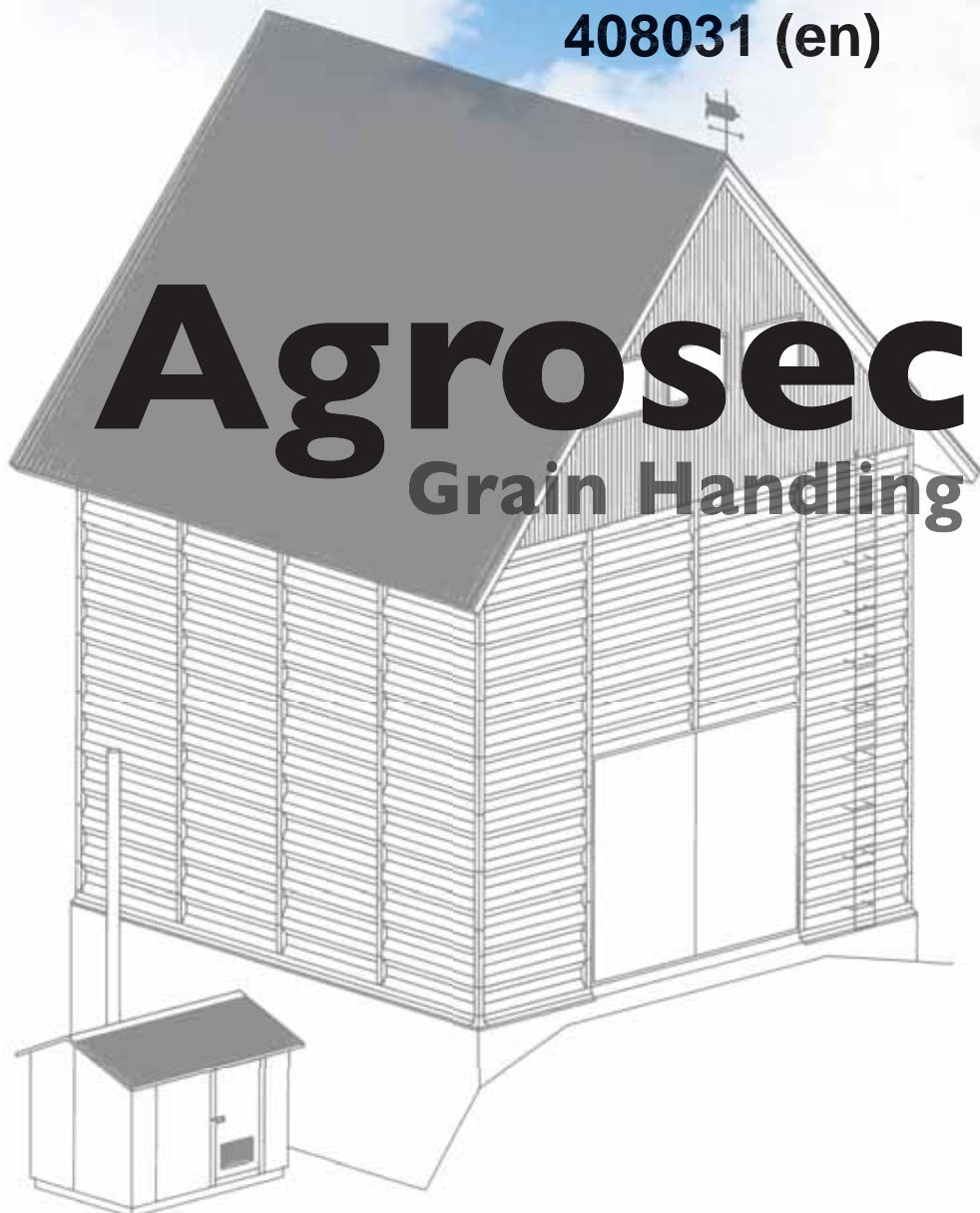




Installation Instructions

ELEMENT STORAGE
WITH DRYERS M05

408031 (en)



ANTTI-TEOLLISUUS OY

Koskentie 89

FIN-25340 Kanunki, Salo

Tel. + 358 2 774 4700

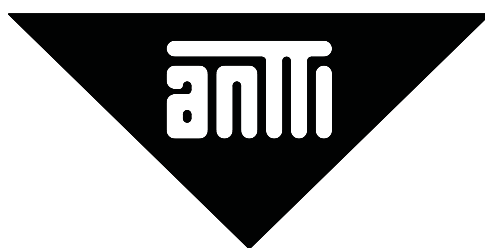
Fax + 358 2 774 4777

E-mail: antti@antti-teollisuus.fi

www.agrosec.com

01-2012

It is recommended that you familiarise yourself with the contents of this booklet before beginning the building and/or installation. Getting acquainted with all the details beforehand speeds up the completion of the work. This means the dryer will be in working order in good time. Use the installation instructions and numbering to identify the parts, along with the delivery note from which you can find the number of required parts and, for example, the type markings on the different pieces of equipment. The machine type, model and date of manufacture are marked on the name plate affixed to many products.



ANTTI-TEOLLISUUS OY

Koskentie 89

FIN-25340 KANUNKI

Tel. +358 2 774 4700

Fax +358 2 774 4777

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1. SELECTING LOCATION FOR THE DRYER BUILDING

The most favourable building site is on rock or on a firm slope. Several good models are also available for flat terrain. Locate the dryer building as a part of the farmstead, taking into account the disturbance which traffic, noise or dust may cause. Make the roads passable for a full trailer throughout the year. If possible, locate the heater room to the front side. When locating the heater room in particular, make sure it is done in such a way that the heater will always be provided with large amounts of clean air. The suction opening of the heater must be located as far as possible from the outlet pipes to the other side of the building. In addition, always consult the building authorities, traffic officials or the fire chief beforehand if there are any areas of uncertainty as regards selecting the location.

The minimum distances required for an ordinary dryer building are 15 m to a neighbour's land, 20 m to a neighbour's building, 15 m to one's own living quarters and 12 m to any outbuilding. (The minimum distance to one's own buildings can be different in different municipalities because of the unestablished interpretation of the new regulations). The distances for dryers in the P2 class can be shorter. Under certain conditions, the element storage with dryer can fall into category P2. Please consult the fire chief or the fire inspector for more detailed instructions.

2. FOUNDATION

GROUND PRESSURE

Apply the following guidelines when choosing the right foundation method for different soil types:

Moraine	0,4 - 0,8	MN/m ²
Gravel	0,2 - 0,6	MN/m ²
Sand	0,15 - 0,5	MN/m ²
Fine sand	0,1 - 0,4	MN/m ²

Clay and silt:

- soft (easy to work)	0.025MN/m ²
- tough (difficult to work)	0.050MN/m ²
- solid (extremely difficult to work)	0.1 MN/m ²

If you find it difficult to assess the load-bearing properties of the soil, consult a specialist and order a ground survey. Often it is a good idea to establish the shape of the rock formation by means of a ground survey or digging test. The element storage with dryer usually exerts a ground pressure of 0.5 - 2.0 kg/cm² when a one-piece base plate is used.

FOUNDING DEPTH AND PREVENTION OF FROST

On frost-susceptible ground, extend the foundations to a frost-free depth (to 160 cm on the south coast, to 170 cm south of the Pori – Tampere – Lahti line and to 180 cm in the rest of the country), or prevent the soil from freezing.

We recommend preventing freezing by insulation. Use sufficient amounts of sand and extruded foamed plastic or R-polystyrene. Foamed plastic can also be used under the foundation base. If the ground is not frost-susceptible the founding depth of 0,3-0,6 m is sufficient. Dimension the foundation pit large enough.

DRAINAGE

Always provide the foundation with drainage. Use pipes at least 80 mm in diameter and provide them with a fall of at least 1%. Tree roots may enter the pipes. Protect the pipes with, for example, roofing felt (with the chippings against the pipes). Provide a sufficient number of inspection wells. If you are laying the foundation on rock, make sure that no such pits remain under the building where water can freeze. (Fill the pits with thin mortar).

LAYING THE FOUNDATION

Measure all the dimensions and locations of steel pillar bonds, etc., on the individual main drawings for each farm. The size of the base, thickness of the base plate and the reinforcement of the concrete are established on the reinforcement drawings.

The thickness of the concrete coating covering the reinforcement must be at least twice the diameter of the steel and 3.5 times the diameter of the beams.

The foundation walls can be built in several ways. The most common way is to use concrete blocks and larger sections or to cast in mould at the site. Consult the manufacturer of the concrete blocks and sections for installation and reinforcement instructions.

Usually the concrete boarding and reinforcement should be left to a professional. Pay particular attention to the accuracy of the foundation dimensions.

Provide the mould boardings or the block walls with the necessary holes, such as, for example, the intake spout of the elevator, cavities for the support beams of the grating, lead-throughs for electric wiring and piping in the heater room plate, as well as the pipes for drying air and the bottom suction fan, and possibly also the flow pipe into the hopper and the service opening under the intake hopper.

If there are horizontal support beams in the dryer, do not forget to make cavities for the I-beams in the foundation wall.

See the main drawings for the correct location and installation measures for the elevator.

If a hole is required in the foundation wall for the elevator (A- and E-models), refer to the Installation and Operating Instructions for dimensions and instructions.

CONCRETING

Use ready-mixed concrete according to the quality class marked on the drawings or, if you mix the concrete yourself (for example K-20); mix 1 part by volume of cement, 2.5 parts of gravel and 2.5 parts of fine macadam.

Soak the moulds thoroughly before concreting. Avoid interruptions. Pour the mortar into the mould within an hour of mixing. Consolidate it using a compactor without damaging the reinforcement. Insert the bond plates, the bond frame for the heater room and possibly also the attachment parts for the hopper as well as the intake spout, in the cast. Check the height position of the bond plates carefully. Verify on the main drawing that all the marked holes and lead-throughs are present in the foundation. Take care after the casting that the concrete does not dry out too quickly. Water the moulds for a week and dismantle them after that. Insulate the walls against moisture with bitumen or building plastic and fill the pit carefully, so that the foundation wall is covered by at least a 30-cm layer of gravel. As necessary, attach the silo bottoms to the bond plates or support the walls temporarily by some other means before the filling.

The bottom slopes of the intake hopper can be made of concrete, steel or film plywood using a wooden frame.

3. INSTALLATION OF THE ELEMENT SILO BLOCK

Use cranes intended for building works to lift the parts and prevent the falling or slipping from the scaffolding.

For safety reasons install the hopper grating first. (Fig. 13, if measured from the other end, the dimensions are the same).

Pillars, beams and silo bottoms

Control the level of the bond plates of the foundation wall and raise the plates that lie lower down to level with the uppermost plate using steel plates. Lift the steel pillars onto their respective bond plates on the floor. Level their upper ends with the bond plates on the foundation wall. Support the pillars temporarily by (for example) welding support bars to their upper ends between the (to be installed later) silo bottoms.

Install every pillar in exactly the place marked on the drawing and attach it by welding to the bond plate on the floor. The most common pillar size under the support beam of the drive-through dryers is 180 x 180 mm and in other models the pillar size is 150 x 150 mm. Check the vertical position of the pillars. Lift the beams, if any are to be installed, onto the bond plates and steel pillars. Attach the I-beams by welding and lift the silo bottoms into place. Make sure that the silo bottoms cannot move or fall down during installation (Fig. 11). The maximum width of the I-beam is 300 mm; beams wider than this do not fit between the silo bottoms.

Install the other beams and silo bottoms accordingly. The distance between the silo bottoms is about 100 mm. If the delivery contains DN250 shutters, these shutters are placed in the bottoms of the drive-under silos and silos located above the intake hopper. The recommended width of the drive-under space is either 2 x 2 m elements or 2 x 2.5 m elements, i.e. 4 or 5 metres. If 3 m-wide elements are used, the span of the beam grows so long that the price and availability may cause a problem.

Silo bottoms M05

The M05 Pak silos are available in 3 sizes - 2, 2.5 and 3 metres. The bottom cones of the silos are delivered to the client as parts. Join the parts using the bolts which are included in the delivery. There are ten different models of bottom cones with screw assembly available. Every size class also includes a bottom cone with ventilation air channel and an asymmetrical 2.5 m x 3 m model. (see Fig. 1). The asymmetrical 2 m x 2.5 m model is assembled by welding and painted grey. See the table for the item numbers and volumes of different models.

Silo volumes			
item no.	denomination	volume m ³	weight
10020	silobottom 2x2m	1,4	206kg
10023	with ventilation beam	1,3	245kg
10021	silobottom 2,5x2,5m	2,6	307kg
10024	with ventilation beam	2,5	346kg
10022	silobottom 3x3m	4,5	567kg
10025	with ventilation beam	4,4	606kg
10026	silobottom 2,5x3m	4,0	403kg
10027	with ventilation beam	3,9	442kg
A70531	silobottom 2x2,5m welded		225kg
A70488	silobottom 2x2,5m welded with ventilation beam		264kg
volume of one element layer			
	2x2m	3,8	
	2,5x2,5m	5,8	
	3x3m	8,3	
	2,5x2m	4,7	
	3x2,5m	7	

Fig. 1

The presence of a ventilation air channel reduces the volume of the cone by 0.1 m³.

Assemble the cones on an even surface - two people are required for the job. Start the assembly by placing the surface, which comes against the elements, against the ground. Join the plates of this cone using normal M8 bolts and nuts. (Refer to the more detailed specification below.) As soon as the cone plates have been joined, turn the cone around and continue by attaching the frame collar. Take the cross-measure at this stage. The cross-measure may not differ by more than ± 1 mm. If the difference is more than this, unscrew the bolts once more, realign the holes and retighten the bolts. If the bot-

toms are not exactly rectangular, problems will emerge at a later stage.

Attach the collar strip to the cone using the ball-headed hexagon socket screws. The ball-head shall always come to the grain space side. At the corners the frame lists shall be joined together using D8x19 self-tapping screws. At these points the diameter of the rearmost hole is always $\varnothing 6,5$ mm (see Fig. 2). Spray some cutting oil in the $\varnothing 6,5$ mm holes before placing the self-tapping screws in the corners. **If no oil is applied, the screw may break while wrenched tight.**

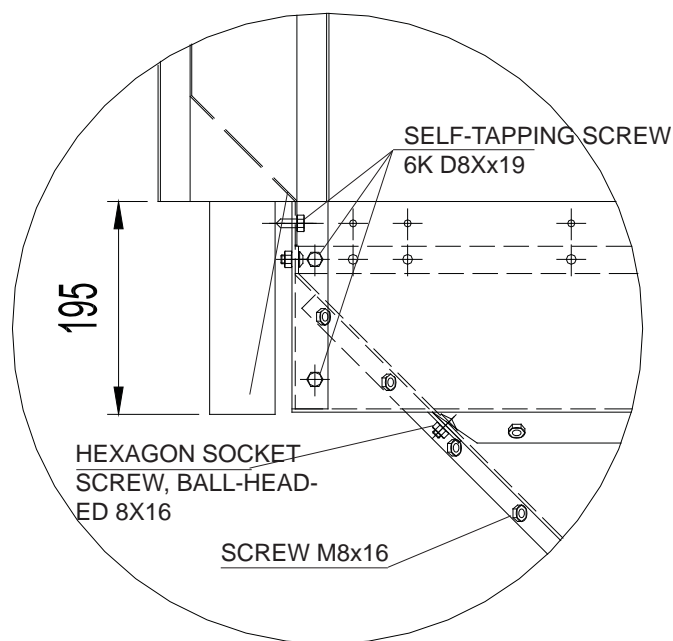


Fig. 2: Element and silo bottom joint

Pay particular attention to the tightening torques of the screws (**must be 25 Nm for M8 screws**). The bottom cones are designed so that the 2 x 2 m cone always constitutes the base cone and the larger sizes are built on that cone. Because of the above-mentioned reason, e.g. in the 2.5 m x 2.5 m model, some screw holes remain unused in the side plate of the cone. Then plug the empty holes with ball-headed hexagon socket screws. Cones with ventilation air channels are recommended for silos where fresh grain is stored before drying. As air is blown in through the opening at the emptying stage, the grain will certainly start to flow down. The diameter of the inlet pipe of the ventilated silo is D315 and customary ventilation piping parts can be used for the installation. The ventilated cones are always equipped with a manhole hatch to enable access to the silo for cleaning purposes. The order number of the side plate half with manhole hatch is 22589 - if desired, plate no. 22566 in the silo bottom can be replaced with this plate.

10023 silo bottom M05 2,0x2,0m / 400x400 vent.***

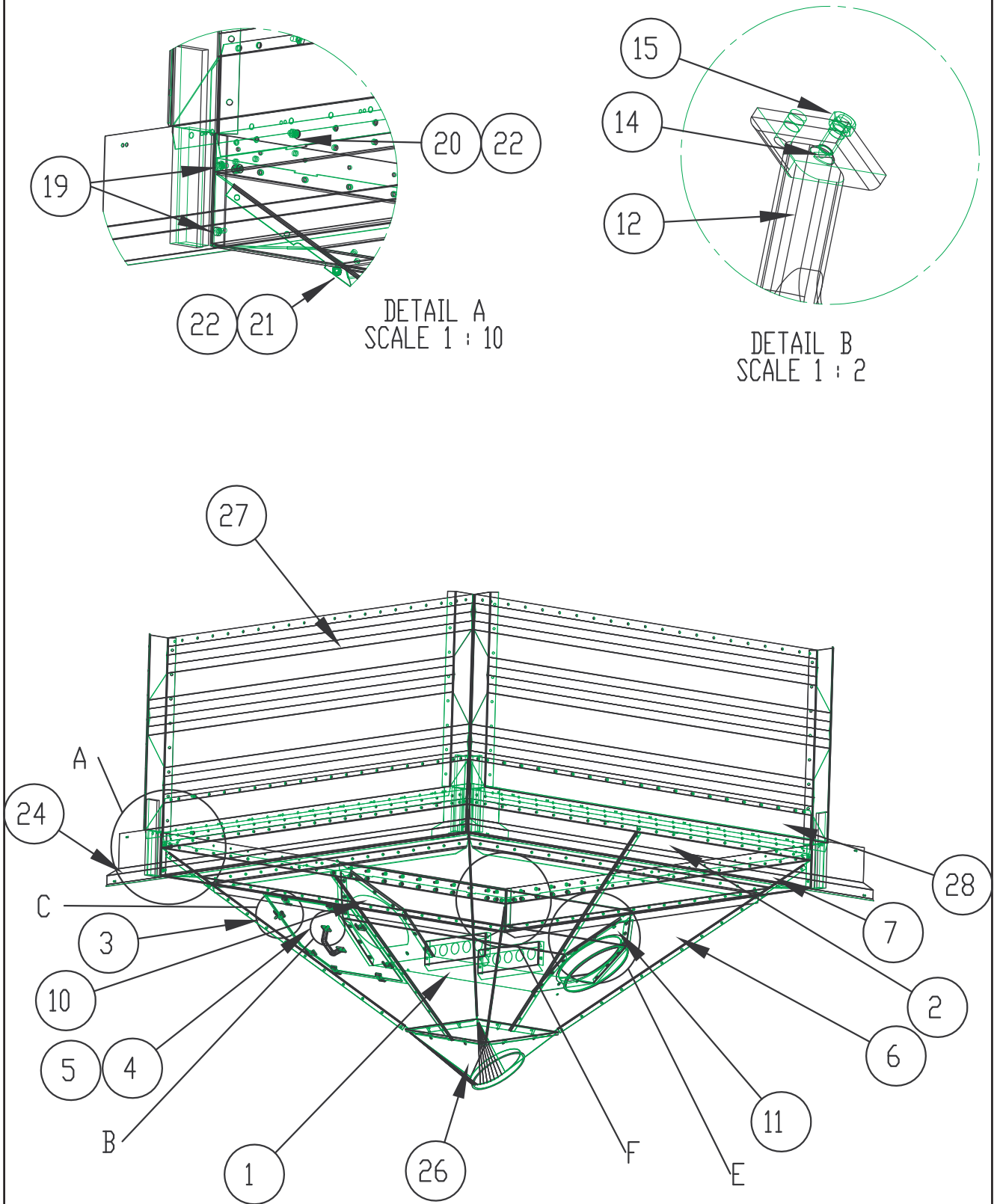
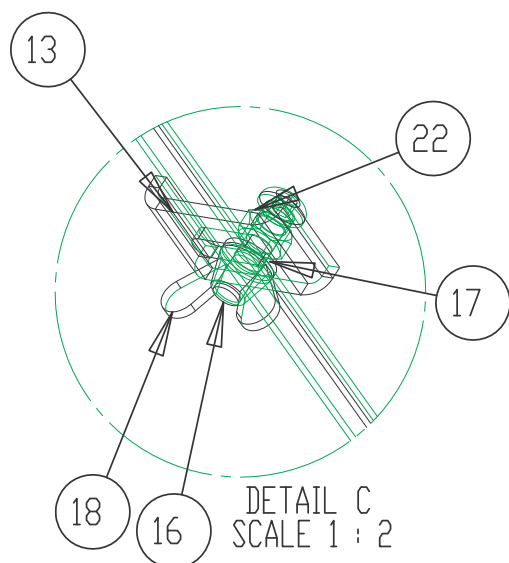
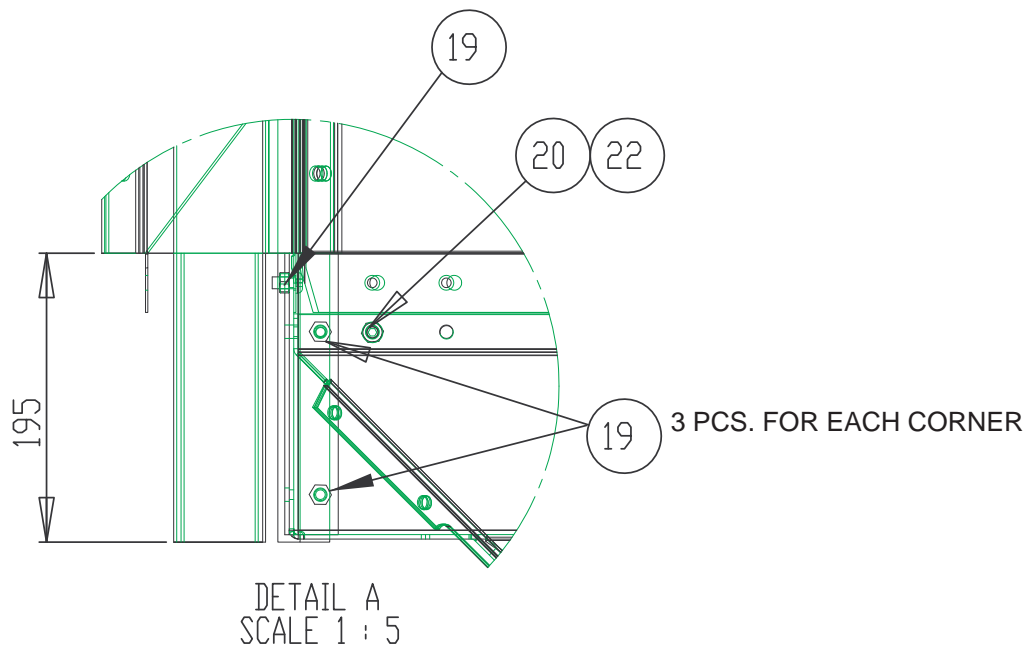


Fig. 3

10023 M05 2,0x2,0m / 400x400 vent.***



Use cutting oil for attachment of
Parts 19 in the corners.

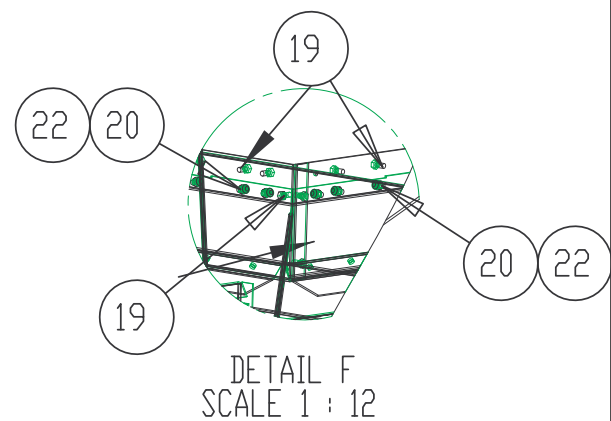
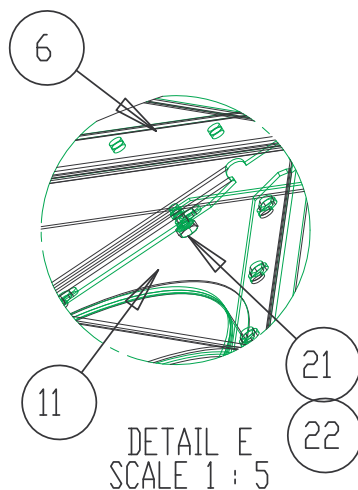
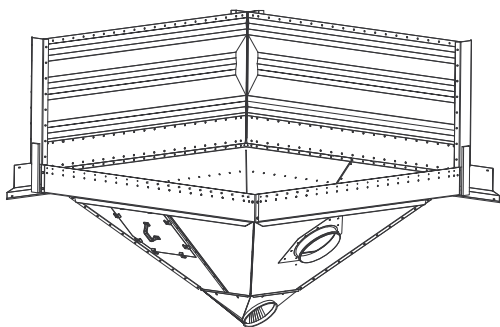


Fig. 4

10023 SILO BOTTOM M05 2,0x2,0m / 400x400 VENT.***



	Part	Item	Item	Drawing No.	Dimensions	Pcs	Weight
	1	22567	SILO B 2012X2012M05 SIDE PLATE 1/2 O 2M	22567	1010x1156	2	17,41
	2	22566	SILO B 2012X2012M05 SIDE PLATE 1/2 L 2M	22566	1010x1156	1	17,4
	3	22590	SILO B 2012X2012M05 SIDE PLATE 1/2 V MANH.H.	22590	1010x1156	1	11,71
	4	22591	SILO B 2012X2012M05 SIDE PLATE. MANH.H. COVER	22591	494x494	1	5,54
	5	22592	SILO B 2012X2012M05 SIDE PLATE. MANH.H. REAR PL.	22592	530x530	1	4,25
	6	22564	SILO B 2012X2012M05 SIDE PLATE 1/1 D315 2M	22564	2000x1156	2	32,52
	7	22568	SILO B 2012X2012M05 COLLAR STRIP 2M	22568		4	17,68
	8	32469	SILO B 2012X2012/400 VENT RIDGE BEAM D315	32469	1711x936	1	31,26
	9	33176	SILO B RIDGE SUPP VENT	33176	452x166	2	0,97
	10	33175	SILO B COVER PL BLIND VENT	33175	426x476	1	2,66
	11	33174	SILO B COVER PL D315 VENT	33174		1	2,16
	12	119034	HANDLE PLAST. LIGHT-GREY PISLA 805 10100550	119034		1	0,59
	13	400280	TOP SECTION COVER HOLDER	4668	55x30	8	0,05
Screw package WURTH 9994 200 029	14	103691	SCREW COUNTER-SUNK SLOT ZN 5X12XAM			4	0
	15	110520	NUT ZN 8 M 5 DIN934			4	0
	16	104264	SCREW HEX SOCKET BALL-HEAD 8X30AM 10.9Z ISO7380			50	
	17	111540	WASHER ZN M8 DIN 125			8	
	18	111020	NUT WING ZN M 8 DIN315			8	0,01
	19	107749	SCREW SELF-TAP 6K D 8,0X19 ZN			110	0
	20	104261	SCREW HEX SOCKET BALL-HEAD 8X16AM ISO 7380			160	
	21	101810	SCREW 6K ZN 8.8 8X16 AM DIN933			60	
	22	110540	NUT ZN 8 M 8 DIN 934			270	0
	23	800271	MASTIC SEAL/GLUE BLACK310 ML	800271		1	0,17
Other parts presented in the draw- ing	24	22603	ELEM DRIP MOULDING M05 281-2300	22603		2	5,07
	25	22604	ELEM DRIP MOULDING M05 ANGLE	22604		1	870,33
	26	32170	BASE PLASTIC PART BEVEL 470X470 D250			1	5,32
	27	22578	ELEM. 1,5/4 2,5M M05 EXTENSION	22559		2	40,66
	28	507082	ELEM INTERM. STRIP M91 190X1994	31817	2028x190	2	4,47

