



Installation instructions

Shutter plate, operated by linear actuator
Elevators E-series

408012 (en) 10-2021



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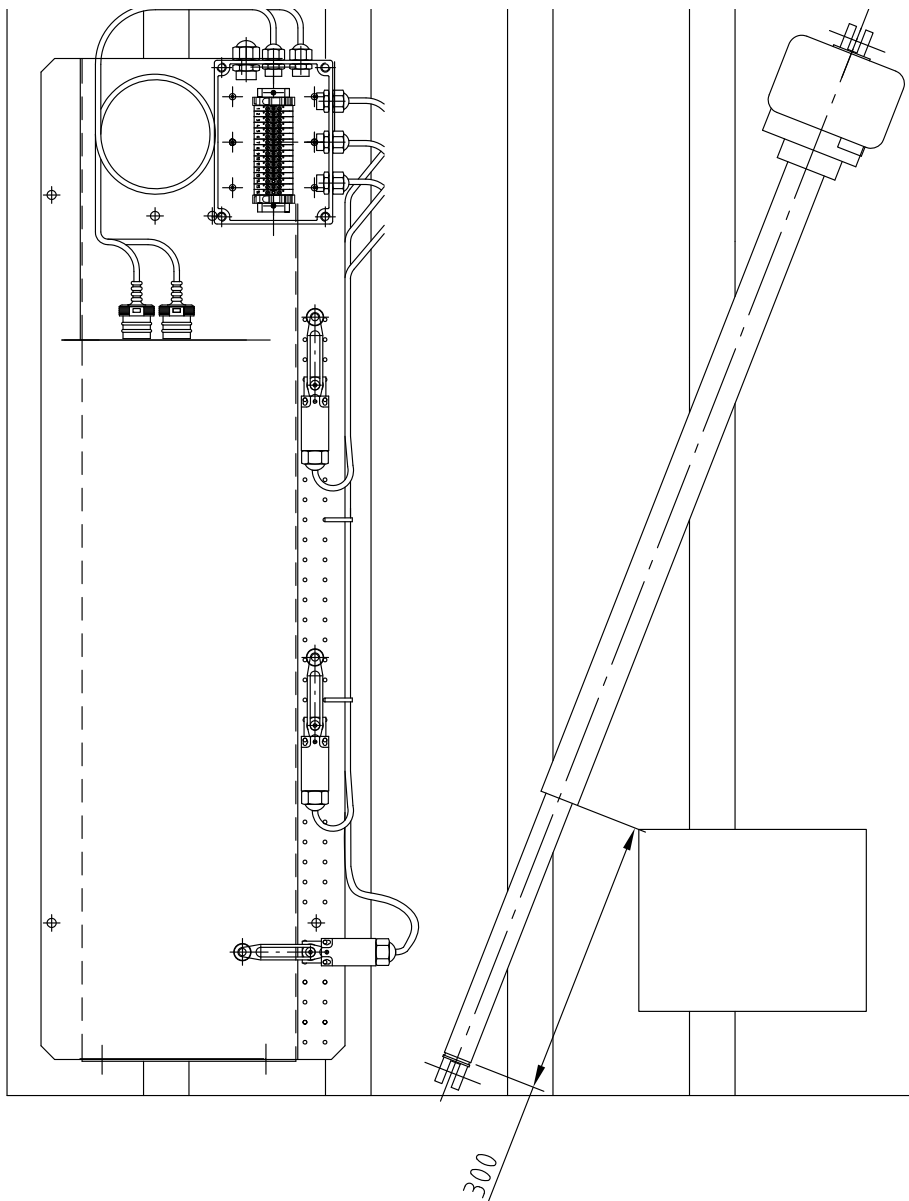


SHUTTER PLATE, OPERATED BY LINEAR ACTUATOR

The shutter plate package includes the required fittings for installation in the E-elevators.

The electric connections shall be made in accordance with the documentation, included in the delivery.

Content of package (32828)





Contents of the package

All part numbers in the installation instructions follow the numbering shown in Table 1.

