

China add on manual

**Tunnel Slide Door
Configuration Manual**

Code No.: 87-19-9527

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1 Basic instruction

	<p>Please take care of this manual and always keep it in the same place for quick reference.</p> <p>All persons working with the system, assembling, cleaning and servicing it have to be familiar with the contents of these instructions.</p> <p>Please take into consideration the comprised safety instructions !</p> <p>If this manual should get damaged or lost, Big Dutchman will be glad to provide you with a new copy.</p>
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1.1 Basics

The DR 1500 has been constructed according to the current state of the art and all acknowledged regulations regarding technical safety. The system is reliable. Upon operation, however, dangers to life and limb of the user or third persons or impairments of the system or other material property are still possible.

The system may only be mounted, attended, repaired and used

- for due use
- in an excellent state from the safety and technical point of view
- by persons who are familiar with the safety regulations and who have been authorized by the owner.

In the event of special problems which are not described in detail in this manual, we recommend to contact us for your own safety.

1.2 Designated use

The Big Dutchman installation may only be used according to its designated use. Every other use is considered as non-designated use. The manufacturer does not accept liability for damages resulting from other uses, the user alone has to bear the risk.


The designated use also includes the exact observance of the operation, maintenance and repair instructions as prescribed by the manufacturer.



The limit values indicated in the technical data must never be exceeded.

1.3 Explaining the symbols

1.3.1 Safety symbols




Upon reading this manual you will come across the following symbols:

	Warning	This symbol indicates risks possibly leading to personal injury resulting in death or to severe injuries.
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	Caution	This symbol indicates risks or insecure procedures possibly leading to injuries or material damage.
	Note	This symbol indicates notes leading to an effective, economic and environmentally-conscious handling of the installation.

1.3.2 Safety symbols in the manual and on the installation

These safety symbols illustrate remaining dangers when handling the system. They are supplements to the above-mentioned symbols:

	Warning against the cold
	Warning against dangerous electric tension
	Warning against slippery surface

1.4 Ordering spare parts

	Operational safety is the prime necessity ! For you own safety only use original Big Dutchman spare parts. For foreign products that have not been released or recommended we cannot judge whether there is a safety risk in connection with Big Dutchman systems.
	You can find the exact description of the parts for ordering spare parts by means of the pos. no. in the spare parts list.

Indicate the following for ordering spare parts:

- Code No. and description of the spare part or
- Invoice No. of original invoice
- Current supply, e.g. 220/380V

1.5 Obligations

Closely adhere to the instructions in this manual.

A basic condition for safe operation and trouble-free handling of this system is the knowledge of the basic safety instructions and regulations.

These mounting instructions, particularly the safety instructions, have to be observed by everyone working with this system. Moreover, the regulations and instructions for the prevention of accidents valid at the respective place of use have to be observed.

The manufacturer is not responsible for any damages to the machine resulting from changes done by the user.

1.6 Warranty and liability

Warranty and liability claims regarding personal or material damage are excluded if they result from one or several of the following causes:

- non-designated use of the installation,
- inappropriate mounting and operating of the system,
- non-observance of the instructions in this manual regarding transport, stock keeping, mounting, maintenance and upgrading of the system,
- inappropriate repairs,
- in the event of a disaster caused by foreign matters or force majeure.

1.7 Power failure

We recommend the installation of warning systems for a better control of your production units or the use of an emergency power-generating set for supplying the system with power in case of power failure. By this, you protect the animals and thus your own economical health.

1.8 First aid

For the case of an accident, unless specified otherwise, a first-aid kit must always be available at the place of work. Material taken out and used is to be replaced immediately.

If you need help, describe the accident as follows:

- where it happened
- what happened
- the number of persons injured
- what type of injury
- who is reporting the accident! (your data)

1.9 Waste disposal

After finishing the assembly or repair of this installation, dispose of the packing material and remains which do not need to be further used according to the legal provisions for recycling.

The same applies to the component parts after putting the installation out of service.

1.10 Notes for use

We reserve the right to modify the construction and technical data for reasons of further development.

Therefore, no claims can be derived from the information, pictures, drawings and descriptions. Subject to correction !

Get the information on mounting, adjusting, operating and maintaining before taking the system into operation.

Apart from the safety-relevant instructions in this manual and the safety precautions valid in the country of use, also consider the generally acknowledged technical regulations (safe and appropriate working according to UVV, VBG, VDE etc.).

1.11 Copyright

This manual is subject to copyright. The information and drawings included in this manual shall not be copied without the manufacturer's consent, nor shall they be used for anything other than the designated use. Neither shall they be given to third parties.