10023 Silo bottom M05 2,0m x 2,0m / 400x400x vent.***

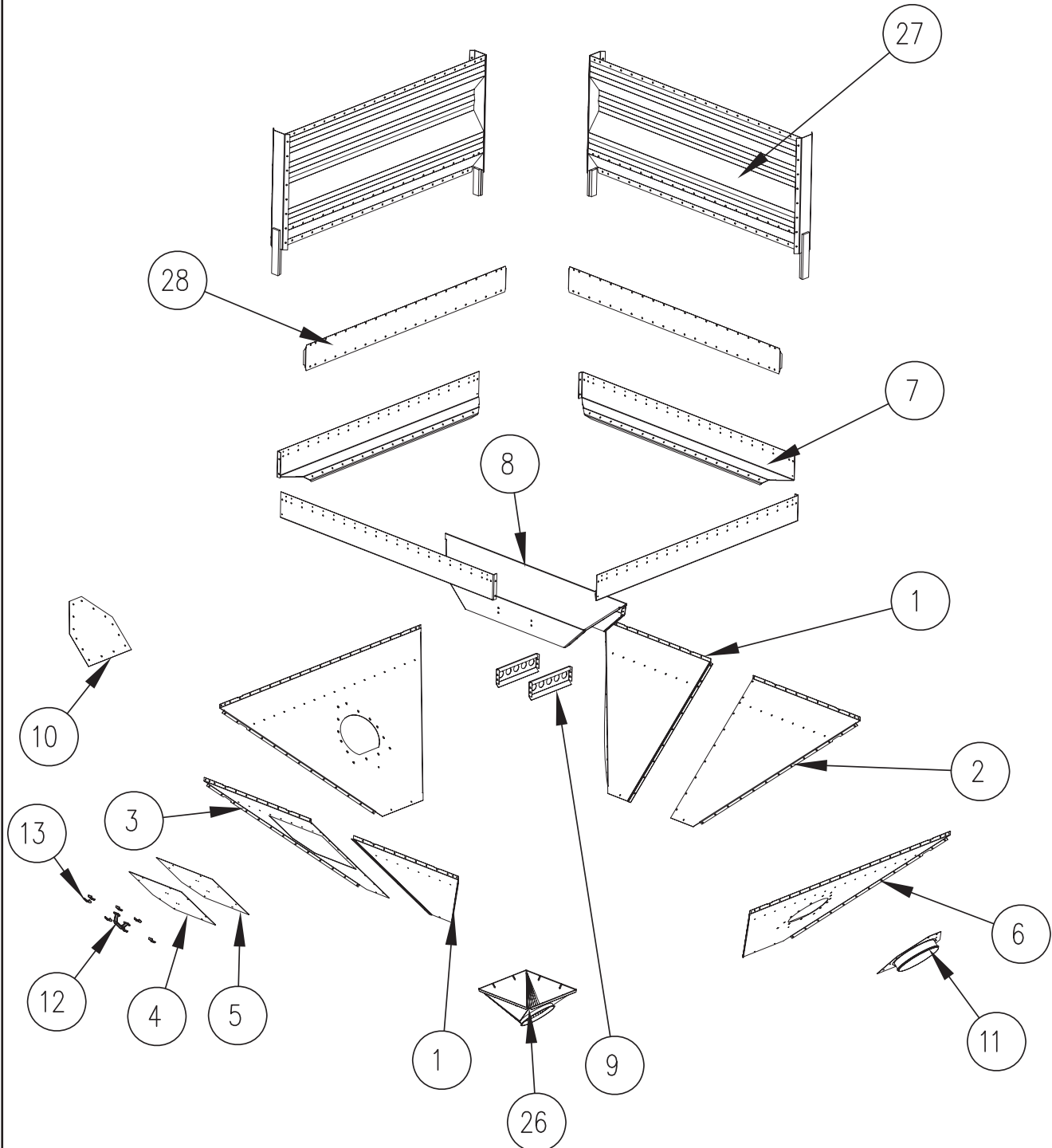


Fig. 5

10023 Silo bottom M05 2,0x2,0m / 400x400 vent.***

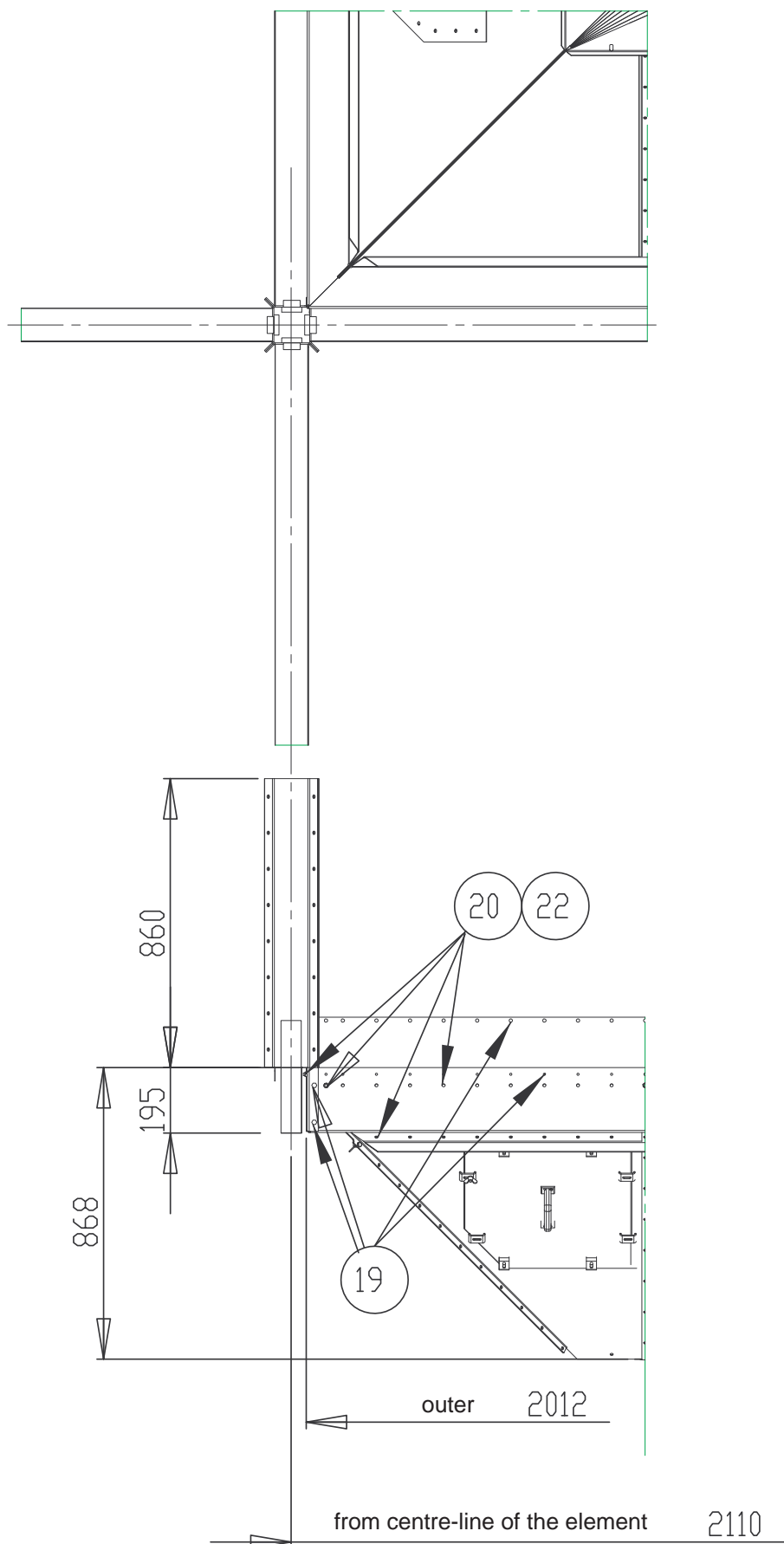
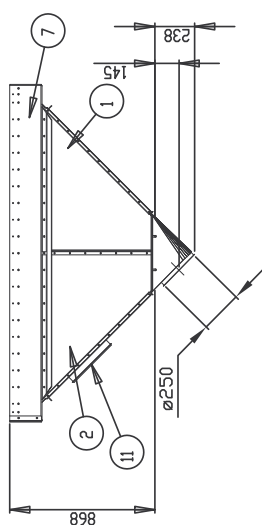
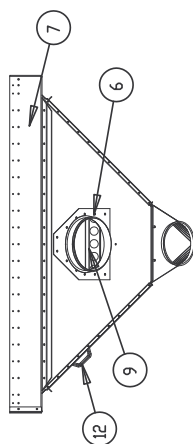
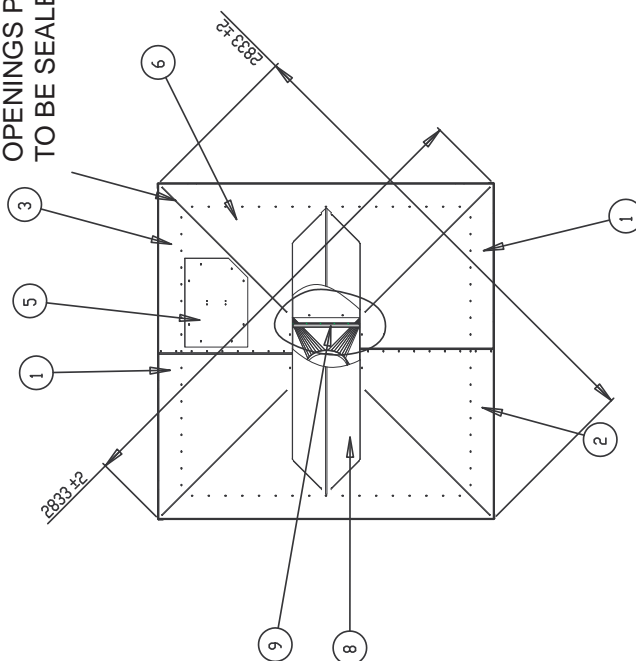
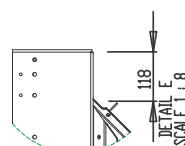


Fig. 6

10023 Silo bottom M05 2,0x2,0m / 400x400 vent.*** assy.



OPENINGS POSSIBLY REMAINING IN THE CORNERS
TO BE SEALED USING GLUE AND SEALING MASTIC (PART 18)



Nimike		SILONP M05 2,0x2,0m	
Puhdas ja kuivamattom ISO 2768-m litteus SFS-EN 25817- c. Pinnet		/400x400 TUPO ***	
Part. 9.3.2006		KOKONPANO	
Tav.		Värimäärä	
Hv.		Määrä	
348,85 kg		Määrä	
3300		Määrä	
ANTTI-TEOLLISUUS OY		10023	
25340 Kanoni		0	
Puh. 02-7744 700			
Fak. 02-7744 777			
http://www.anti-teollisuus.fi			

Fig. 7

10024 Silo bottom M05 2,5x2,5m / 400x400 vent.***

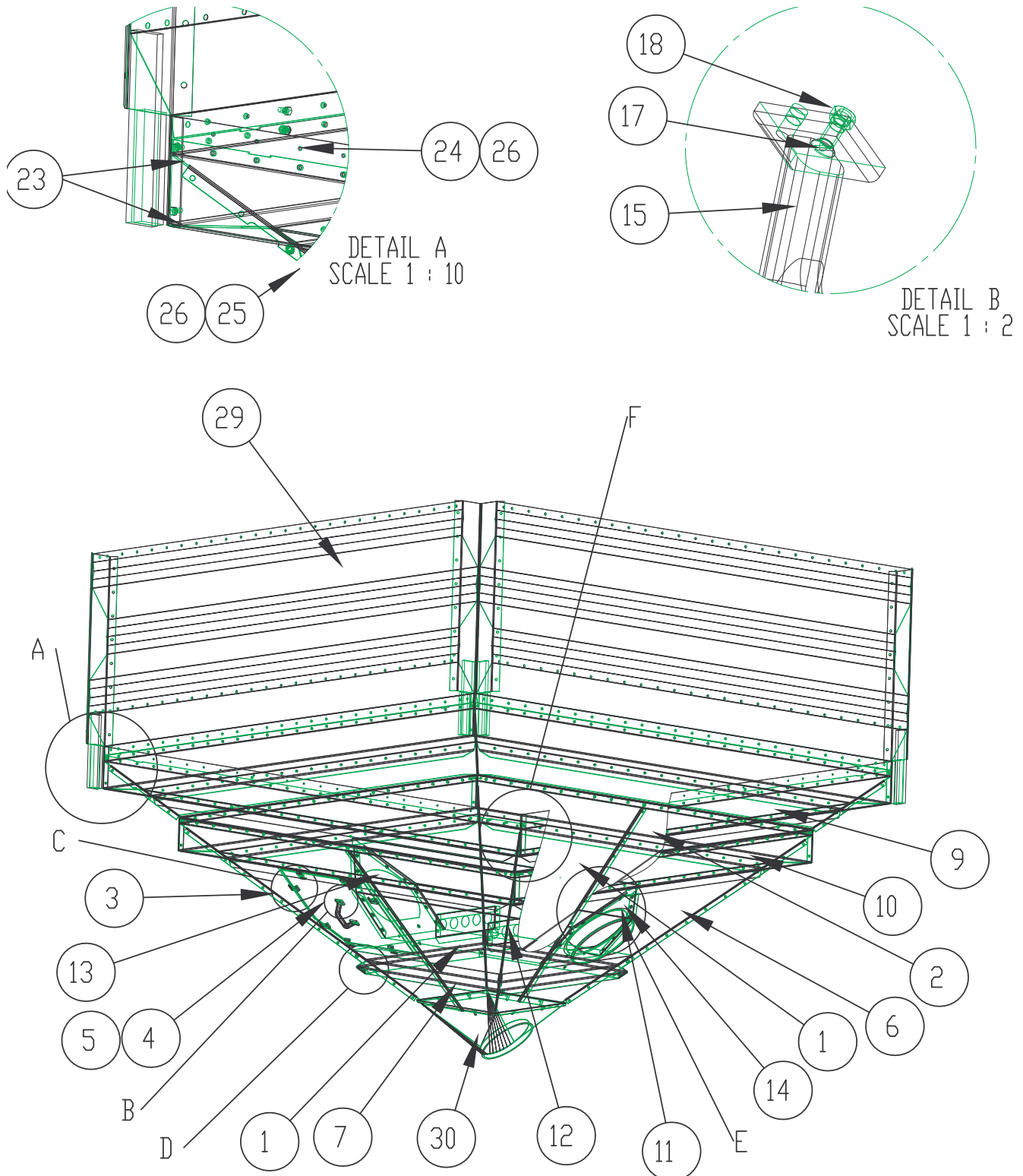


Fig. 8

10024 Silo bottom M05 2,5x2,5m / 400x400 vent.***

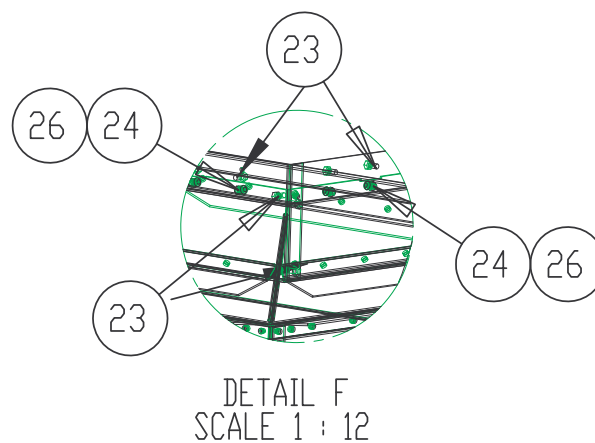
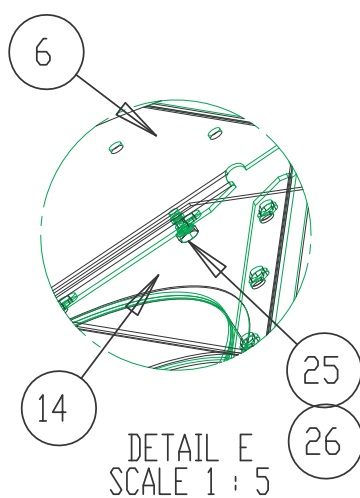
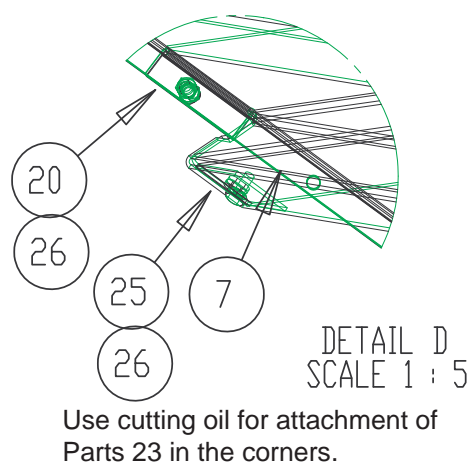
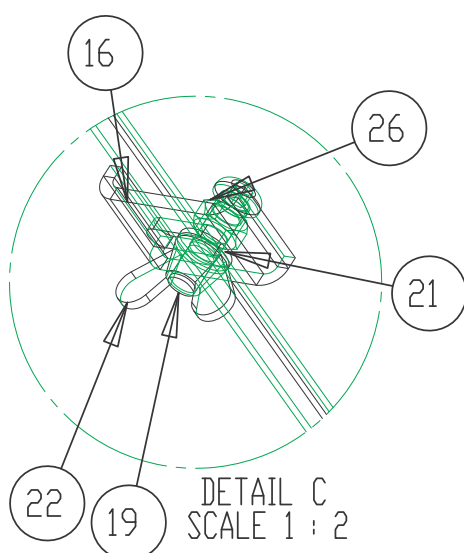
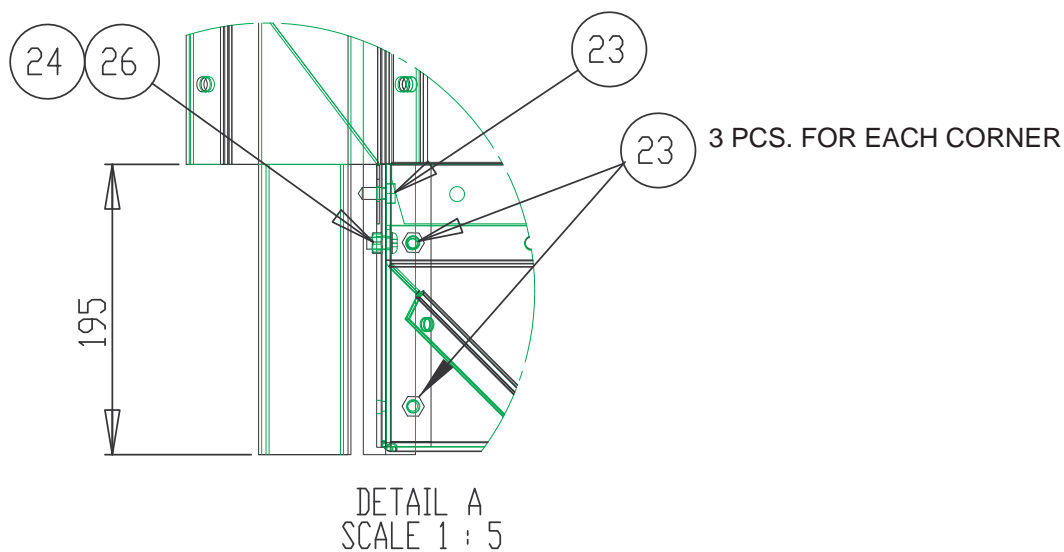
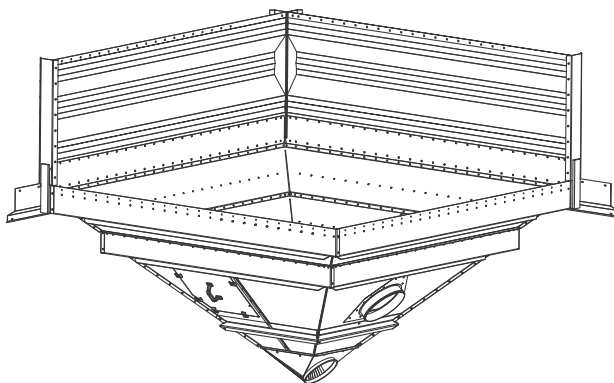


Fig. 9

10024 SILO BOTTOM M05 2,5x2,5m / 400x400 VENT.***



	Part	Item	Item	Drawing No.	Dimensions	Pcs	Weight
	1	22567	SILO B 2012X2012M05 SIDE PLATE 1/2 O 2M	22567	1010x1156	2	17,41
	2	22566	SILO B 2012X2012M05 SIDE PLATE 1/2 L 2M	22566	1010x1156	1	17,4
	3	22590	SILO B 2012X2012M05 SIDE PLATE 1/2 V MANH.H.	22590	1010x1156	1	11,71
	4	22591	SILO B 2012X2012M05 SIDE PLATE. MANH.H. COVER	22591	494x494	1	5,54
	5	22592	SILO B 2012X2012M05 SIDE PLATE. MANH.H. REAR PL.	22592	530x530	1	4,25
	6	22564	SILO B 2012X2012M05 SIDE PLATE 1/1 D315 2M	22564	2000x1156	2	32,52
	7	22626	SILO B M05 CHANGE-OVER P SUPPORT S=3	22626		4	2,91
	8	22570	SILO B 2502X2502M05 ELEV. SIDE PLATE 2/2,5M	22570		4	21,38
	9	22569	SILO B 2502X2502M05 COLLAR STRIP 2,5M	22569	2526x391,5	4	22,21
	10	22573	SILO B M05 COLLAR STRIP S=3	22573	2036x390,5	4	17,62
	11	32469	SILO B 2012X2012/400 VENT RIDGE BEAM D315	32469	1711x936	1	31,26
	12	33176	SILO B RIDGE SUPP VENT	33176	452x166	2	0,97
	13	33175	SILO B COVER PL BLIND VENT	33175	426x476	1	2,66
	14	33174	SILO B COVER PL D315 VENT	33174		1	2,16
	15	119034	HANDLE PLAST. LIGHT-GREY PISLA 805 10100550	119034		1	0,59
	16	400280	TOP SECTION COVER HOLDER	4668	55x30	8	0,05
	17	103691	SCREW COUNTER-SUNK SLOT ZN 5X12XAM			4	0
Screw package WURTH 9994 200,033	18	110520	NUT ZN 8 M 5 DIN934			4	0
	19	104264	SCREW HEX SOCKET BALL-HEAD 8X30AM 10.9Z ISO7380			50	
	20	101850	SCREW 6K ZN 8.8 8X30 AM DIN933			5	
	21	111540	WASHER ZN M8 DIN 125			8	
	22	111020	NUT WING ZN M 8 DIN315			8	0,01
	23	107749	SCREW SELF-TAP 6K D 8,0X19 ZN			130	0
	24	104261	SCREW HEX SOCKET BALL-HEAD 8X16AM ISO 7380			350	
	25	101810	SCREW 6K ZN 8.8 8X16 AM DIN933			80	
	26	110540	NUT ZN 8 M 8 DIN 934			480	0
	27	800271	MASTIC SEAL/GLUE BLACK310 ML	800271		1	0,17
Other parts presented in the draw- ing	28	22603	ELEM DRIP MOULDING M05 281-2300	22603		2	5,07
	29	22604	ELEM DRIP MOULDING M05 ANGLE	22604		1	870,33
	30	32170	BASE PLASTIC PART BEVEL 470X470 D250			1	5,32
	31	22559	ELEM. 1,5/4 2,5M M05 EXTENSION	22559		2	46,42
	32	32358	ELEM INTERM. STRIP 190X2484	32358		2	5,55

10024 Silo bottom M05 2,5x2,5m / 400x400 vent.***

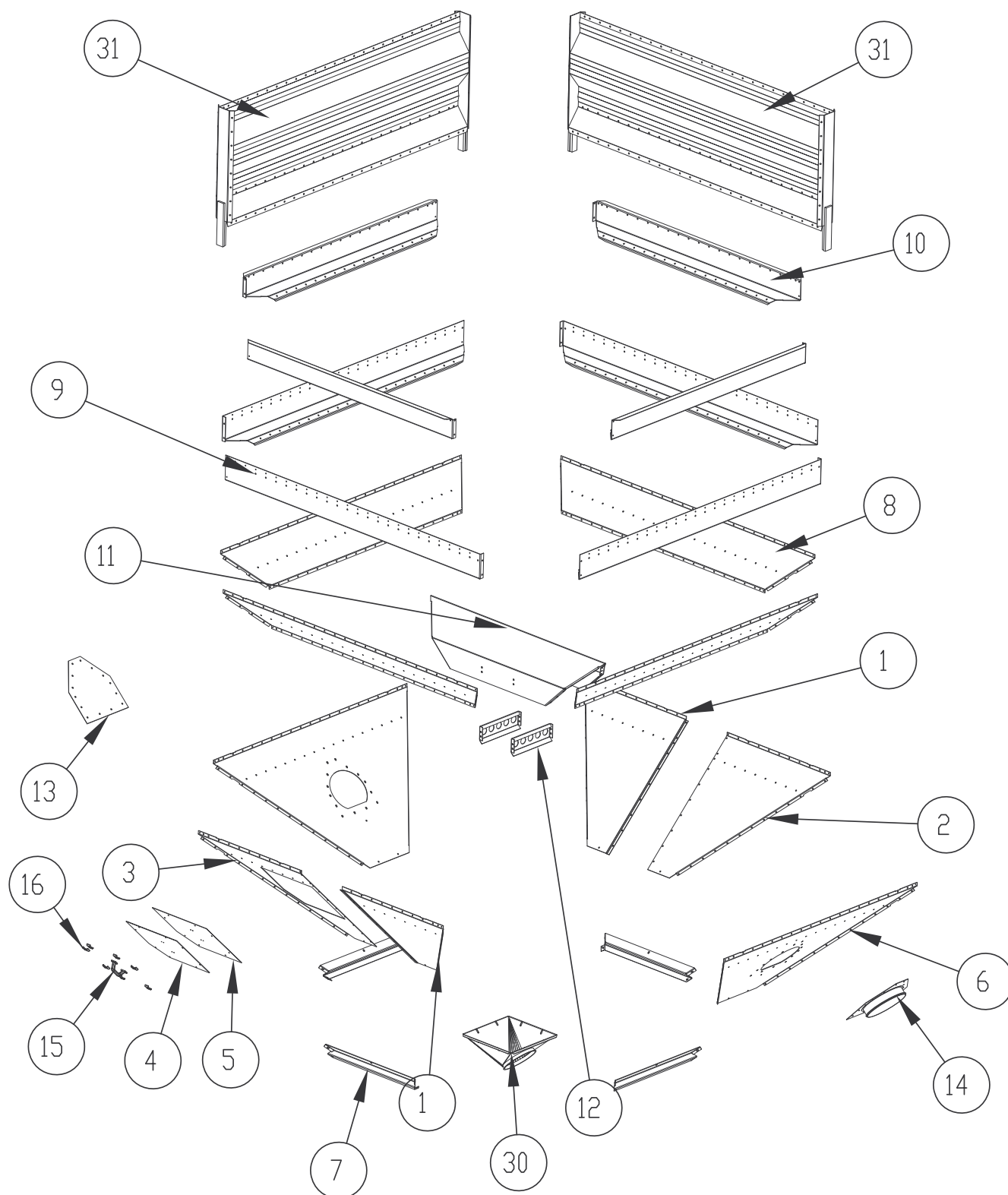


Fig. 10

10024 Silo bottom M05 2,5x2,5m / 400x400 vent.***

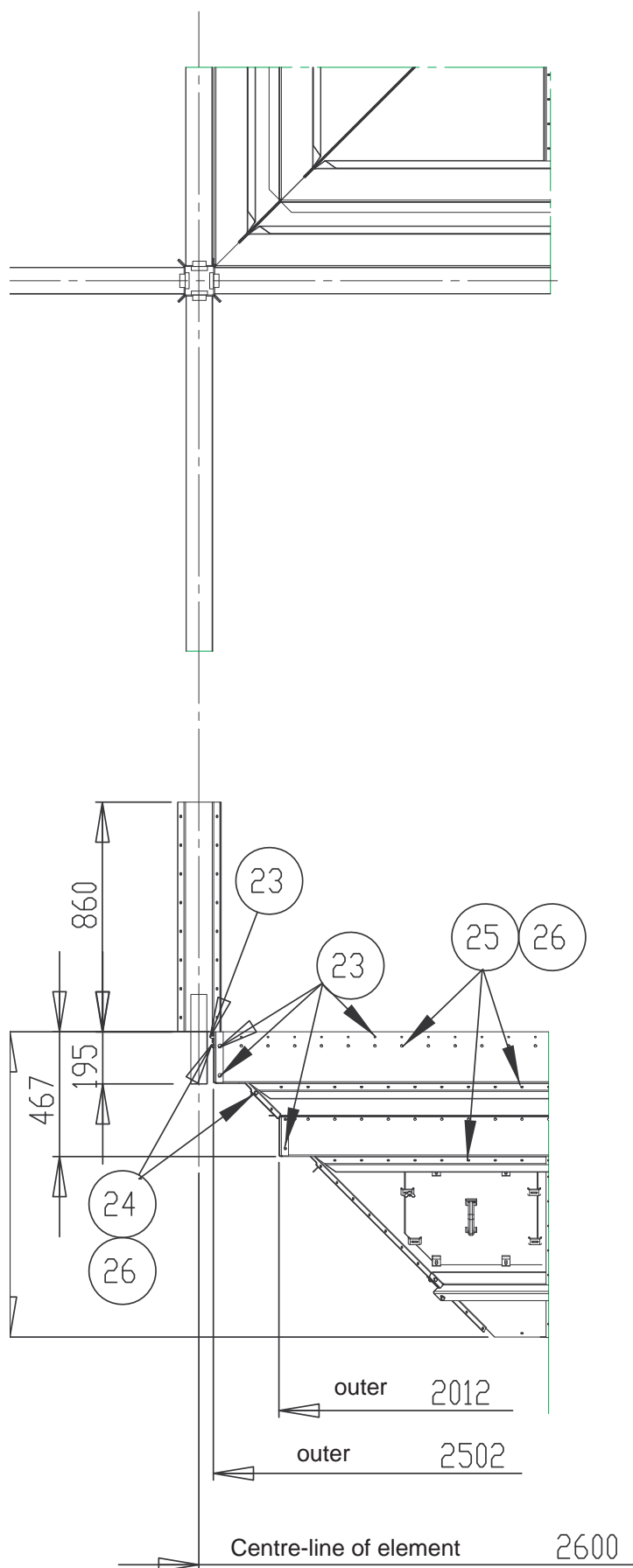
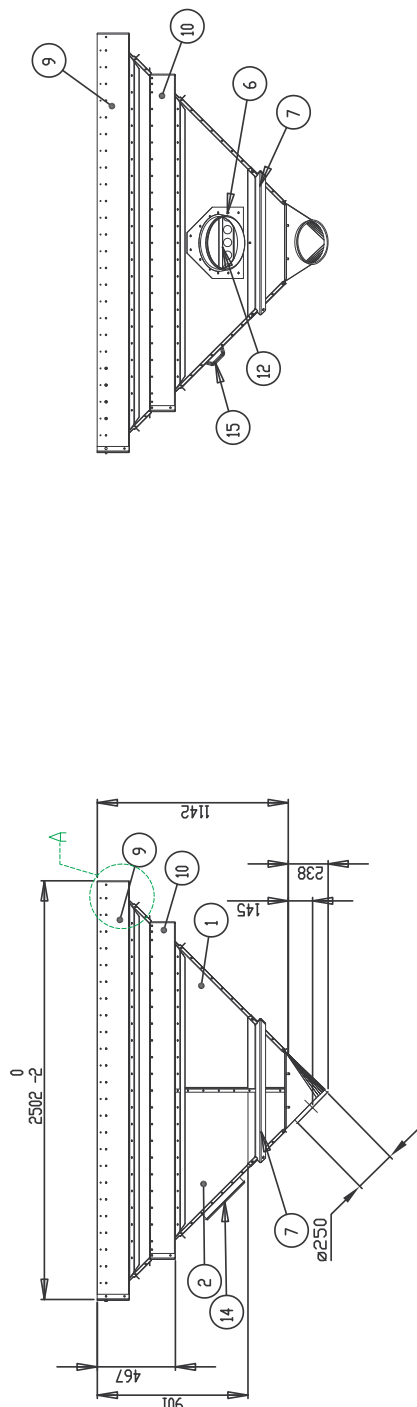