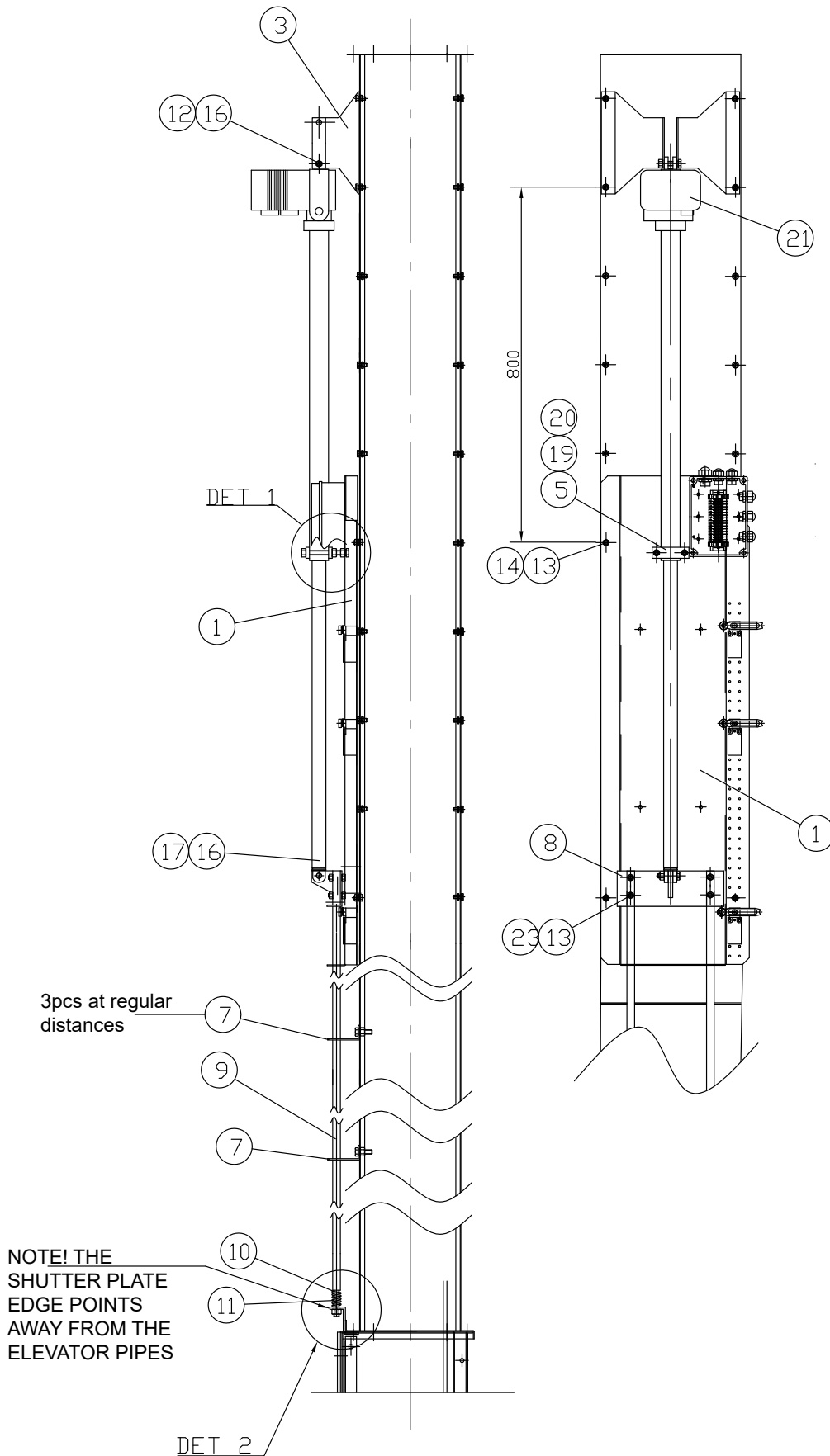
Table 1. *Parts included in the package.*

Number	ATK-code	Part	Amount
1	22456	Frame plate	1
2			
3	32822	Draw support	2
4			
5	42122	Support against buckling	2
6			
7	41966	Guide	3
8	31642	Intermediate rod bracket	1
9	503513	Shutter plate rod	2
10	111565	Shutter plate rod M14	2
11	120545	Compression spring	2
12	110810	Nut Nyloc M12	1
13	101849	Hexagon screw M8x30	19
14	111501	Nut M8	19
15			
16	102570	Hexagon screw M12x50	2
17	110570	Nut M12	1
18			
19	102240	Hexagon screw M10x100	2
20	110560	Nut M10	6
21	300368	Linear actuator	1
22	119020	Conductor strap 3,6X203	4
23	111511	Washer M8	4
24			
25			
26			
27			
28	107700	SELF-TAPPING SCEW 4 2X13	10
29	408012	Manual	1