The contents of this manual can be altered without prior notice.

If you find mistakes or unclear information in this manual, please do not hesitate to let us know.

All trade marks mentioned or shown in the text are trade marks of their respective owners and are recognised as patented.

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2 Layout

This tunnel slide door system is used for controlling tunnel air inlet by vertical movement of a slide door according to ventilation mode. By modular design, standard components are utilized as much as possible to reduce non-standard custom parts.

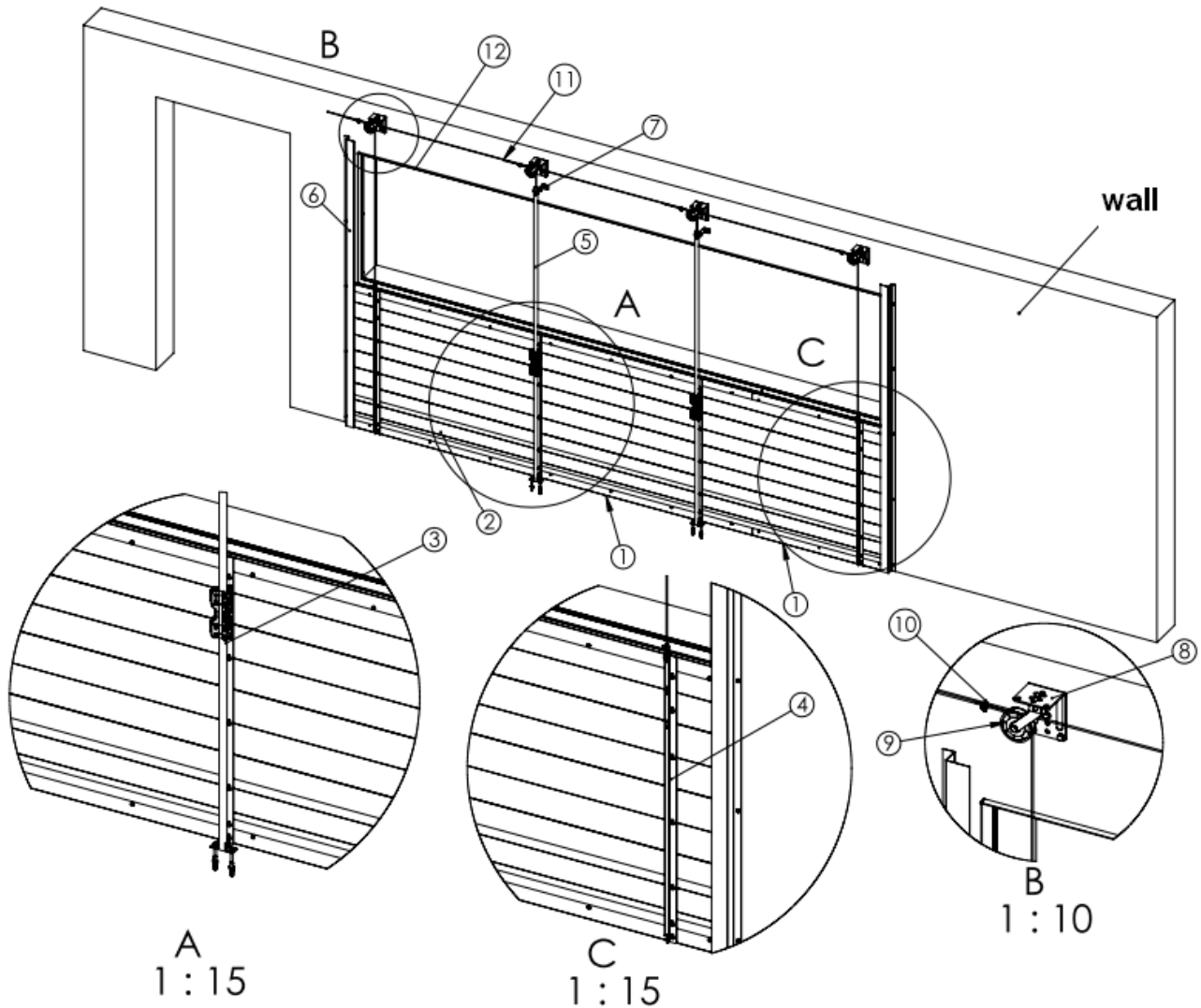


Figure 2-1 Layout

Pos.	Code no.	Description	Unit	Note
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1	87-00-6495	U-profile L=3000mm cpl.	pc	The top and bottom ends of the slide door are protected with U-profile. Quantity configured according to actual need.
	87-00-6496	U-profile L=1000mm cpl.	pc	
2	87-00-6077	Pen profile, PVC 15X250mm grey	pc	Quantity configured according to height and length of the opening in the wall.
3	87-00-6723	Reinforce post for tunnel slide door H=1.1 mtr with creeper cpl.	pc	Length of the reinforce post equals to the height of slide door. Non standard length of post is also provided upon request. One post for every running meter of slide door. The starting and ending post shall be approximately 25cm away from the edge of the connected pen for better reinforcement.
	87-00-6725	Reinforce post for tunnel slide door, without creeper cpl.		
4	87-19-1571	Steel pipe 3/4", 2mm thick, L=6 mtr galv.	pc	This steel pipe is used as guiding rail on which slide door moves up and down. The length of the guiding pipe shall be double length of the post and another 0.3m. e.g. Angle post is 1.1m, guiding pipe should be, 2.5m. Standard length of pipe available on market is 6m. Please configure more pipes as joint pipes for guiding pipe is not smooth enough for movement. Only use pipe of one piece without joint.
5	87-00-6500	Z profile, L=2.0 mtr, two sides, cpl.	pc	Length of z profile should be no less than double height of the slide door for better embracement.