Fig. 11

10024 Silo bottom M05 2,5x2,5m / 400x400 vent.* assy.**



OPENINGS POSSIBLY REMAINING IN THE CORNERS
TO BE SEALED USING GLUE AND SEALING MASTIC (PART 18)

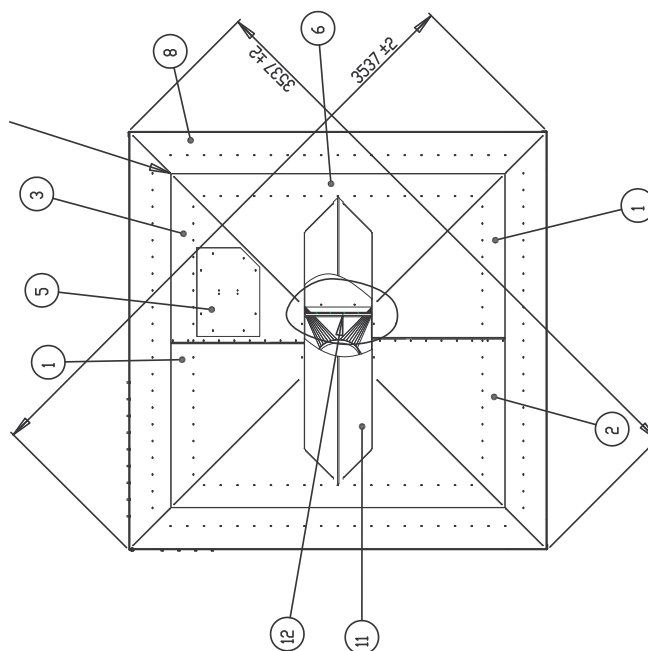
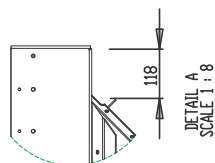


















































































































Fig. 12

1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18. 	1.  2.  3.  4.  5.
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10025 Silo bottom M05 3,0x3,0m / 400x400 vent.***

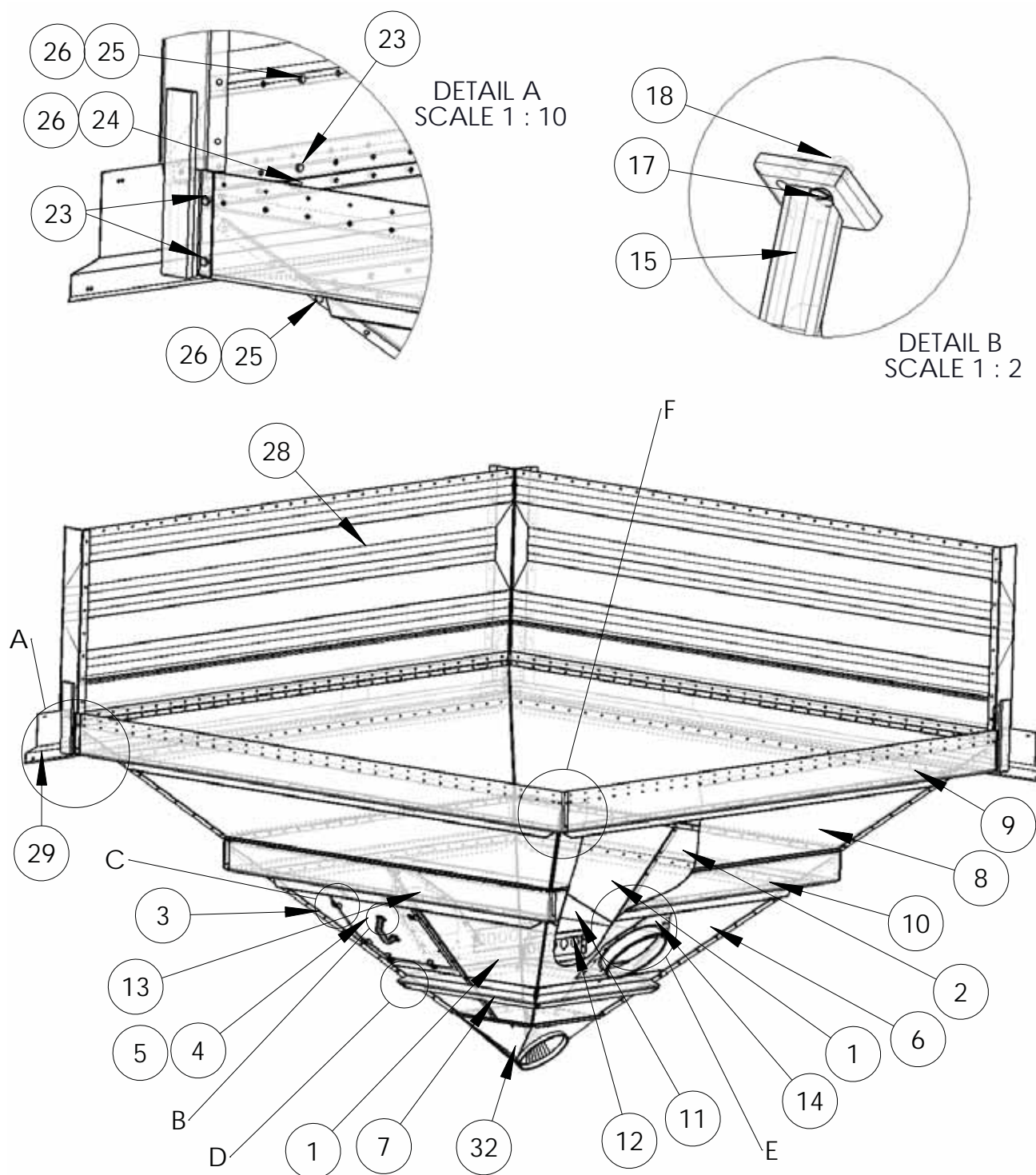


Fig. 13

10025 Silo bottom M05 3,0x3,0m / 400x400 vent.***

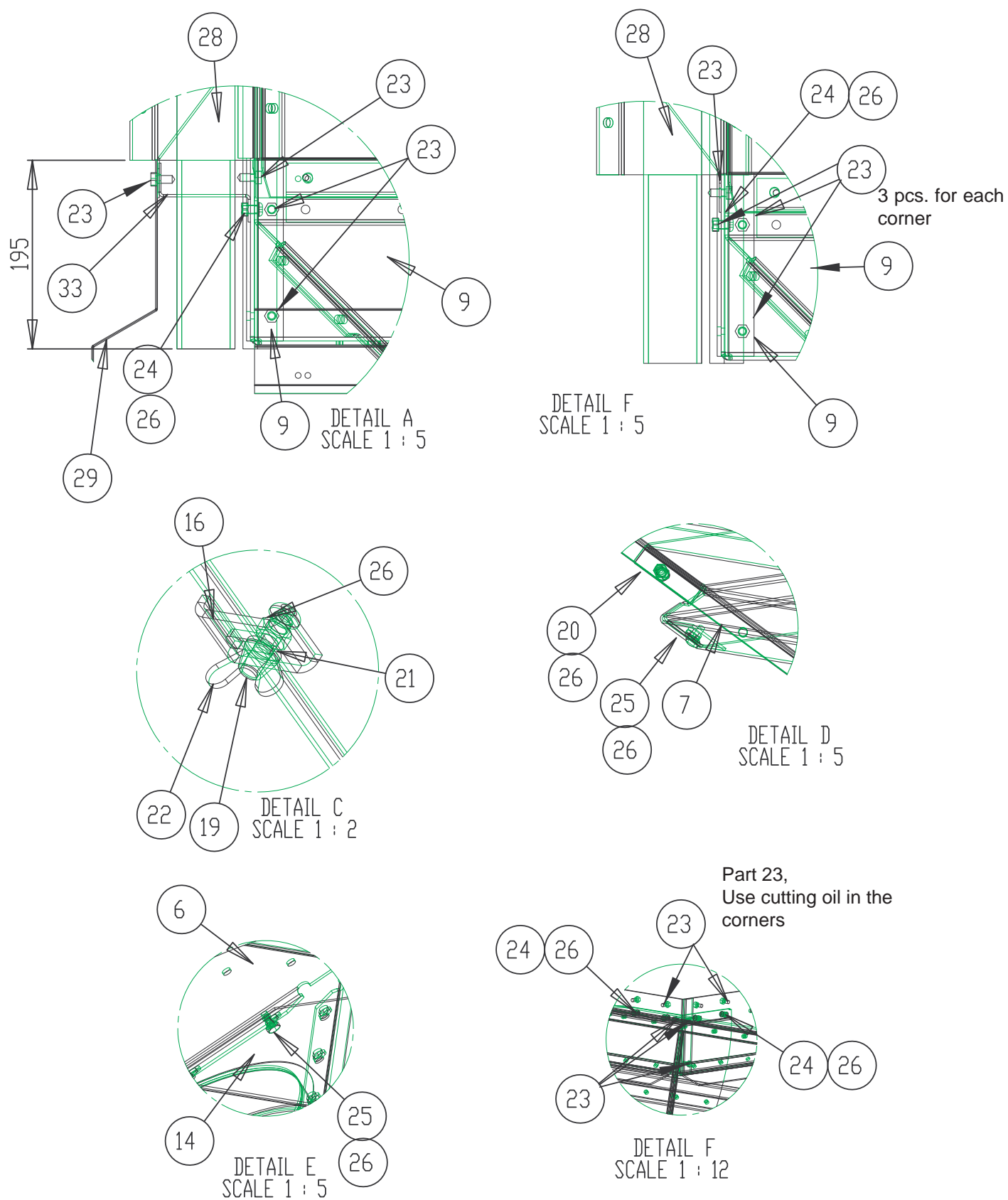
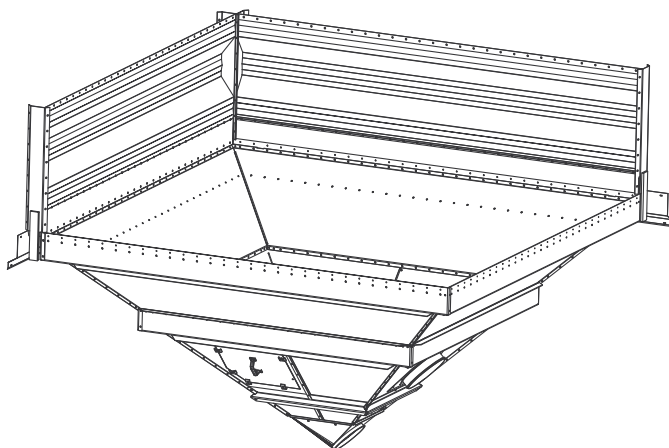


Fig. 14

10025 SILO BOTTOM M05 3,0x3,0m / 400x400 VENT.***



	Part	Item	Item	Drawing No.	Dimensions	Pcs	Weight
	1	22567	SILO B 2012X2012M05 SIDE PLATE 1/2 O 2M	22567	1010x1156	2	17,41
	2	22566	SILO B 2012X2012M05 SIDE PLATE 1/2 L 2M	22566	1010x1156	1	17,4
	3	22590	SILO B 2012X2012M05 SIDE PLATE 1/2 V MANH.H.	22590	1010x1156	1	11,71
	4	22591	SILO B 2012X2012M05 SIDE PLATE. MANH.H. COVER	22591	494x494	1	5,54
	5	22592	SILO B 2012X2012M05 SIDE PLATE. MANH.H. REAR PL.	22592	530x530	1	4,25
	6	22564	SILO B 2012X2012M05 SIDE PLATE 1/1 D315 2M	22564	2000x1156	2	32,52
	7	22626	SILO B M05 CHANGE-OVER P SUPPORT S=3	22626		4	2,91
	8	22572	SILO B 3014X3014M05 ELEV. SIDE PLATE 2/3M	22572	2998x760	4	60,23
	9	22571	SILO B 3014X3014M05 COLLAR STRIP 3M	22571	3037x389	4	35,75
	10	22625	SILO B M05 COLLAR STRIP S=4	22625	2037x409	4	24,58
	11	32469	SILO B 2012X2012/400 VENT RIDGE BEAM D315	32469	1711x936	1	31,26
	12	33176	SILO B RIDGE SUPP VENT	33176	452x166	2	0,97
	13	33175	SILO B COVER PL BLIND VENT	33175	426x476	1	2,66
	14	33174	SILO B COVER PL D315 VENT	33174		1	2,16
	15	119034	HANDLE PLAST. LIGHT-GREY PISLA 805 10100550	119034		1	0,59
	16	400280	TOP SECTION COVER HOLDER	4668	55x30	8	0,05
Screw package WURTH 9994 200,033	17	103691	SCREW COUNTER-SUNK SLOT ZN 5X12XAM			4	0
	18	110520	NUT ZN 8 M 5 DIN934			4	0
	19	104264	SCREW HEX SOCKET BALL-HEAD 8X30AM 10.9Z ISO7380			50	
	20	101850	SCREW 6K ZN 8.8 8X30 AM DIN933			5	
	21	111540	WASHER ZN M8 DIN 125			8	
	22	111020	NUT WING ZN M 8 DIN315			8	0,01
	23	107749	SCREW SELF-TAP 6K D 8,0X19 ZN			160	0
	24	104261	SCREW HEX SOCKET BALL-HEAD 8X16AM ISO 7380			400	
	25	101810	SCREW 6K ZN 8.8 8X16 AM DIN933			100	
	26	110540	NUT ZN 8 M 8 DIN 934			551	0
	27	800271	MASTIC SEAL/GLUE BLACK310 ML	800271		1	0,17
Other parts presented in the draw- ing	28	22622	ELEM. 2,5/4 3,0M M05 EXTENSION	22622		2	64,05
	29	22603	ELEM DRIP MOULDING M05 281-2300	22603		4	5,07
	30	22604	ELEM DRIP MOULDING M05 ANGLE	22604		1	870,33
	31	22563	ELEM INTERM. STRIP M05 190X2994	22563	3025x190	2	6,69
	32	32170	BASE PLASTIC PART BEVEL 470X470 D250			1	5,32
	33	22628	SILO B M05 ELEM/KART 3M Z-SUPP	22628	148,5x2940	2	8,61

