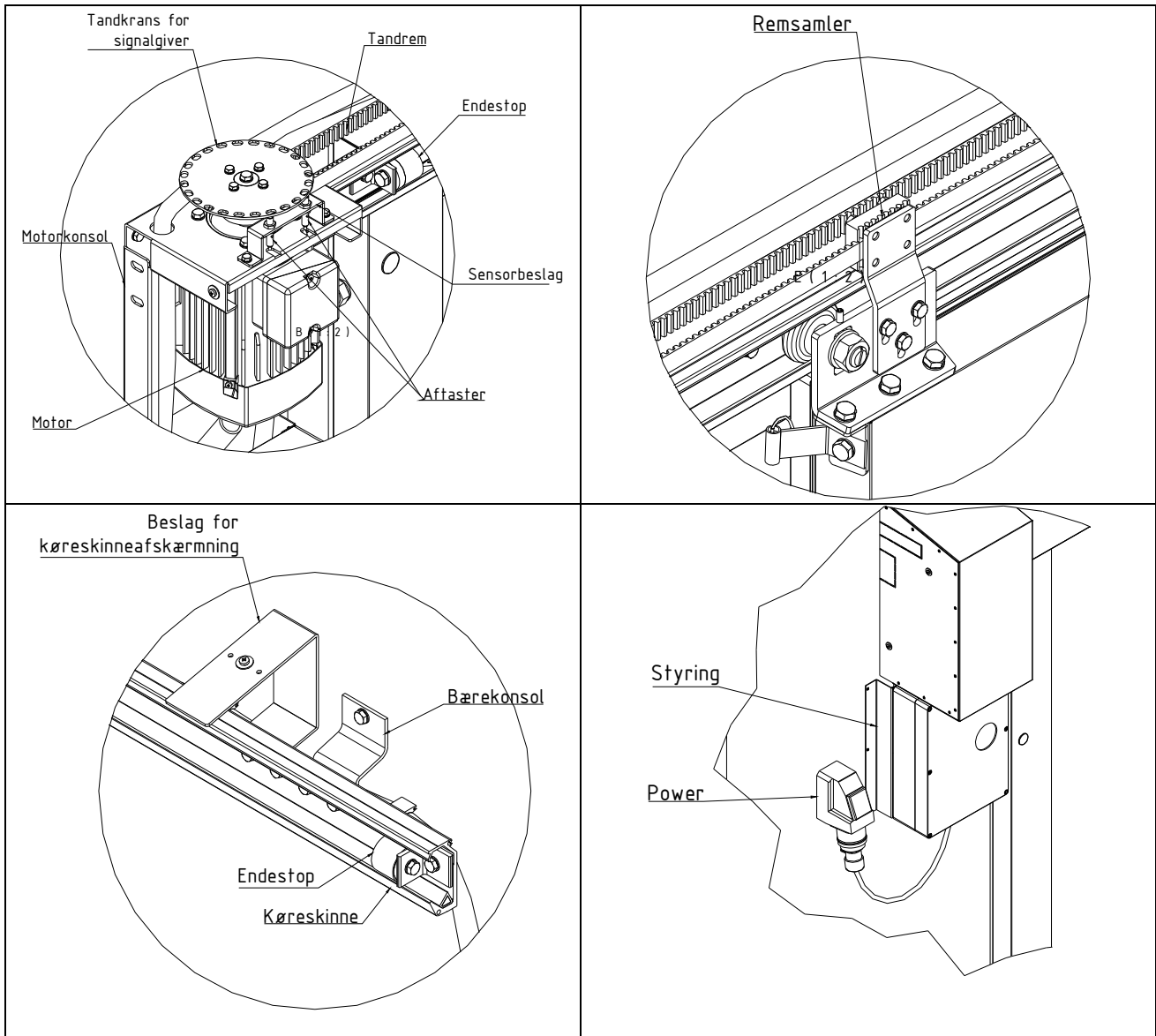


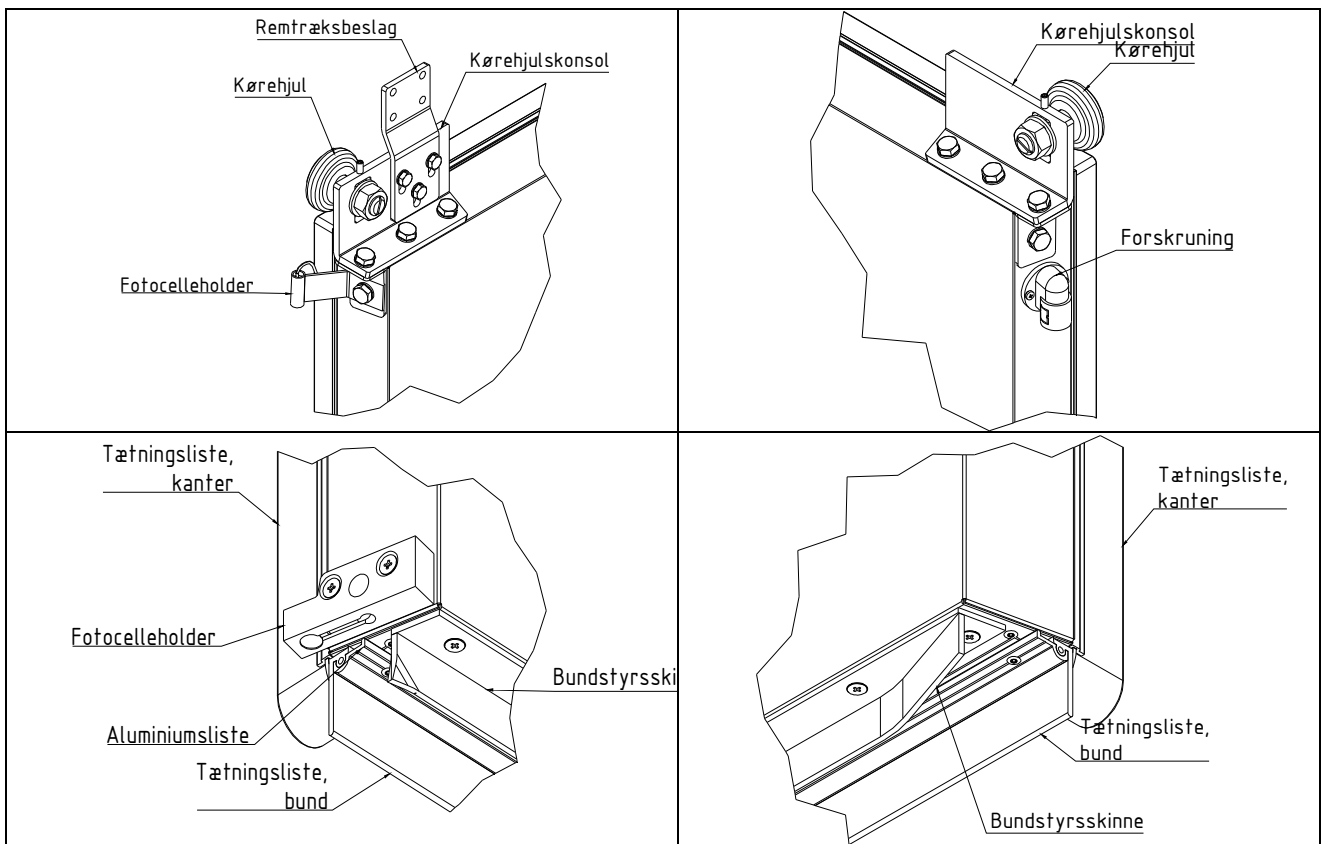