Installation in the E-series elevator

Fig. 1. Installation in elevator E

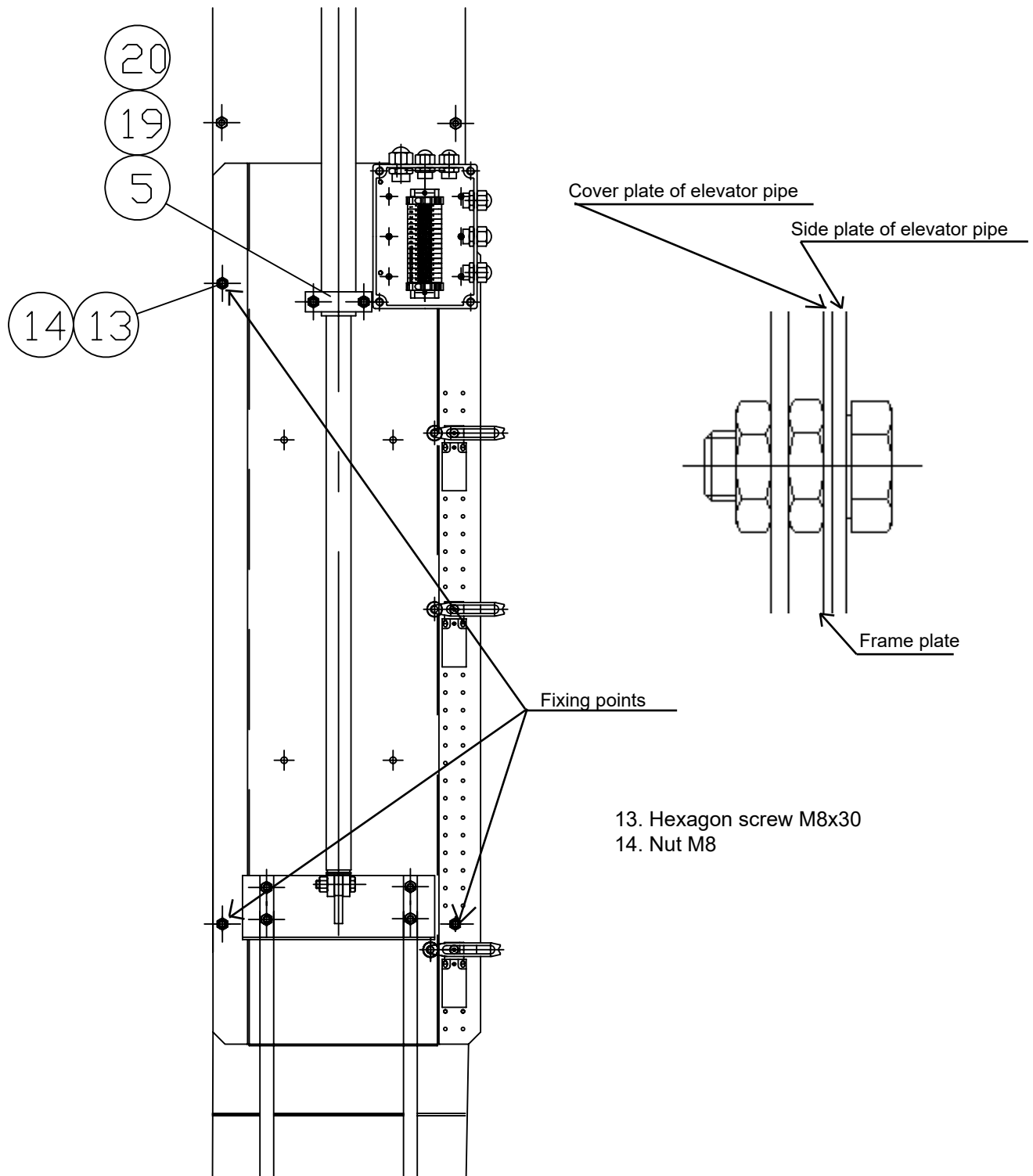




Attachment of the frame plate (E-model)

In the vertical direction the location for the machinery must be selected so that none of the elevator pipe joints are positioned either at the frame plate (part 1) or at the draw support (part 3). Fix the frame plate at the four points shown in Fig. 2. It pays to put the screws for the support against buckling (part 19) in place before fixing. See "Supporting the linear actuator rod" on the next page.

Fig. 2. Attachment of the frame plate to the elevator pipe.

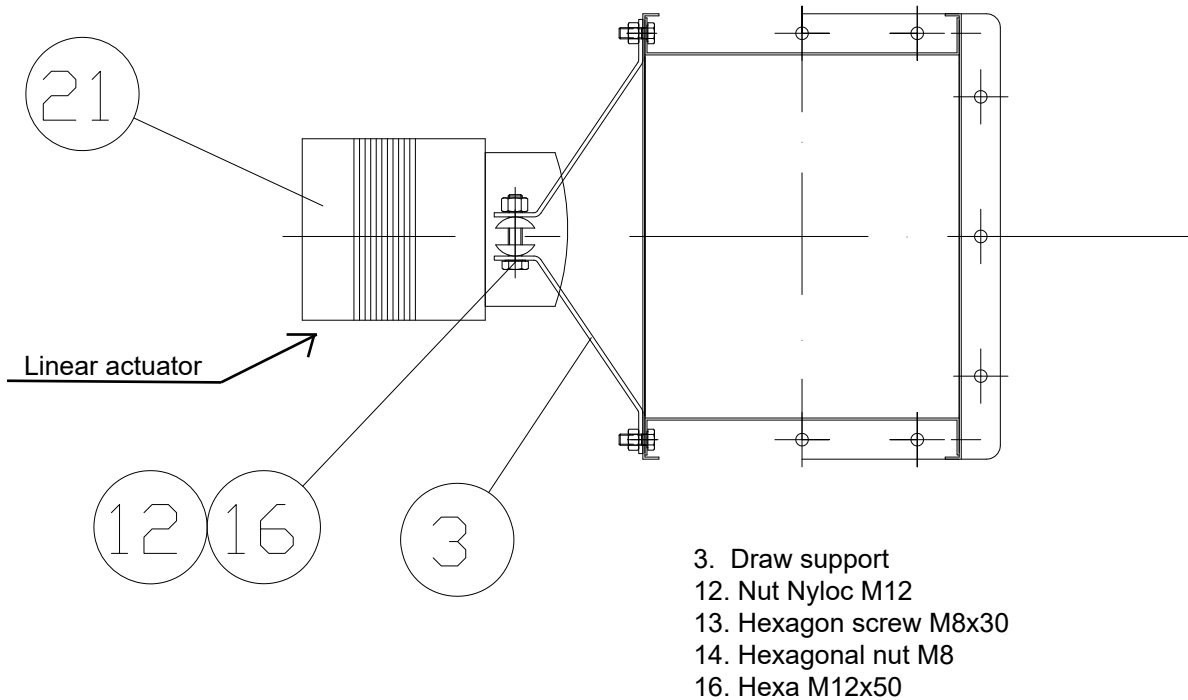




Attachment of the draw support

Choose the attachment point for the draw support so that the distance between its lowermost fixing screws and the uppermost fixing screws of the frame plate is 800 mm (see Fig. 1). If you wish to place the motor in a different position, you can turn the motor bracket 90°.