	87-00-6498	Z profile, L=2.3 mtr, two sides, cpl.	pc	
6	87-00-6726	Brackets for guiding pipe 3/4" on concrete cpl.	pc	For fixing on concrete wall. Brackets for other wall provided upon request. Quantity of brackets should be same as that of guiding pipes.
7	87-00-0858	Angle bracket cpl. for pulley 3 1/2" on brick wall	pc	For fixing on brick wall. Pulley brackets for other wall provided upon request. Quantity of pulley brackets should be same as that of guiding pipes.
8	87-19-1951	Pulley 3" 76mm nylon wheel with bearing 45 deg	pc	Pulleys for other wall provided upon request. Quantity of pulleys should be same as that of guiding pipes.
9	99-50-0120	Cable clamp 5mm 3/16"	pc	Quantity of cable clamp should be double of

		galv.		that of pulleys.
10	60-40-3106	Wire rope 4mm spec. steel 14301	m	Configure according to layout.
11	87-19-6654	Sealing brush 3000mm fixed on sandwich plate cpl.	pc	Configure according to layout and wall material. No shorter than girth of the wall opening.
	87-19-6655	Sealing brush 3000mm fixed on brick wall cpl.		
	87-19-6656	Sealing brush 1000mm fixed on sandwich plate cpl.		
	87-19-6657	Sealing brush 1000mm fixed on brick wall cpl.		

3 Component

3.1 U- profile

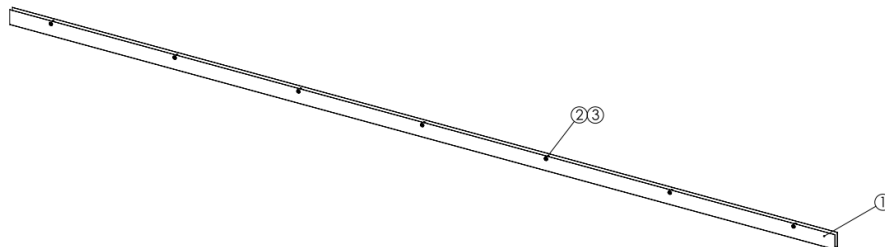


Figure 3-1 U-profile

Two sizes available

Pos.	Code no.	Description	Quantity	Unit
	87-00-6495	U-profile L=3000mm cpl.		
1	87-00-6493	U-profile L=3000mm	1	pc
2	87-19-1109	Mushroom head screw M6x25 cross recessed, Delta-MKS	7	pc
3	87-19-1306	Hexagon nut M6,Delta-MKS	7	pc
	87-00-6496	U-profile L=1000mm cpl.		
1	87-00-6494	U-profile L=1000mm	1	pc
2	87-19-1109	Mushroom head screw M6x25 cross recessed, Delta-MKS	3	pc
3	87-19-1306	Hexagon nut M6,Delta-MKS	3	pc

3.2 Connected pen profile

The slide door is made of horizontally connected PVC pen profile. Pen profile can be cut to suit the height of the opening in the wall. The top and bottom ends of the slide door are protected with U-profile. Height of the slide door shall be longer than that of the opening in the wall by at least 5 cm for better sealing.