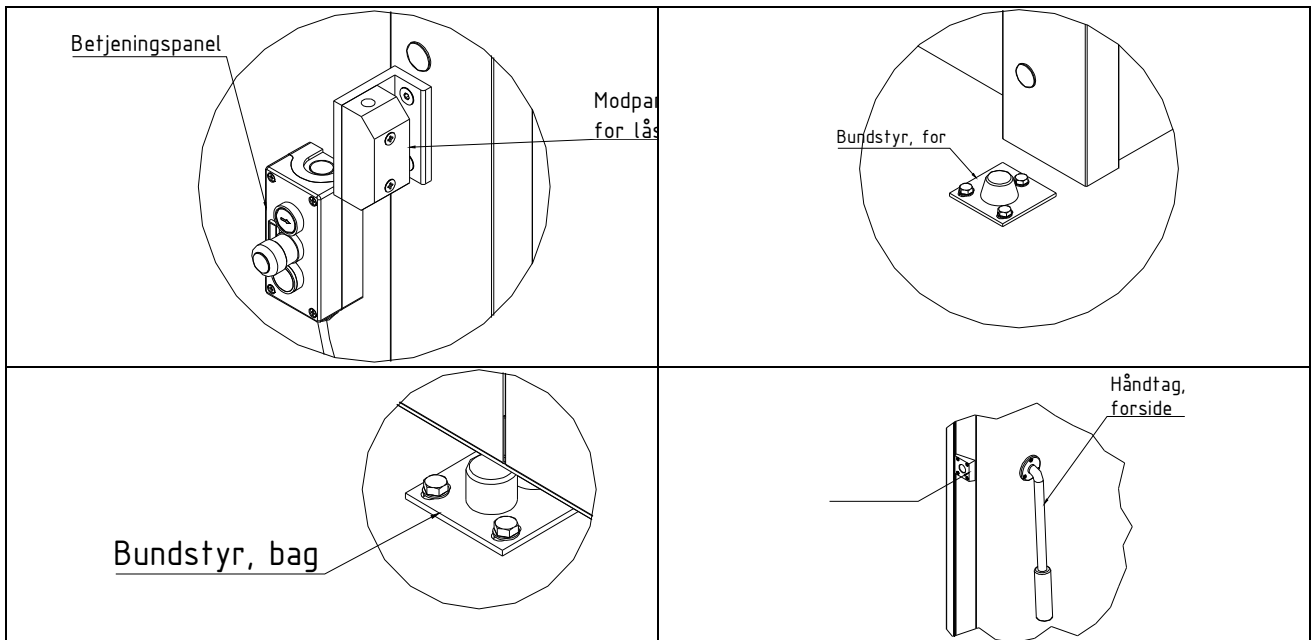
Frame measure:

Vertical distance between the 2 frames at the side of the door and the horizontal distance between the bottom of the upper horizontal frame and the floor/threshold, is called the FRAME MEASUREMENTS. In other

words, the light visible through the hole (clear opening).

Detail drawings


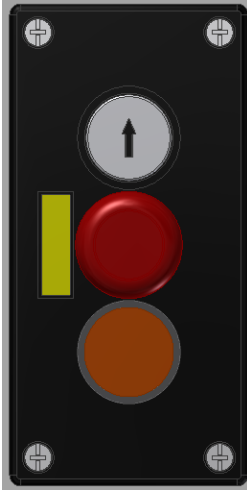




Functional descriptions (options)

Operating panel

The operating panel is always delivered with an automatic sliding door. The panel is a push-button box mounted on the wall next to the door. There is a push-button to open, one to close and an emergency stop. At a single push of the close-button the door closes from completely open to completely closed and can only be stopped by activating the photocells, open-button or the emergency stop. At a single push of the open-button the door opens from completely closed to completely open. Cannot be stopped by activating the photocells but can be stopped by pushing the close-button or emergency stop.

	<p>Located on the backside of the door opening.</p>		<p>Located on the front of the door opening.</p>
	<p>White push-button = open (regardless of opening direction)</p> <p>Emergency stop</p> <p>Black push-button = close (regardless of closing direction)</p>		<p>White push-button = open (regardless of opening direction)</p> <p>Emergency stop</p> <p>Yellow light push-button = close (regardless of closing direction)</p> <p>When the button lights up, this indicates a stoppage outside normal operations.</p>

In some cases, when an ABDL system is connected, an extra green push-button is available on the control panel. This push-button acts as a test button for testing the ABDL system.

If the emergency stop has been activated, the button must be turned clockwise to release the stop.

Pull chord

The door is opened by pulling a chord and the door automatically closes after a certain period of time. The time is set on the timer. This means that even though the door is already open, the pull chord must still be activated or the door might begin closing, while you are moving through it. The pull chord can also be set at a tilt function, meaning that the pull chord must be activated when opening the door and again when closing the door.

Radar

The radar can be used either as safety or to activate the door. If the radar is used as safety radar, it will always open, when there is movement in front of the door. If the radar is used to activate the door, the door will open when there is movement within the radar's "visual field". The door will close after a given period of time. The time is set on the timer. It is possible to install safety radar on one side of the door and open/close radar on the other side of the door. This is to provide extra certainty of avoiding damages to persons or materials.