Fig. 3. Attachment of the draw support viewed from above.



Supporting the linear actuator rod

The linear actuator rod must always be installed parallel to the elevator pipe. **Do not tighten the fixing nuts (Fig. 4, part 20) too much, to avoid bending the linear actuator rod.** While tightening the nuts (parts 20), try the linear actuator rod by hand. It must turn easily.

- 1. Frame plate
- 5. Support against buckling (2pcs.)
- 19. Hexagon screw M10x100 (2pcs.)
- 20. Nut M10 (6pcs.)

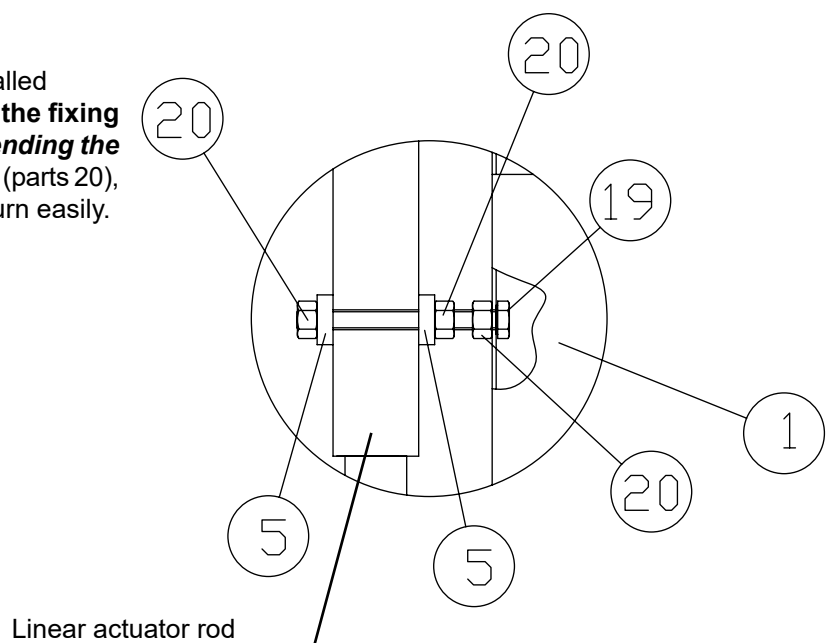


Fig. 4. Supporting the linear actuator rod. (Fig. 1, detail DET1)

Cutting and attachment of shutter plate rods

Attach the lower ends of the shutter plate rods as shown in Fig. 5. Compress the spring to 35mm by tightening the nut.

Install the rod guides (Fig. 7, part 7) at regular distances.

Cut the shutter plate rod to such a length that the intermediate rod bracket (Fig. 8, part 8) falls on the lower limit switch as the shutterplate is closed. Drill 8 mm holes in the rods for attachment. If necessary, place washers under the screws so as to prevent the screw caps from touching the frame plate.

Install the uppermost limit switch in the uppermost attachment holes.

Finally, lift the intermediate rod bracket to a level where it can be fixed to the linear actuator (Fig. 6).

Fig 5. Fixing the lower end of the shutter plate rod (Fig. 1, detail DET 2) Note that the shutter plate edge must point away from the elevator pipes.

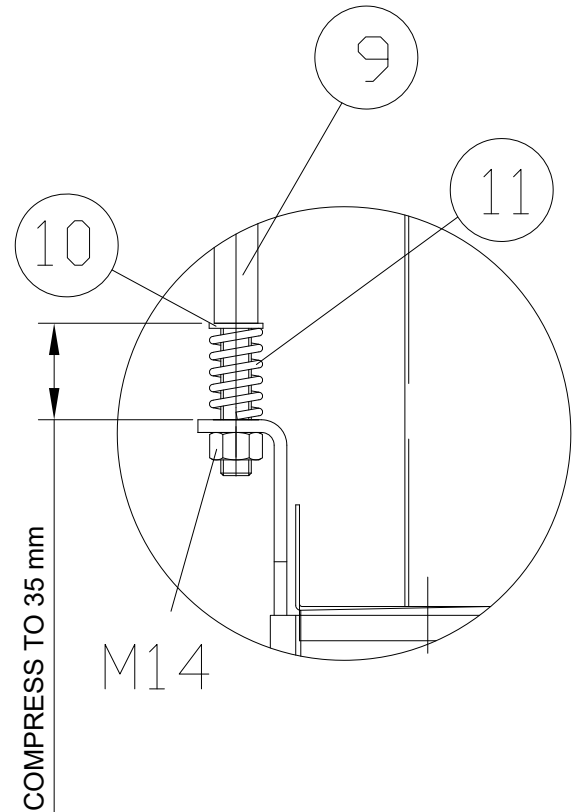


Fig. 6. Attachment to the actuator.