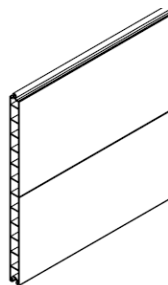


Figure 3-2 Connected pen profile

Code no.	Description	Quantity	Unit
87-00-6077	Pen profile, PVC 15X250mm grey		

3.3 Reinforce post for slide door

Reinforce post is required under each hanging pulley bracket.

Standard length of the reinforce post is 1.1m which equals to the height of slide door. Other length provided upon request.

One reinforce post is required for every running meter of slide door. The starting and ending post shall be approximately 25cm away from the edge of connected pen for better reinforcement.

Two types of reinforce posts are available, one with creeper and one without creeper.

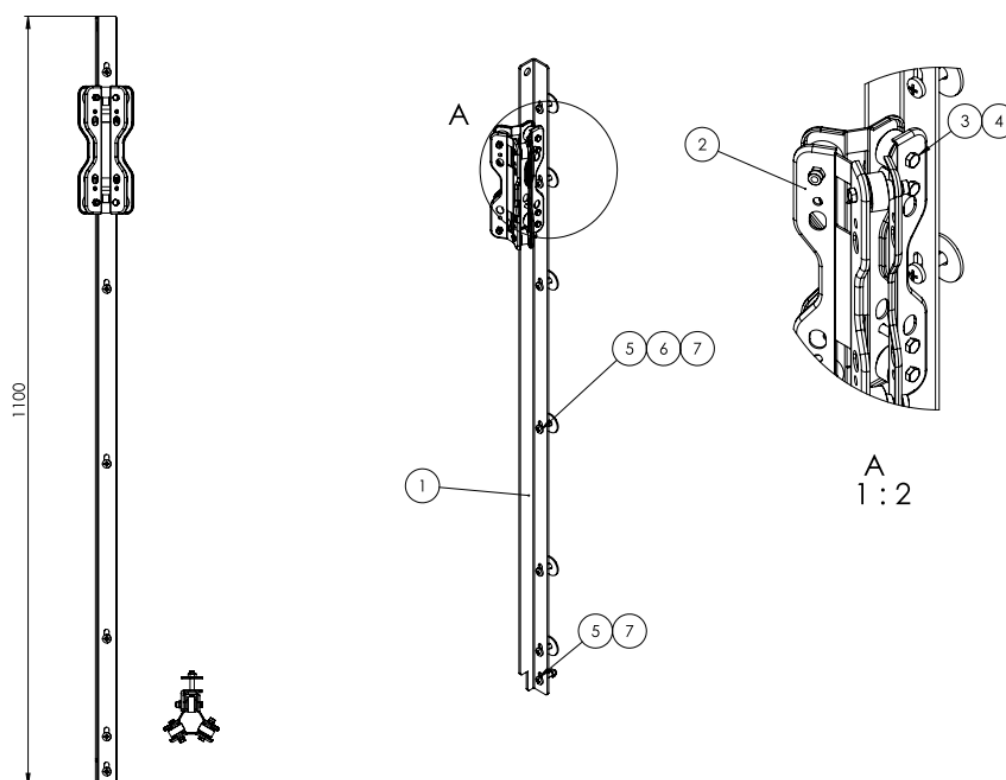


Figure 3-3 Reinforce post with creeper

Pos No.	Code No.	Description	Quantity	Unit
	87-00-6723	Reinforce post for tunnel slide motor H=1.1 mtr With Creeper cpl.		
1	87-00-6724	Angle post 1100/30mm H=1100mm galv.with holes for creeper	1	pc.
2	87-01-0645	Creeper for ERU-B motor, 3/4" pipe cpl.	1	pc.
3	87-19-1402	Hexagon head screw M5x35 SST	4	pc.
4	87-19-1311	Self-locking counter nut M5 SST	4	pc.
5	87-19-1110	Mushroom head screw M6x30 cross recessed, Delta-MKS	7	pc.
6	87-19-0041	Washer 8.4x30x2 Delta-MKS	6	pc.
7	87-19-1306	Hexagon nut M6,Delta-MKS	7	pc.