Radio control

Radio control is a remote control of the door, often utilised in locations with truck traffic.

Induction loop

Magnetic field, which is buried in the floor. It registers when metal enters the area and opens the door. The door closes after a given period of time. The time is set on the timer.

Fire Safe System (ABDL)

ABDL is used in connection with fire doors. ABDL is an abbreviation of Automatic Fire Door Closing (Automatisk Brand Dørs Lukning) and ensures that the fire door automatically closes in case of fire. ABDL is connected to the door control.

Other options

Sliding doors are available with:

- Window
- Lock
- Personnel door or emergency hatch.

Operations and maintenance

The door opens either manually or by activating push-button, pull chord, induction loop or via remote control. See descriptions of these functions in the section "Functional descriptions (options)".

In automatic doors, there is a horizontal photocell mounted in the bottom edge of the door leaf and a vertical photocell in the top of the door leaf. These photocells ensure that the door does not close, when the photocells are activated, thereby avoiding squeezing.

The same safety is not available when the door opens and there is a risk of squeezing between the wall and door, when the door opens. Door System recommends that the door movement area is screened off, possibly by truck guard or by fitting extra sensors.



For the daily operations to be as smooth as possible, it is important that the maintenance items below are checked/carried out regularly.

	Subject	Control item	Control:					
			Visually	Annuall y	Bi- annuall y	Quarter ly	Month ly	Dai ly
1	Rubber lists	If rubber lists are damaged, and do not sit flush with the frame or bottom guide rail, they should be replaced.	X				X	
2	Guide rails	The guide rail should be lubricated with grease (e.g. Food Grease Plus) on the fall-out 1-2 a year or when required (i.e. the rollers begin to make a noise).	X		X			
3	Rollers	The rollers should be changed either when deformed, the diameter is at Ø56 or the roller shaft begins to touch the guide rail. Rollers should be lubricated with grease when required.	X				X	
4	Bottom rail	The bottom rail must be checked 1-2 a year or as needed, the rollers should be replaced, when the diameter reaches approx. 24 mm.	X		X			
5	Frame	In case of ice on the frame, remove ice.	X					X
6	Heating wires	Check at the heating wires work by feeling the frame. The frame must be free of ice.	X					X
7	Photocells	Photocells must be checked. This is done by holding something in front of the photocell in order to return the door to its open position.	X					
8	Accidental stress	If the door is subjected to collision that may have damaged the safety devices ensuing a risk of personal injury, an inspection must be carried out.	X					

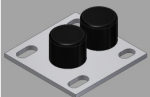
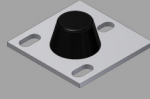
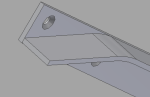
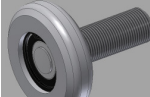
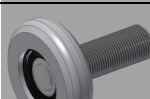
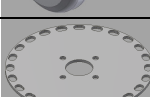
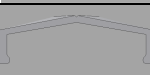
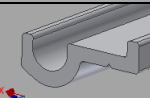
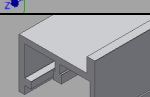
	Subject	Control item	Control:					
			Visually	Annuall y	Bi- annuall y	Quarter ly	Month ly	Dai ly
9	Levers and locks on the sliding doors	Greased when required (e.g. using Food Grease Plus)					X	
10	Personnel door/ emergency hatch	If the sliding door is equipped with a personnel door or an emergency hatch, hinges, levers and lock boxes must be tested for functionality and greased.					X	
11	Compulsory inspection	Automatically and manually doors and their components must be maintained according to the supplier's instructions and according to the Danish Working Environment Authority undergo the following inspections: <ul style="list-style-type: none"> • Complete overhaul every 12 months as a minimum, unless the supplier instructs otherwise. The inspection must be carried out by the supplier or another service company with the same professional knowledge. • Complete overhaul before putting into operation after each re-mount and re-installation 		X				
12	Wire at wire barrel (fire doors)	Check that the pull wire is held tight by the wire barrel and that the wire is not damaged.					X	
13	Wire barrel (fire doors)	Check that the wire barrel can move freely up and down in the rail (achieved by lightly pulling the wire)					X	
14	Electromagnetic grip (fire doors)	The magnet mounted on the guide rail is tightened if necessary.					X	
15	Spare parts	When ordering spare parts the door number should be stated. The door number is located on the door sign, attached to the door.						
16	Cleaning	Painted and stainless surfaces are cleaned with mild soapy water.						
17	Lubrication	Once cleaned, stainless surfaces are covered by acid-free oil, approved for the industry where the door is fitted.						
18	Before putting the door into operation	Once mounted, remove the foil from the door and frames and lubricate with acid-free oil until the steel is saturated. This is done to avoid rust film and other substances getting stuck on the surface. Repeat this treatment after each cleaning, which could wash off the oil.						