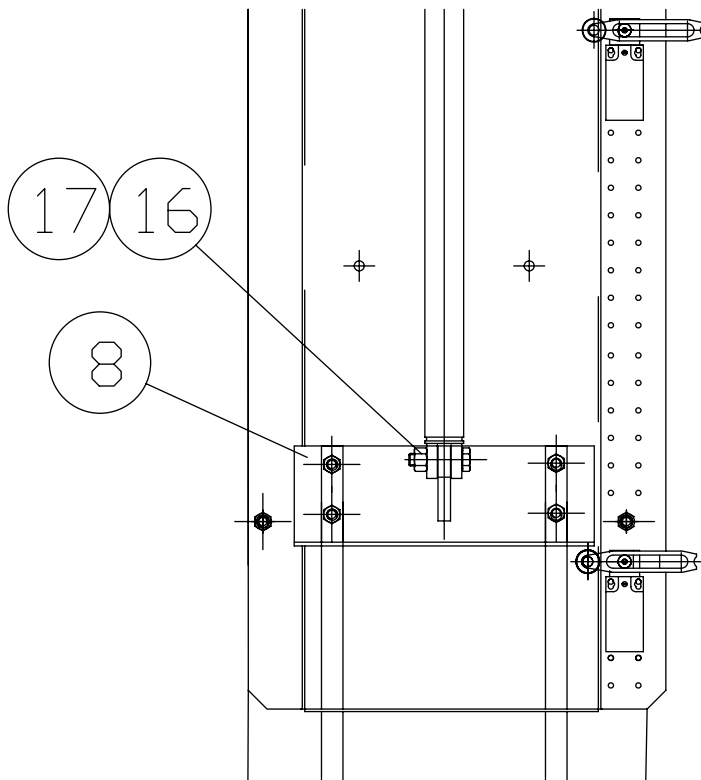
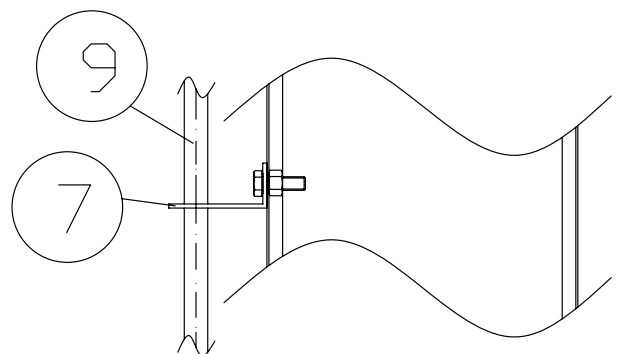
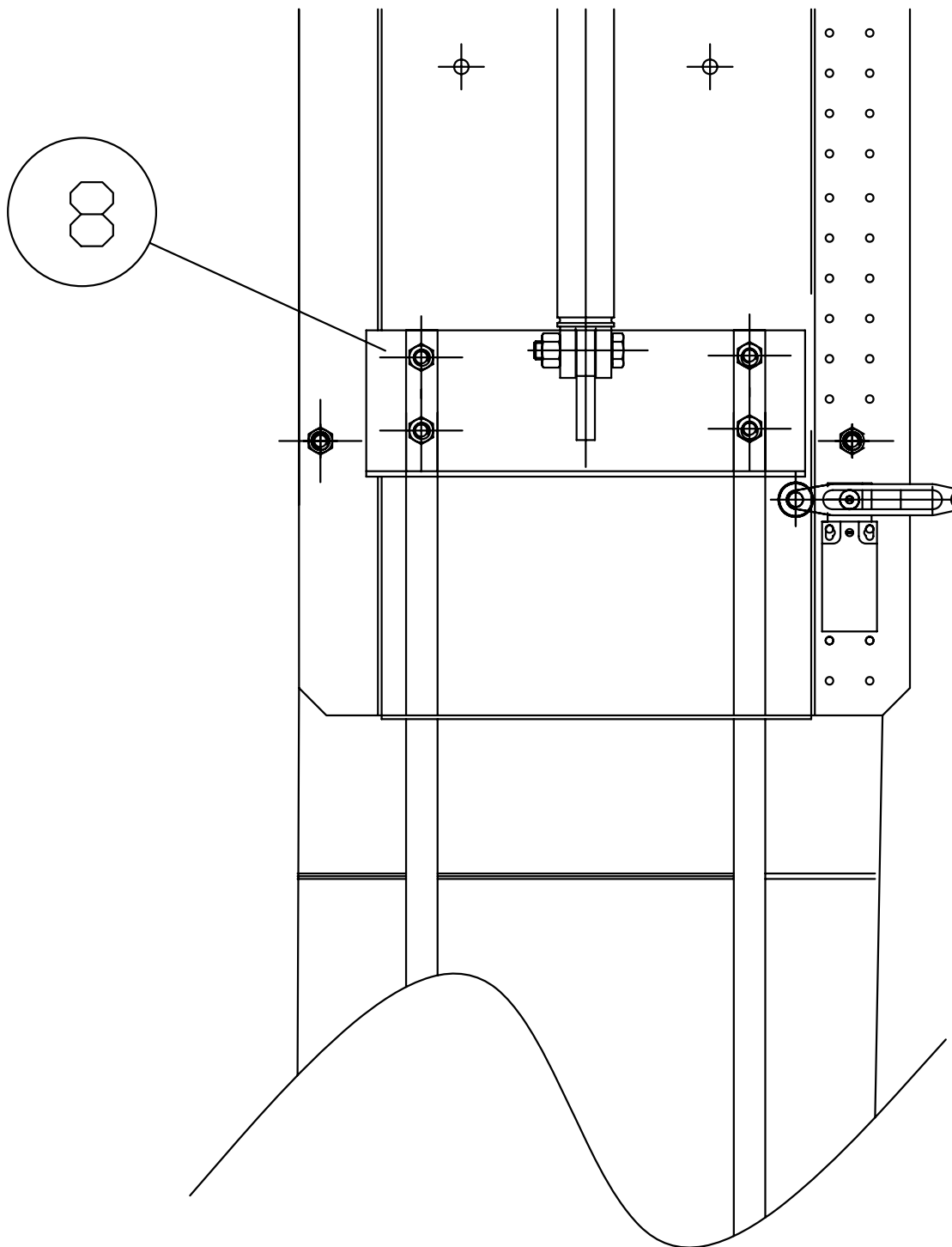