10025 Silo bottom M05 3,0x3,0m / 400x400 vent.***

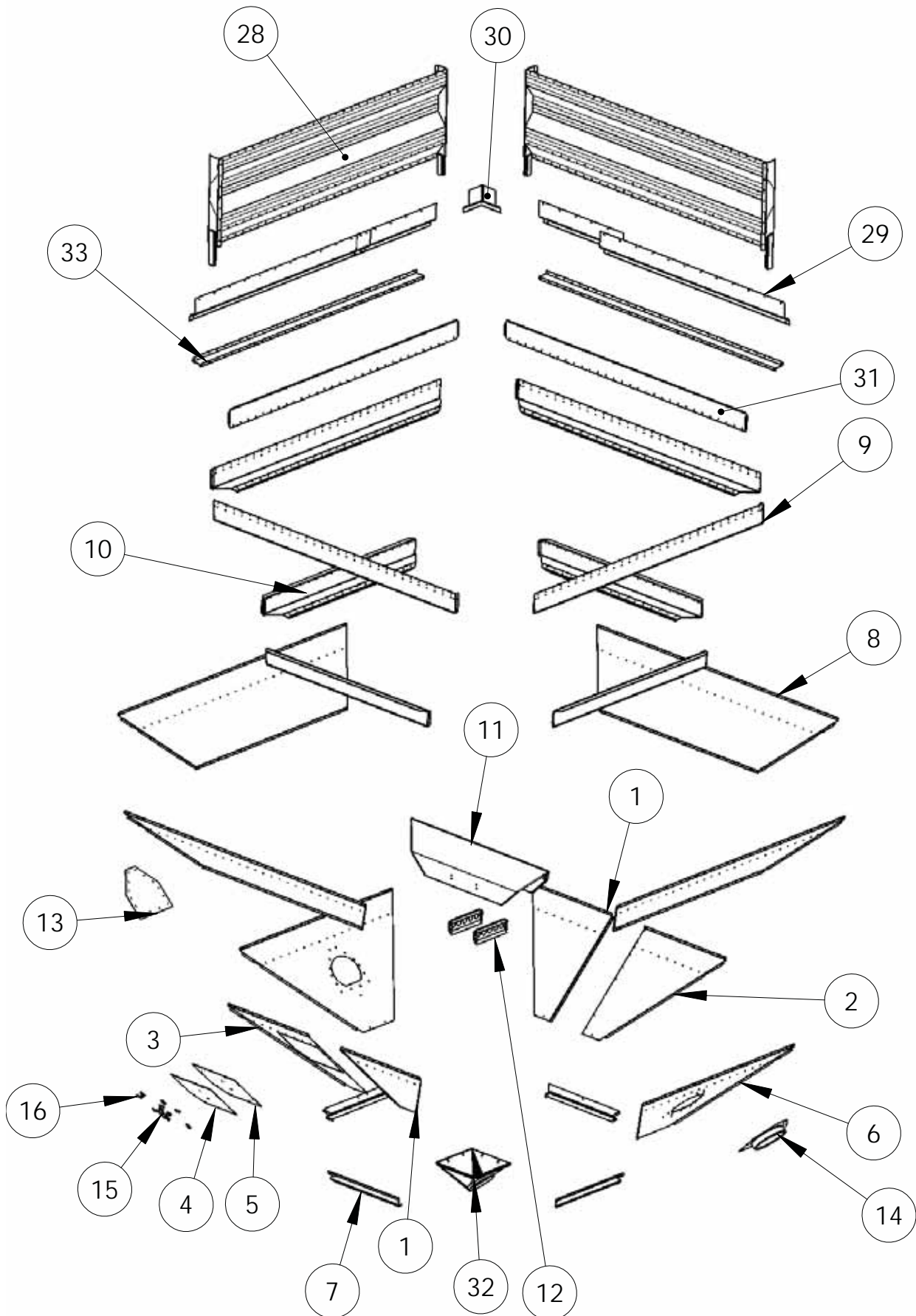


Fig. 15

10025 Silo bottom M05 3,0x3,0m / 400x400 vent.***

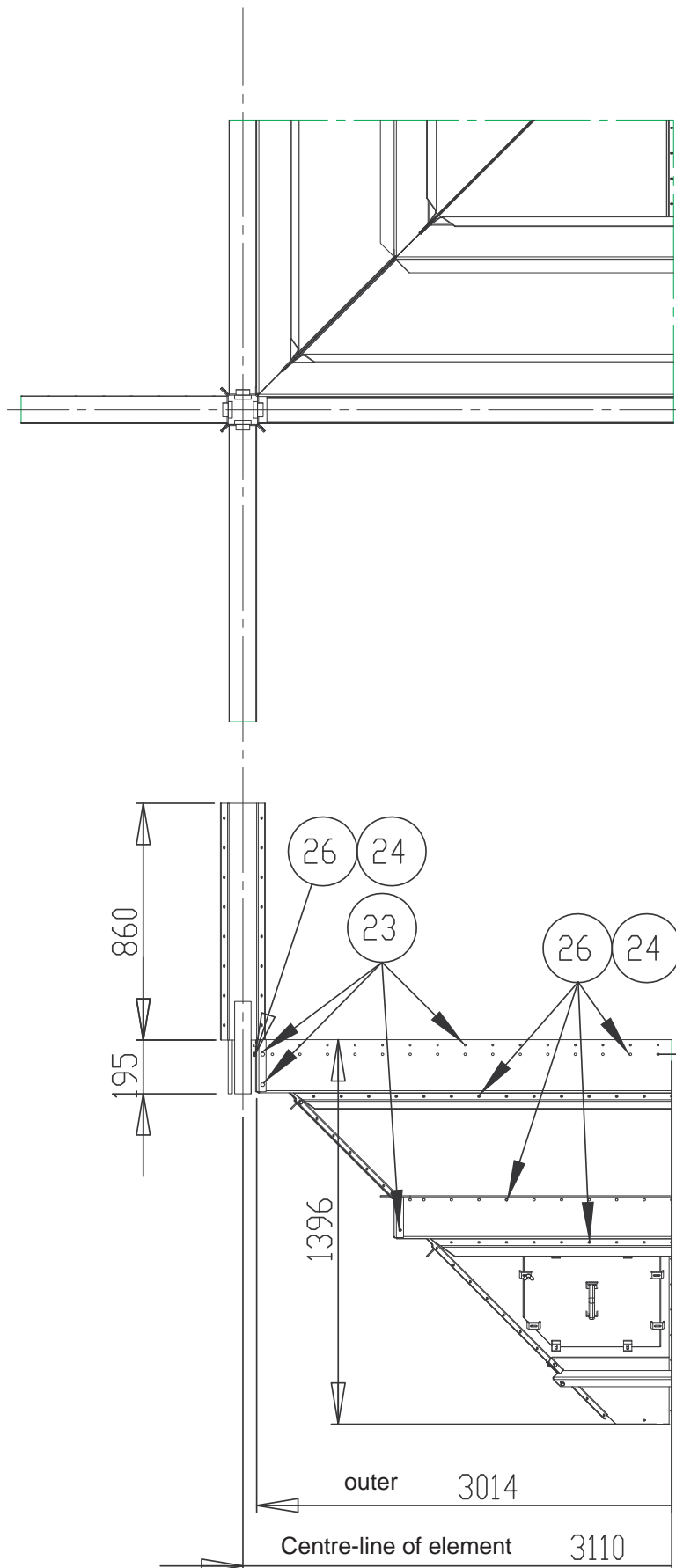


Fig. 16

10025 Silo bottom M05 3,0x3,0m / 400x400 vent.*** assy.

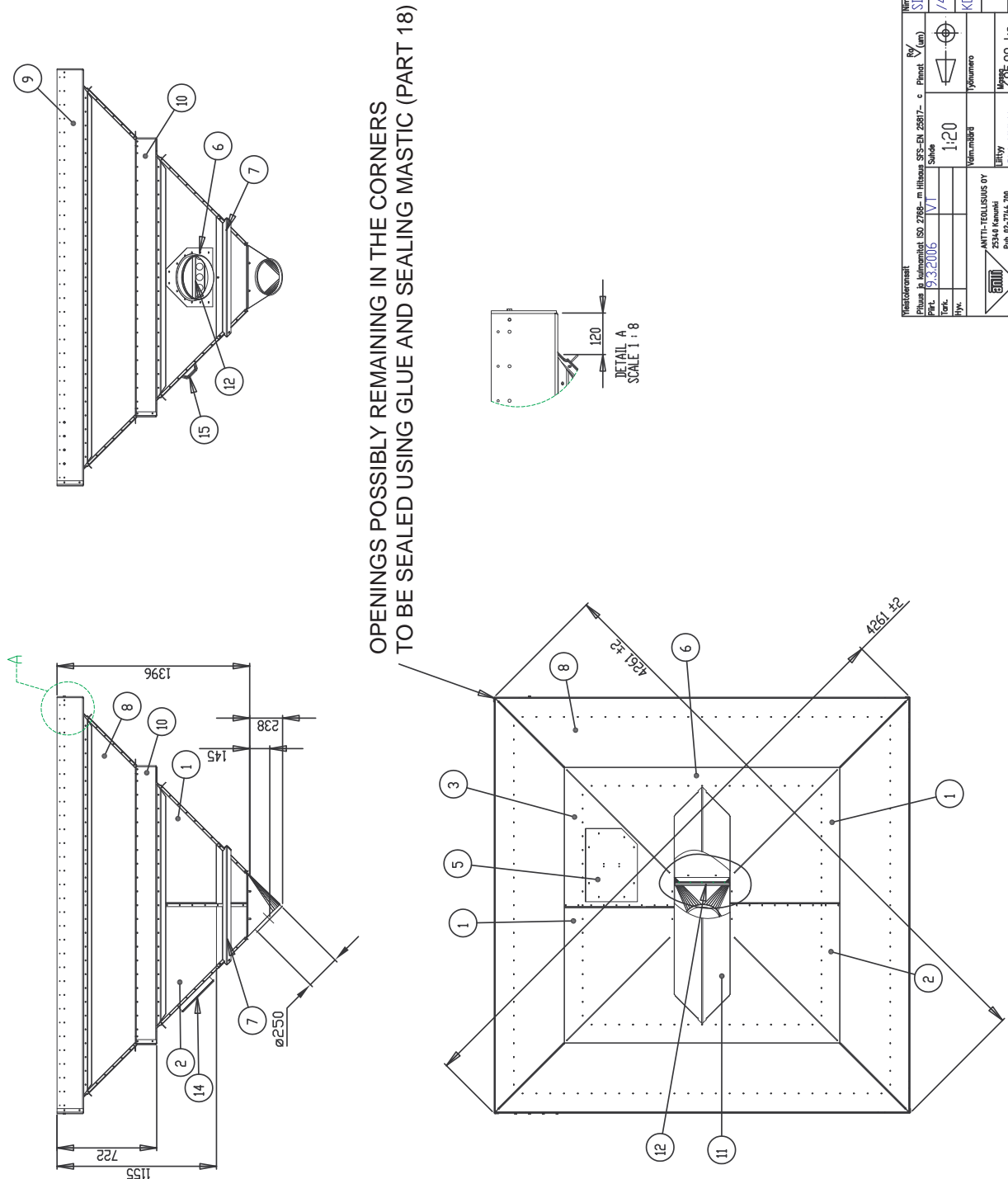


Fig. 17

10027 Silo bottom M05 2,5x3,0m / 400x400 vent.***

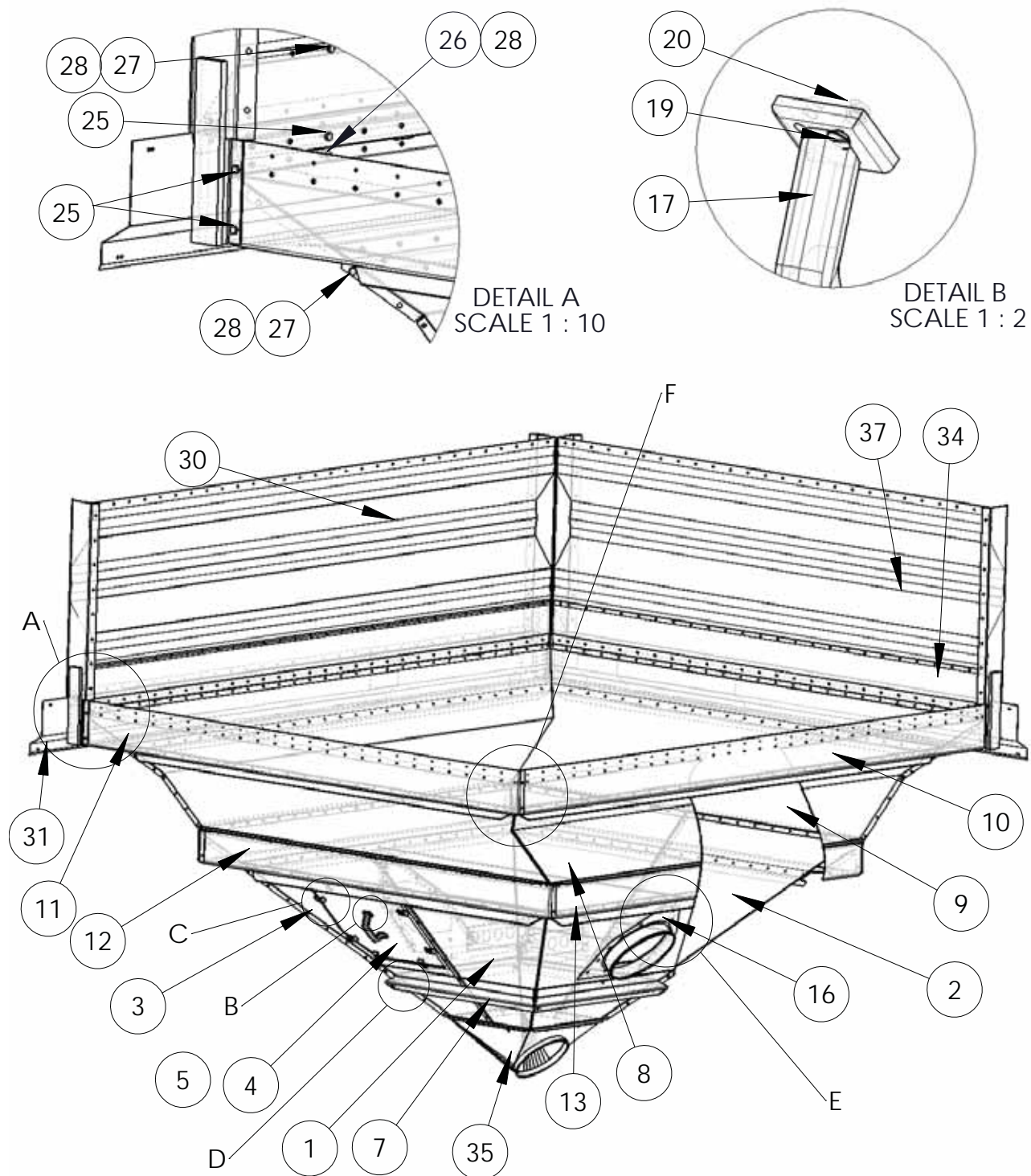
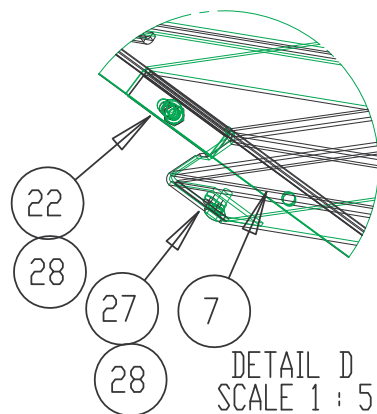
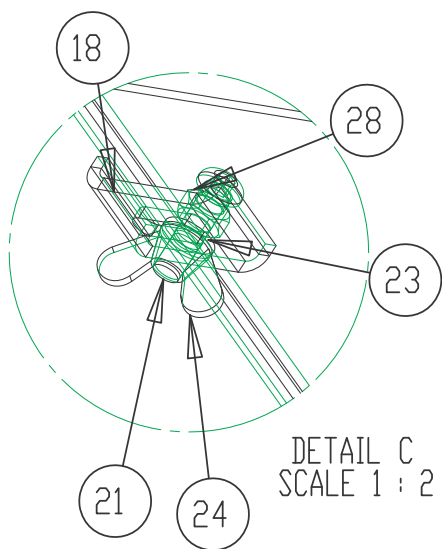
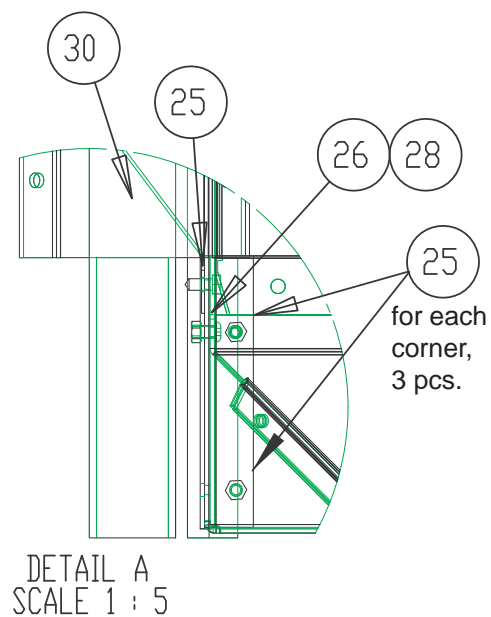
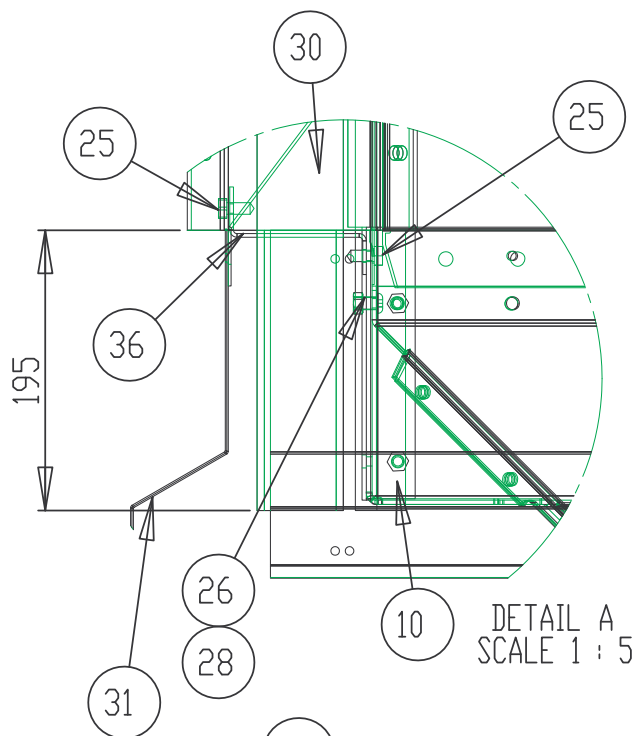


Fig. 18

Silo bottom M05 2,5x3,0m / 400x400 vent.***



Parts 25.
Use cutting oil in the corners.

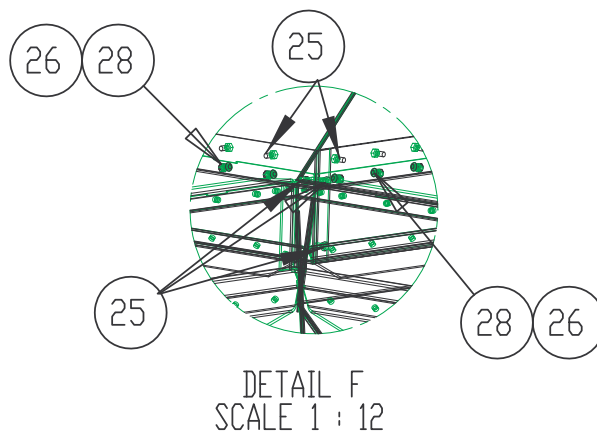
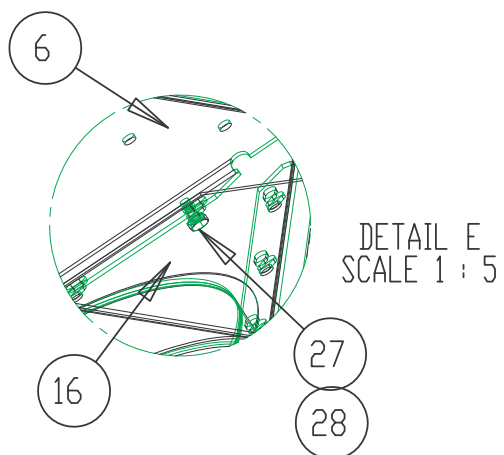
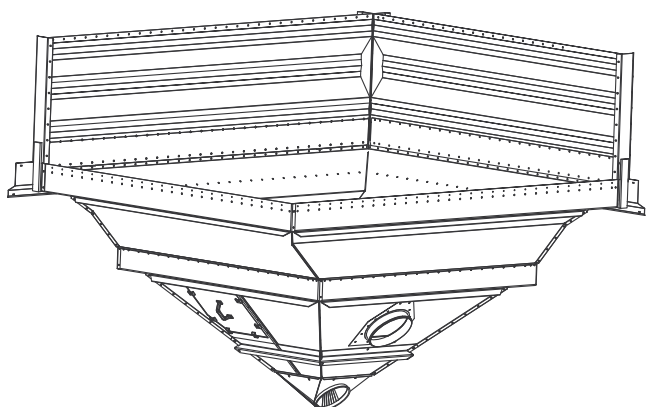


Fig. 19

10027 Silo bottom M05 2,5x3,0m / 400x400 vent.***



	Part	Item	Item	Drawing No.	Dimensions	Pcs	Weight
	1	22567	SILO B 2012X2012M05 SIDE PLATE 1/2 O 2M	22567	1010x1156	2	17,41
	2	22566	SILO B 2012X2012M05 SIDE PLATE 1/2 L 2M	22566	1010x1156	1	17,4
	3	22590	SILO B 2012X2012M05 SIDE PLATE 1/2 V MANH.H.	22590	1010x1156	1	11,71
	4	22591	SILO B 2012X2012M05 SIDE PLATE. MANH.H. COVER	22591	494x494	1	5,54
	5	22592	SILO B 2012X2012M05 SIDE PLATE. MANH.H. REAR PL.	22592	530x530	1	4,25
	6	22564	SILO B 2012X2012M05 SIDE PLATE 1/1 D315 2M	22564	2000x1156	2	32,52
	7	22626	SILO B M05 CHANGE-OVER P SUPPORT S=3	22626		4	2,91
	8	22588	SILO B 2502X3014M05 ELEV. SIDE PLATE 2/3M	22588	3000x655	2	39,73
	9	22587	SILO B 2502X3014M05 ELEV. SIDE PLATE 2/2,5M	22587	2488x761,5	2	38,69
	10	22571	SILO B 3014X3014M05 COLLAR STRIP 3M	22571	3037x389	2	35,75
	11	22569	SILO B 2502X2502M05 COLLAR STRIP 2,5M	22569	2526x391,5	2	22,21
	12	22625	SILO B M05 COLLAR STRIP S=4	22625	2037x409	4	24,58
	13	32469	SILO B 2012X2012/400 VENT RIDGE BEAM D315	32469	1711x936	1	31,26
	14	33176	SILO B RIDGE SUPP VENT	33176	452x166	2	0,97
	15	33175	SILO B COVER PL BLIND VENT	33175	426x476	1	2,66
	16	33174	SILO B COVER PL D315 VENT	33174		1	2,16
Screw package WURTH 9994 200,035	17	119034	HANDLE PLAST. LIGHT-GREY PISLA 805 10100550	119034		1	0,59
	18	400280	TOP SECTION COVER HOLDER	4668	55x30	8	0,05
	19	103691	SCREW COUNTER-SUNK SLOT ZN 5X12XAM			4	0
	20	110520	NUT ZN 8 M 5 DIN934			4	0
	21	104264	SCREW HEX SOCKET BALL-HEAD 8X30AM 10.9Z ISO7380			50	
	22	101850	SCREW 6K ZN 8.8 8X30 AM DIN933			5	
	23	111540	WASHER ZN M8 DIN 125			8	
	24	111020	NUT WING ZN M 8 DIN315			8	0,01
	25	107749	SCREW SELF-TAP 6K D 8,0X19 ZN			150	0
	26	104261	SCREW HEX SOCKET BALL-HEAD 8X16AM ISO 7380			370	
	27	101810	SCREW 6K ZN 8.8 8X16 AM DIN933			100	
Other parts presented in the draw- ing	28	110540	NUT ZN 8 M 8 DIN 934			520	0
	29	800271	MASTIC SEAL/GLUE BLACK310 ML	800271		1	0,17
	30	22622	ELEM. 2,5/4 3,0M M05 EXTENSION	22622		1	64,05
	31	22603	ELEM DRIP MOULDING M05 281-2300	22603		4	5,07
	32	22604	ELEM DRIP MOULDING M05 ANGLE	22604		1	870,33
	33	22563	ELEM INTERM. STRIP M05 190X2994	22563	3025x190	1	6,69
	34	32358	ELEM INTERM. STRIP 190X2484	32358		1	5,55
	35	32170	BASE PLASTIC PART BEVEL 470X470 D250			1	5,32
	36	22628	SILO B M05 ELEM/KART 3M Z-SUPP	22628	148,5x2940	1	8,61
	37	22559	ELEM. 1,5/4 2,5M M05 EXTENSION	22559		1	46,42

10027 Silo bottom M05 2,5x3,0m / 400x400 vent.***

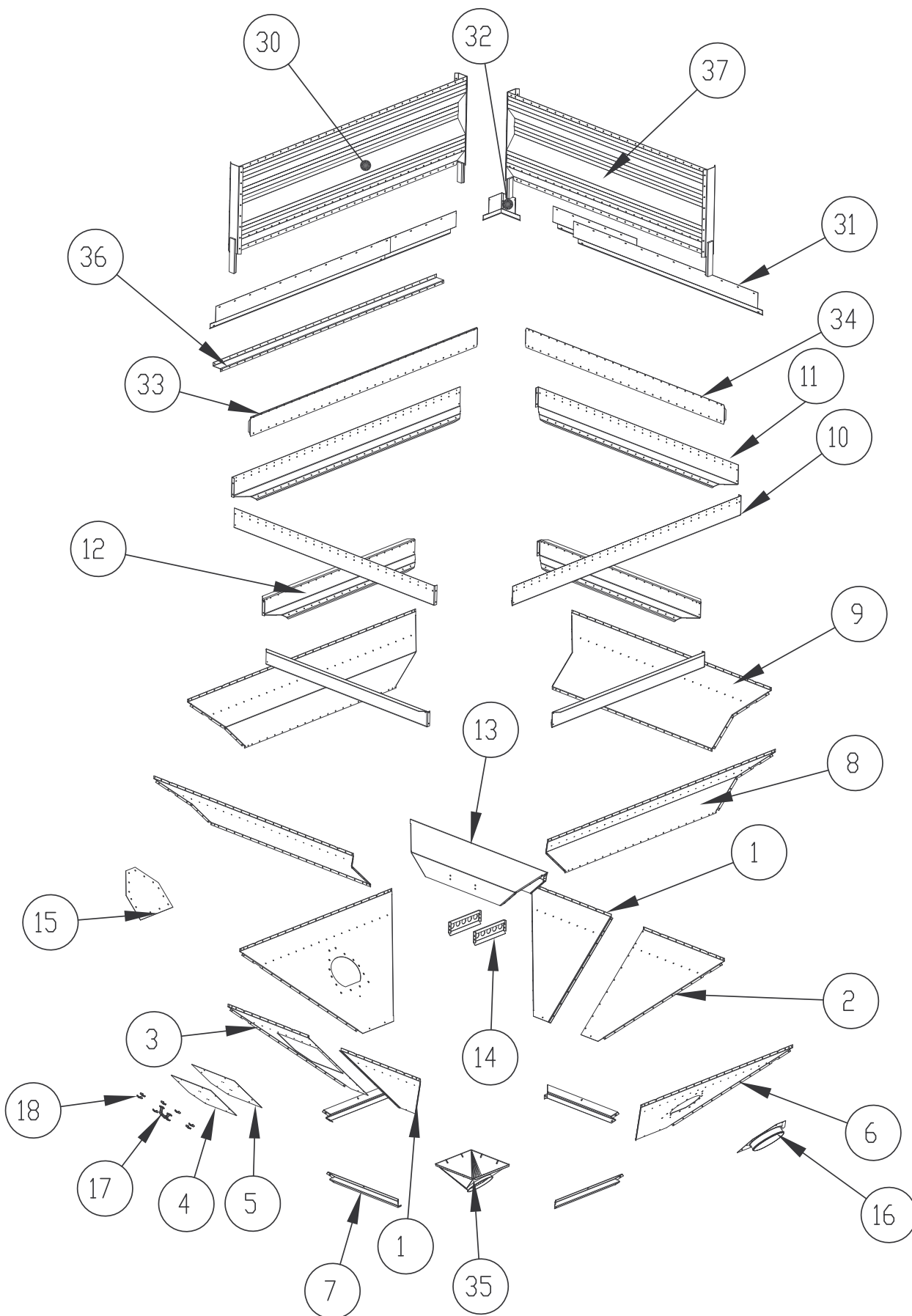


Fig. 20

10027 Silo bottom M05 2,5x3,0m / 400x400 vent.***

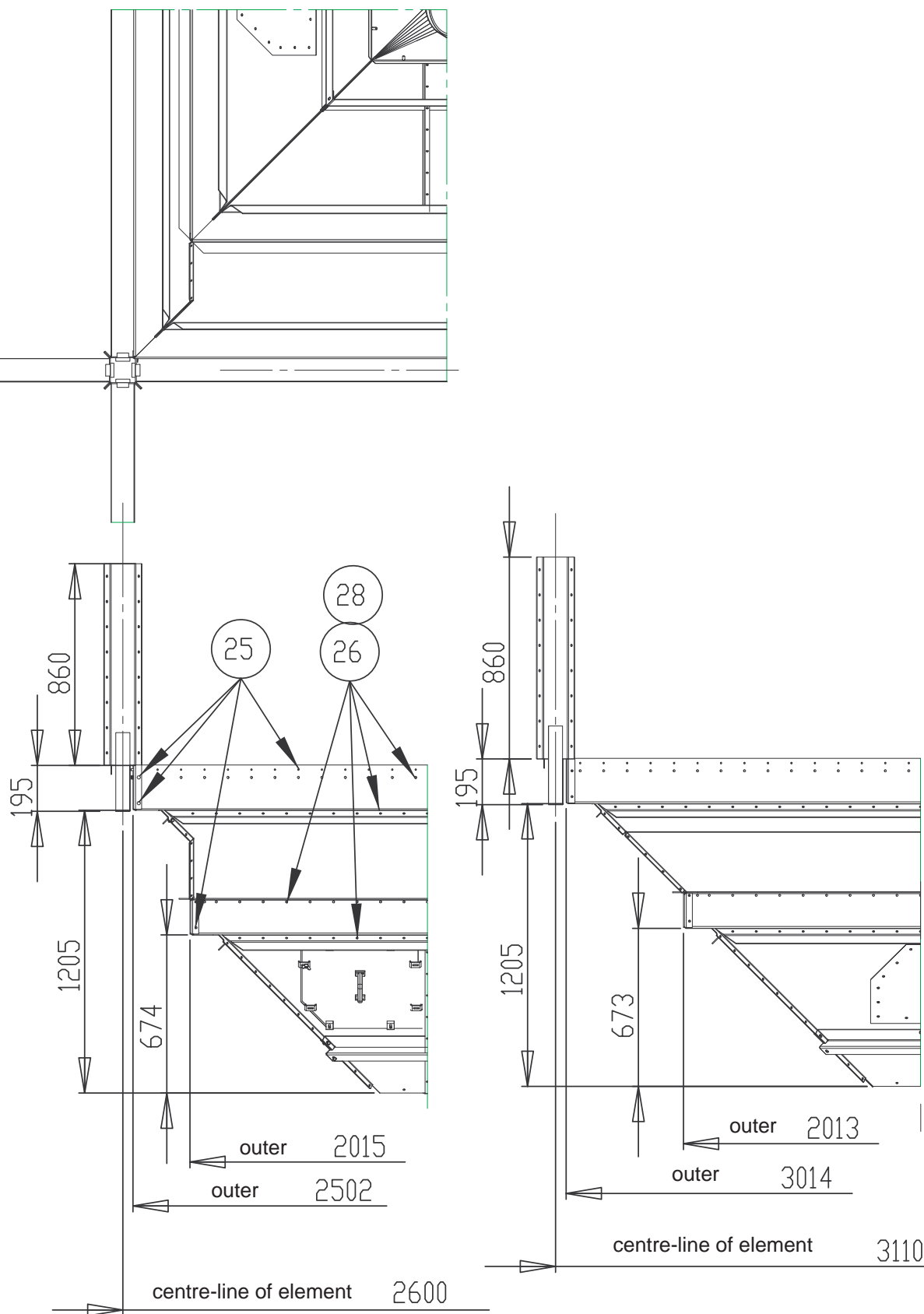


Fig. 21

10027 Silo bottom M05 2,5x3,0m / 400x400 vent.* assy.**

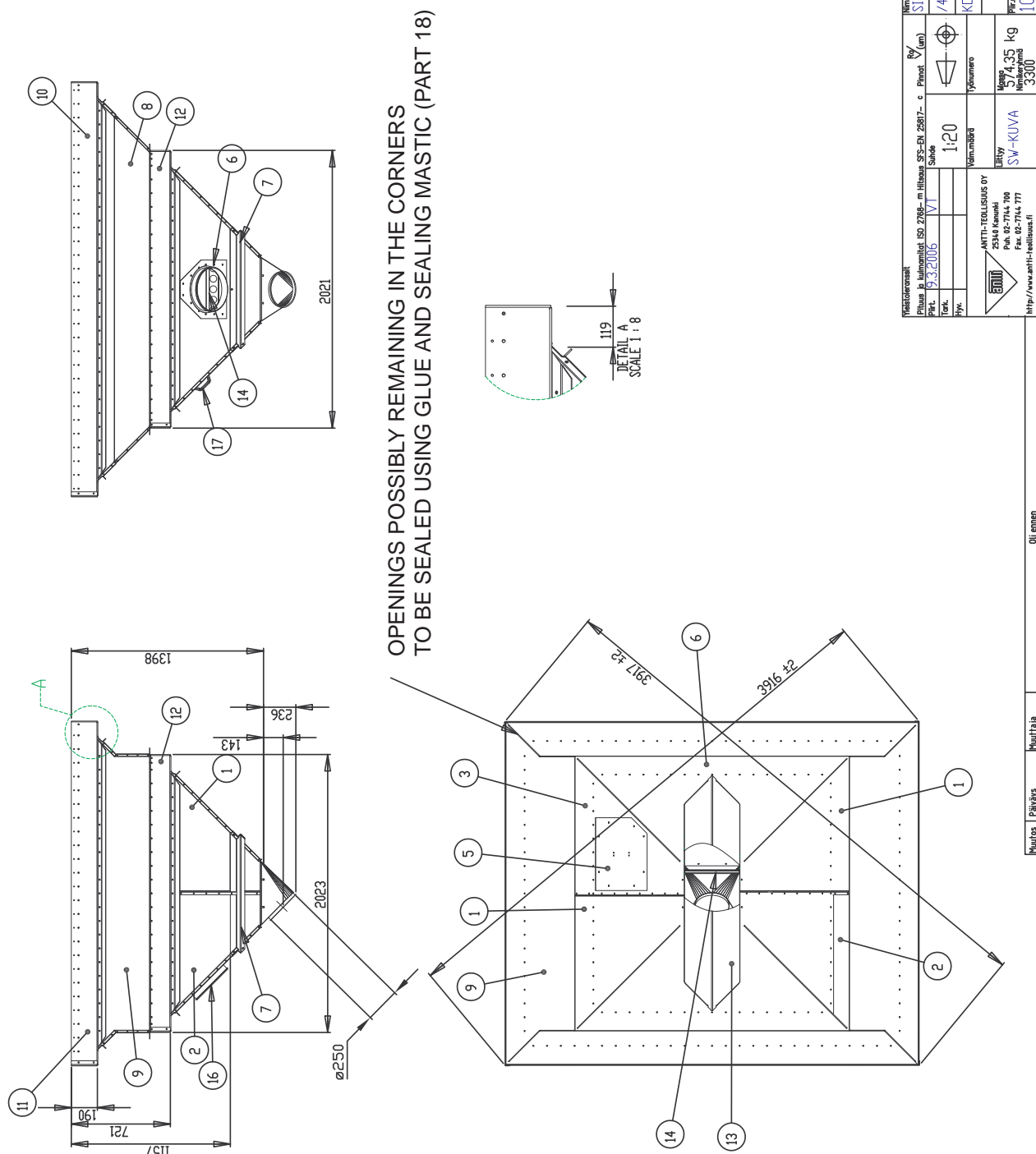


Fig. 22

A 70488 2,0x2,5 m WELDED M05 VENT.

MAX. ALLOWED CROSS-MEASURE DIFFERENCE 4
MM

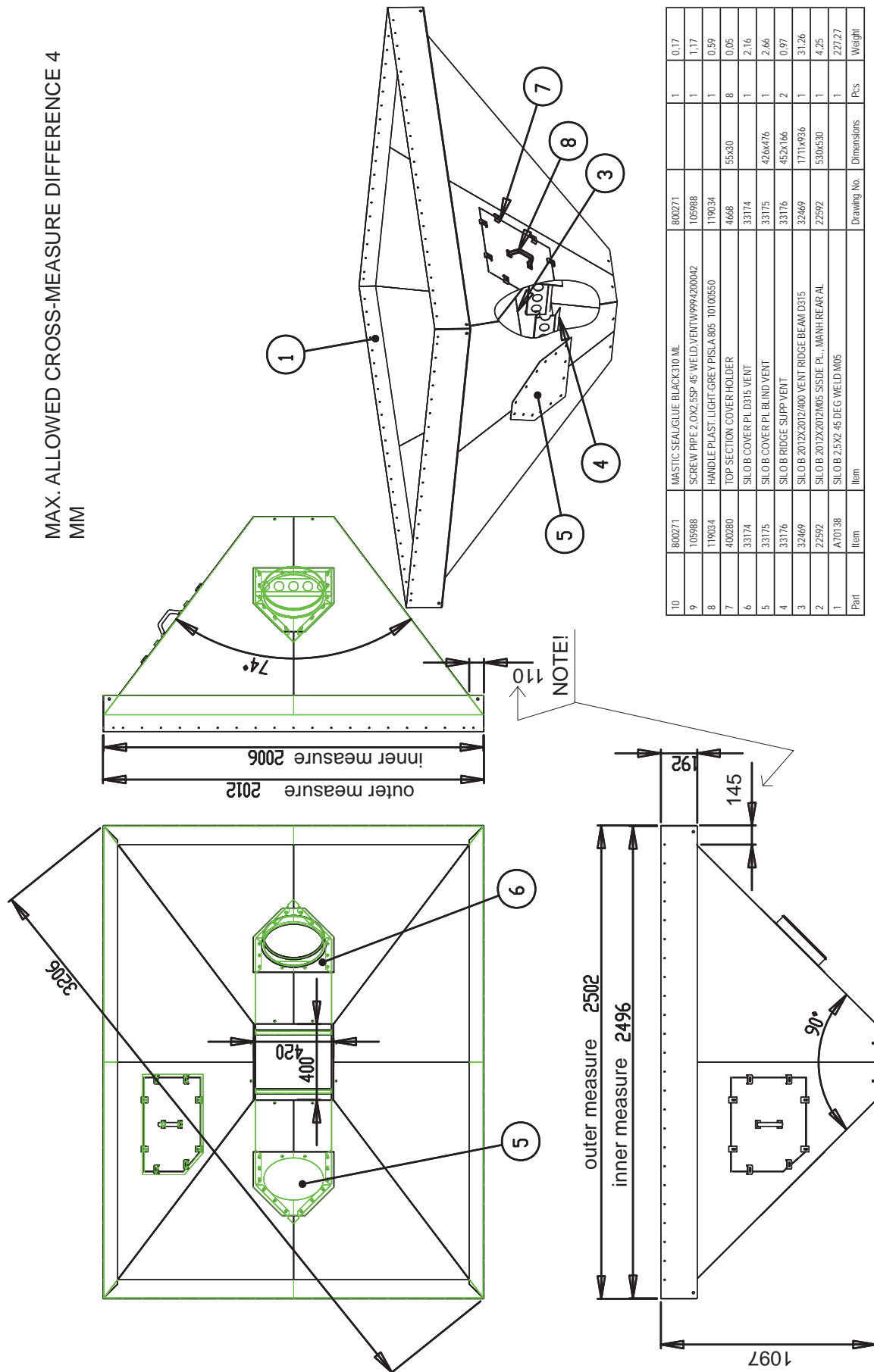


Fig. 23a

A 70488 SILO B 2012x2502 M05 45° WELDED VENT.