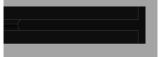
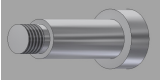
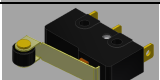
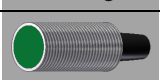
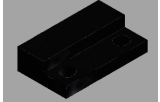
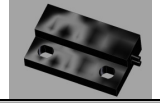

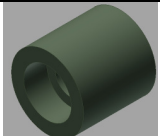
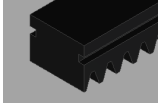
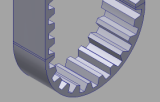
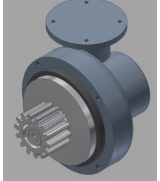
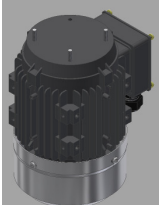
Please direct any questions about the operations and maintenance to Door System's service department at +45 86 92 11 71.

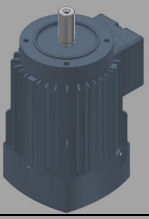
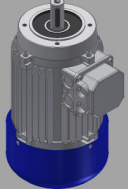
Repairing faults

PROBLEM	POSSIBLE CAUSE	ERROR CORRECTION
The door will not open/close	Lack of power	Check to see if the power for the control is on. If not, switch on.
	The emergency stop may have been activated	Release the emergency stop by turning the red button to the right.
	The safety functions may be blocked	Check if the door frame photocells are correctly adjusted and if they are dirty.

Spare part list

No.	Description	Item no.	
1	Bottom rail, back	200-100	
2	Bottom rail, front	200-101	
3	Bottom guide rail Left/Right 60/100/150 mm	200-250	
4	Roller with stud bolt L69, Ø64 POM	20-1010	
5	Roller with stud bolt L69, Ø64, stainless steel	20-2520	
6	Toothed rim for signaller DS 280-700 oblong hollow/hole	27-0009	
7	Aluminium list (lid), type E (for seal 42-0040)	41-0013	
8	Aluminium list, type B (for seal 42-0016)	41-0015	
9	Aluminium profile for rack	41-0025	

No.	Description	Item no.	
10	Seal 41x12x6.5 DS-B1 (bottom seal)	42-0016	
11	Seal type A 7,2x35,3 (side seal)	42-0040	
12	Tight fitting bolt M12-16-40 FZB	70-5004	
13	Micro-switch with roller arm SS-5GL2	84-0200	
14	Magnetic sensor HP 140505 (rack pull)	84-0205	
15	Magnet 14x23	84-0207	
16	Magnet sensor 14 x 23	84-0208	
17	Gear sensor 2 M (toothed belt pull)	84-0212	
18	Heating unit 24V/3W (for cylinder lock)	84-0230	
19	Backstop roll for rack AS	85-1015	
20	Rack, POM	85-1050	
21	Toothed belt, M8-20-ST	85-1135	
22	Gear type DS 1:20 BJ (rack)	85-1200	
23	Motor 0.55kW. 3000 rpm B14 (rack)	85-1210	

No.	Description	Item no.	
24	Motor, Vem 1.5 kW.1000 rpm DS-RT (belt drive)	85-1219	
	Motor, Vem 1.1 kW.1000 rpm DS-RT (belt drive)	85-1220	
25	Motor, Vem with brake 1.5 kW.1000 rpm DS-RT (belt drive)	85-1222	
	Motor MT with brake 1.1 kW.1000 rpm DS-RT (belt drive)	85-1221	