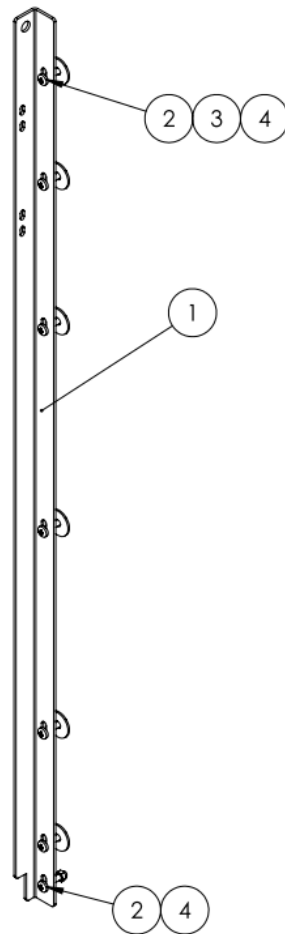


Figure 3-4 Reinforce post ,without creeper

Pos No.	Code No.	Description	Quantity	Unit
	87-00-6725	Reinforce post for slide door without Creeper cpl.		
1	87-00-6724	Angle post 1100/30mm H=1100mm galv. With holes for Creeper	1	pc
2	87-19-1110	Mushroom head screw M6x30 cross recessed,	7	pc
3	87-19-0041	Washer 8.4x30x2 Delta-MKS	6	pc
4	87-19-1306	Hexagon nut M6,Delta-MKS	7	pc



The quantity and type of reinforce posts shall be configured alternately to achieve an even distribution of draw force to the whole slide door.

The end of the tunnel slide door that is far from the winch, possibly receives a decreased draw force. The use of creeper might be a compensation.

For tunnel slide door within 3 meters in length, 2 posts with creeper and 2 posts without creeper shall be configured. And 2 posts(at least 1 with creeper) for every further 2 running meter of slide door. The starting and ending post shall be approximately 25cm away from the edge of the tunnel slide door for better reinforcement.

Example:

Length of tunnel slide door	Quantity required	
	reinforce post with creeper	reinforce post without creeper
≤3 m	2 pc	2 pc
4 m	2 pc	3 pc
5 m	3 pc	3 pc
6 m	3 pc	4 pc
...

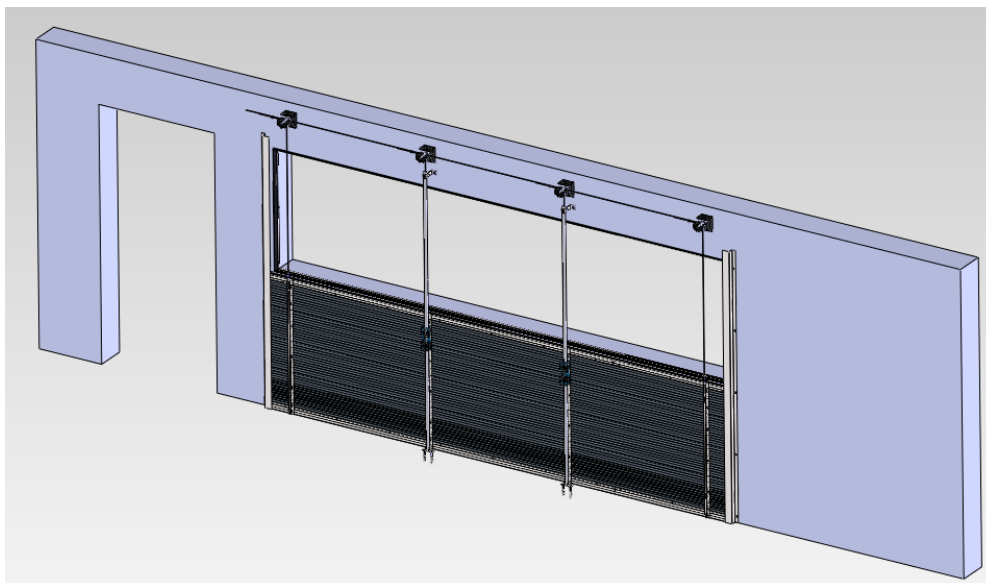


Figure 3-5 Configuration example of reinforce posts for side door of 3m in length

3.4 Guiding pipe

Steel pipe is cut to required length and used as guiding pipe on which slide door moves up and down to open or close the air inlet.

The length of the guiding pipe shall be double length of the reinforce post and another 0.3 m for the purpose of installation.

Guiding pipes are cut from steel pipe of 6 m 3/4". Please configure more pipes as joint pipes is not smooth enough for movement. **Only use pipe of one piece without joint.**

The required quantity of guiding pipes is same as that of the reinforce posts with creeper.

Code no.	Description	Quantity	Unit
87-19-1571	Steel pipe 3/4", 2mm thick, L=6 mtr galv.		pc

e.g.

- 1 Height of opening in the wall: 1.1 m
Height of the reinforce post: 1.1 m
Length of guiding pipe required: $1.1 \times 2 + 0.3 = 2.5$
- 2 Length of the slide door: 3.5 m
Number of guiding pipes required: 4
Number of 6 m-Steel pipe required: 2

3.5 Z Profile

A couple of Z profile is installed on the left and right side of the opening in the wall for better seal.