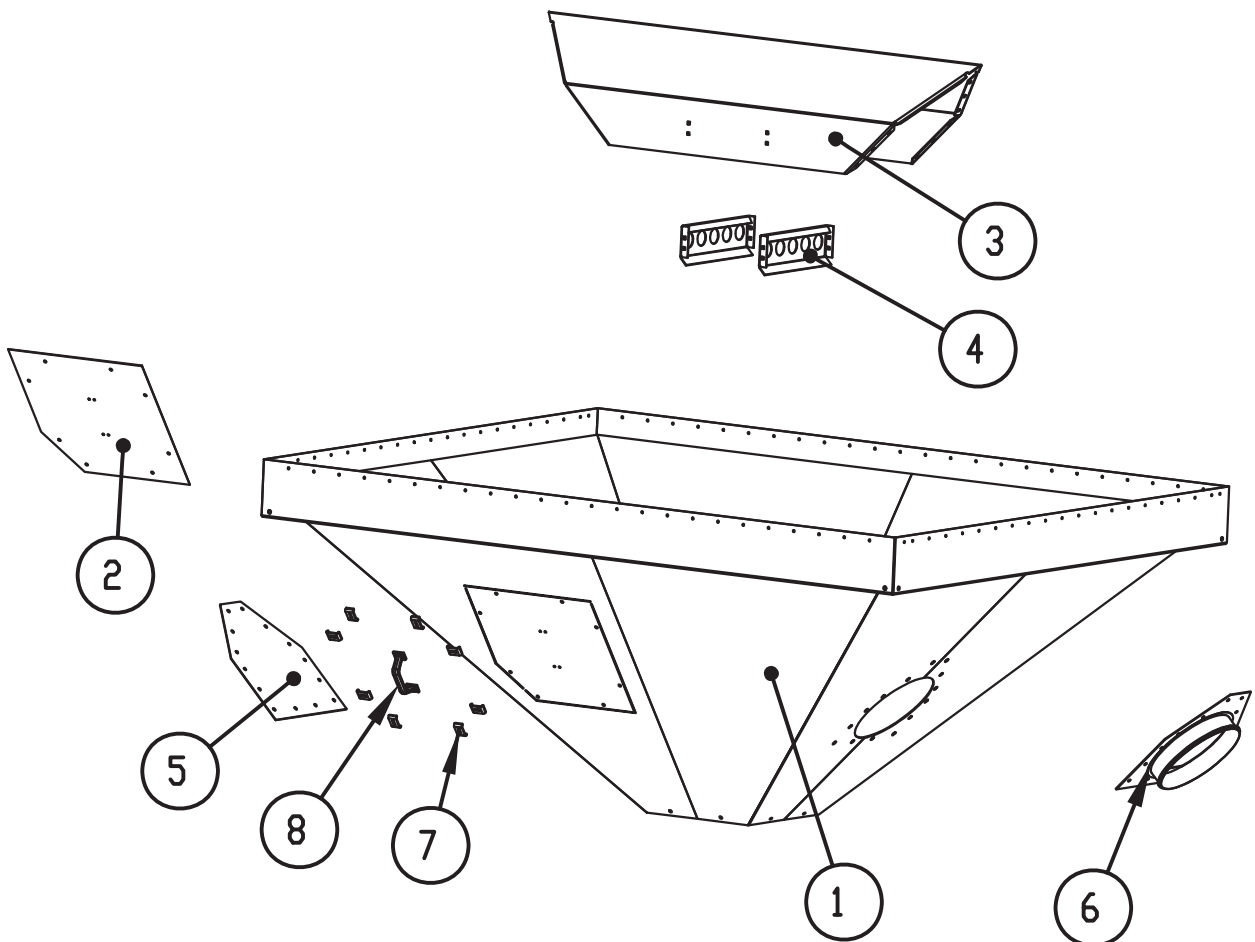


Fig. 23b

Scaffolding

You can build platforms inside the silo bottoms using, for example, fertiliser pallets. Ensure that they cannot move. Use nailed board platforms inside the silo bottoms and below them depending on the element length, a sufficient amount of 219, 268 or 319 cm-long boards, which you can move as required (Figure 26). Scaffolding is not mandatory on the outside, but it is recommended for safety reasons. If scaffolding is not used, the connecting and corner strips shall be installed in turns with the elements. See the illustration. In small element storages with dryer, ladders can be used as scaffolding on the outside.

SILO ELEMENTS

The M05 Pak silo elements are available in 3 lengths - 2, 2.5 and 3 metres. Particular attention needs to be paid to the thickness of the plates during assembly as it varies in accordance with the total number of wall layers. To avoid mixing up the element bundles (which contain 6 pcs. of elements) the bundles have a double marking of the element material thickness. The bundles are marked with a 50 x 100-mm piece of tarpaulin cloth, a different colour for each element thickness (see Fig. 24). In addition the material thickness according to Fig. 24 has been stamped on the end plate and side plate of each element. The lowermost elements with extension have no colour code as they cannot be mixed up because of their length differences.

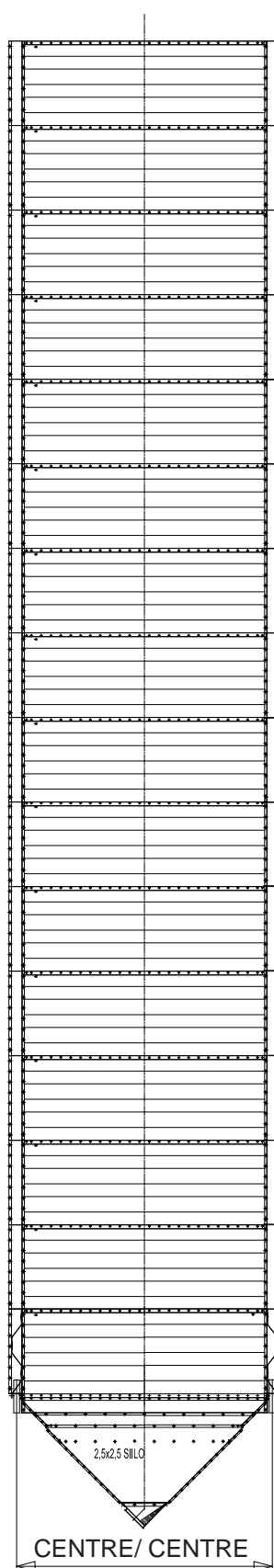
	LAYER	2M x 2M ITEM PLATE/END	2.5 M x 2.5M ITEM PLATE/END	3M x 3M ITEM PLATE/END
	16	22579 1.25/3.0 blue		
	15	22579 1.25/3.0 blue		
	14	22579 1.25/3.0 blue	22575 1.25/3.0 green	
	13	506505 1.5/3.0 red	22575 1.25/3.0 green	
	12	506505 1.5/3.0 red	32356 1.5/3.0 yellow	
	11	506505 1.5/3.0 red	32356 1.5/3.0 yellow	
	10	506505 1.5/3.0 red	32356 1.5/3.0 yellow	22577 1.5/3.0 white
	9	506505 1.5/3.0 red	32356 1.5/3.0 yellow	22577 1.5/3.0 white
	8	506505 1.5/3.0 red	22615 2.0/4.0 black	22576 2.0/4.0 orange
	7	506505 1.5/3.0 red	22615 2.0/4.0 black	22576 2.0/4.0 orange
	6	506505 1.5/3.0 red	22615 2.0/4.0 black	22576 2.0/4.0 orange
	5	506505 1.5/3.0 red	22615 2.0/4.0 black	22576 2.0/4.0 orange
	4	506505 1.5/3.0 red	22615 2.0/4.0 black	22621 2,5/4,0 grey
	3	506505 1.5/3.0 red	22615 2.0/4.0 black	22621 2,5/4,0 grey
	2	506505 1.5/3.0 red	22615 2.0/4.0 black	22621 2,5/4,0 grey
	1	22578 1.5/3.0 EX- TENSION	22616 2.0/4.0 EXTEN- SION	22622 2.5/4.0 EX- TENSION
		C/C 2110 x 2110	C/C 2600 x 2600	C/C 3110 x 3110

Fig. 24: Marking colours of element bundles (M05 PAK ELEMENTS)

First element layer

Elements with an extension are used in the first element layer of the element storage with dryer to which the intermediate strip is attached. Attach the intermediate strip to the silo bottom using 8 x 16 self-tapping screws (without nuts) (Fig. 25 - 29).

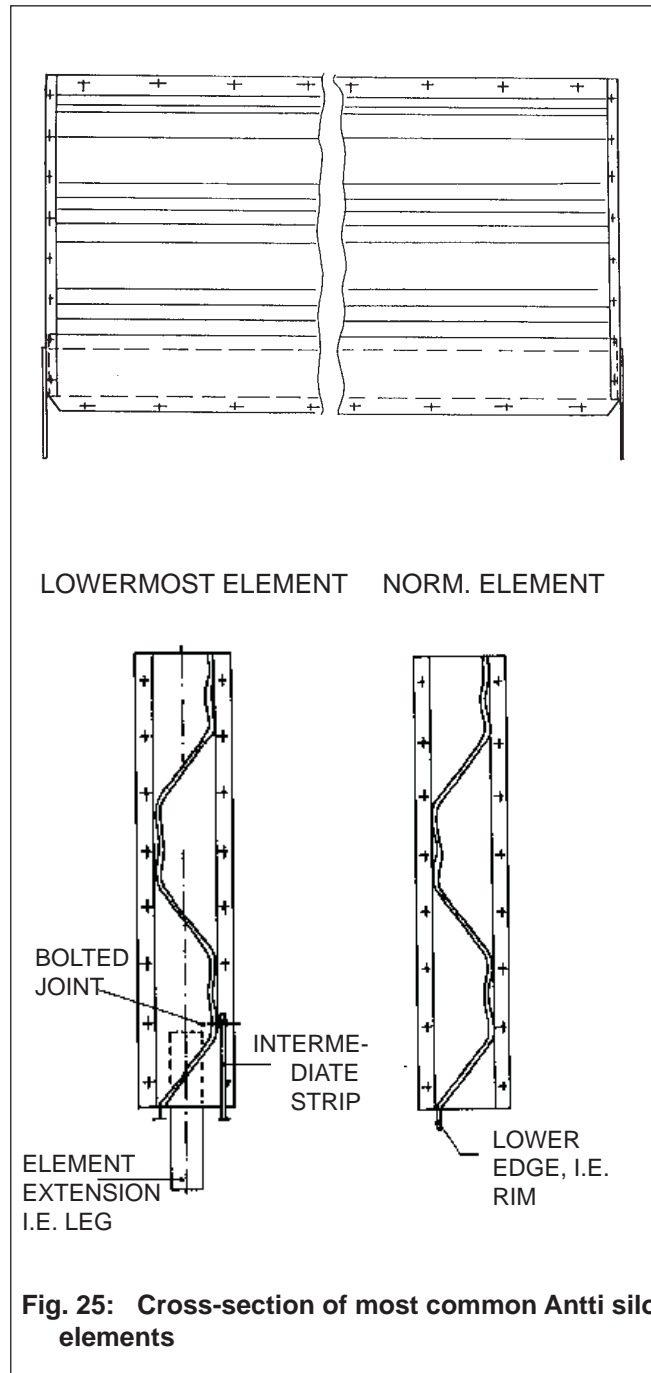
It is possible to attach the intermediate strip to the element before its installation in place. Use the same element and intermediate strip also in the wall between two silos and at the side of the intake hopper (Fig. 28). Use the element without an intermediate strip on the side of machinery. Plug the holes with bolts. (Fig. 29, inner wall).

On 3-m elements use a z-support according to No. 22628 in the outer and inner walls (only in walls that are not supported by the adjacent silo bottom). In the outer walls the z-support and the drip moulding are attached by the same D8x19 screws. On the silo bottom side the support is attached using the same ball-headed hexagon socket screws with which the frame strip of the silo bottom is attached to the elevated side plate. See pictures of the 3 x 3 m silo bottom, 10025

Levelling the first element layer

Find the corner of the silo that lies highest using a water hose or level. Lift the corners which lie lower to the same level by using steel plates of different thickness under the element leg and the corner of the silo bottom corner and also between the pillar and the modular beam. Check the height position by levelling the upper ends of the element end strips and watching through the bolt holes at the upper edge of the elements. The element legs must stand steady supported on the steel plates, bond plates or pillars. Make sure that the silo block stands centred inside the outer rim of the foundation. Align the elements using a line and check the cross-measure. Perform the levelling and alignment carefully.

Attach and tighten all the bolts. Check once more that the end strips on the upper edges of the adjacent elements are at the same level.



Attachment of the silo block by welding

After having completed the levelling, attach the element legs and silo bottom corners by welding to the foundation bond plates, pillars and beams. The final attachment welding can be completed also after installation of 3 - 5 element layers, in particular if there is reason to doubt that the levelling is not accurate.

Putting the dryer base in place

It is better to start the installation of the dryer machinery at this stage.

Cut off the extension legs of the dryer to the length given on the drawing and attach the bond plates to the legs by welding. Attach the legs to the dryer base. Lift the base in place (with the return end and the levers on the outlet side). Install the elevator boot and the outlet pipe.

Install also the drying sections and air channels as the erection of the silo block proceeds. **Refer to the respective chapter in the Dryer Manual.**

Second element layer

Start the puttying of the horizontal joints on the outer wall at the same time as the installation of the second element layer. Using a putty gun, press a putty run under the bolt rows and around the screw holes (Fig. 30). Putty carefully also the end of the horizontal joint.

Install the elements of the outer wall so that the lower edge of the element overlaps the previous element, in the inner and intermediate walls in turns on both sides.

To ensure the required water-tightness, the length tolerance of the element's lower edge is very small. Make sure that the element goes all the way down on the previous element. (End strips)

Make sure that the end strips of the elements sit exactly one on top of the other. No gap is allowed. Neither is lateral "cogging" allowed. Straighten any "cogging" resulting from, for example, transportation.

Cantilever bracket

The silo bottom may be lifted higher than the adjacent silo bottoms for installation of, for example, a screening device. Cantilever bracket 22605 can be used for this purpose (see Fig. 31) or A70307, which is a cantilever bracket that elevates the structure by three layers. In this case the structure may usually be supported by the pillar. At maximum 6 layers of 2-m elements, 4 layers of 2.5-m elements and 2 layers of 3-m elements including the silo bottom may be placed on the cantilever bracket. Because of the silo bottom, the end strips of the element must be notched at a distance of 200 mm on the inside, as shown in the picture.

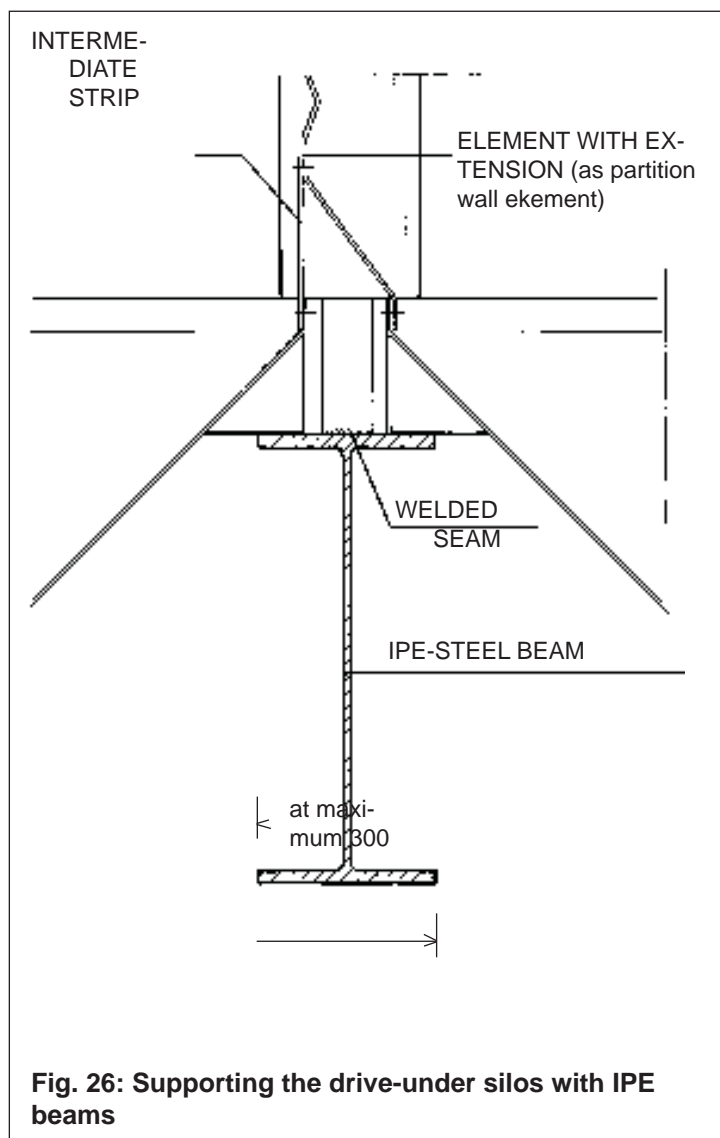


Fig. 26: Supporting the drive-under silos with IPE beams

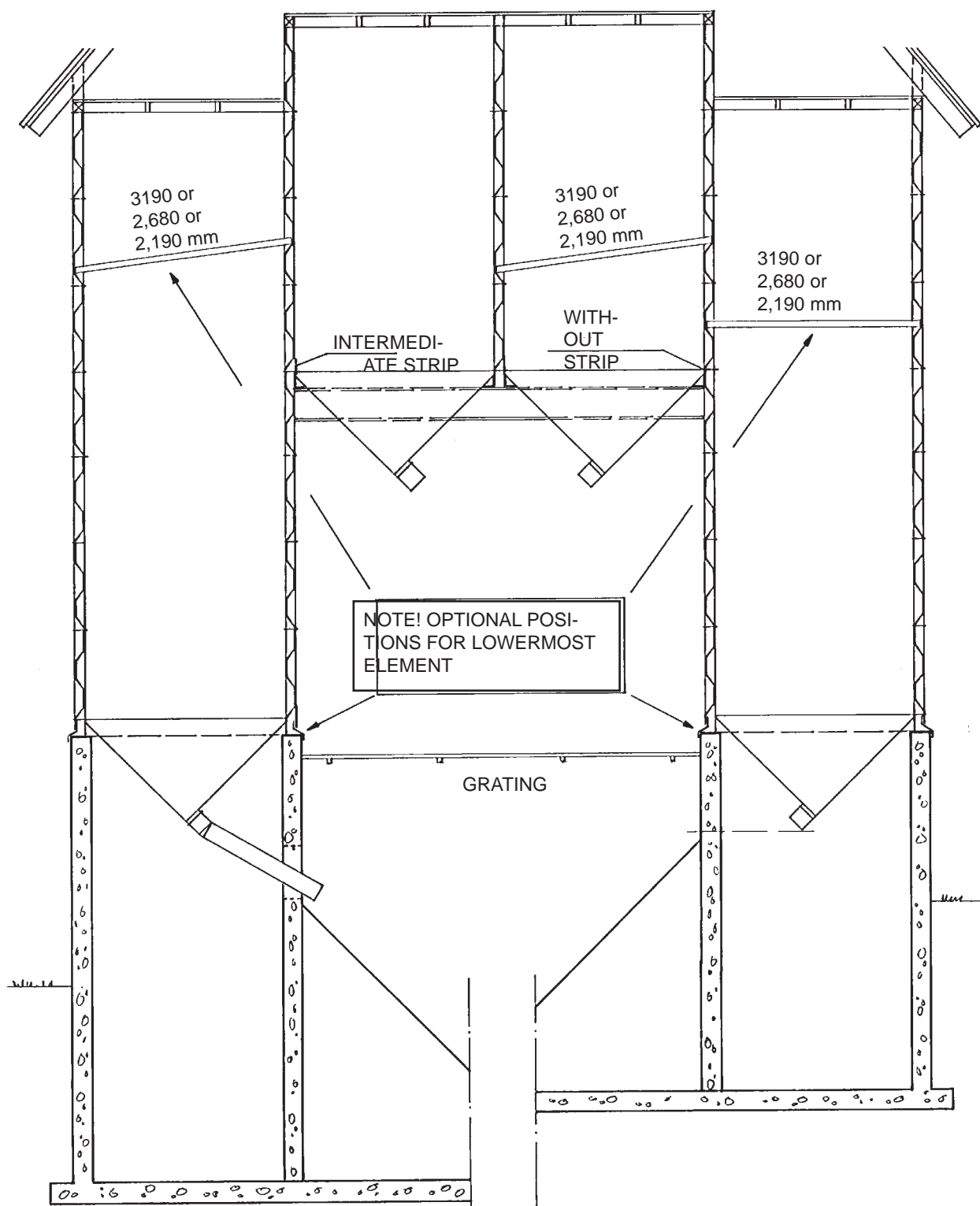
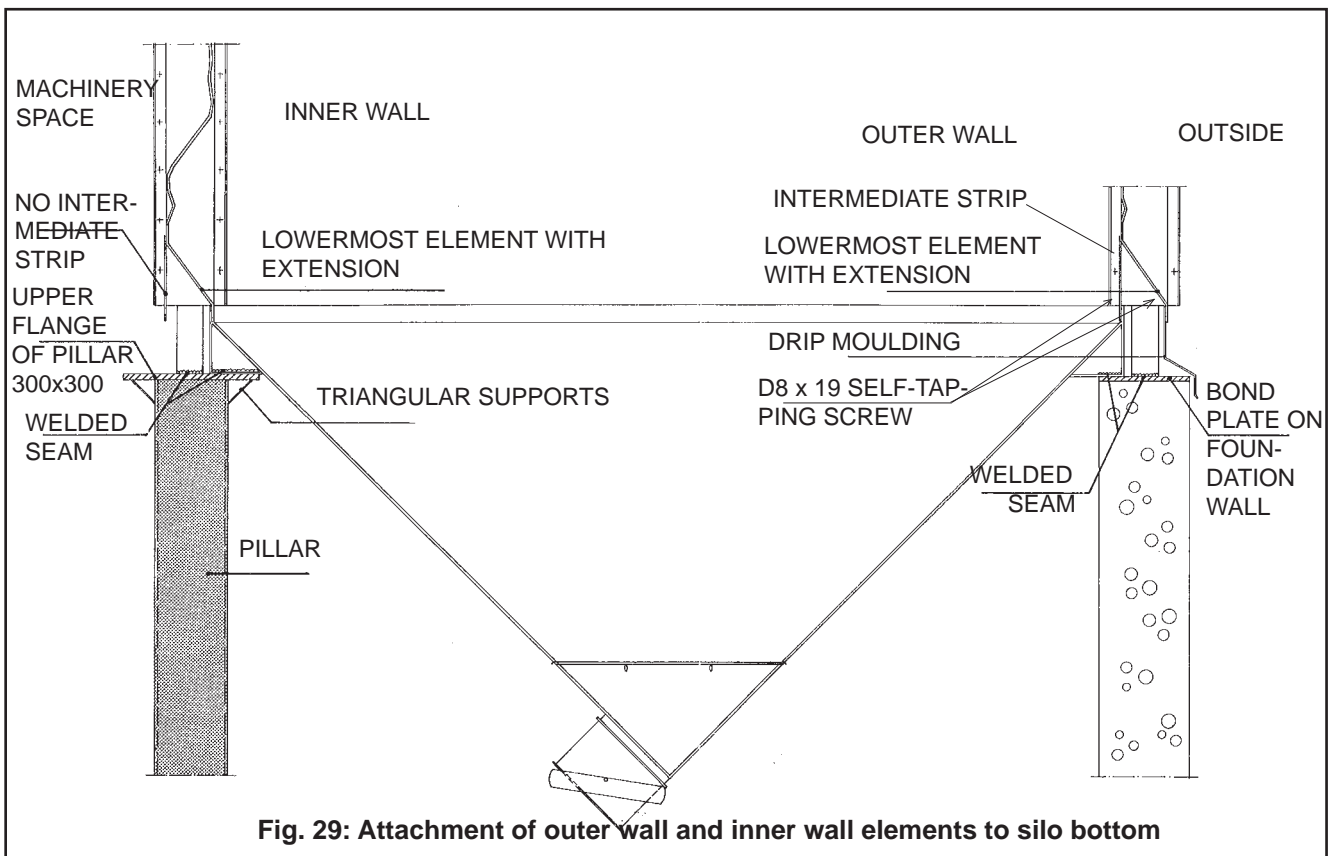
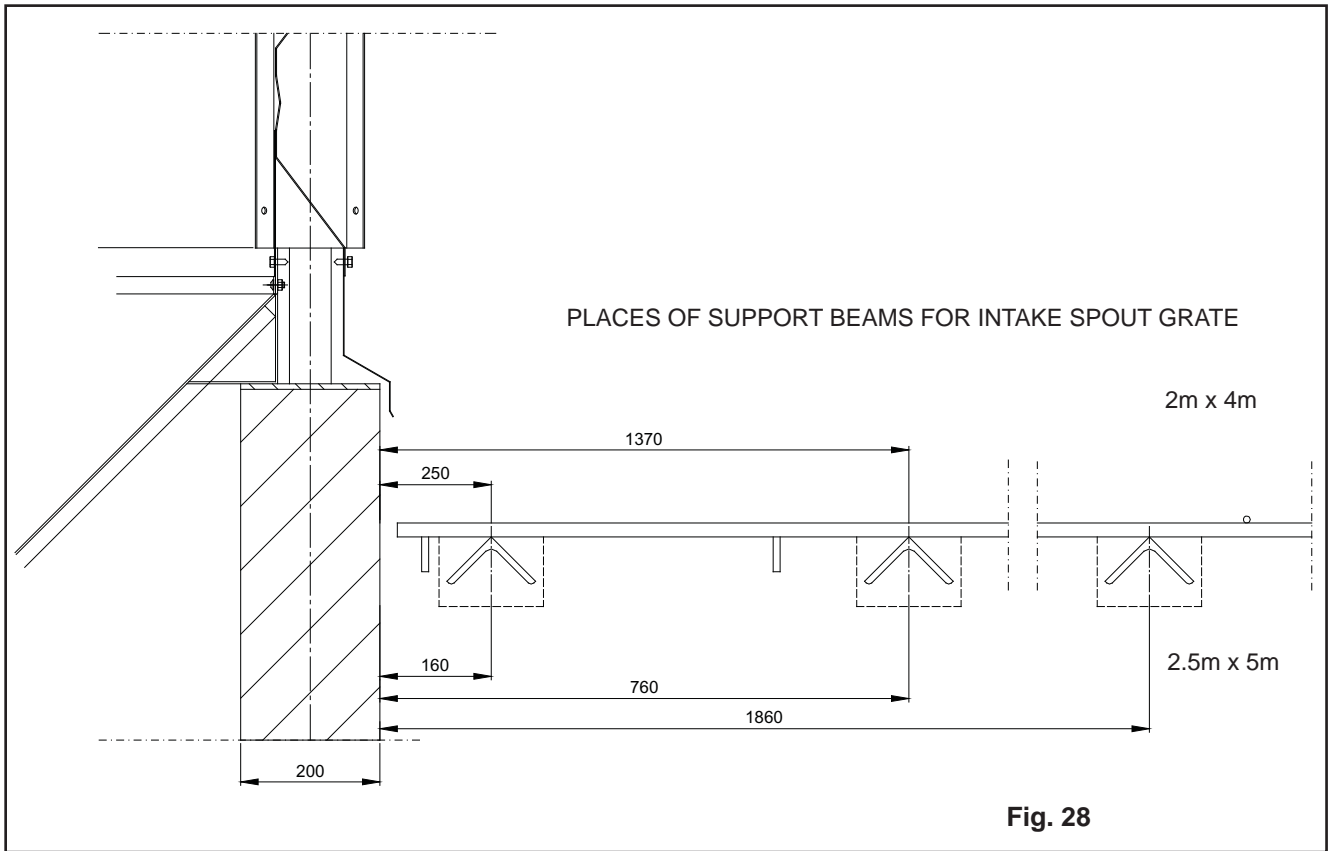