Fig 7. Guides



- 7. Guide
- 8. Intermediate rod bracket
- 9. Shutter plate rod
- 16. Hexagon screw M12x50
- 17. Nut M12

Fig 8. Intermediate rod bracket at the lowest limit switch.



Check that the roller arms of the limit switches are adjusted to the correct length. As the intermediate arm passes the limit switch, the limit switch must click and only the roller of the switch hit the intermediate rod bracket. The lowest limit switch must be correctly positioned in particular in the vertical direction so that in their lowest position the springs will be compressed by a few millimeters, but not completely tight.



Connecting the cables to the linear motor

Connect the cables, coming out of the connecting box, to the linear motor. Ensure that the seal rings in the connectors remain in their grooves as the connector is pressed in place.

After the connection fix the conductors with straps (part 22) to the linear actuator rod.

The electric connections shall be made in accordance with the documentation included in the delivery.

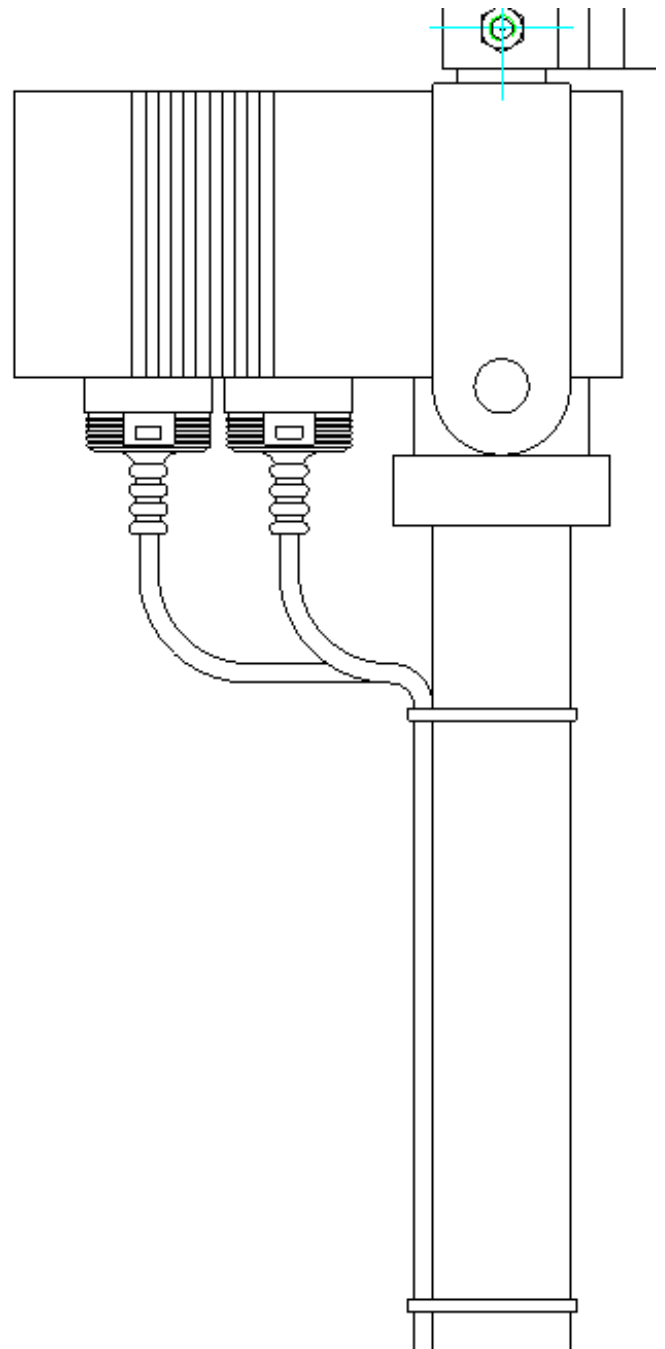
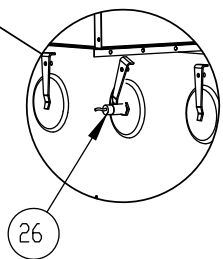
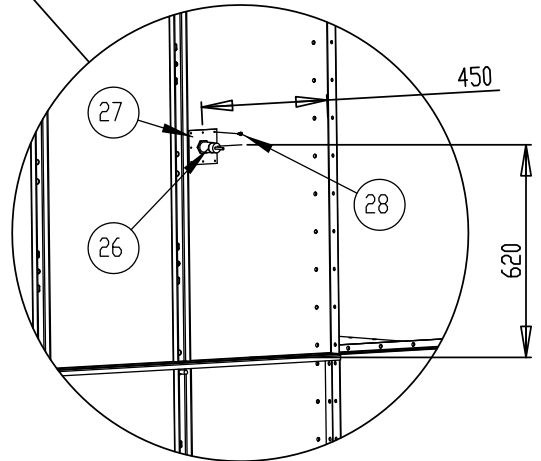
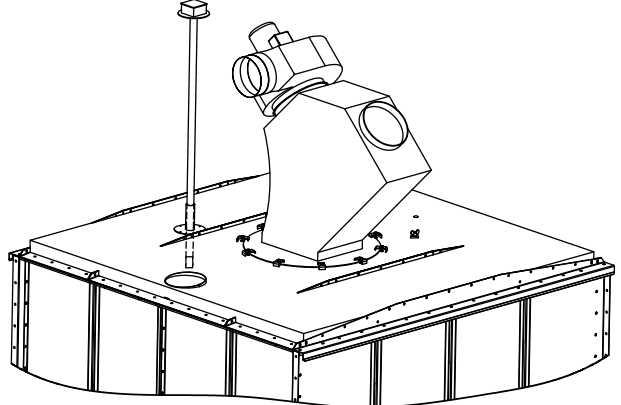
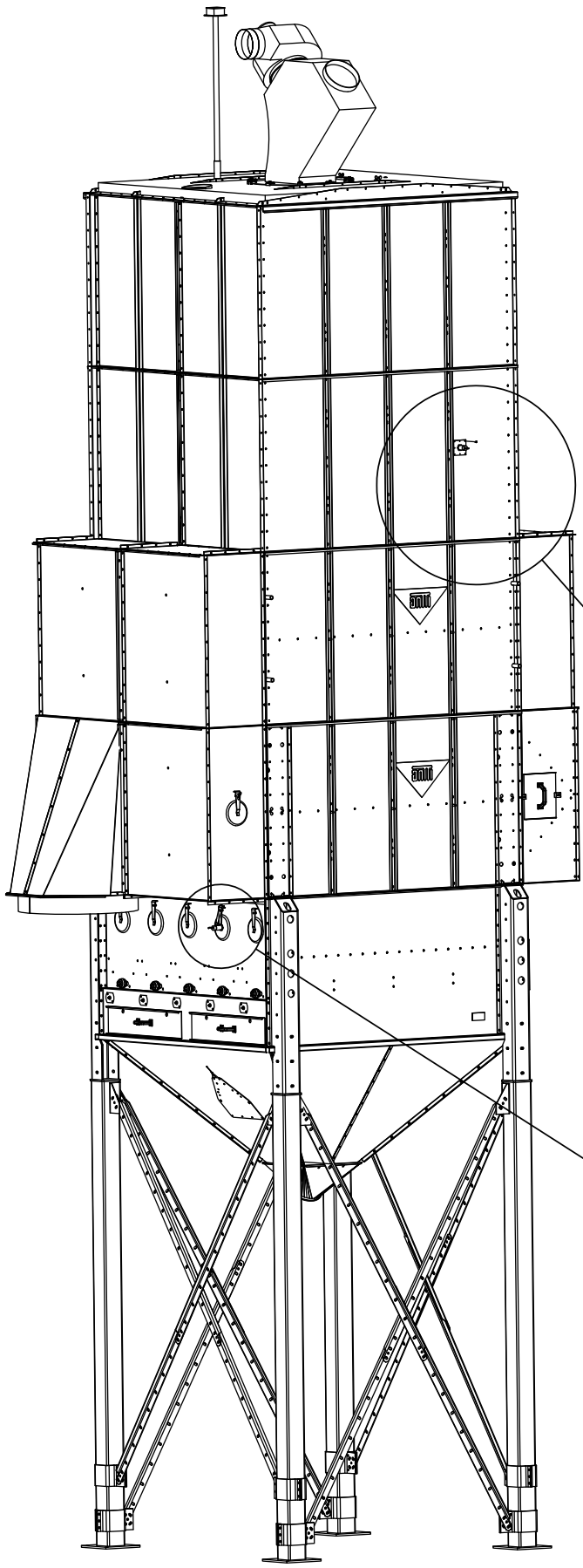


Fig. 9. Cables



LOCATION OF SENSORS EXAMPLE:





The required number of sensors depends on the configuration of the unit and the selected equipment. As necessary, familiarise yourself with the documentation included in the delivery

Capacitive sensor with adjustable upper limit.