Height of Z profile shall be no less than double of that of slide door to embrace the slide door all the time during movement. Different sizes available, 2.0m and 2.3m.

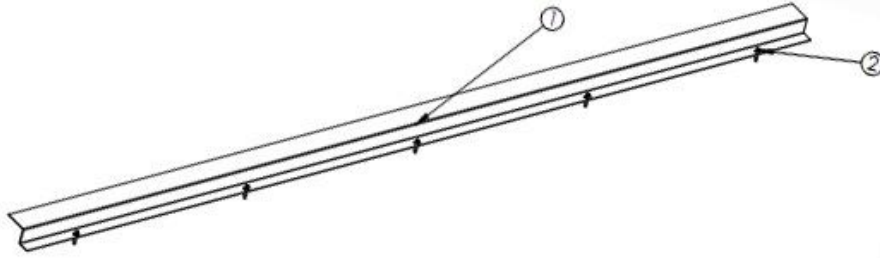


Figure 3-6 Z profile

Pos.	Code no.	Description	Quantity	Unit
	87-00-6498	Z profile, L=2.3 mtr, two sides, cpl.		
1	87-00-6497	Z profile, L=2.3 mtr	1	pc
2	87-19-0436	Hexagon head wi/flange self drilling screw M5x30 Delta-MKS w/rubber gasket	5	pc
Pos.	Code no.	Description	Quantity	Unit
	87-00-6500	Z profile, L=2.0 mtr, two sides, cpl.		
1	87-00-6499	Z profile, L=2.0 mtr	1	pc
2	87-19-0436	Hexagon head wi/flange self drilling screw M5x30 Delta-MKS w/rubber gasket	5	pc

3.6 Brackets for guiding pipe

A pair of brackets are installed on the wall for fixing the guiding pipe.

The guiding pipe should be arranged and installed in strict vertical manner for free movement of the slide door.

Brackets supplied are for concrete wall. Brackets for other walls will be provided upon request.

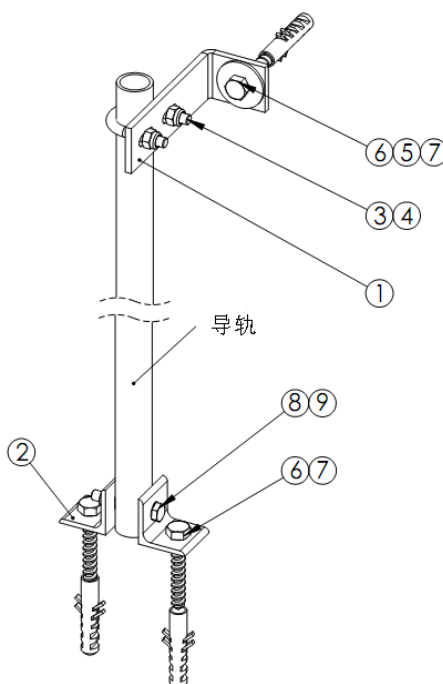


Figure 3-7 Brackets for guiding pipe (top and bottom)

Pos.	Code no.	Description	Quantity	Unit
	87-00-6489	Brackets for guiding pipe 3/4" on concrete cpl.		
1	87-00-6232	Bracket 100x40x30x4	1	pc
2	87-00-6246	Angle iron 30x30x3 below	2	pc
3	87-19-2114	U-bolt M6x20/W23/H38 Delta-MKS	1	pc
4	87-19-0003	Self-locking counter nut M6 Delta-MKS Mechanical-galv.	2	pc
5	87-19-0041	Washer 8.4x30x2 Delta-MKS	1	pc
6	87-19-0456	Hexagon wood screw M8x50 hot-galv.	1	pc
7	87-19-0457	Dowel for screw M8x50	1	pc
8	87-19-1067	Hexagon head screw M6x40 Delta-MKS	1	pc
9	87-19-1306	Hexagon nut M6,Delta-MKS	1	pc

3.7 Angle bracket

Brackets and pulleys should be installed on the wall as hanging points, and under which is the guiding pipe.