Fig. 27



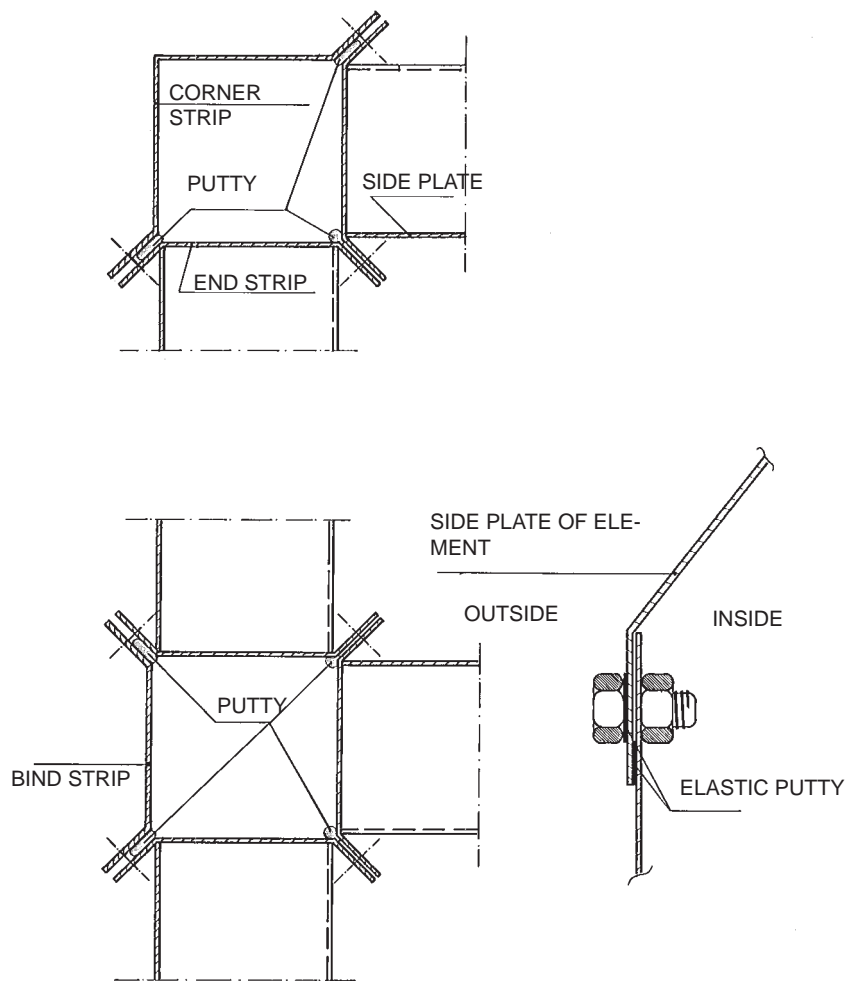


Fig. 30: Sealing the vertical and horizontal joints in the outer wall

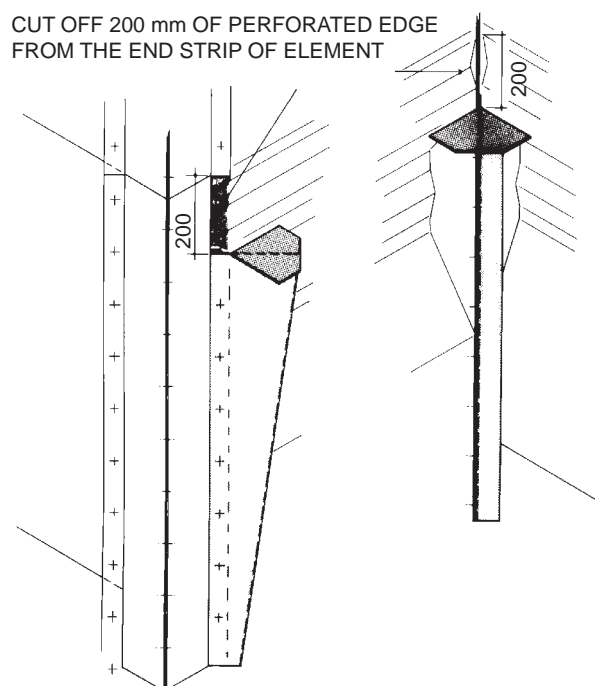


Fig. 31: Cantilever for silo bottom

CANTILEVER FOR PACKAGE M05 L2579 2,0 / 2,5 / 3,0m

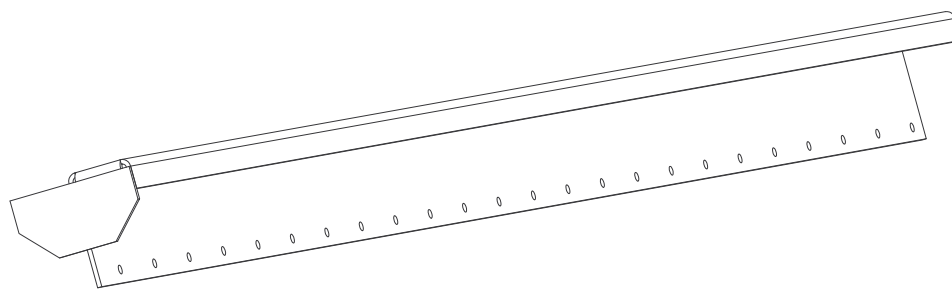
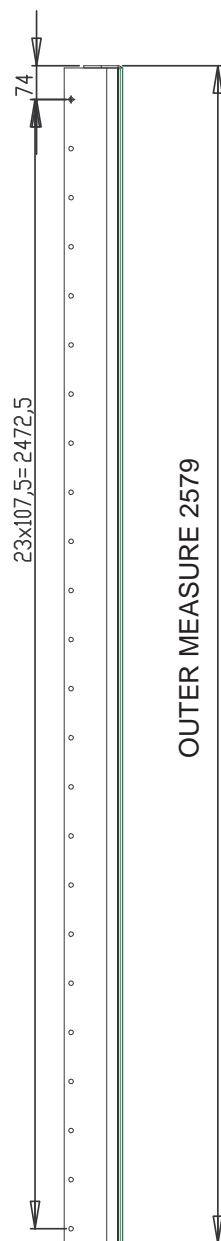
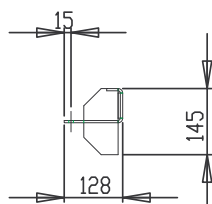


Fig. 32



INSTALLATION OF BEAMS ON FRESH GRAIN SILO

The door opening to the intake hopper is always five element layers high. The width of the doorway can be 4 m, if 2-m elements are used or 5 m, if 2,5-m elements are used. 3-m elements can never be used on doorways.

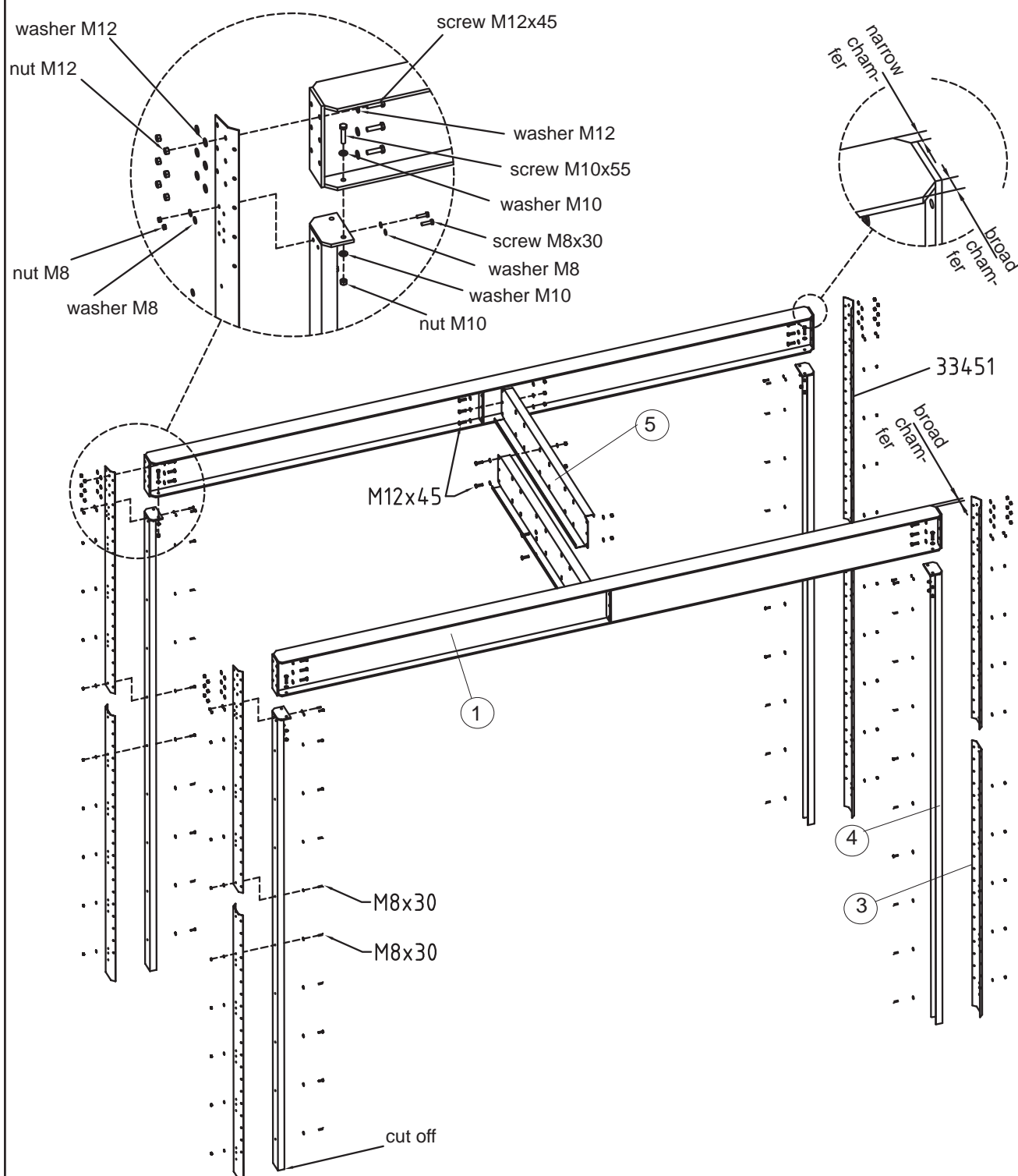
There are four different types of beams for fresh grain silos (part 1). The types are presented in the table. Parts 4 and 5 are not used with the lightest beam INP 180. The flange (part 7) is used instead of them.

Note! The beams IPE-360 and IPE-450 are installed in a position where the broader chamfers at their ends point to the centre.

The beam and the door jamb strips are moved up as the building of the silo block proceeds (according to Fig. 30), to keep the width of the doorway correct.

At the rear edge, the pillar must be attached to the door jamb strips before the door jamb strips are attached in place.

In the most robust (IPE450) beam system the intermediate support (part 5) is attached to the lowermost holes. In connection with installation of the pillars under the IPE-450 beam, a 90-mm-long piece will be cut off from the lower end of the pillars.



PART 1

22598 INP180 4M
22599 IPE360 4M
22600 IPE360 5M
22601 IPE450 5M

MAX. HEIGHT OF FRESH GRAIN SILO BLOCKS

4mx2m 3layers.
4mx2m 9layers. OR 4mx2,5m 7layers.
5mx2m 5layers. OR 5mx2,5m 4layers. OR 5mx3x 4layers.
5mx2m 9layers. OR 5mx2,5m 8layers. OR 5mx3x 5layers.

CUT OFF FROM LOWER ENDS OF PILLARS

no pillars
do not cut
do not cut
90 mm

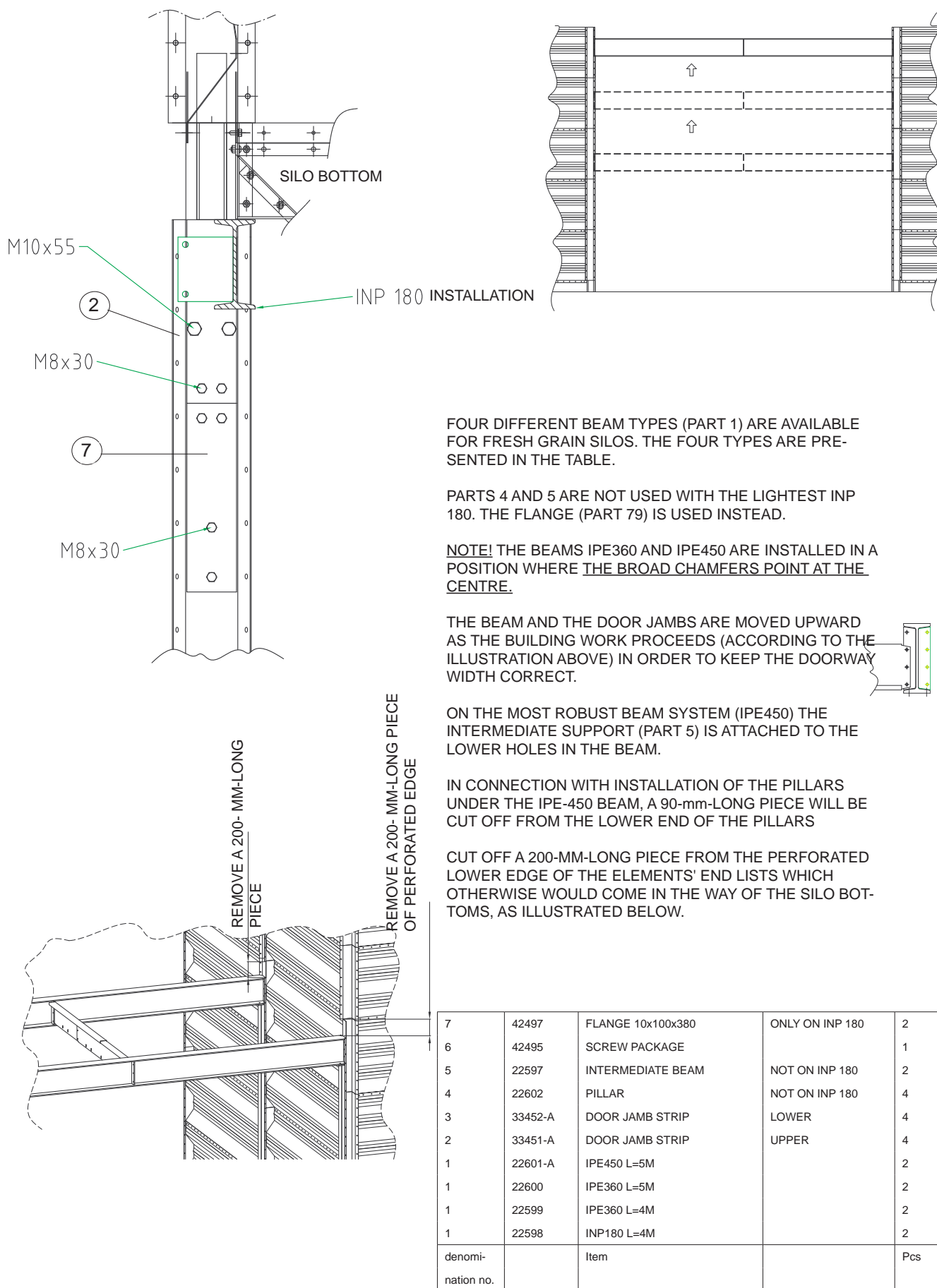


Fig. 33: Installation of beams for fresh grain silo M05

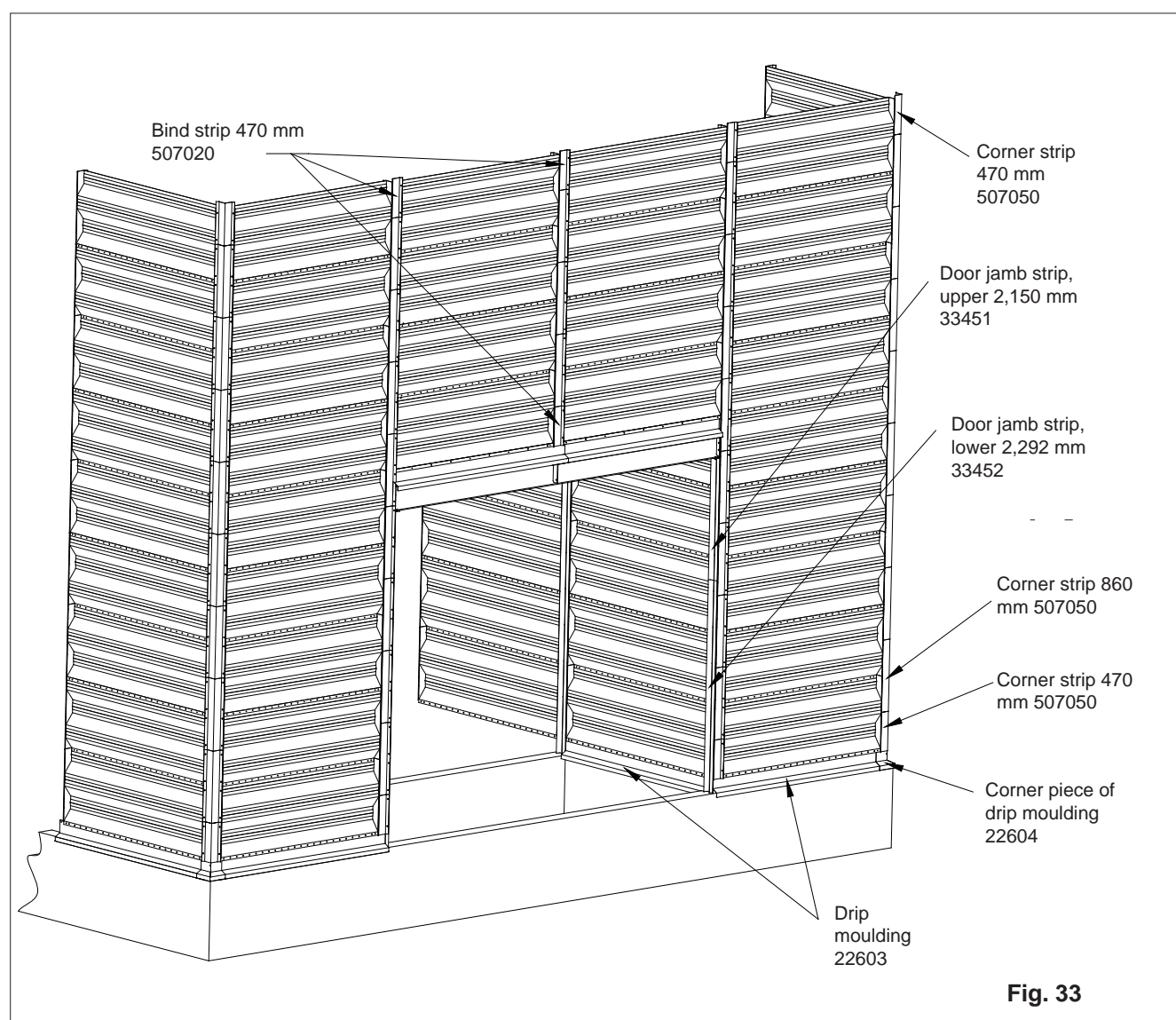
Bind strips, corner strips and drip mouldings

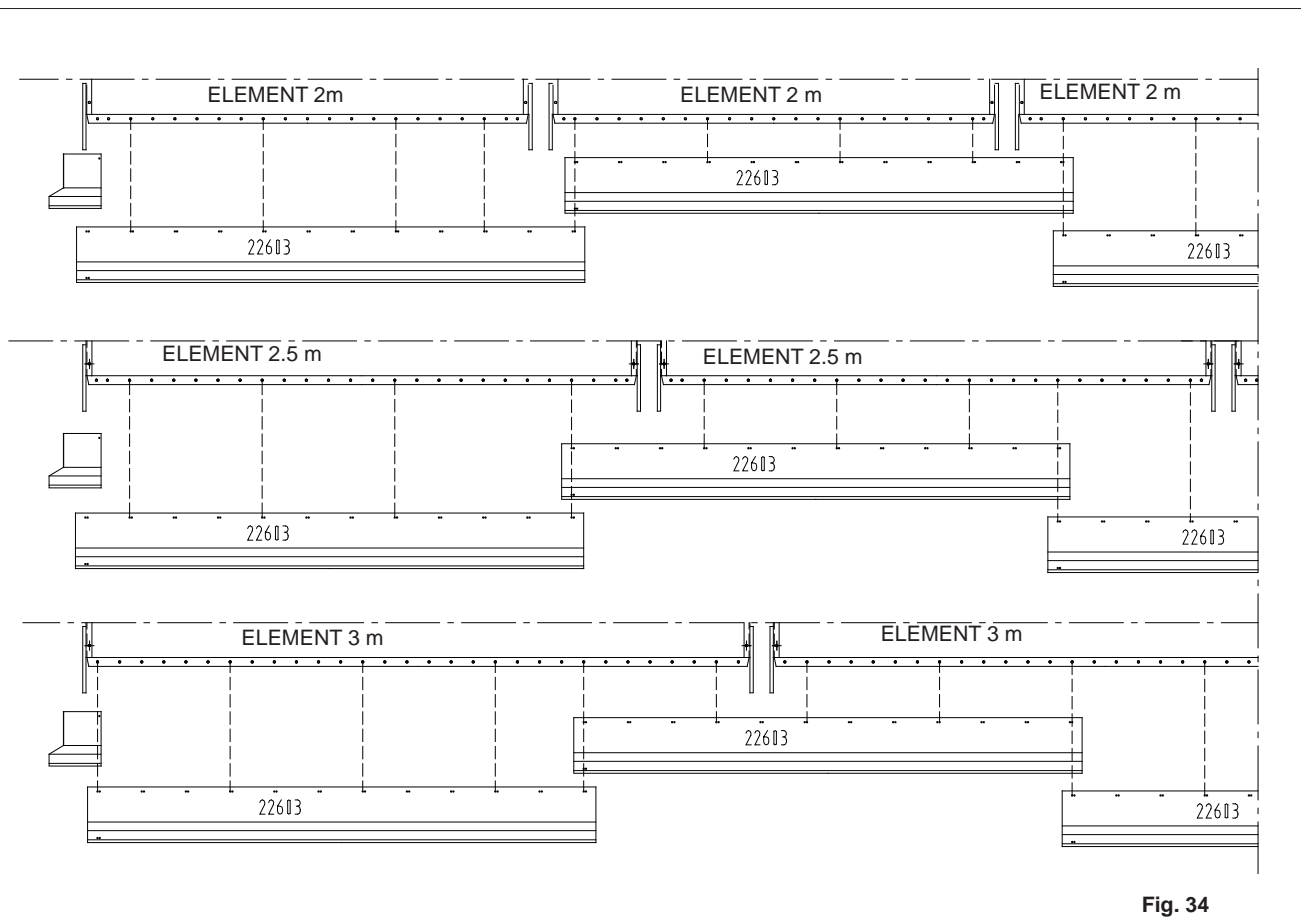
Installation of the bind and corner strips and the related puttying may be carried out either as the installation of elements proceeds or afterwards. Extrude a putty run to the vertical joints of the outer wall elements. Also putty the butt joints of the vertical strips and the end strips of the elements (Fig. 30).

Install a 470-mm bind or corner strip highest and lowest at the corners and joints of the elements. Install bind and corner strips of 860 mm to other locations. The joints of these strips are not superimposed on vertical seams of the elements. The joints come end to end; the uppermost strip, however, overlaps the lower strip by 5 cm (Figs. 33, 35 and 36)

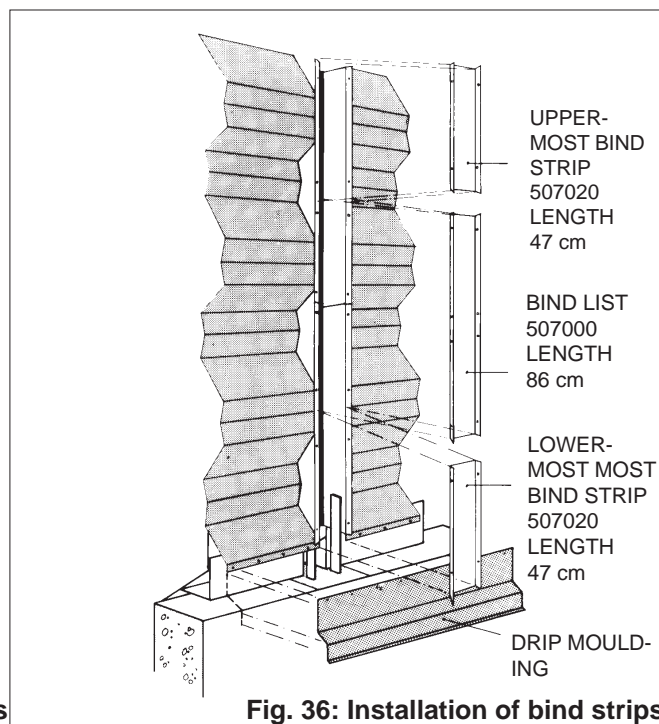
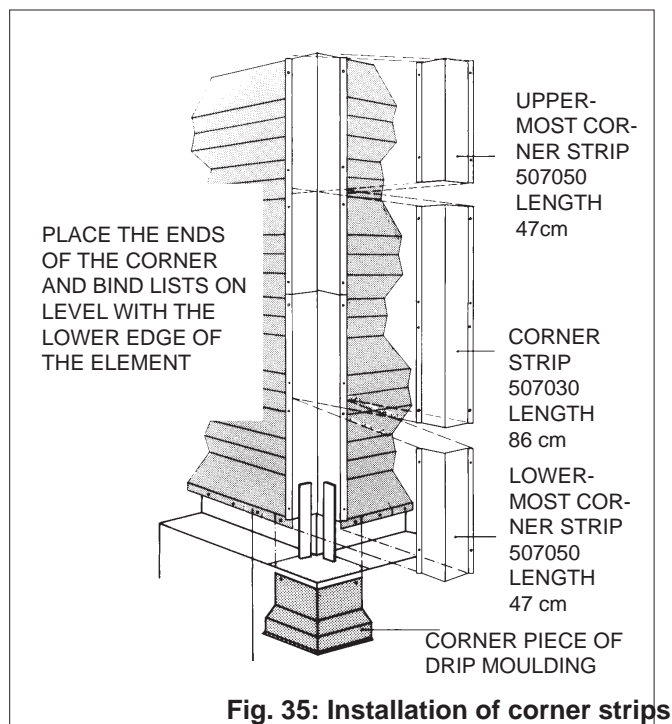
Drip mouldings and corner pieces are attached to the lower edges of the outer rim elements and to both edges of the intake spout (Figs. 33 and 34). Start the installation of the drip mouldings from the corner and cut off the last strip on each wall to a suitable length.

Install the drip moulding, which is delivered with the sliding door, above the doorway. If the delivery does not contain a sliding door, then install an ordinary drip moulding above the doorway (22603).





Although the elements are available in three different lengths, only one length of drip moulding 22603 is available. The ways how the installation of the drip moulding for different elements is commenced from the corner are presented in Fig. 19. Always cut the last drip moulding to the correct length and use the excess piece on the next wall. Attach the drip moulding to the backside of the element edge using self-tapping screws D8x19.



SLIDING DOORS FOR ELEMENT DRYER M05

The sliding doors are delivered in parts. The delivery specification 508720 of the upper door, i.e. the intake hopper door, includes the following parts:

508720 Contents of upper door delivery 33480

Item	Denomination	Length	PCS.
(22596)	DOOR FRAMES)		
22595	SIDE POST, RIGHT	2120	2
22608	SIDE POST, LEFT	2120	2
22593	CENTRE POST	2120	4
22594	U-RAIL	2679	2
33448	VERTICAL BEAM	2679	8
42507	RAIL	3000	4
33458	DRIP MOULDING	1956	3
(506390)	(IF ELEMENTS ARE PAINTED, ALSO THE DRIP MOULDING RR 28 IS PAINTED)		
42498	PACKING		
33446	EXTENSION, INNER EDGE		2
33447	EXTENSION, OUTER EDGE		2
42503	HANDLE		2
33445	CENTRE SUPPORT, RIGHT		1
33457	CENTRE SUPPORT, LEFT		1
33450	RAIL SUPPORT		4
42500	WHEELS		4
33459	CENTRE SUPPORT		3
33449	LOWER GUIDE		2
313182	ROW BALL-BEARING		2
42501	SCREW PACKAGE		1
300500	CARTON		1
42502	RAIL EXTENSION		2

The delivery specifications no. 508722 + 508720 of the lower door, i.e. the door to the drive-under space. In addition to the installation kit for the upper door, kit no. 508722 is also required for assembly of the lower door.

508722 Additional set, lower door

Item	Denomination		PCS.
42507	C-RAIL L=3000		1
42508	PACKAGE, INSTALLATION KIT OF LOWER DOOR		
300500	CARTON		1
42506	DOUBLE BEARER		4
42502	RAIL EXTENSION		1
131002	WEDGE ANCHOR M8x80		12
313182	ROW BALL-BEARING 6202 2Z		2
42505	TRAVEL STOP		1

Installation of sliding doors

The sliding door can be installed as the upper door in 4-m- and 5-m-wide doorways. For four-meter-wide doorways, the horizontal beams of the door are cut to a length of 2190 mm. The door is designed to fit in a doorway five element layers high. The assembly of the door frame is illustrated in Fig. 38. The left-hand door is assembled as a mirror image. Part 1 (22595) is replaced by part 22608 in the left-hand door 22608 (mirror image). The delivery also includes the screws required for assembly and installation. See Figs. 38 and 39 for the screws and their correct places.

The door can also be installed as the lower door of the dryer using the installation kit for the lower door. The width of the lower doorway may be a maximum of 5260 mm and the height a maximum of 4222 mm. If the door is used as the lower door, you may need to reduce its height. In order to reduce the height, shorten the centre post and the side post and drill attachment holes in the shortened end.

The delivery does not include the plates and screws required for cladding. Check the cross-measure of the door frame before attaching the cladding plate.

Choose a sheet metal plate with profile height of 18 - 25 mm for cladding plate. The plate profile must also be rigid enough. The adequate rigidity can be achieved with a plate thickness of at minimum 0.5 mm and using the profiles according to Fig. 37. The suitable length of the upper door plate is 4200 mm.