Install as close to the precleaner as possible, but not in the grain stream.

Capacitive intermediate limit sensor.

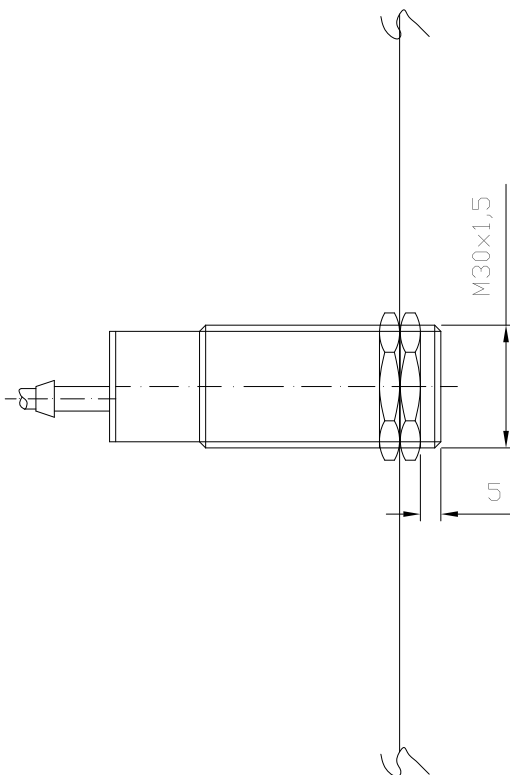
To be installed in the first top section from the bottom. If motorised shutter plates for the air channel (Optivol) are used, the intermediate limit is normally installed level with the lowest Optivol sensor.

Capacitive sensor at the lower limit.

It can be installed in the D170 cleaning hatch or next to it on either side.

Hopper lower limit

The lower limit for the hopper shall be fixed to the upper edge of the front intake part's side plate. Head of sensor comes to hopper side.



Drill $\varnothing 30$ mm holes for the capacitive sensors (at the lower and hopper lower limit). Install the sensors putting the two pcs. of M30 nuts, which were included in the delivery, on both sides of the plate.

Use the sensor bracket (27) for fixing the capacitive sensor as the intermediate limit sensor. Fix the sensor in the sensor bracket so the 2 pcs. of M30 nuts, which are included in the sensor package delivery, come on opposite sides of the plate.

Make a hole in the side plate of the top section in the place, shown in the picture. The hole must be sufficiently large to enable the sensor with its nuts to be inserted in it. The hole must, however, not be too large so that the installation plate will cover it. Use self-tapping screws for fixing the installation plate to the top section plate. The hole does not have to be round.

Installing the sensor so that its tip will project about 5 mm above the attachment nut.



GUARANTEE TERMS

Antti-Teollisuus Oy grants a guarantee on the products the company has manufactured, subject to the following terms:

1. The period of guarantee is one year, which starts on the date of delivery from the factory; however, it must include at least one harvest season.
2. The guarantee covers any defects in material and workmanship observed during the guarantee period.
3. The guarantee period of the heat exchanger for the dryer heater is five years from the date of leaving the factory.
4. The instructions given by the manufacturer and the valid regulations have been followed during assembly, operation and servicing.
5. The electrical installation has been carried out by a properly authorised service company.
6. The manufacturer is not responsible for any possible guarantee or commitment that the distributor may have granted.

Compensation under the guarantee

The guarantee covers repair or replacement of faulty parts, as deemed appropriate by the manufacturer. The guarantee covers neither the consequential losses caused by breakdown of the appliance nor the labour, travel or daily allowances which are incurred as a result of replacing any parts.

The guarantee does not cover the assembly and adjustment of the machinery.

A prerequisite for validity of the product guarantee is that the control system and the components used are approved by Antti-Teollisuus.

Restrictions

Compensation under the guarantee will not be made in the following cases:

1. If the cause of the fault is normal wear, abnormal operating conditions, incorrect installation, inadequate servicing, carelessness or unintended use.
2. The defect has resulted from incorrect voltage or any other disturbance in the electrical supply network.
3. The defect has resulted from a thunderstorm, fire, flooding or any other external factor.
4. The defect has resulted from water or any other contamination in the fuel or from the use of fuel not suitable for the burner.
5. If the user has modified the appliance or attached additional equipment to it without the consent of the manufacturer, or if the pre-set fixed values of the limiting devices have been changed.

Claiming for compensation

1. The manufacturer and distributor must be notified of the defect in writing without delay.
2. The make, type and serial number as well as the date of delivery/putting into operation of the machine must be stated.
3. Upon request, the faulty part or appliance must be delivered to the guarantor without delay. If the part is not returned, the guarantor is entitled to invoice for the replacement part.



EU- Declaration of Conformity

ANTTI-TEOLLISUUS OY
Koskentie 89
FIN25340 KANUNKI, Finland
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declares that

SHUTTER PLATE, OPERATED BY LINEAR ACTUATOR

conforms with the provisions of the following directives:

- **Machine Directive 2006/42/EC**

Kuusjoki 03.01.2020

Kalle Isotalo
Managing Director