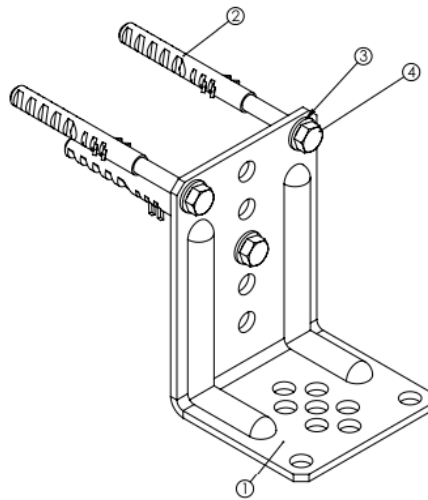


Figure 3-8 Bracket

Pos.	Code no.	Description	Quantity	Unit
	87-00-0858	Angle bracket cpl. for pulley 3 1/2" on brick wall		
1	87-00-0769	Angle for pulley 3 1/2" 89mm	1	pc.
2	87-19-0459	Dowel for screw M8x80	3	pc.
3	87-19-0040	Washer 8.4x16x1.6 Delta-MKS	3	pc.
4	87-19-0458	Hexagon wood screw M8x80 hot-galv.	3	pc.

3.8 Pulleys

Wheels with bearing shall be configured for reducing the noise created during movement of the slide door.

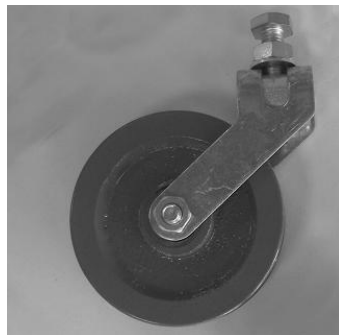


Figure 3-9 Pulley

Code no.	Description	Quantity	Unit
87-19-1951	Pulley 3" 76mm nylon wheel with bearing 45 deg		pc

3.9 Cable clamp

Two cable clamps are required for each hanging point, one for fixing the hanging rope to the main rope, and one for fixing the reinforce post to hanging rope.

Code no.	Description	Quantity	Unit
99-50-0120	Cable clamp 5mm galv. Similar DIN 741		pc

3.10 Wire rope

On most occasions, stainless steel cable of 4 mm in thickness is suitable for hanging and dragging the slide door.

Hanging rope should be longer than the height of the slide door by around 0.5 m.

Code no.	Description	Quantity	Unit
60-40-3106	Wire rope 4mm spec. steel 14301		m

3.11 Sealing brush

Sealing strip shall be applied to the brink of the opening in the wall for better air proof.

Four types of sealing brush are available for different materials of the wall and sizes of the opening.

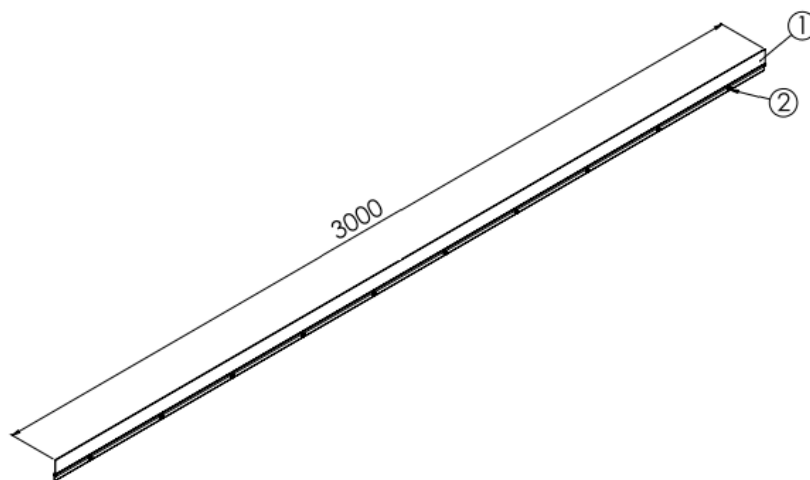


Figure 3-10 Sealing brush

Pos.	Code no.	Description	Quantity	Unit
	87-00-6654	Sealing brush 3000mm fixed on sandwich plate cpl.		
1	87-00-6653	Sealing brush 50mm,3000mm fixed on sandwich plate	1	pc
2	87-19-0450	Hexagon head w/flange self tapping screw 5.5x32 SST w/rubber gasket	10	pc

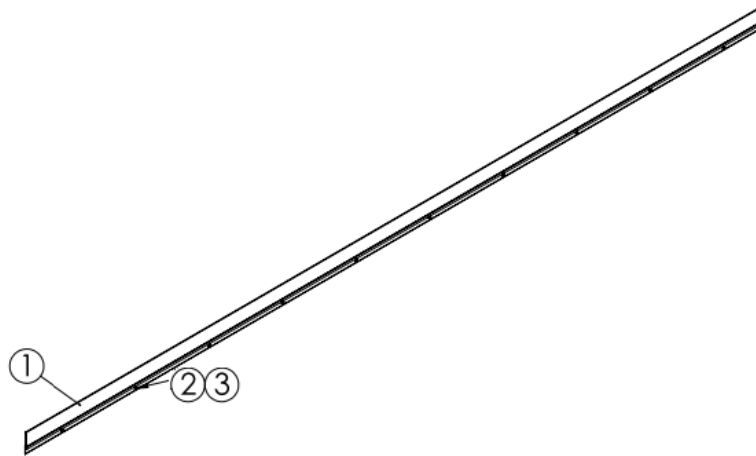


Figure 3-11 Sealing brush

Pos.	Code no.	Description	Quantity	Unit
	87-00-6655	Sealing brush 3000mm fixed on brick wall cpl.		
1	87-00-6659	Sealing brush 50mm,3000mm fixed on brick wall	1	pc
2	87-19-0451	High intensity flat head tapping screws M4x25 SST	10	pc
3	87-19-0732	Dowel S6	10	pc

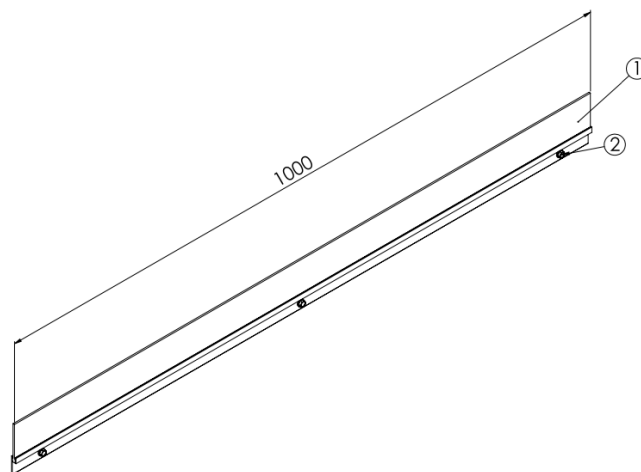


Figure 3-12 Sealing brush

Pos.	Code no.	Description	Quantity	Unit
	87-00-6656	Sealing brush 1000mm fixed on sandwich plate cpl.		
1	87-00-6652	Sealing brush 50mm,1000mm fixed on sandwich plate	1	pc
2	87-19-0450	Hexagon head w/ flange self tapping screw 5.5x32 SST w/rubber gasket	3	pc

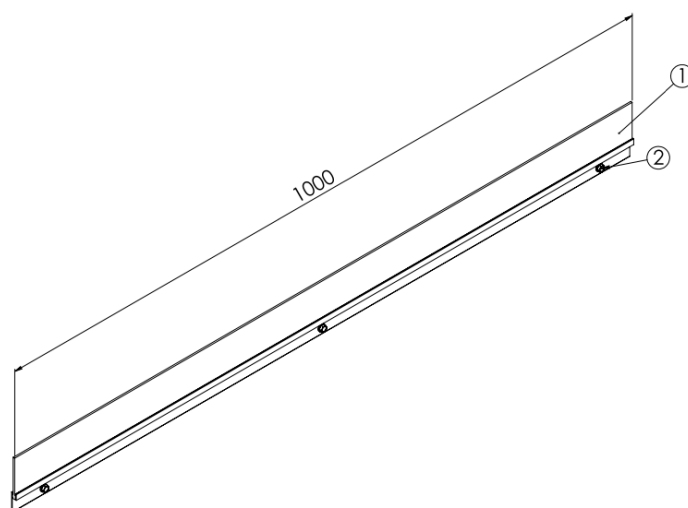


Figure 3-13 Sealing brush

Pos.	Code no.	Description	Quantity	Unit
	87-00-6657	Sealing brush 1000mm fixed on brick wall cpl.		
1	87-00-6658	Sealing brush 50mm,1000mm fixed on brick wall	1	pc
2	87-19-0451	High intensity flat head tapping screws M4x25 SST	10	pc
3	87-19-0732	Dowel S6	10	pc

Example:

Barn of sandwich plate, opening of 5mX1m.

Configuration options:

Option 1:

87-00-6654, 4 pc.

2 pc of the 4 sealing brushes shall be cut into 4 sections of 2m and 1m in length.

$3m + (3-1)m = 5m$, for the longer side of the opening, and the 1m sealing brush is for the shorter side the opening.

Option 2:

87-00-6654, 2 pc, and 87-00-6656, 6 pc.