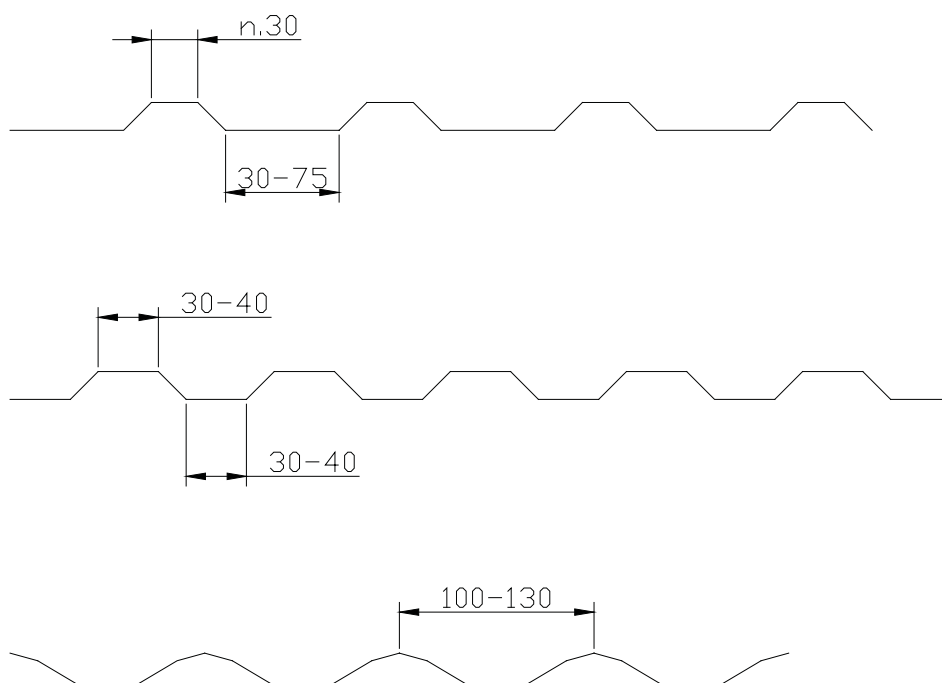
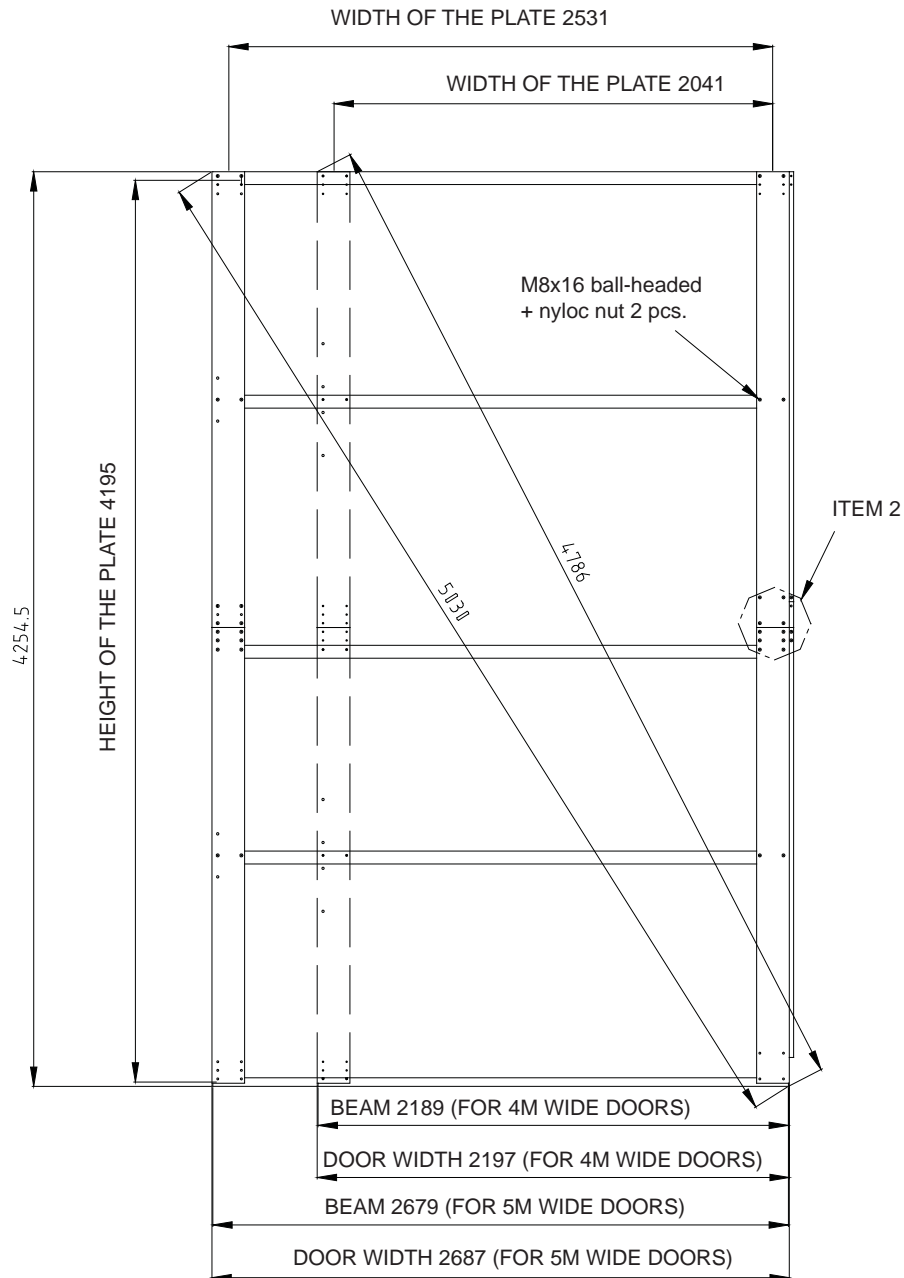


Fig. 37



1) THIS DRAWING PRESENTS THE ASSEMBLY OF THE RIGHT-HAND DOOR. THE LEFT-HAND DOOR IS ASSEMBLED AS ITS MIRROR IMAGE. IF THE DOORS ARE INSTALLED AS LOWER DOORS, SEE PAGE 41 FOR ASSEMBLY INSTRUCTIONS.

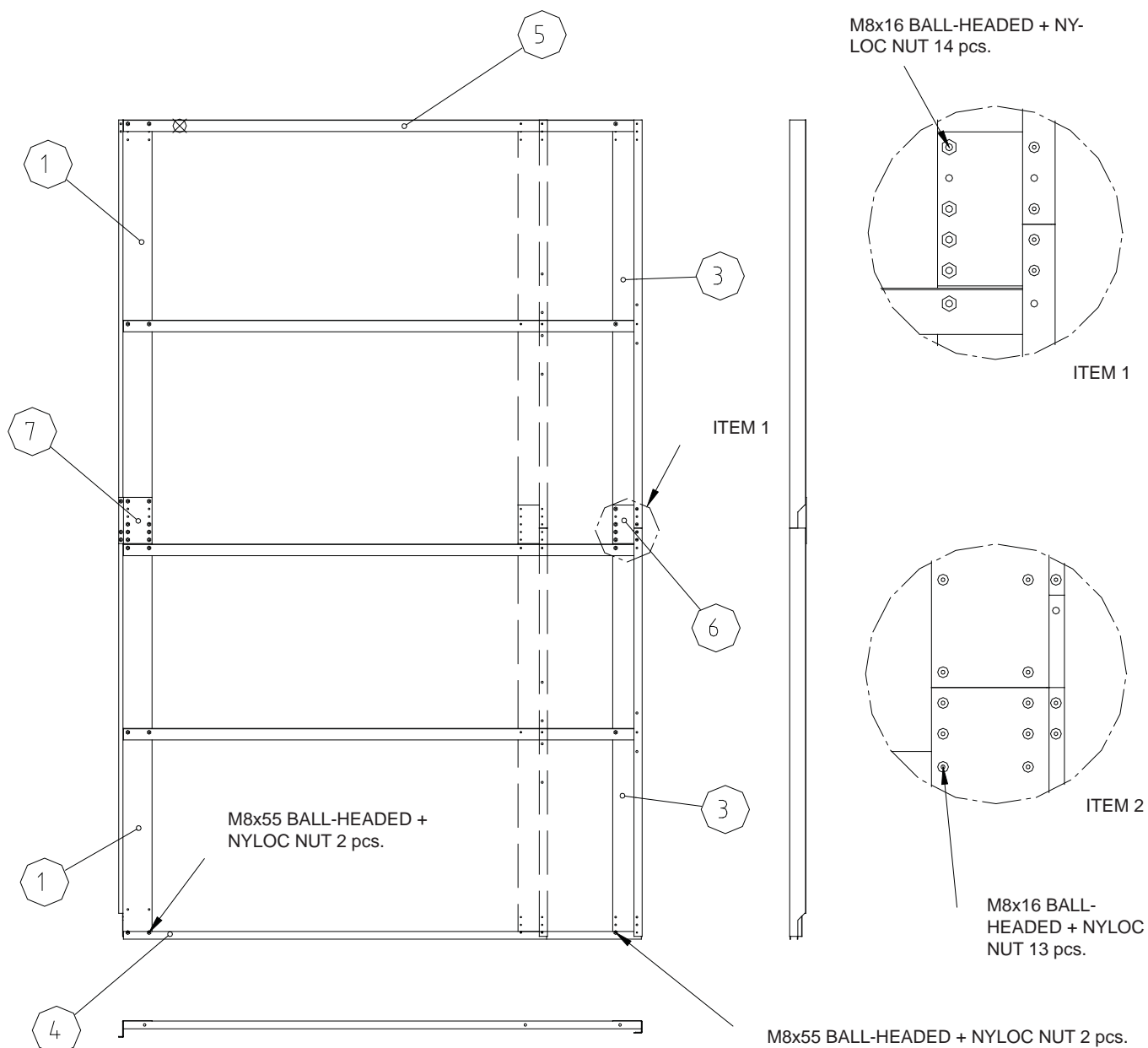
2) PART 22595 IS REPLACED BY PART 22608 (MIRROR IMAGE) IN THE LEFT-HAND DOOR.

3) THE SLIDING DOOR CAN BE MOUNTED ON BOTH 4-M- AND 5-M-WIDE DOORWAYS.

4) FOR 4-M-WIDE DOORWAYS THE HORIZONTAL BEAMS MUST BE CUT TO 2190.

5) AS THE DOOR IS USED FOR OTHER PURPOSES THAN AN UPPER DOOR FOR A DRYER BUILDING, THE HEIGHT OF THE DOOR CAN BE REDUCED AS NECESSARY BY SHORTENING THE CENTRE POST AND SIDE POST AND DRILLING NEW ATTACHMENT HOLES.

6) CHECK THE CROSS-MEASURE



7	33446	EXTENSION	OUTER EDGE	2	0.9
6	33447	EXTENSION	INNER EDGE	2	0.7
5	33448	HORIZONTAL BEAM		8	4.1
4	22594	U-RAIL		2	4.7
3	22593	CENTRE POST		4	8.2
2	22608	SIDE POST	LEFT DOOR	2	8.2
1	22595	SIDE POST	RIGHT	2	8.2
Part	ADB code	Item form, dimension		Pcs	weight of one part

fig. 22596

Fig. 38: Door frames, right and left sliding door M05

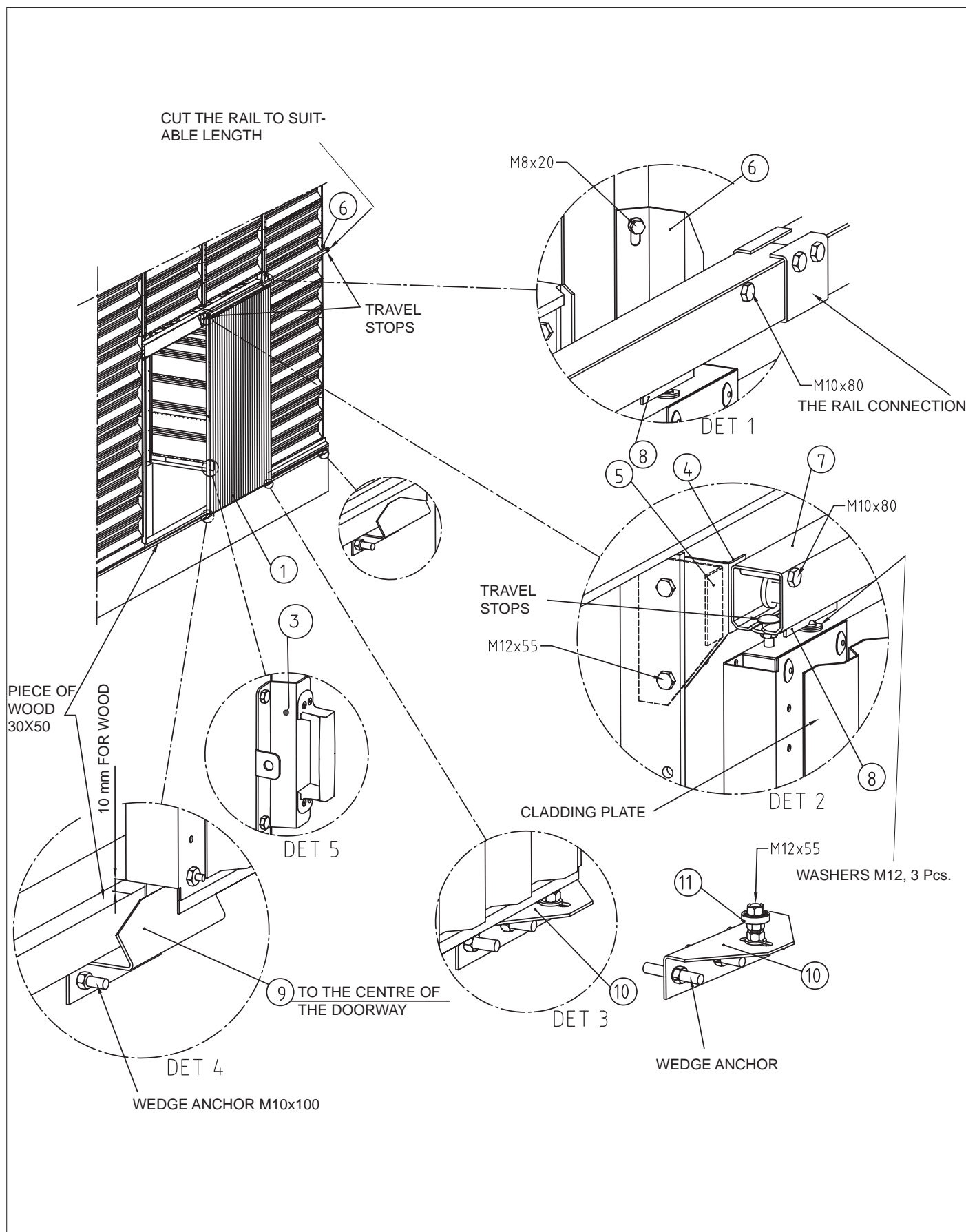
Install the rail brackets (parts 4,5 and 6; Fig. 39). Drill holes in the rail for brackets (see also Fig. 40 for installation dimensions). Install the rails (part 7) . Cut off the surplus length. Check the level position.

Install the roller (part8) in the door frames (part 1). Thread the ready-assembled doors onto the rail from the end of the rail.

Install a 30 x 50 mm piece of wood at the lower edge of the doorway which width-wise extends to the drip mouldings. You can fix the wood to parts 9 and 10.

Install the centre support (part 9) and lower guides (part 10).

Attach travel stops to both ends of both rails (part 7) at suitable places: Lock screw M10x20, washer M12, nut M10 Nyloc (Fig. 39; DET 2).



1) ASSEMBLE THE DOOR FRAMES AS INSTRUCTED IN DRAWING 22596 (FIG. 23) ATTACH THE CLADDING PLATE TO THE DOOR USING SELF-DRILLING SCREWS.

2) INSTALL THE RAIL BEARERS IN PLACE (PARTS 4, 5 AND 6). DRILL HOLES TO THE RAIL FOR BEARERS.

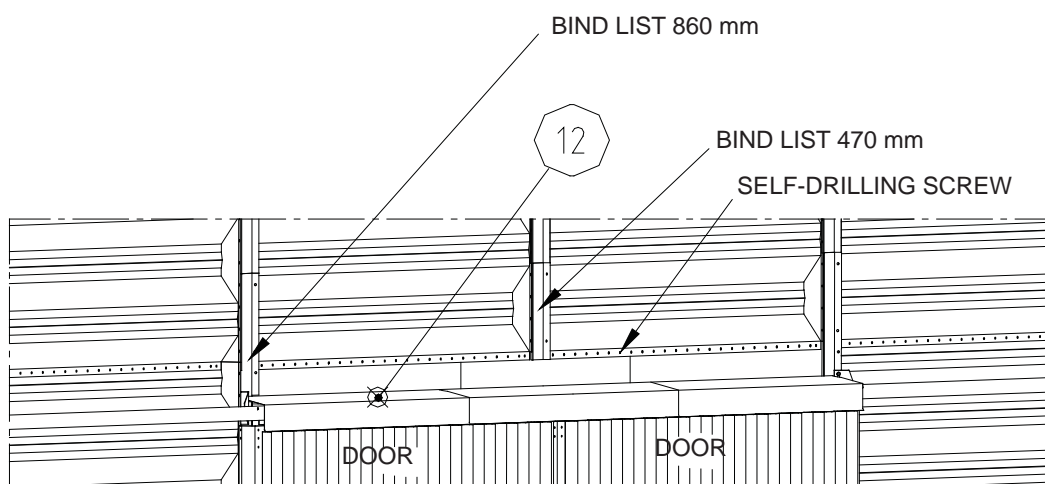
3) INSTALL THE RAILS (PART 7). CUT OFF THE EXCESS LENGTH. CHECK THE LEVEL POSITION.

4) ATTACH THE WHEELS (PART 8) TO THE DOOR FRAMES (PARTS 1 AND 2). THREAD THE READY-ASSEMBLED DOORS ONTO THE RAIL AT THE END OF THE RAIL.

5) PROVIDE THE LOWER EDGE OF THE DOORWAY WITH A PIECE OF WOOD 30 x 50, WHICH EXTENDS TO DRIP MOULDINGS. YOU CAN ALSO ATTACH THE PIECE OF WOOD TO PARTS 9 AND 10.

INSTALL THE CENTRE SUPPORT (PART 9) AND LOWER GUIDES (PART 10).

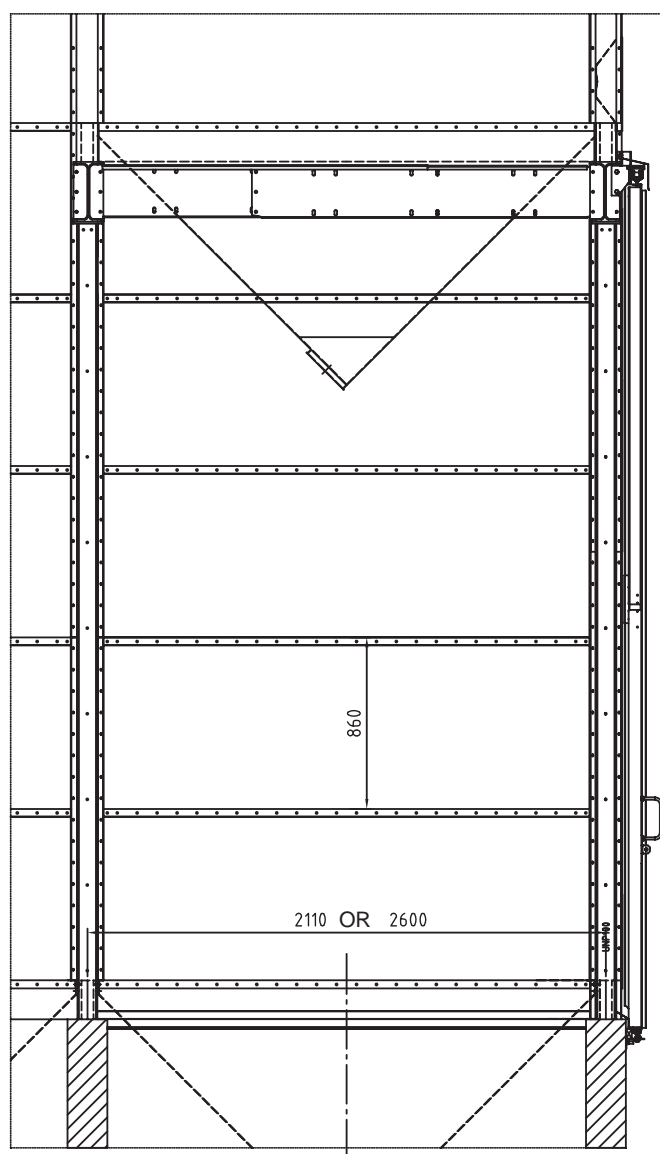
7) ATTACH TRAVEL STOPS IN SUITABLE PLACES TO BOTH ENDS OF THE RAIL (PART 7): LOCK SCREW M10x20, WASHER M12, NUT M10 NYLOC (DET 2).



15	42502	RAIL EXTENSION			2
13	42501	SCREW PACKAGE			1
12	33458	DRIP MOULDING			3
11	313182	ROW BALL BEARING		6202 2Z	2
10	33449	LOWER GUIDE			2
9	33459	CENTRE SUPPORT			3
8	42500	BOGIE WHEELS			4
7	42507	C-RAIL L=3000			4
6	33450	RAIL SUPPORT			4
5	33457	CENTRE SUPPORT		LEFT	1
4	33445	CENTRE SUPPORT		RIGHT	1
3	42503	HANDLE			2
1	22596	DOOR FRAME			2
Part	ADB-code	Item form, dimensions			Pcs

Fig 22607

Fig. 39: Installation of sliding doors M05



1:20

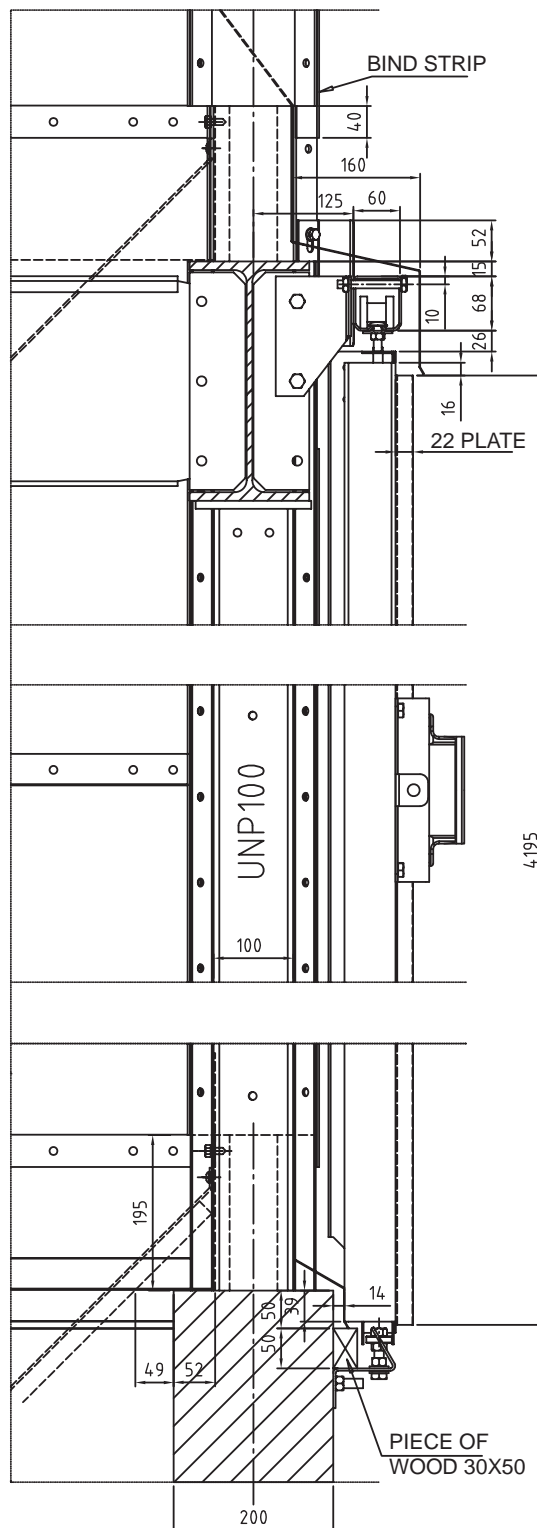


Fig. 40:

Installation of sliding door as lower door (see Fig. 41).

The sliding door can be installed as the lower door of the dryer using both installation kits 508722 and 508720.

Apart from rail C, all parts are in package 42508.

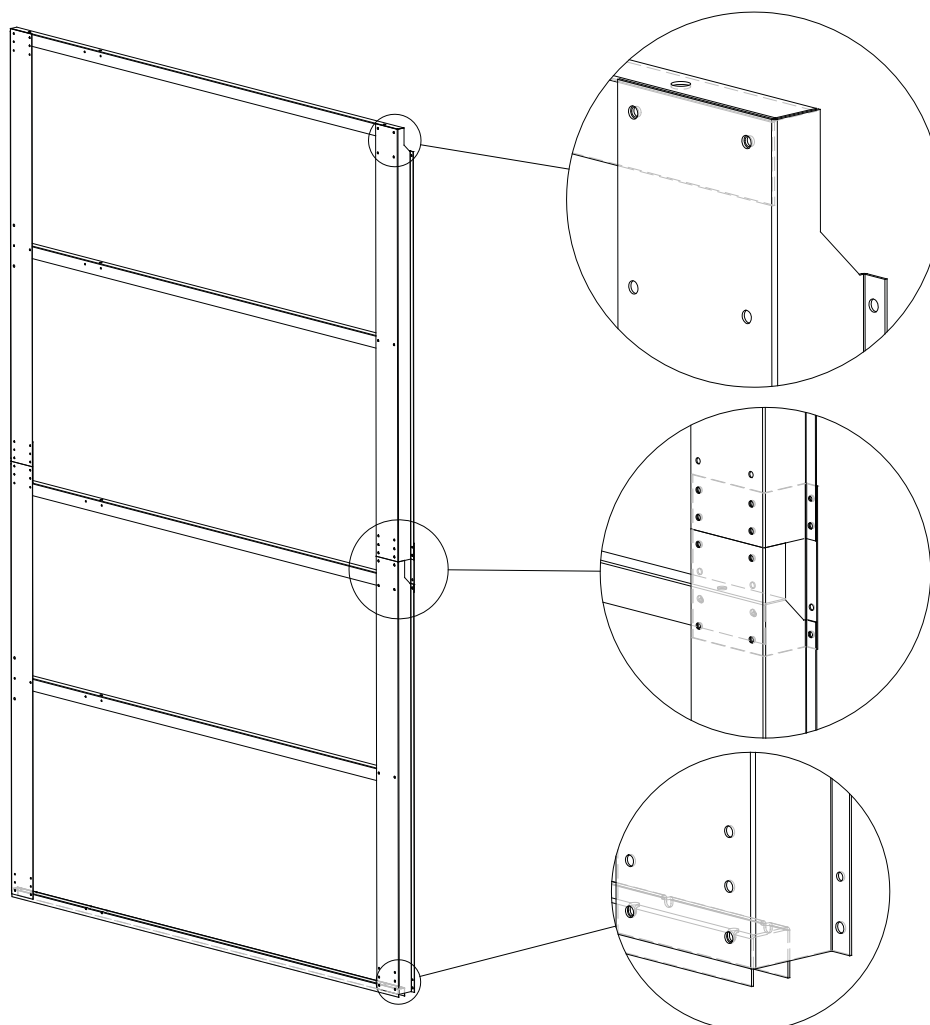
The maximum dimensions of the doorway are 5260 x 4222 mm.

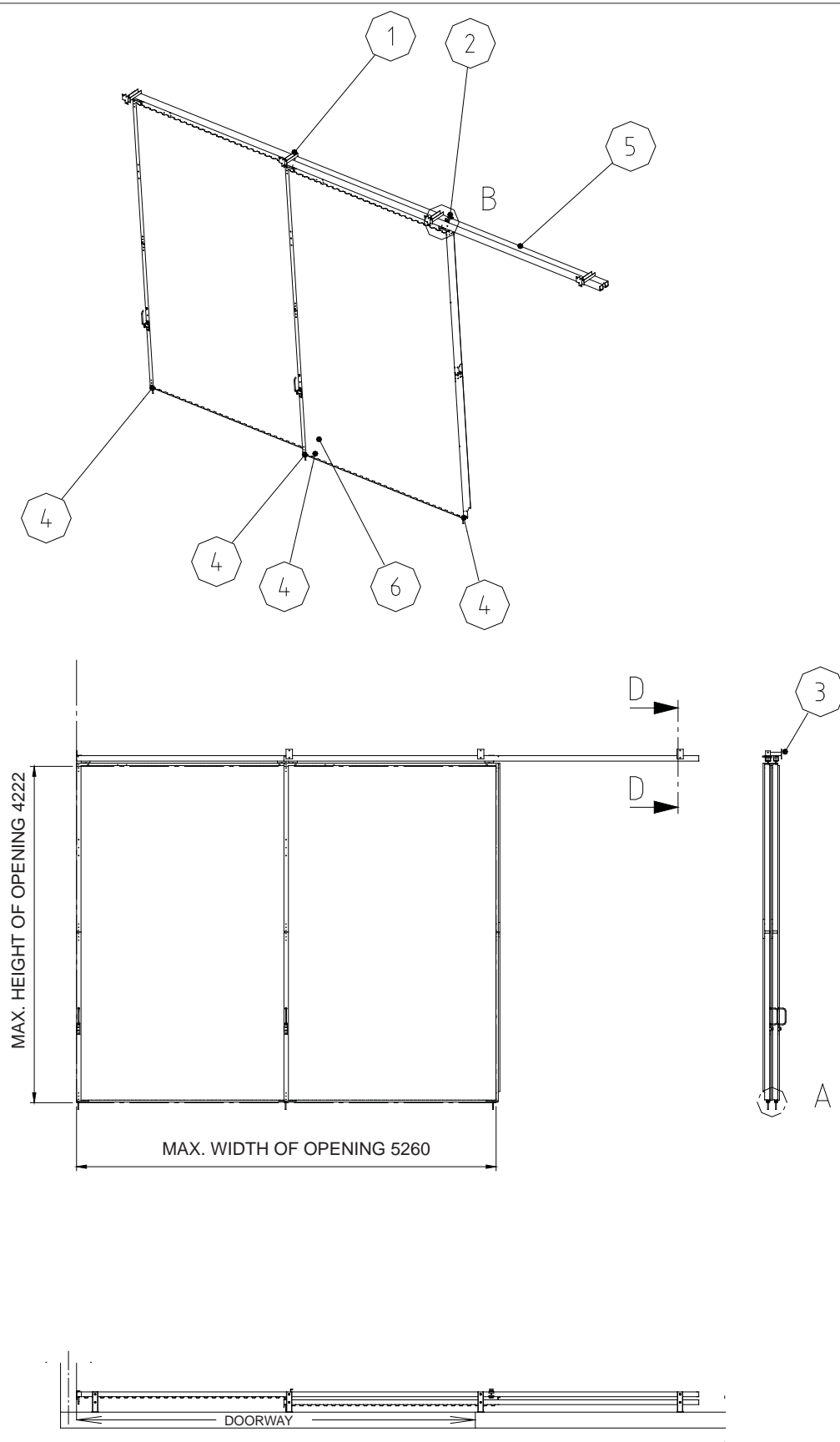
If the sliding door is to be installed as lower door for the dryer that, seen from the outside, opens to the right; the left-hand door frame shall be turned upside down. The the handle will be placed at the left edge on both doors. The uppermost horizontal beam of the turned door frame and the u-rail shall be interchanged so that the u-rail(22594) comes in the lower edge (see picture below). The right-hand door frame shall be assembled, as usual, in accordance with Fig. 38.

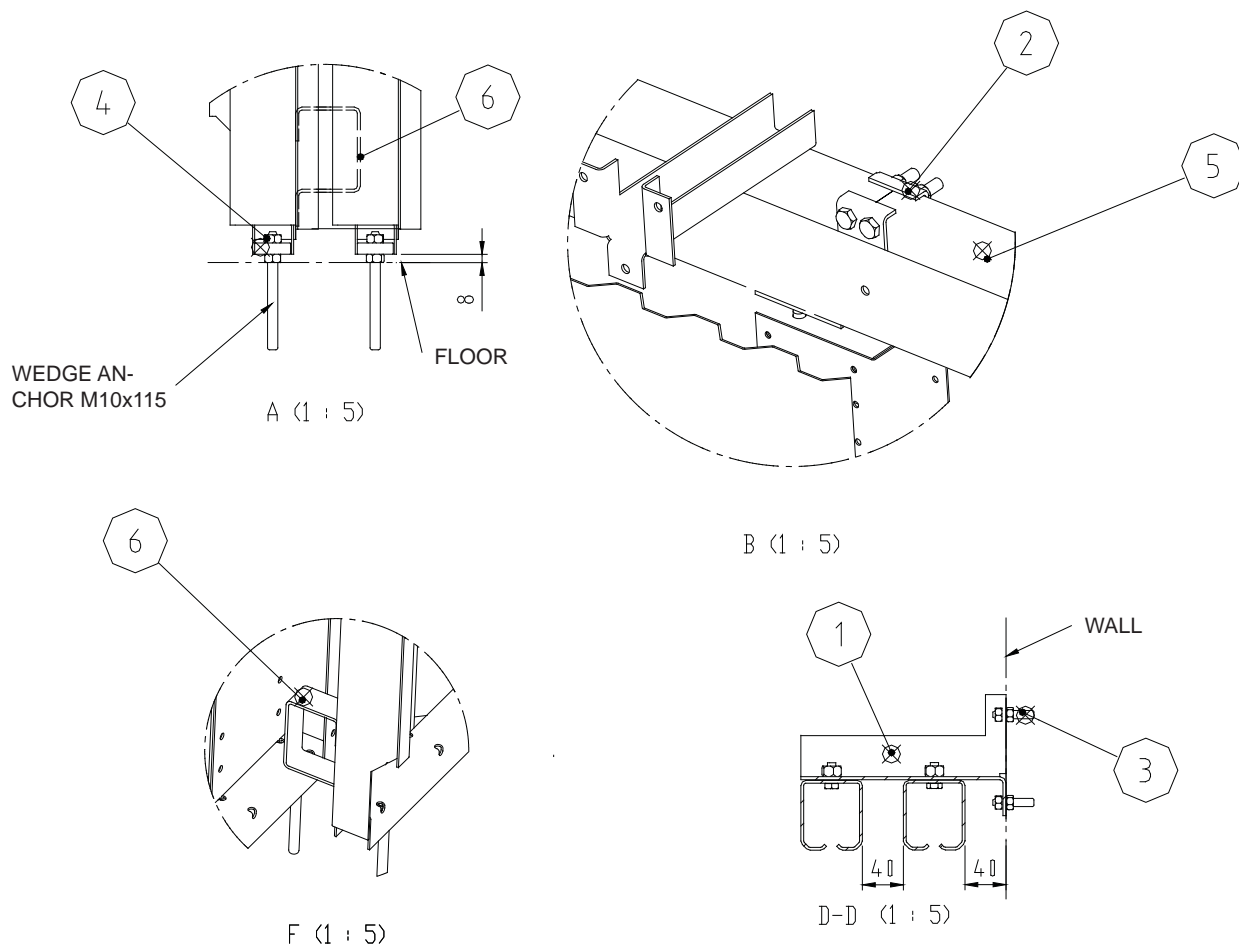
Attach the rails to the inside wall using four double brackets (item D - D).

Install the doors. Attach the guide bearings (4 pcs.) to the floor with the wedge anchors M10x115. Two guides in the middle of the doorway (for both doors) and one at both edges of the doorway. When the door is open, only the door at the wall side will come in contact with the guide.

If you wish to prevent opening of only the right-hand door(as the left-hand door is closed), put a stopper against the lower edge of the door (Item F).







APART FROM RAIL C, ALL PARTS ARE IN PACKAGE 42508.

THE MAXIMUM DIMENSIONS OF THE DOORWAY ARE 5260 X 4222.

ON THE INSIDE THE RAILS ARE ATTACHED TO THE WALL WITH FOUR DOUBLE BEARERS (ITEM D - D).

INSTALL THE DOORS . ATTACH THE GUIDE BEARINGS (4 PCS.) TO THE FLOOR USING WEDGE-ANCHORS M10x115. INSTALL TWO BEARINGS IN THE CENTRE OF THE DOORWAY (ONE FOR BOTH DOORS) AND ONE TO BOTH EDGES OF THE DOORWAY. WHEN THE DOOR IS OPEN, ONLY THE DOOR BY THE WALL IS IN CONTACT WITH THE BEARING.

IF YOU WANT TO PREVENT OPENING OF THE RIGHT-HAND DOOR ALONE (AS THE LEFT-HAND DOOR IS CLOSED), PLACE A STOP SCREW ON THE LOWER EDGE (POINT F) OF THE LEFT DOOR.

6	42505	TRAVEL STOP		1
5	42507	C-RAIL	L=2600	1
4	313182	ROW BALL-BEARING	6202 2Z	2
3	131002	WEDGE ANCHOR	M8x80	12
2	42502	RAIL EXTENSION		1
1	42506	DOUBLE BEARER		4
Part	ADB code	Item form, dimensions		Pcs

Fig. 41: Installation of to lower door; sliding door M05

SPIRAL STAIRS see Figs. 42, 43 and 44

The spiral stairs are delivered custom-built - the customer can choose the height, the number of upper platforms and rest platforms (see calculator). The centre posts of the spiral stairs are always delivered 3-m-long and the excess length is cut off during assembly. See the correct location of the spiral stairs on the main drawings.

Usually the spiral stairs are left-handed, i.e. they rise as you walk clockwise, and the handrail is located on the left side. Sometimes the spiral stairs must be right-handed (always check the design on the main drawing). All parts of the stairs are interchangeable, but not the handrails. The handrail can be converted to right-handed simply by attaching one end to a bench vise and wrenching the other end with a large adjustable jaw spanner.

The installation of the spiral stairs begins with fixing of the bond plate (42510) to the concrete floor using the expander bolts that are included in the delivery. Erect the centre post and put it in the guide tube of the bond plate and drop the steps onto the post. At the same time you can attach the handrail parts to the steps. If the rest

platform does not end level with the floor plane, equalize the difference at a few previous steps either by shortening or lengthening the step tube. Adjust the bushing on the centre post accordingly.

Assemble the spiral stairs before final attachment to the other structures. Doing so enables you to turn the spiral stairs and find the best possible direction for the rest platforms. Place support bars (508820) at 2 - 3 points between the steps and the element joints or the dryer machinery (see Fig. 44). If the weather is cold, then the installation of the plastic profile on the handrail can be made easier by warming up the plastic roll in hot water. Put a D31 plastic plug, which is included in the delivery, to the end of the centre post the cutting.

SPILAR STAIRS

Calculator

INITIAL INFORMATION

height	metres
upper platform	pcs
rest platforms	pcs

508802	PAK SPIRAL STAIRS 600	UPPER HANDRAIL
42510	ANCHOT PLATE	
131010	WEDGE ANCHOR	KA 16x140-145
508781	PAK SPIRAL STAIRS 600	REST PLATFOR
508771	PAK SPIRAL STAIRS 600	STEP
508791	PAK SPIRAL STAIRS 600	CENTRE POST
508801	PAK SPIRAL STAIRS 600	HANDRAIL
508820	PAK SPIRAL STAIRS	SUPPORT BAR
800280	PAK SPIRAL STAIRS	PLASTIC PROFILE
101810	HEXAGON SCREW 6K ZN 8.8	8x16 AM DIN933
508740	PAK SPIRAL STAIRS CENTRE	PIPE L3000

SPIRAL STAIRS

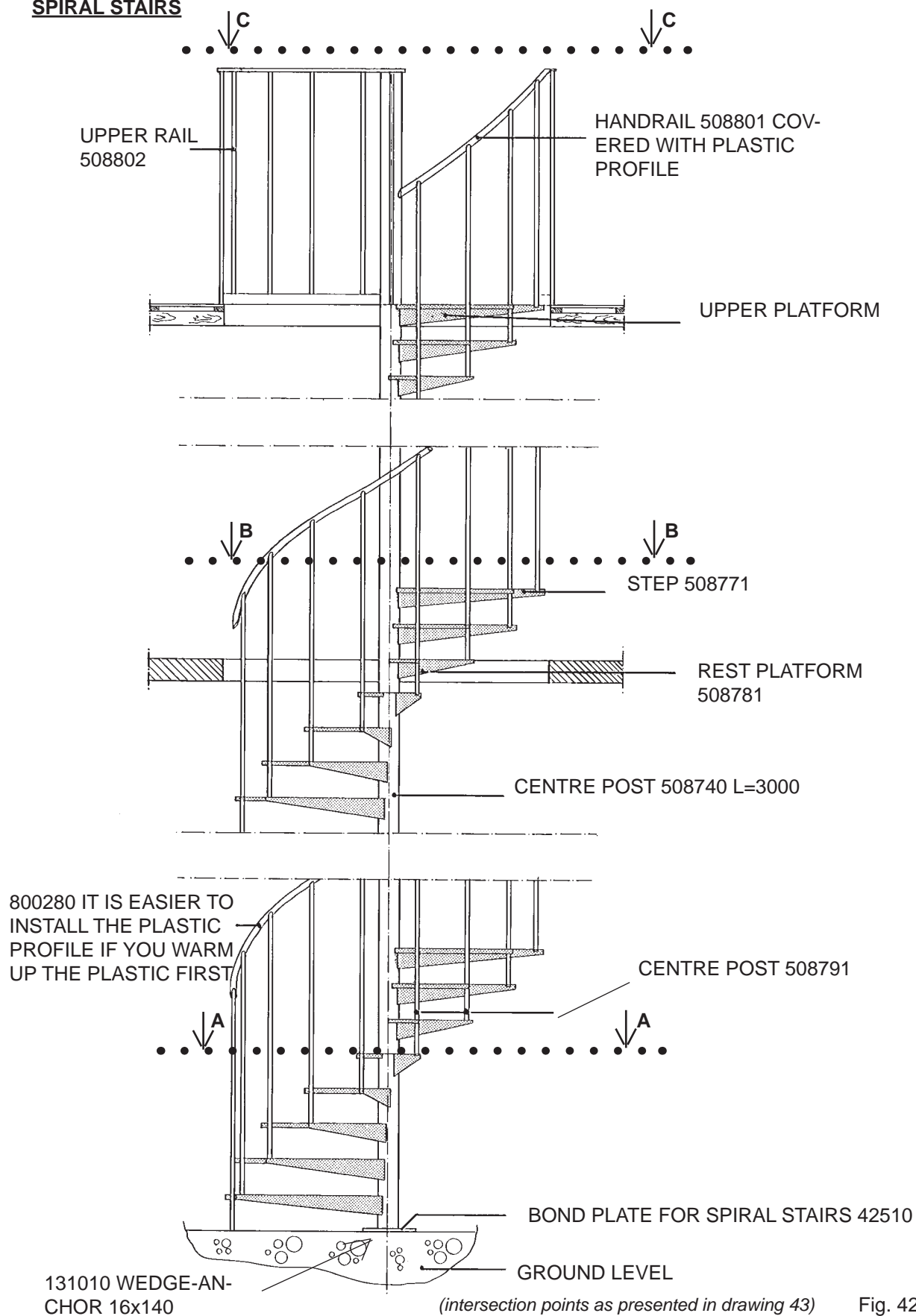
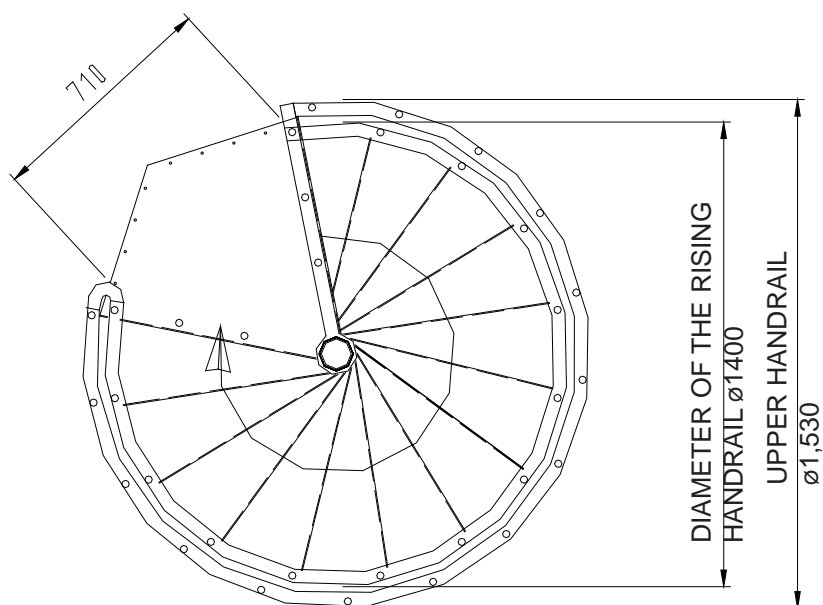
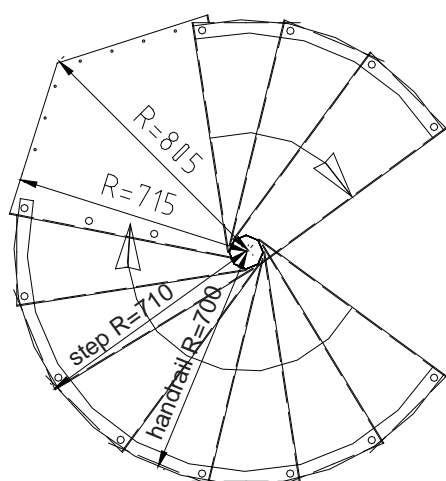


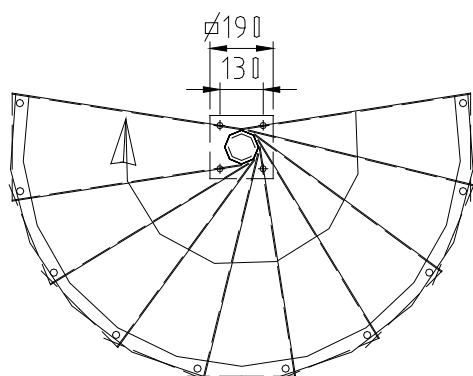
Fig. 42



C - C upper platform



B - B rest platform



A - A ground level

Fig. 43

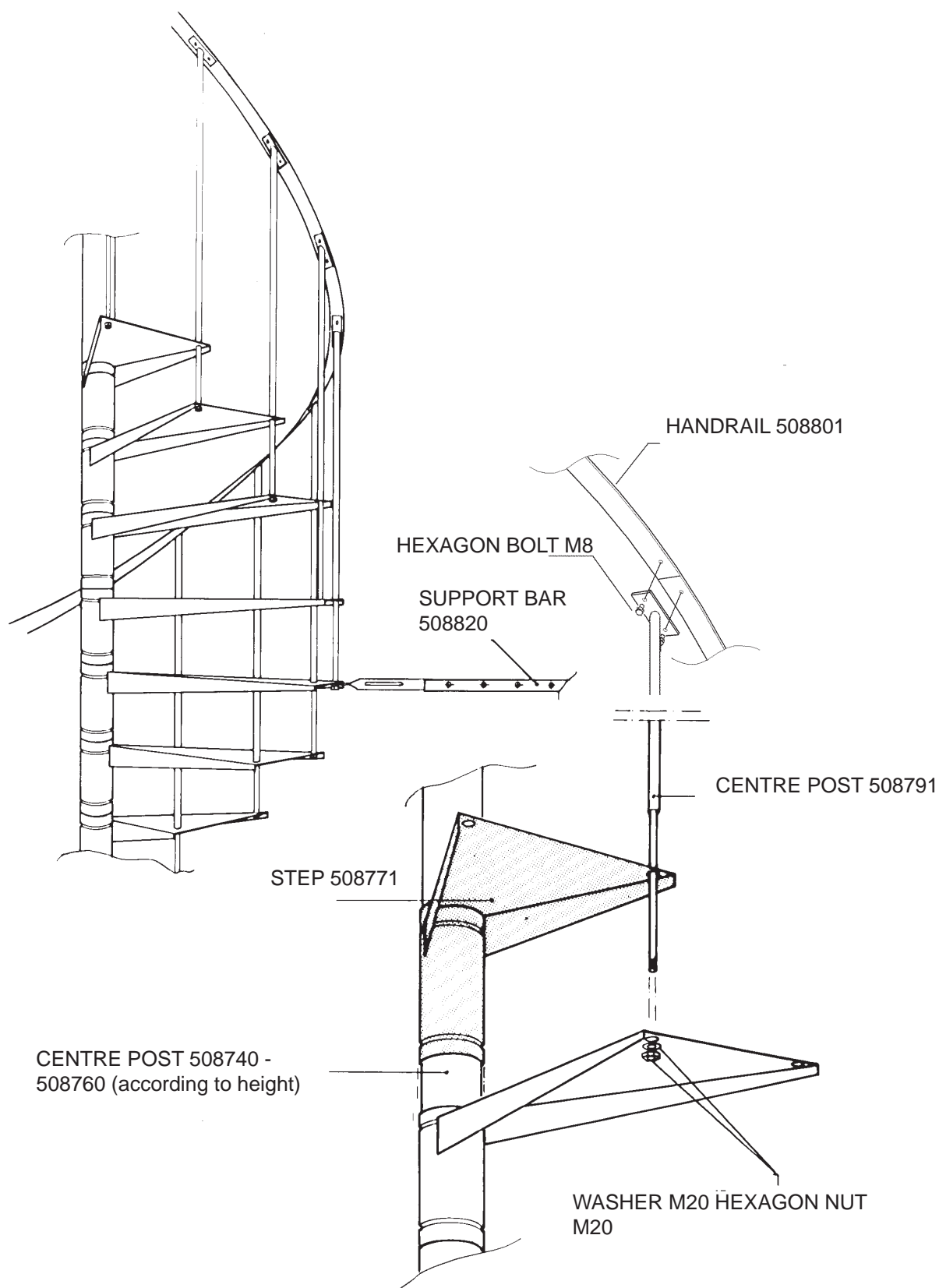


Fig. 44

WOODEN STAIRS

(Fig. 45)

Start the rising stairs from the same side as the hopper and elevator, thus you will not need more than one intermediate rest platform in silo blocks with 4 - 6 layers. Strive to follow these guidelines for dimensioning:

- the pitch must be 1:1,7 - 1:1,4 (30° - 35°), but not steeper than 1:1 (45°) or gentler than 1:3 (20°)
- the free width of the stairs must be at least 60 cm
- plan a suitable amount of rest platforms at the element joints but at least at intervals of 4 m
- depth of the rest platforms must be at least 60 cm in the direction of the stairs
- the free edges of the stairs and rest platforms must be equipped with 1-m-high banisters and intermediate bars at about 0.5-m height
- the step depth (advance) 300 mm (at least 200 mm) and rise not more than 200 mm

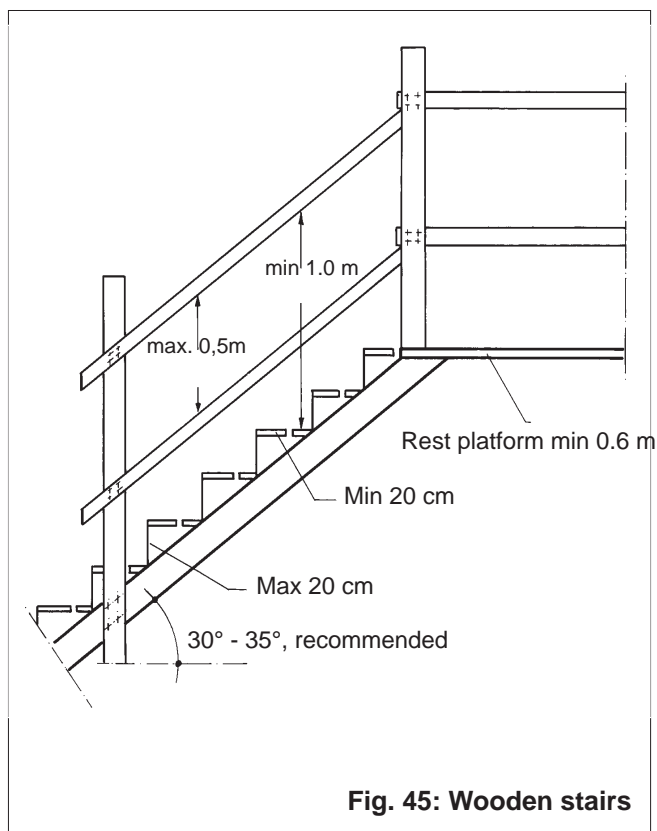


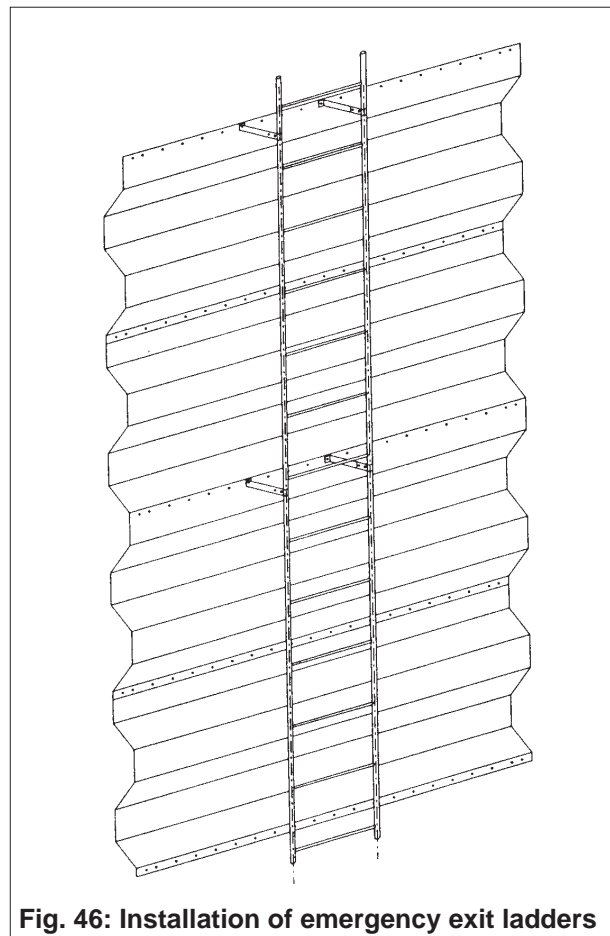
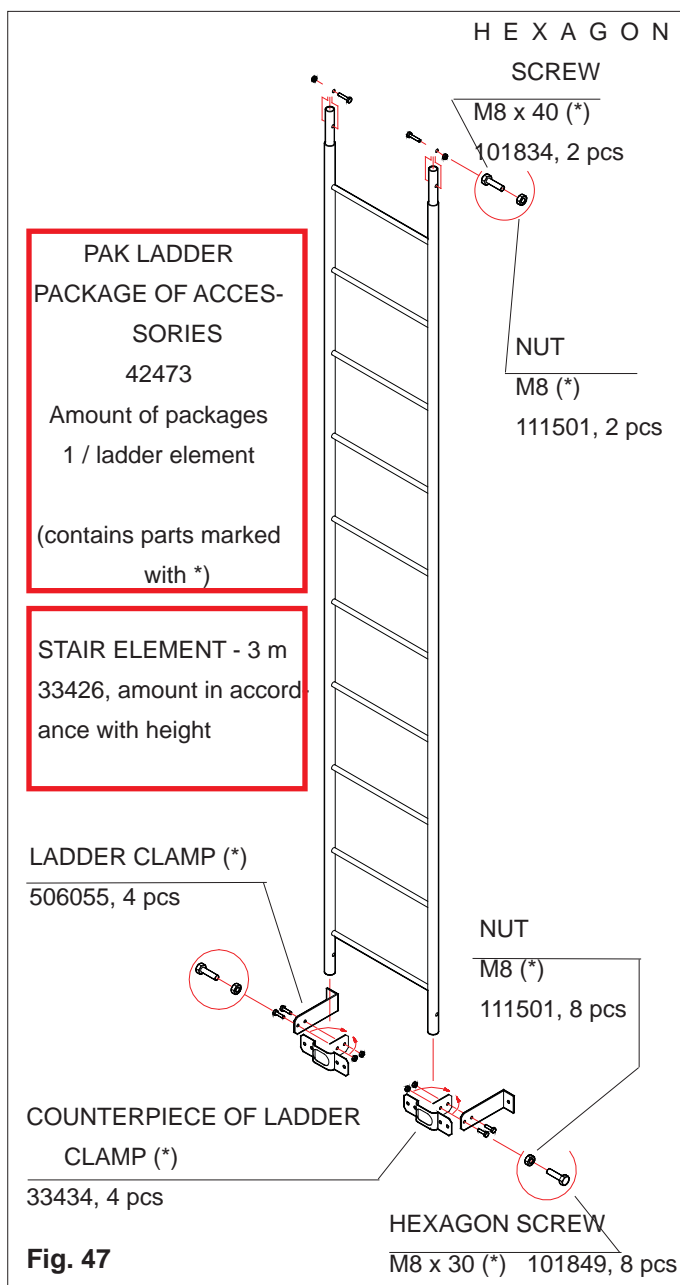
Fig. 45: Wooden stairs

GIRDERS

Separate instructions, "Instructions for installation of girders of a grain dryer", have been issued on no. 408029. Therefore, that subject is not dealt with in this book.

Other structures

Make an at least 500-mm-wide and 600-mm-high opening emergency hatch or window in the cable, the sum of the width and height must be at least 1500 mm. Install a fixed emergency exit ladder (Figs. 46 and 47). Also see the location of the emergency exit hatch and ladder on the main drawings. As a rule, the ladder is installed on the opposite side to the intake hopper, because the sliding doors prevent installation of the ladder on the same side as the door.



Provide the upper tip of the gables with ventilation grates that can be closed. You can make the cables either of 6" board or coated sheet-metal profile.

Seal carefully the space between the roof and the upper floor. At least on the heater room side we recommend installing rain gutters, down-pipes and also a snow barrier (in particular if the pitch of the roof is less than 50°).



Notes:

