

MEVA FormSet MFS

Technical Instruction Manual



Product features

Meva FormSet consists of three product systems:

- System for stop ends/cantilevers
- Anchoring system
- Safety system

System for stop ends/cantilevers

The stop-end rail and the stop-end bracket are used to efficiently form slab edges.

The stop-end rail is used together with the anchor sleeve and the DW 15 tie rod for slabs up to 60 cm thick. For the spacing of the stop-end rails refer to Table 4.3 on p. MFS-4.

The stop-end bracket is used together with anchor sleeve DW 15 and the DW 15 tie rod to form cantilevers up to 50 cm and slab edges up to 40 cm thick. For the spacing of the stop-end brackets refer to Table 5.2 on p. MFS-5.

A safe formwork construction for slab ends and cantilevers is achieved with MEVA formwork panels, with a job-built facing or with boards. MEVA guard-railing posts can be attached to stop-end rails and stop-end brackets to mount a safe side railing.

Anchoring system

The parts of this system can be used to perfectly anchor support frames for single-sided formwork. The parts can be attached at the upper or bottom rebars, depending on the foundation thickness and on the quantity of rebars. The parts of the system are attached by welding or wiring them to the base. They are inclined by 45° and thus do not require additional attachment accessories. Specific types of tie rods can be recovered and re-used.

Safety system

The safety mesh is used as a sturdy side railing and fall-down protection at slab edges. The mesh is easy and fast to assemble, it is attached to MEVA guard-railing posts which are plugged into shoes MFS.

Abbreviations, measurements, decimal numbers, figures and tables

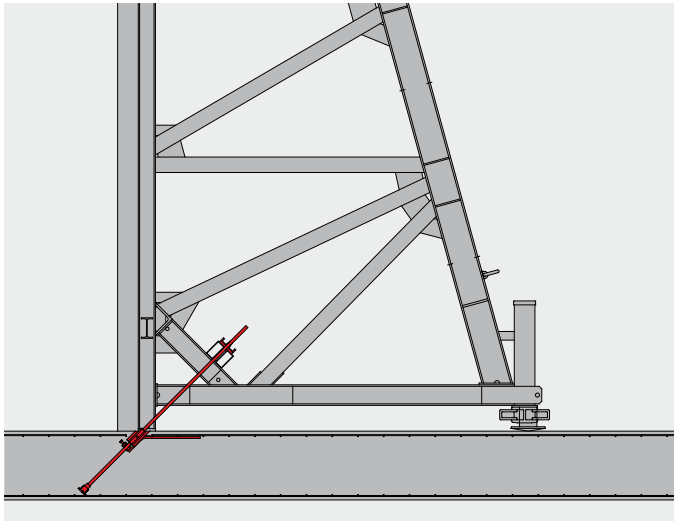
The abbreviation MFS is used for the MEVA FormSet systems.

DIN means Deutsche Industrie-Norm (German Industrial Standard). E DIN (E = Entwurf / draft) means that the DIN is in draft status and not yet approved of. Any further abbreviations are explained where they are used the first time.

TÜV means Technischer Überwachungsverein. This is the independent German organisation that tests the safety of technical installations, machinery and motor vehicles. If a product passes the test, it is permitted to carry the GS seal. GS stands for Geprüfte Sicherheit (approved safety).

Measurements: This manual uses the metric system and thus m (for metre), cm (for centimetre) and mm (for millimetre). Dimensions without a measure are in cm.

The page numbers in this manual start with MFS. The figures and tables are numbered per page. Depending on its product abbreviation, a cross reference in the text refers to a page, table or figure in this or in another manual.



Please note

This Technical Instruction Manual contains information, instructions and hints describing how to use the MEVA equipment on the construction site in a proper, quick and economic way. Most examples shown are standard applications that will occur in practice most often. For more complicated or special applications not covered in this manual, please contact the MEVA experts for advice. When using our products the federal, state and local codes and regulations must be observed. Many of the details shown do not illustrate the wall formwork system in the ready-to-pour condition as to the aforementioned safety regulations. Please adhere to this manual when applying the equipment described here. Deviations require engineering calculations and analysis to guarantee safety.

Please observe the assembly instructions that your local contractor or employer has created for the site on which the MEVA equipment is used. Such instructions are intended to minimise site-specific risks and must contain the following details:

- The order in which all working steps including assembly and disassembly must be carried out
- The weight of the panels and other system parts
- The type and number of ties and braces as well as the distance between them
- The location, number and dimensions of working scaffolds including working area and protection against falling down
- Pick points for panel transport by crane. With regard to panel transport, please observe this manual. Any deviation will require a static proof.

Important: Generally, only well maintained material may be used. Damaged parts must be replaced. Apply only original MEVA spare parts for replacement.

Attention: Never wax or oil assembly locks.

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System for stop ends/cantilevers – Stop-end rail MFS

The stop-end rail MFS is used to form vertical slab stop-ends that are flush with the wall. The long holes allow for an adjustment of 24.9 cm. Its main features are:

- Usable for slabs up to 60 cm thick.
- Has an integrated spacer for stepless adjustment and precise positioning at the slab edge formwork (panel, board or facing). Adjustment range: 0-25 cm.
- MEVA guard-railing post can be plugged into the stop-end rail.
- Nail holes to attach the formwork (boards, facing) to the stop-end rail.

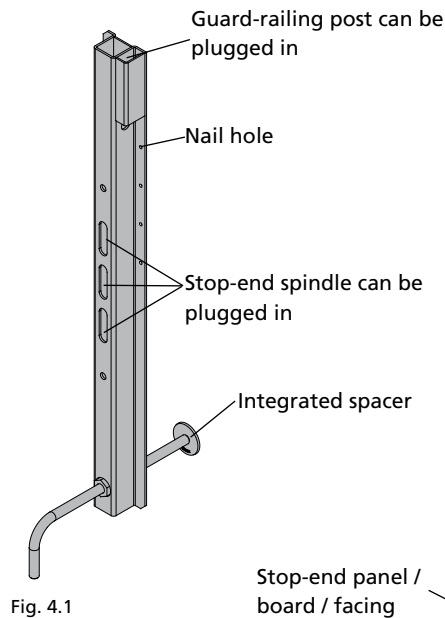


Fig. 4.1

For the assembly of anchor sleeve DW 15 refer to p. MFS-6 and MFS-7. Table 4.3 shows the maximum spacing of the stop-end rails.

Attention

Never tie the stop-end rail through empty plastic sleeves.

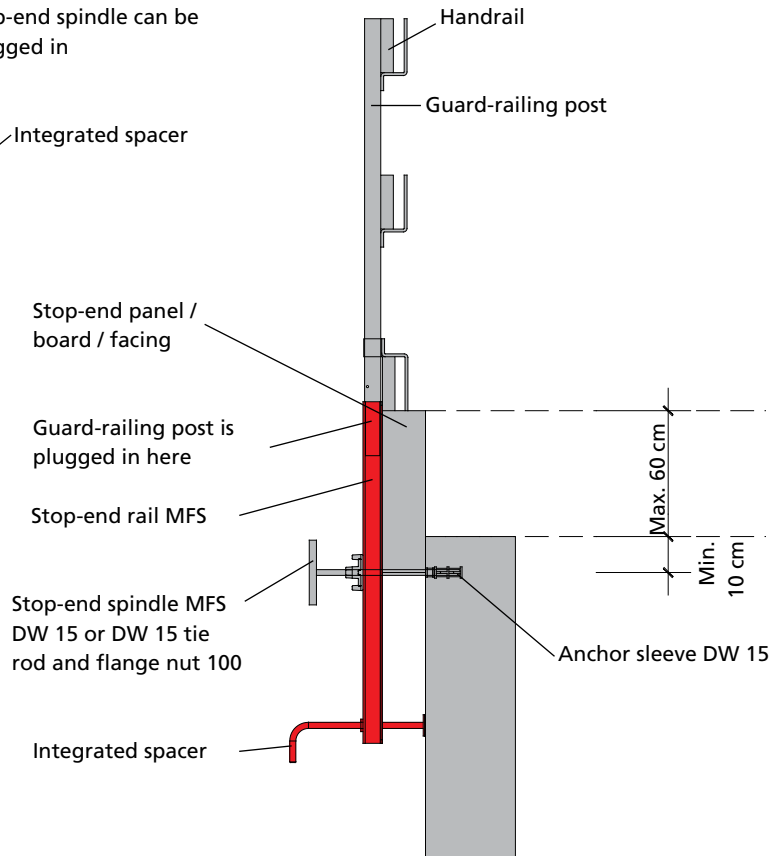


Fig. 4.2

The slab thickness determines the maximum spacing of the stop-end rail.

	Slab thickness (cm)				
	20	30	40	50	60
Max. spacing (cm) considering equivalent load at guard-railing post	150	110	85	75	40
Max. spacing (cm) without equivalent load at guard-railing post	300	180	130	100	60

Table 4.3

Guard-railing posts: Depending on the handrails, the max. distance between the guard-railing posts may be less than what is shown in Table 4.3. Observe the federal, state or local codes and regulations that may apply.

Description	Ref. No.
Stop-end rail MFS	29-921-50
Adjustable spanner	29-926-95
DW 15 stop-end spindle MFS	29-921-55
Flange nut 100	29-900-20
Anchor sleeve	29-917-90
Guard-railing post 100	29-107-20
140	29-107-25
48/134	29-920-80

System for stop ends/cantilevers – Stop-end bracket MFS

The stop-end bracket MFS is used to form cantilevers and slab edges. Its main features are:

- Sliding part and adjusting screw for stepless positioning of the formwork by pressing it into the required position.
- Usable for slabs up to 40 cm thick.
- Usable for cantilever lengths from 0 to 50 cm with a stop-end panel (or board or facing) that is 0 to 40 cm wide.
- Integrated stepless height adjustment for precise height setting.
- MEVA guard-railing posts can be plugged in.
- The diagonal rod is positioned off centre. Tied rods can be installed without problems. Long tie rods need not be shortened.

For the assembly of the anchor sleeve refer to p. MFS-6 and MFS-7. Table 5.3 shows the maximum spacing of the stop-end brackets.

Guard-railing posts: Depending on the handrails, the max. distance between the guard-railing posts may be less than what is shown in Table 5.3. Observe the federal, state or local codes and regulations that may apply.

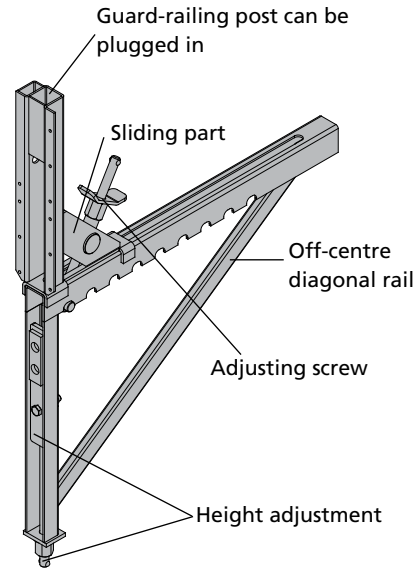


Fig. 5.1

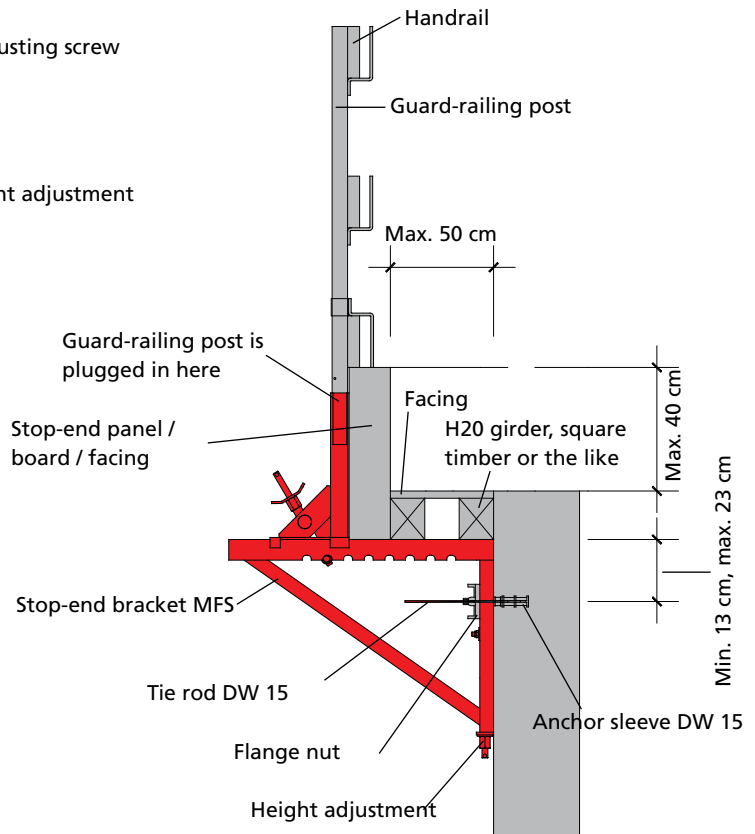


Fig. 5.2

We recommend using the universal spanner for screwing in the DW 15 tie rods and for unscrewing them.

The slab thickness and the length of the cantilever determine the maximum spacing (cm) of the stop-end brackets.

Slab thickness (cm)	Cantilever length (cm)				
	20	30	40	45	50
20	250	230	180	170	150
30	100	100	90	85	80
40	60	55	50	–	–

Table 5.3

Description	Ref. No.
Stop-end bracket MFS	29-921-40
Adjustable spanner	29-926-95
DW 15	
Tie rod DW 15/45	29-900-76
Flange nut 100	29-900-20
Anchor sleeve	29-917-90
Guard-railing post	
100	29-107-20
140	29-107-25
48/134	29-920-80

System for stop-ends/cantilevers – Anchor sleeve

The DW 15 anchor sleeve is used to install DW tie rods in walls. The first 2 cm of its inside are unthreaded (Fig. 6.1). This eases the installation of tie rods as it allows them to be aligned before being tightened.

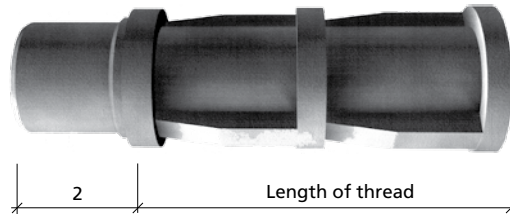


Fig. 6.1

Technical data

- Extraction force: 40 kN
- Admissible load: 6.5 kN if using DW 15
- Required concrete strength: 15 N/mm²

Installation/Removal

Make sure to observe the maximum spacing of the anchor sleeves shown in Tables MFS-4.3 und MFS-5.3.

1. Attach the integrated nail holder to the facing using a 65 mm nail (dia. 2.8 mm) or a screw (Fig. 6.2 and 7.4).
2. Plug the anchor sleeve DW onto the nail holder (Fig. 6.3 and 7.5). It may be required to prevent the anchor sleeve from moving by wiring it to its position.
3. When stripping the formwork, the nail holder is automatically removed from the anchor sleeve. You can now install the DW tie rod (Fig. 6.6).
4. After unscrewing the tie rod, close the hole in the concrete with plug 18 (Fig. 6.7).

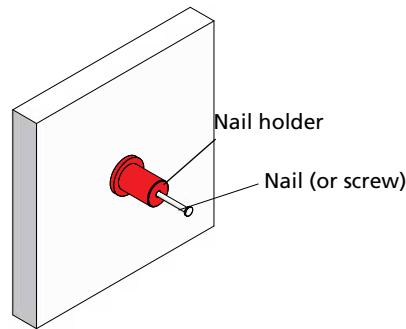


Fig. 6.2

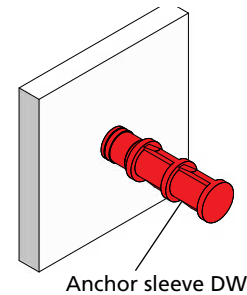


Fig. 6.3

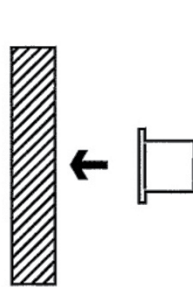


Fig. 6.4

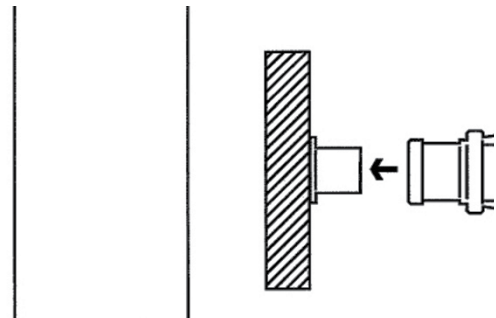


Fig. 6.5

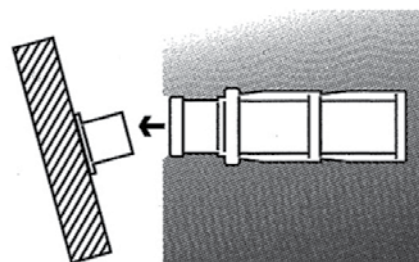


Fig. 6.6

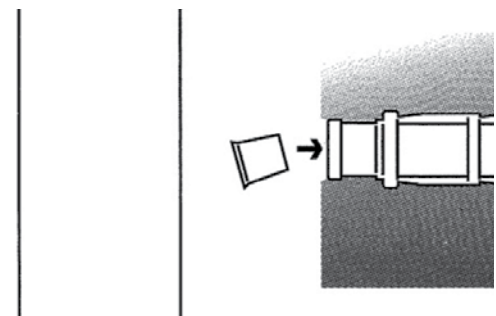


Fig. 6.7

Description	Ref. No.
DW 15	
Anchor sleeve	29-917-90
Plug 18	29-922-10

System for stop ends/cantilevers – Anchor sleeve for fair-faced concrete

Installation/Removal of anchor sleeve for fair-faced concrete

Make sure to observe the maximum spacing of the anchor sleeves shown in Tables MFS-4.3 und MFS-5.3.

1. Remove the integrated nailable connector from the anchor sleeve and attach it to the facing using an 80 mm nail or a screw (Fig. 7.2).
2. Plug the anchor sleeve onto the nailable connector (Fig. 7.3).
3. When stripping the formwork, unscrew the connector with a wrench MFS and remove it from the anchor sleeve (Fig. 7.4). You can now install the tie rod.
4. After unscrewing the tie rod, close the hole in the concrete by glueing the fair-faced concrete plug into the hole. Use concrete glue (A + B). See Fig. 7.5.

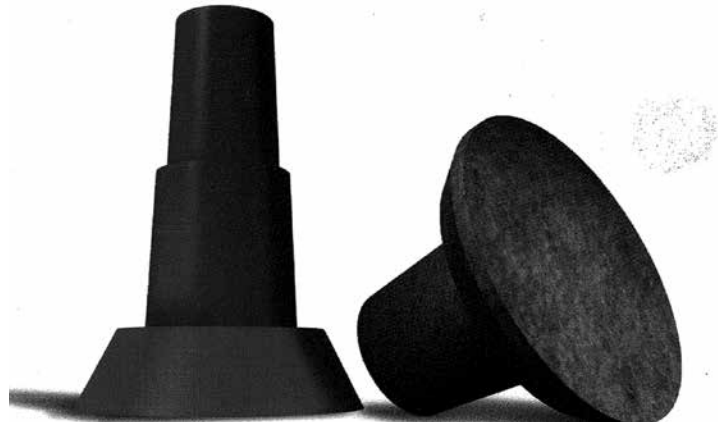


Fig. 7.1 Integrated nailable connector and fair-faced concrete plug

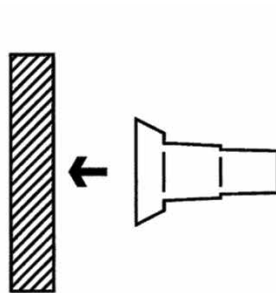


Fig. 7.2

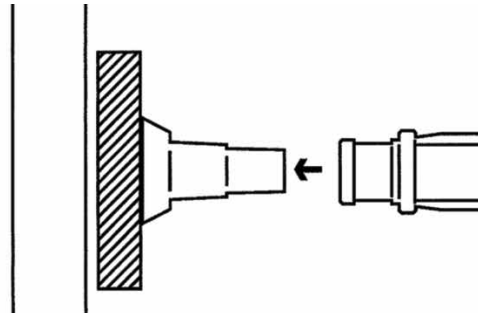


Fig. 7.3

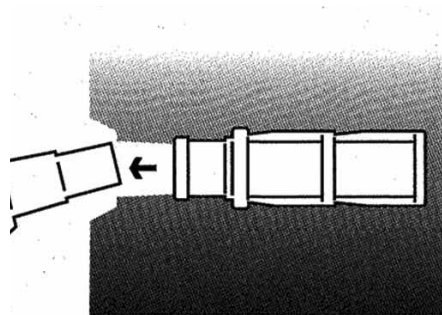


Fig. 7.4

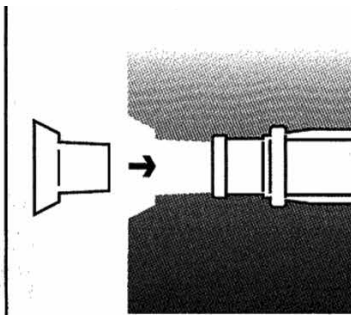


Fig. 7.5

Description	Ref. No.
DW 15	
Anchor sleeve	29-917-90
Nailable connector for fair-faced concrete	29-921-80
Fair-faced concrete plug	29-921-85
Wrench MFS	29-921-45
Concrete glue (A + B) ..	53-210-70

Door spindle MFS

The door spindle MFS has a left and a right thread. It can be adjusted steplessly:

- 70–110 cm (type 1)
- 50–90 cm (type 2)

The admissible pressure is 11.5 kN.

The door spindle is installed horizontally and attached on both ends with a nail through each M10 nail hole (2 nails on either end).

When using 4.5 cm thick boards, door spindles need to be attached with a max. distance of 60 cm between them (Fig. 8.2). The number of door spindles required is determined by the wall thickness (WT):

- WT up to 20 cm: 1 spindle per spindle level as shown in Fig. 8.2
- WT up to 40 cm: 2 spindles per spindle level
- WT up to 60 cm: 3 spindles per spindle level

The maximum admissible fresh concrete pressure is 50 kN/m².

For walls up to 30 cm thick, you can also use 2 square timbers, each 10 cm thick, and an additional piece of wood to transfer the pressure. In this case, attach the spindles with a distance of 1.00 m between them. The maximum admissible fresh concrete pressure is 33.5 kN/m².

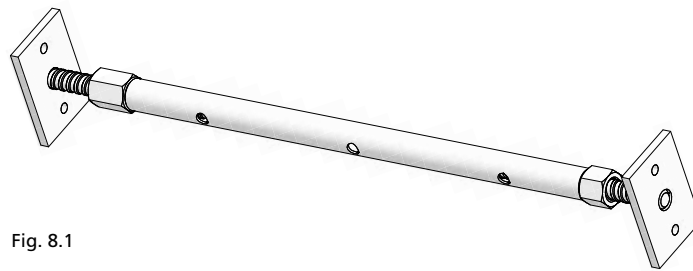


Fig. 8.1

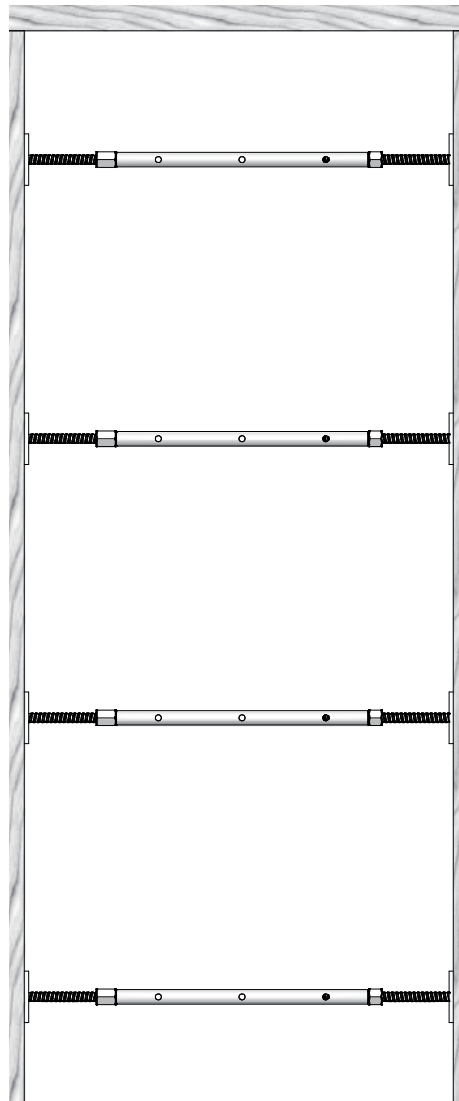


Fig. 8.2

Description	Ref. No.
Door spindle MFS	
700-1100 mm	29-921-65
500-900 mm	29-921-63

Anchoring system – Spiral anchor DW 15/100

The DW 15/100 spiral anchor (Fig. 9.1) is used to anchor equipment parts such as shoes MFS, push-pull props and the like in the concrete slab using DW 15 tie rods or flange screws DW 15.

The spiral anchor is 100 mm long. For its technical data refer to Table 9.2.

Installation in fresh concrete

1. After pouring the concrete, press the spiral anchor into the concrete where required. Make sure to press it so deep into the concrete that its end is flush with the concrete surface (Fig. 9.3).
2. When the concrete has sufficiently set and when you are about to install the tie rods, drill out the styropore core with a drill (14-14.5 mm) and remove the styropore (Fig. 9.4). This method of removing the styropore directly before installing the tie rod prevents dirt, ice and water from entering the tie hole.

- Blow out the tie hole.
- Insert and screw in the DW 15 tie rod to attach the intended equipment (Fig. 9.5). Make sure to observe the Operating Instructions of the spiral anchor.

We recommend using the adjustable spanner for easy screwing and unscrewing of the tie rods.

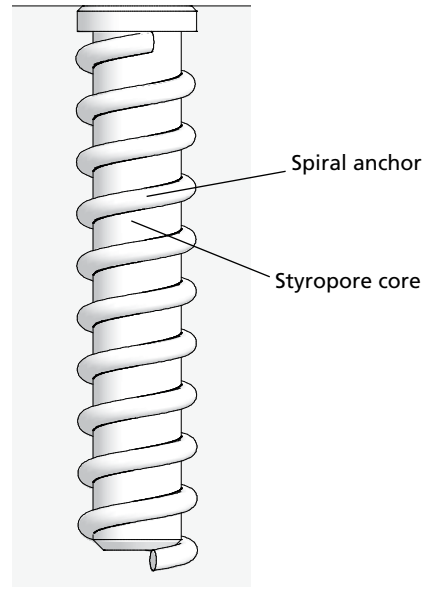


Fig. 9.1

Concrete strength	Extraction force	Admissible load (with safety factor 3)
7 N/mm ²	25.5 kN	8.5 kN
13 N/mm ²	35.3 kN	11.8 kN
16 N/mm ²	44.2 kN	14.7 kN
24 N/mm ²	49.9 kN	16.6 kN

Table 9.2

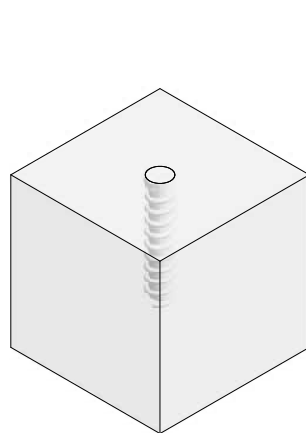


Fig. 9.3

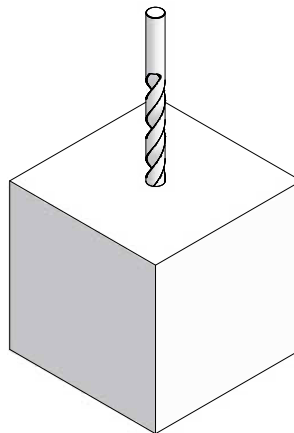


Fig. 9.4

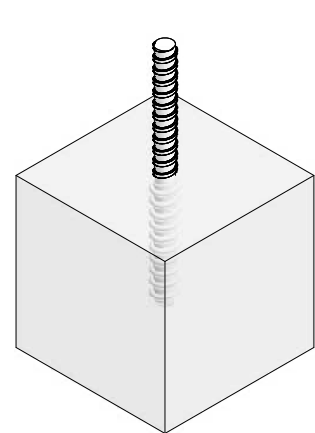


Fig. 9.5

Description	Ref. No.
Spiral anchor DW 15/100.....	29-921-10
Tie rod DW 15/45.....	29-900-76
Adjustable spanner.....	29-926-95

Anchoring system

The parts of the anchoring system – anchor support, single and double anchors – can be used to anchor the support frame for single-sided formwork (Fig. 10.1). These parts are designed for use with different concrete slab thicknesses and for anchoring with DW 15 through DW 26.5.

The 45° design and form of the parts ensures the correct inclination of the tie rods. Both recoverable and lost tie rods can be used.

Recoverable tie rod

This type is equipped with an anchor sleeve and thus can be recovered after its installation and use (Fig. 10.2).

Lost tie rod

This type does not have an anchor sleeve and is used for waterproof concrete, for example (Fig. 10.3).

Table 10.4 shows when to use plastic tubes D 22 or D 32 so that tie rods can be recovered. 'Yes' indicates that a plastic tube can be used as anchor sleeve and the tie rod be recovered.

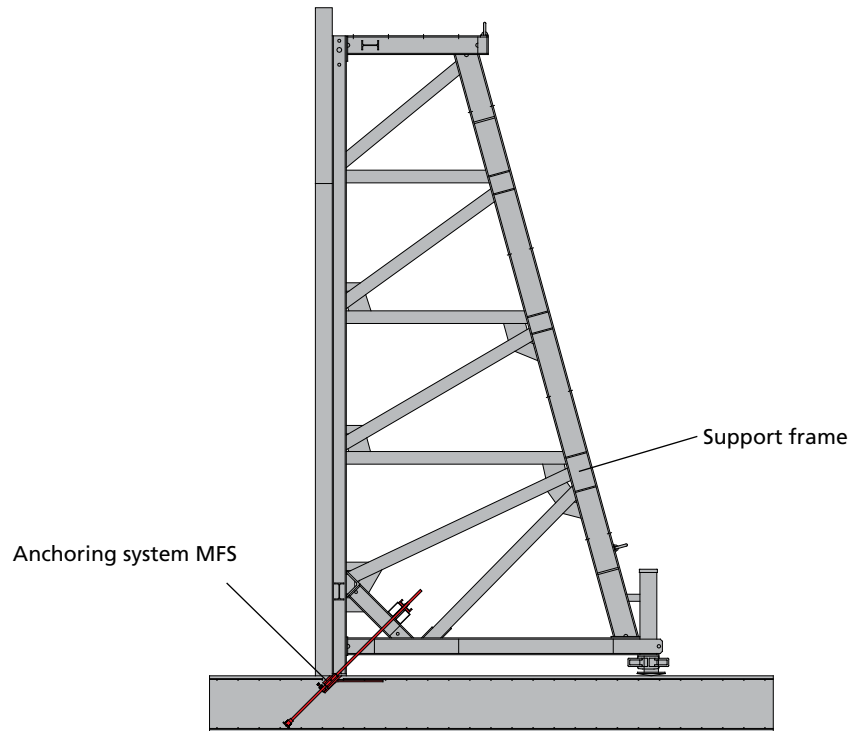


Fig. 10.1

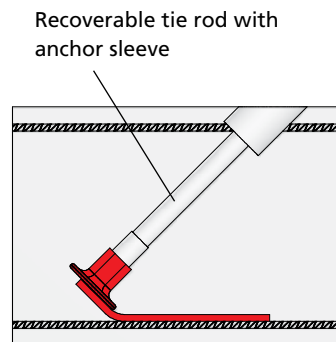


Fig. 10.2

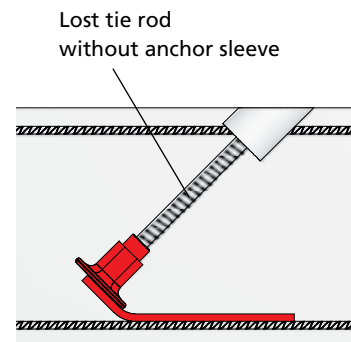


Fig. 10.3

Ref. No.	Description	Recoverable tie rods					
		DW 15		DW 20		DW 26	
		Plastic tube		Plastic tube		Plastic tube	
29-925-80	Anchor support DW 15-26	Yes	D 22	No	–	No	–
29-925-40	Single anchor DW 15	Yes	D 22	Yes	D 32	Yes	D 32
29-925-45	Single anchor DW 20	Yes	D 22	Yes	D 32	Yes	D 32
29-925-50	Single anchor DW 26	Yes	D 22	Yes	D 32	Yes	D 32
29-925-60	Double anchor DW 15	Yes	D 22	Yes	D 32	Yes	D 32
29-925-65	Double anchor DW 20	Yes	D 22	Yes	D 32	Yes	D 32

Table 10.4

Anchoring system – Parts

Anchor support DW (Fig. 11.1)

We recommend using the anchor support DW for concrete slabs that are at least 40 cm thick or for slabs containing many rebars. The anchor support is attached at the top rebars. It is bent by 45° and can be used for DW 15, DW 20 and DW 26.5 tie rods. When using anchor sleeves to recover the tie rods, the anchor support can be used for DW 15 tie rods only.

Single and double anchors DW

We recommend using single anchors (Fig. 11.2) and double anchors (Fig. 11.3) for concrete slabs up to 40 cm thick. These anchors are bent by 45° and are attached at the bottom rebars. When using anchor sleeves, the tie rods can be recovered.

Max. load of single anchor DW
 DW 15 = 90 kN
 DW 20 = 160 kN
 DW 26 = 250 kN

Max. load of double anchor DW
 DW 15 = 180 kN
 DW 20 = 320 kN

Planing cap (Fig. 11.4)

This cap is made of hard foam and has a 45° end piece. It is plugged over the tie rod or anchor sleeve before pouring and allows for a flush concrete surface. After pouring, the cap is removed. A coupling nut and another tie rod for the attachment of the support frame can now be attached to the tie rod that is cast in the poured concrete.

Coupling nut (Fig. 11.5)

Anchors cast in the concrete slab can be extended with tie rods by using coupling nuts. The coupling nut has a DW thread. The maximum admissible load and the spanner width (mm) are as follows:
 Ø 15: 90 kN, SW 30
 Ø 20: 160 kN, SW 36
 Ø 26.5: 250 kN, SW 46

Fix anchors DW 15, DW 20 and DW 26 (Fig. 11.6)

They are used to anchor the tie rods with the anchor support DW.

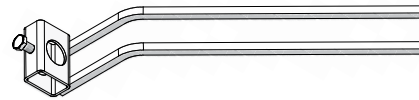


Fig. 11.1

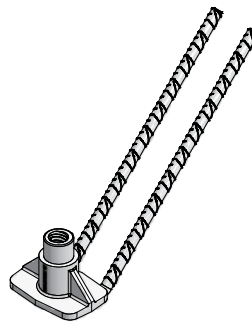


Fig. 11.2

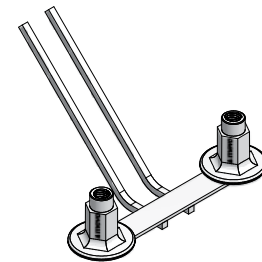


Fig. 11.3

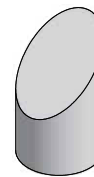


Fig. 11.4

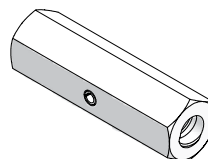


Fig. 11.5

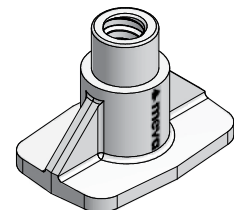


Fig. 11.6

Description	Ref. No.
Anchor support DW 15 - DW 26.....	29-925-80
Single anchor DW 15.....	29-925-40
DW 20.....	29-925-45
DW 26.....	29-925-50
Double anchor DW 15.....	29-925-60
DW 20.....	29-925-65
Planing cap.....	29-917-75
Coupling nut 15.....	29-900-55
20.....	29-900-50
26.5.....	29-900-56
Fix anchor DW 15.....	29-926-60
DW 20.....	29-926-65
DW 26.....	29-926-70

Anchoring system – Assembly of the anchor support

The anchor support is welded to the bottom side of the top rebars or wired to them (Fig. 12.1).

Installation dimension

The installation dimension is the horizontal distance measured from the front side of the panel to the point where the tie rod projects out of the concrete slab (Fig. 12.2). Depending on the support frame to be anchored, it is as follows:

- 20 cm when using support frames STB 450 (Fig. 12.2). It is 30 cm when also using alignment rails (Fig. 12.3).
- 15 cm when using support frames STB 300. It is 25 cm when when also using alignment rails.

The above figures are valid when using panels with a 12 cm deep frame.

For the installation dimension also refer the Technical Instruction Manual of the support frame STB.

Installing lost tie rods (Fig. 12.1)

1. Run the DW tie rod through the anchor support.
2. Screw it into the DW fix anchor.
3. Secure it with the adjusting screw.

Installing recoverable tie rods

1. Run the anchor sleeve through the anchor support.
2. Plug it over the DW fix anchor and secure it with the adjusting screw.
3. Insert the DW tie rod into the anchor sleeve and screw it into the DW fix anchor.

The maximum length of the DW tie rods with planing cap is determined by the thickness of the concrete slab, refer to Table 12.3. If necessary, the installation depth of the tie rod can be adjusted with the adjusting screw.

Planing cap and pouring

Prior to pouring the concrete slab make sure to plug the planing cap onto the DW tie rod or anchor sleeve.

The planing cap must be plugged completely onto the tie rod or anchor sleeve to make sure that after its removal the coupling nut can be screwed on at the required center position.

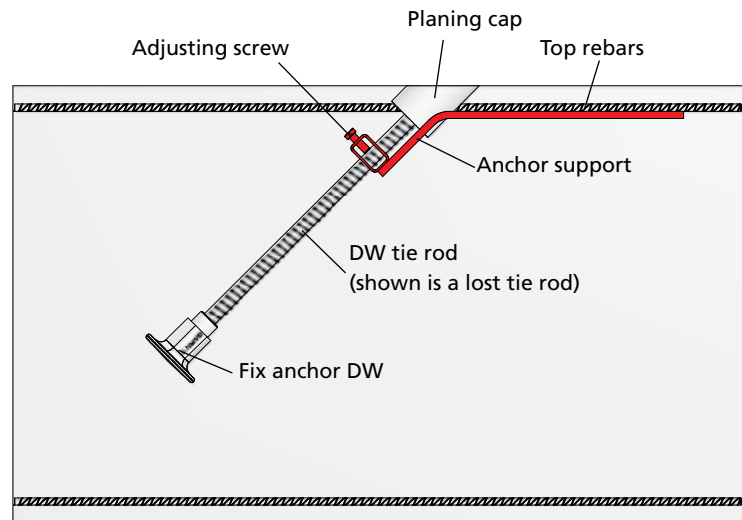


Fig. 12.1

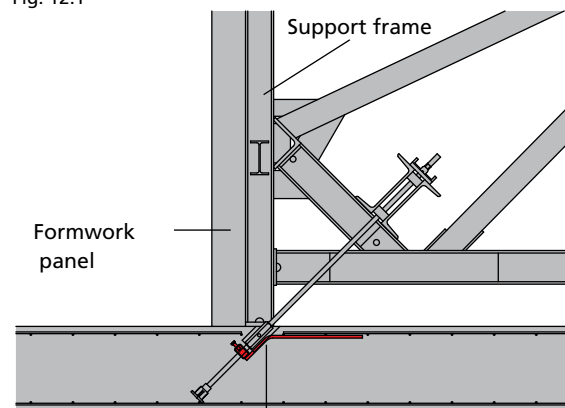


Fig. 12.2

20 (15) (The figure in parentheses refers to support frame STB 300)

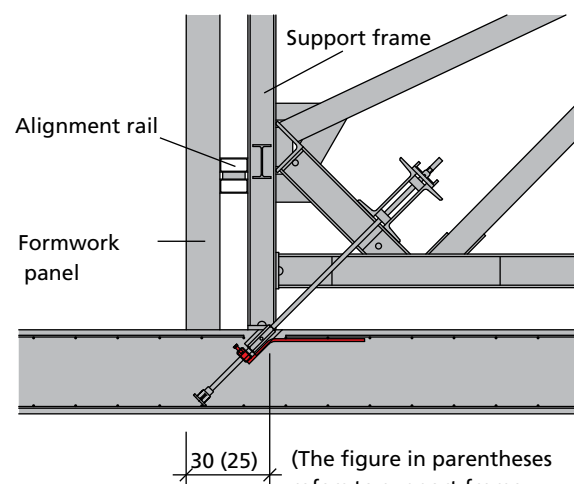


Fig. 12.3

30 (25) (The figure in parentheses refers to support frame STB 300)

Description	Ref. No.
Anchor support DW 15 - DW 26.....	29-925-80
Fix anchor DW 15.....	29-926-60
DW 20.....	29-926-65
DW 26.....	29-926-70
Planing cap.....	29-917-75

Anchoring system – Assembly of the anchor support

When using the anchor support for anchoring, you can use the formula on this page to calculate the maximum length of the DW tie rods depending on the thickness of the bottom slab th_{sl} (Fig. 13.1).

You can also refer to Table 13.2 which shows the maximum length of DW tie rods for the most frequent slab thicknesses. If required for static reasons, the installation depth of the tie rod can be adjusted with the adjusting screw.

Depending on the slab thickness, the maximum installation depth of the anchors and the possible need of additional re-bars should be determined by the structural analyst, always making sure there is protection from corrosion.

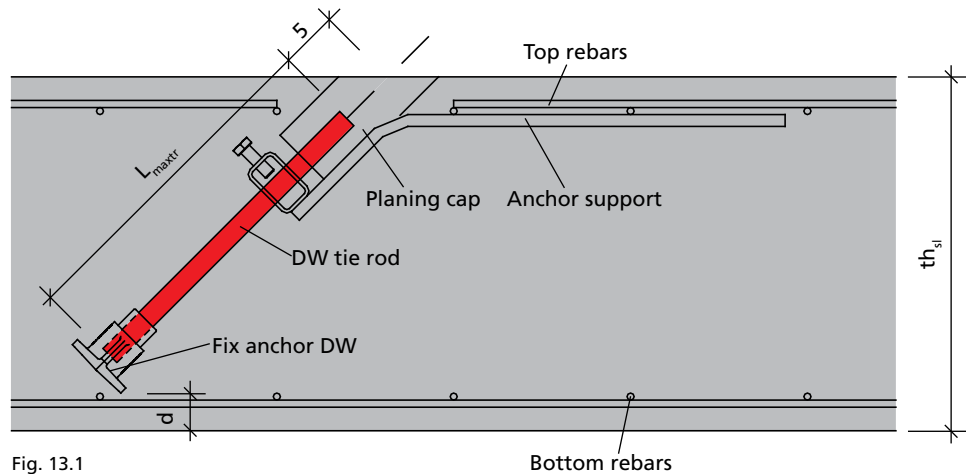


Fig. 13.1

Formula to calculate the maximum length of DW tie rods when using the anchor support

$$L_{\text{maxtr}} = \sqrt{2} \times (th_{sl} - d - 5.5)$$

L_{maxtr} = maximum length of tie rod

th_{sl} = thickness of slab or building part

d = vertical distance from bottom of slab to bottom rebar

Anchor support	Thickness of concrete slab (cm)						
	20	25	30	35	40	45	50
Max. tie rod length (cm) with 20 mm minimum concrete cover	16	23	30	37	44	51	58

Table 13.2

Anchoring system – Assembly of single and double anchors

The single or double anchor is welded to the upper side of the bottom rebars or wired to them (Fig. 14.1).

Installation dimension

The installation dimension is the horizontal distance measured from the front side of the panel to the point where the tie rod projects out of the concrete slab. Depending on the support frame to be anchored, it is as follows for single and double anchors:

■ 20 cm when using support frames STB 450 (Fig. 14.2). It is 30 cm when also using alignment rails (Fig. 14.3).

■ 15 cm when using support frames STB 300. It is 25 cm when when also using alignment rails.

The above figures are valid when using panels with a 12 cm deep frame.

For the installation dimension also refer the Technical Instruction Manual of the support frame STB.

Installing lost tie rods

Screw the DW tie rod into the single or double anchor.

Installing recoverable tie rods

1. Plug the anchor sleeve into the single or double anchor.
2. Insert the DW tie rod through the anchor sleeve and screw it into the cone.

Planing cap and pouring

Prior to pouring the concrete slab make sure to plug the planing cap onto the DW tie rod or anchor sleeve.

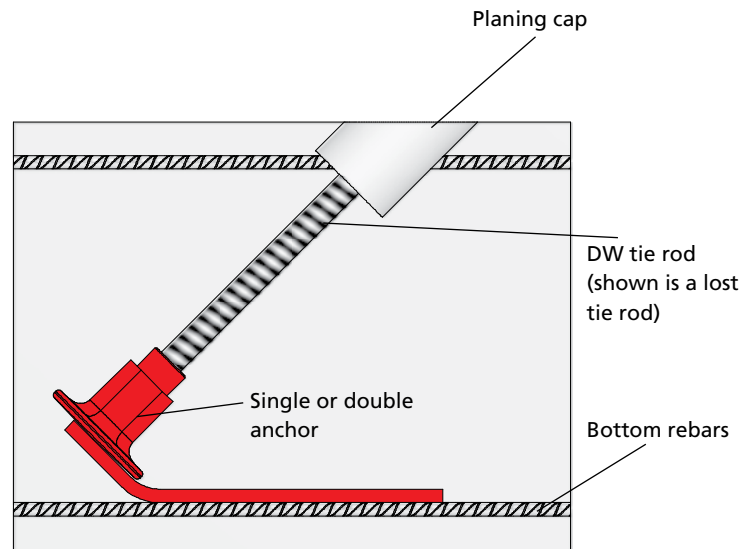


Fig. 14.1

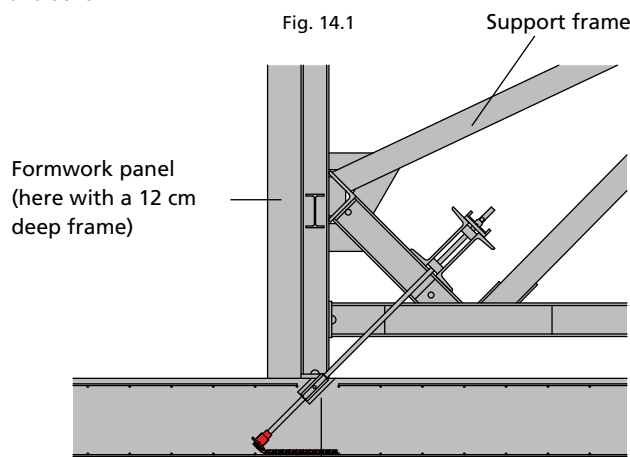


Fig. 14.2

(The figure in parentheses refers to support frame STB 300)

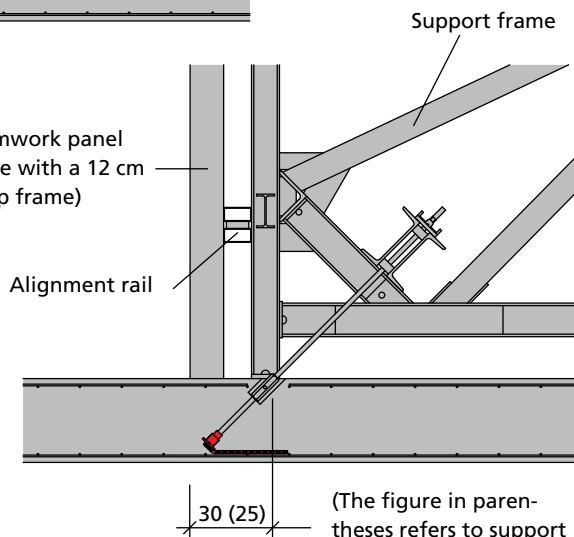


Fig. 14.3

(The figure in parentheses refers to support frame STB 300)

Description	Ref. No.
Single anchor	
DW 15.....	29-925-40
DW 20.....	29-925-45
DW 26.....	29-925-50
Double anchor	
DW 15.....	29-925-60
DW 20.....	29-925-65
Planing cap.....	29-917-75

Anchoring system – Assembly of single or double anchor

When using single or double anchors, you can use the formula on this page to calculate the maximum length of the DW tie rods depending on the thickness of the bottom slab th_{sl} (Fig. 15.1).

You can also refer to Table 15.2 which shows the maximum length of DW tie rods for the most frequent slab thicknesses.

Depending on the slab thickness, the maximum installation depth of the anchors and the possible need of additional re-bars should be determined by the structural analyst, always making sure there is protection from corrosion.

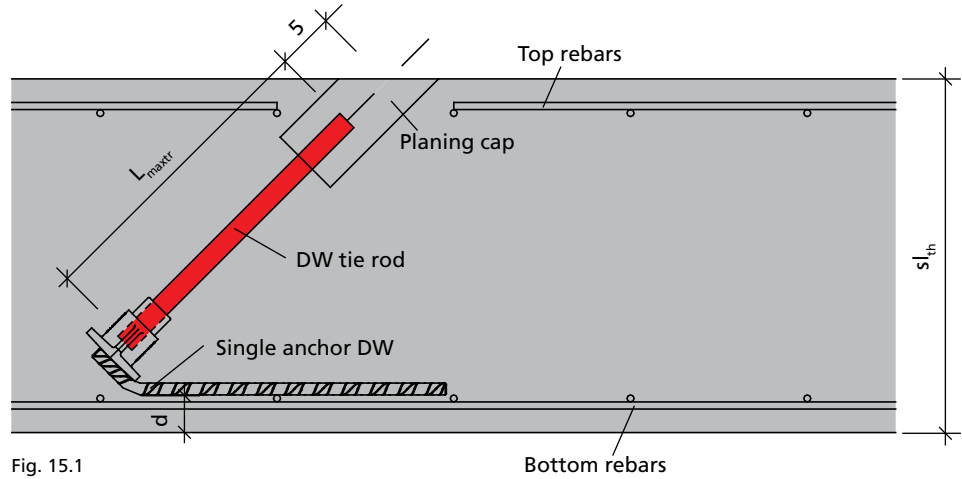


Fig. 15.1

Formula to calculate the maximum length of DW tie rods when using single or double anchors

$$L_{maxtr} = \sqrt{2} \times (th_{sl} - d - 6.5)$$

L_{maxtr} = maximum length of tie rod
 th_{sl} = thickness of slab or building part
 d = vertical distance from bottom of slab to bottom rebar

Single/Double anchor	Thickness of concrete slab (cm)						
	20	25	30	35	40	45	50
Max. tie rod length (cm) with 20 mm minimum concrete cover	13	20	28	35	42	49	56

Table 15.3

Anchoring system – Assembly of the anchor extension

1. Remove the planing cap after pouring (Fig. 16.1).
2. Screw the coupling nut onto the tie rod. Screw it as far as it will go (Fig. 16.2)
3. Screw the DW tie rod for the extension into the coupling nut. The extension is used to anchor the support frame (Fig. 16.3 and 16.4).

When the support frame is no longer required, the tie rod for the extension and the coupling nut are unscrewed and removed. If a recoverable tie rod was installed, it can now be removed. We recommend using the adjustable spanner to unscrew the tie rod.

After all this is done, the opening in the concrete slab must be closed in a way that it is safe from corrosion (Fig. 16.5).

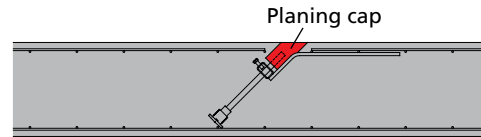


Fig. 16.1

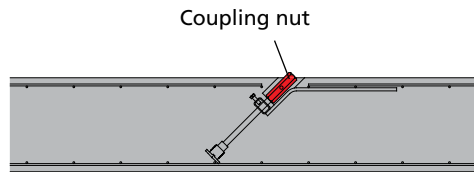


Fig. 16.2

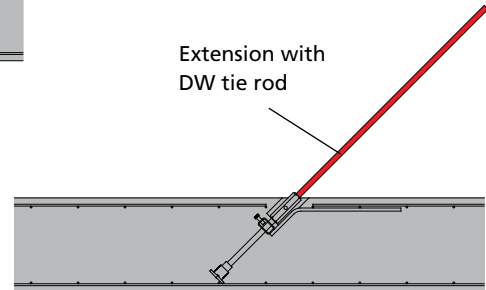


Fig. 16.3

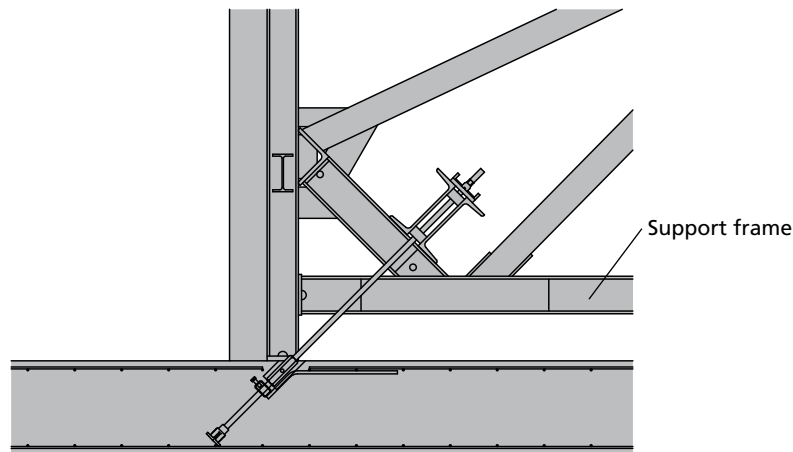


Fig. 16.4

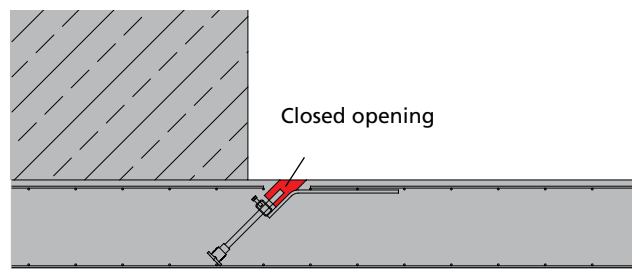


Fig. 16.5

Description	Ref. No.
Coupling nut	
15.....	29-900-55
20.....	29-900-50
26.5.....	29-900-56
Tie rod	
DW 15.....	29-900-80
DW 20	
per linear metre.....	29-900-98
DW 26.5/80.....	29-900-75
Adjustable spanner.....	29-926-95

Anchoring system – Upstand bracket

The facing can be screwed to the upstand bracket (Fig. 17.1) or a wall formwork panel can be placed against it. The upstand bracket has an adjustment range of 10 cm. The height of the upstand formwork must not exceed 15 cm. The maximum spacing of upstand brackets is 240 cm for MEVA panels.

Assembly of the upstand bracket

1. Press a spiral anchor DW 15/100 into the fresh concrete (Fig. 17.2 and p. MFS-9).
2. When the concrete has sufficiently set and the styropore core has been removed from the spiral anchor, attach the upstand bracket with a DW 15 tie rod and a flange nut 100 to the ground (Fig. 17.3).
3. Screw the facing to the upstand bracket or place the wall formwork panel against it (Fig. 17.4).

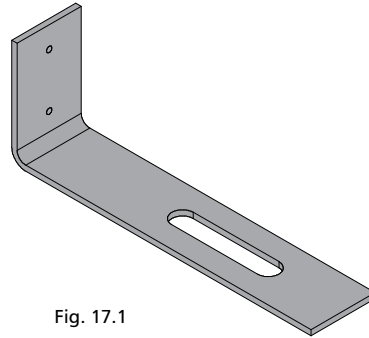


Fig. 17.1

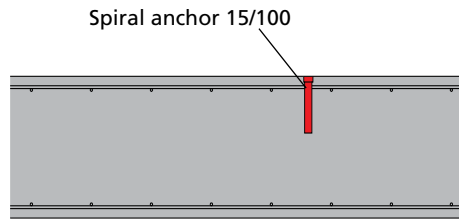


Fig. 17.2

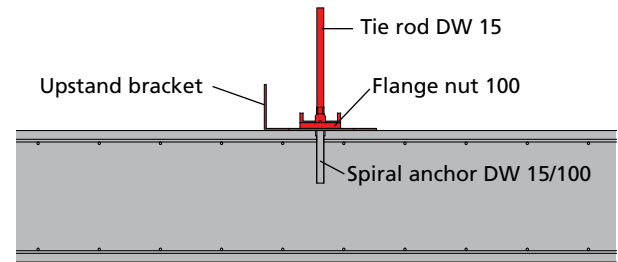
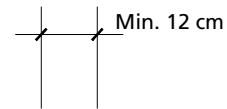


Fig. 17.3

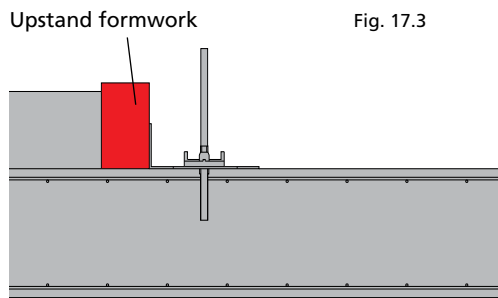


Fig. 17.4

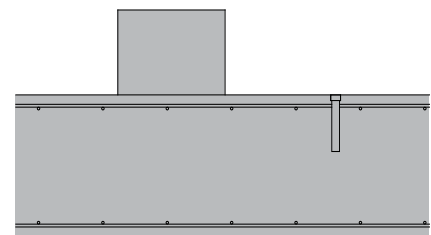
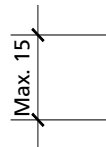


Fig. 17.5

Description	Ref. No.
Upstand bracket	29-925-10
Spiral anchor DW 15/100	29-921-10
Tie rod DW 15/45	29-900-76
Flange nut	29-900-20
Adjustable spanner	29-926-95

Anchoring system – Brace bracket 80

The brace bracket 80 (Fig. 18.1) can be used to pour floor slabs and slab up to a 80 cm high.

The brace bracket has a plastic nail bar to attach the facing, planks or boards.

When used to support standard panels, the brace bracket is attached with a flange screw 12 to the panel's DW-threaded nut (Fig. 18.2).

Depending on the ground, the brace bracket is attached to the ground either with ground nails through the large nail hole (dia. 33 mm) or with wire or screws through the small nail hole (dia. 8 mm). See Fig. 18.1.

The adjustable brace allows the brace bracket to be steplessly inclined from -15° (Fig. 18.3) to $+15^\circ$ (Fig. 18.4).

The brace bracket can be folded for transport and storage.

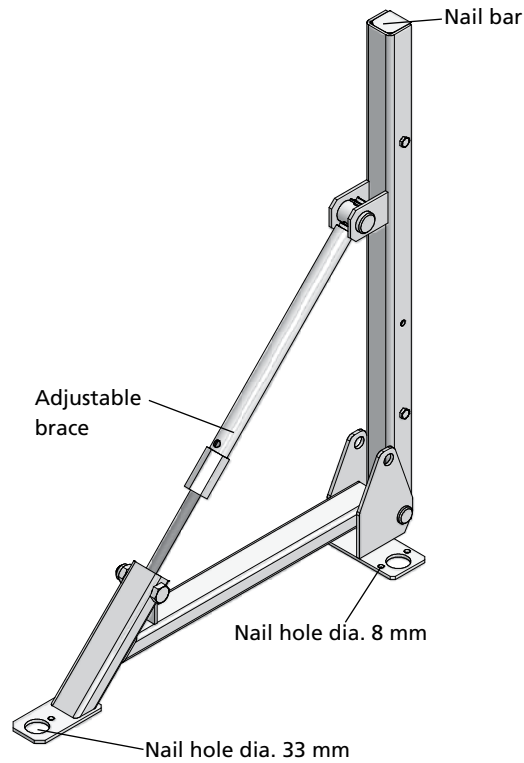


Fig. 18.1

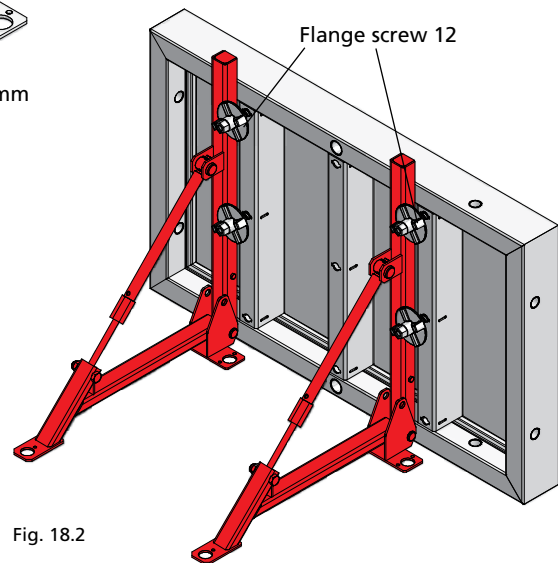


Fig. 18.2

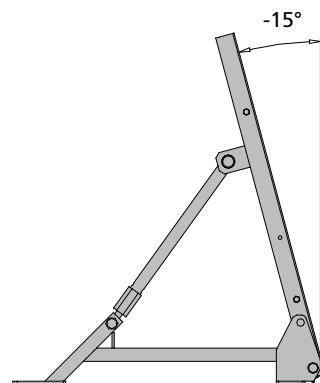


Fig. 18.3

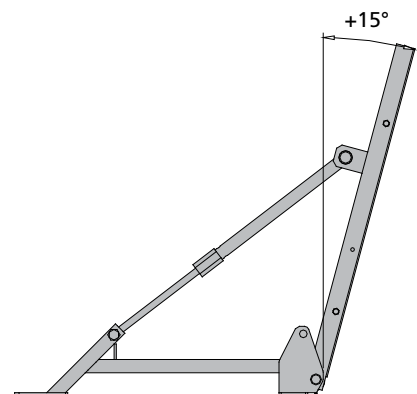


Fig. 18.4

Description	Ref. No.
Brace bracket 80.....	29-921-35
Flange screw 12.....	29-900-70

Safety system – Shoe MFS

The shoe MFS (Fig. 19.1) is used together with guard-railing post 100, 140 or 48/134 and the safety mesh to build a fall-down protection.

The shoe MFS is attached at a spiral anchor DW 15/100 cast in the steel concrete slab (see p. MFS-9). The shoe MFS is screwed to the spiral anchor using a DW 15 tie rod and a flange nut or the stop-end spindle (Fig. 19.2 and 19.3).

The safety mesh is hooked into the guard-railing post on the side opposite the shoe (Fig. 19.2). A maximum gap of 20 mm is permitted between the bottom of the safety mesh and and the ground.

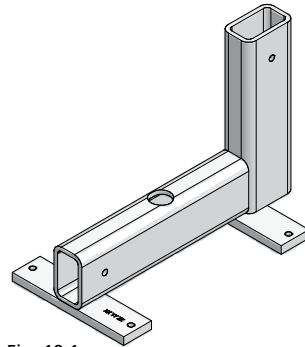


Fig. 19.1

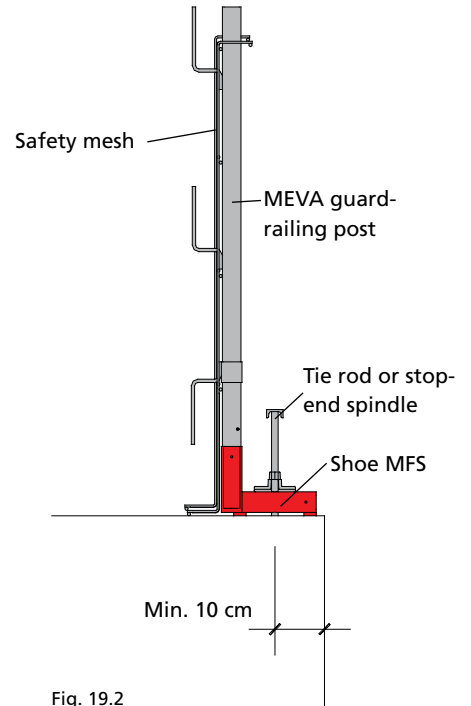


Fig. 19.2

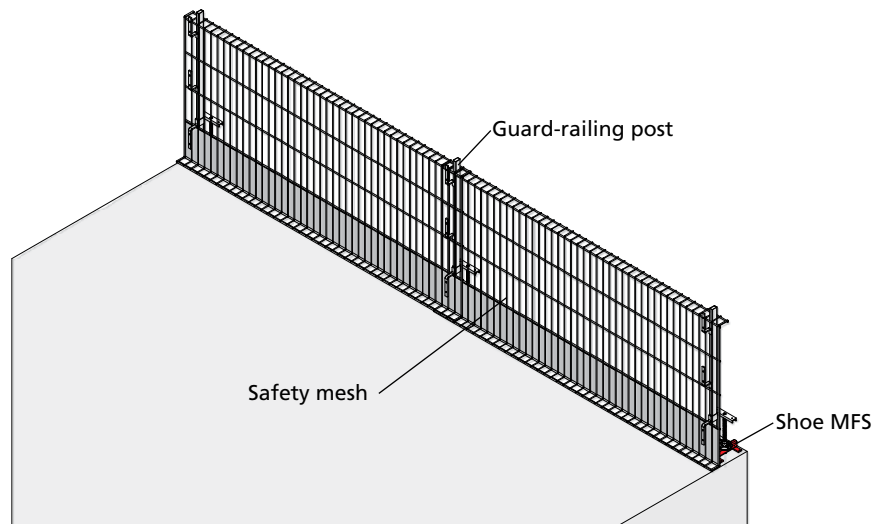


Fig. 19.3

Description	Ref. No.
Shoe MFS	29-921-70
Guard-railing post	
100, galv.	29-106-75
140, galv.	29-106-85
48/134.....	29-920-80

Safety system – Safety mesh

The light-weight multi-purpose safety mesh is made of high-density steel. It has an exceptional force resistance of 500 kg. The closed metal sheet at the bottom and its bent top and bottom ends also prevent small parts from falling. Its reinforced edges make the safety mesh very sturdy. The safety mesh is railing, toeboard and mesh at the same time (Fig. 20.1 through 20.3).

The safety mesh comes in lengths of 2.6 m (Fig. 20.2) and 1.3 m (Fig. 20.3). It fulfills the requirements as defined by the European standard EN 13374, classes A, B and C.

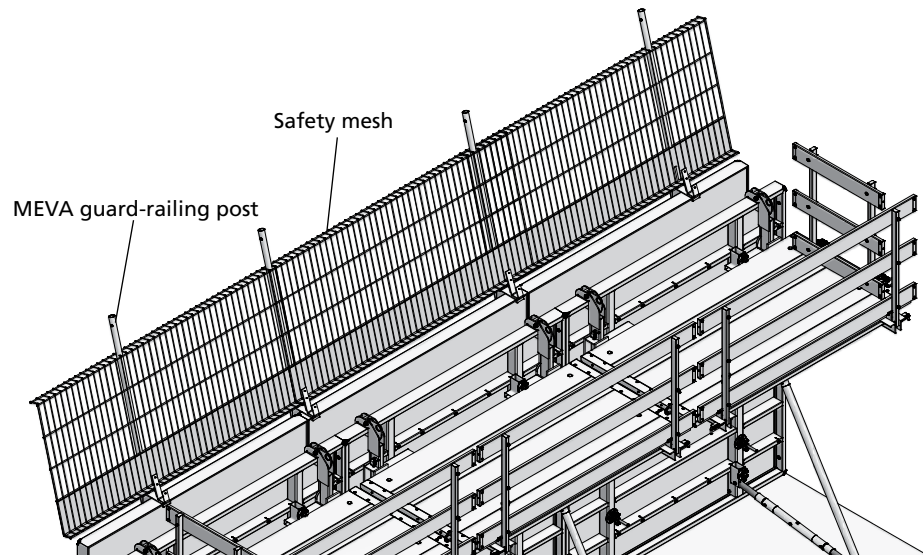


Fig. 20.1

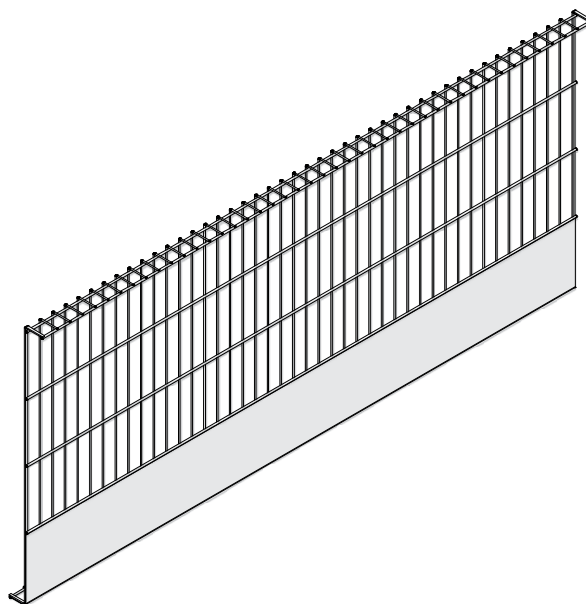


Fig. 20.2

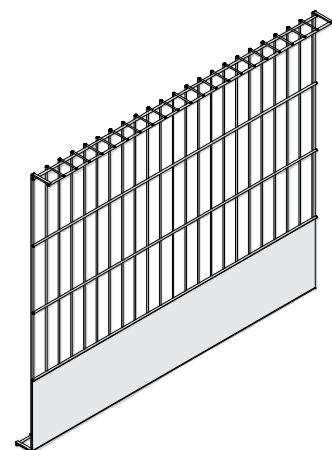


Fig. 20.3

Description	Ref. No.
Safety mesh	
2.6 m.....	29-920-10
1.3 m.....	29-920-20

Safety system - Safety mesh extension / Corner hinge

The safety mesh extension is used to height-extend the safety mesh.

The extensions comes in lengths of 2.6 m (Fig. 21.1) and 1.3 m (Fig. 21.2). It fulfills the requirements as defined by the European standard EN 13374, classes A, B and C.

The safety mesh corner hinge (Fig. 21.3) is a small and simple device that is used to connect the safety meshes to each other (Fig. 21.4). The corner hinge can be attached anywhere at the mesh to form angles from 76° to 284°.

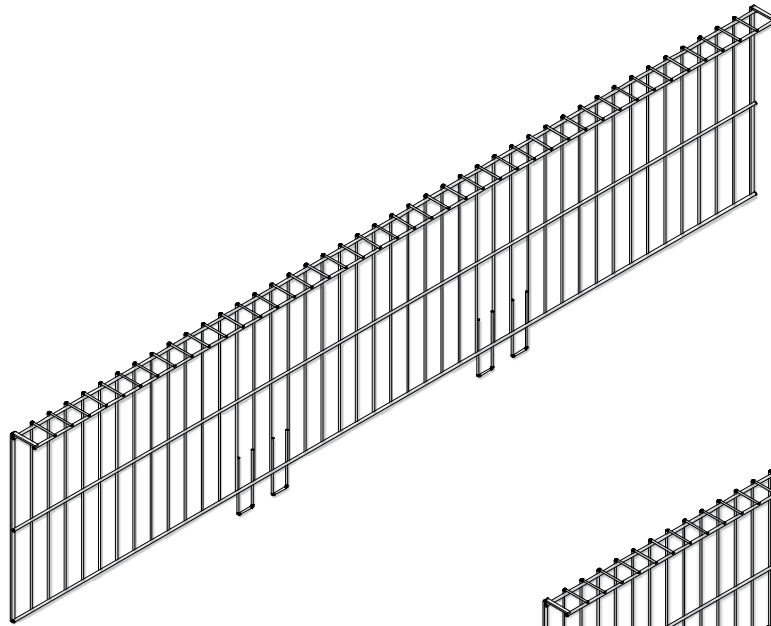


Abb. 21.1

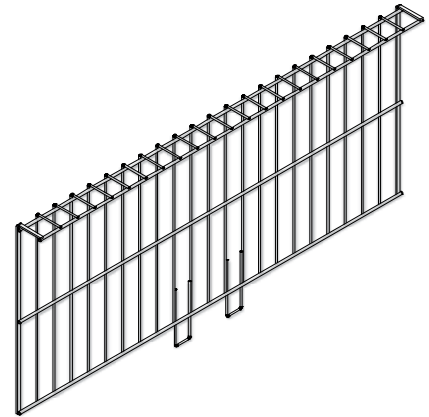


Fig. 21.2

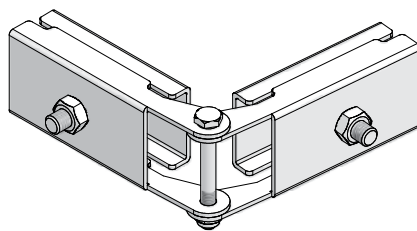


Fig. 21.3



Fig. 21.4

Description	Ref. No.
Safety mesh extension	
2.6 m.....	29-920-30
1.3 m.....	29-920-40
Safety mesh corner hinge	29-920-65

Service

Cleaning

The MEVA formwork systems are cleaned professionally upon return. Cleaning is done using industrial equipment with assembly lines.

Cleaning and regeneration of wall formwork

Cleaning is done using industrial equipment with assembly lines.

The regeneration is carried out as follows: The frames are checked and, if necessary, repaired, painted and provided with a new facing.

As long as the formwork equipment is up-to-date, a regeneration will always be a more economical solution than purchasing new formwork.

Please note that the cleaning and regeneration service is not available in all countries in which MEVA does business.

Rentals

With much equipment on stock, we offer our customers the option of renting supplementary material during peak times. We also give prospective customers the chance to test MEVA formwork so they can see its benefits for themselves in actual use.

RentalPlus

Since MEVA started the flat rate for cleaning and repair of rented formwork systems in early 2000, more and more contractors experience the outstanding advantages. Ask our representatives about the details!

Formwork drawings

Of course, all offices in our technical department have CAD facilities. You get expert, clearly represented plans and work cycle drawings.

MBS

MEVA Basic Support

MBS is an addition to AutoCAD, developed by MEVA Formwork Systems in 2000. MBS is based on standard programs (AutoCAD and Excel) and can be used on any PC that has these two programs installed. It includes pull down menus for AutoCAD and applications to ease forming. It also includes the possibility to create take-offs.

Special solutions

We can help with special parts, custom-designed for your project, as a supplement to our formwork systems.

Static calculations

Generally, this is only necessary for applications like single-sided formwork where the anchor parts are embedded in the foundation or the base slab. If requested, we can perform static calculations for such applications at an additional charge.

Formwork seminars

To make sure that all our products are used properly and efficiently, we offer formwork seminars. They provide our customers a good opportunity to keep themselves up-to-date and to benefit from the know-how of our engineers.



This product list includes all parts necessary for most applications. For parts required for special applications, please refer to the MEVA price list. Dimensions are in centimetres (cm) unless another measure is shown.

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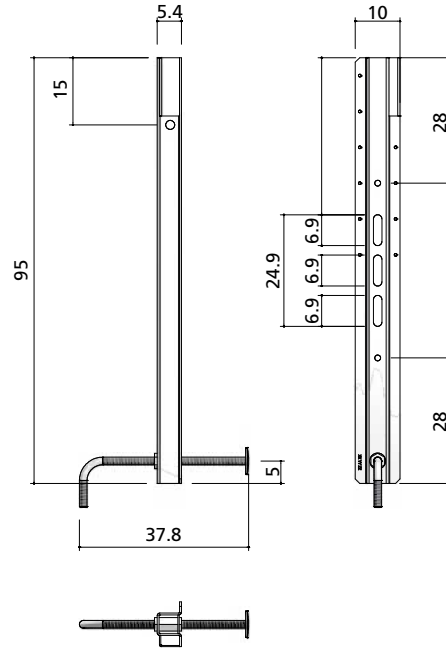
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Stop-end rail MFS

Steel. Galvanized. Is used to form slab ends for slabs up to 60 cm thick.

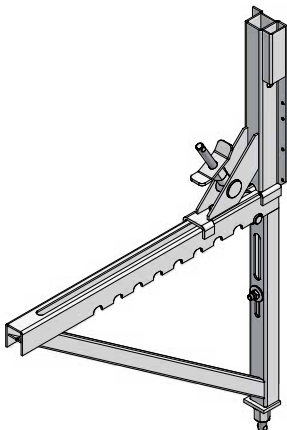


Ref. No.	Description / Application	m ²	kg
29-921-50	..... Stop-end rail MFS		7.2

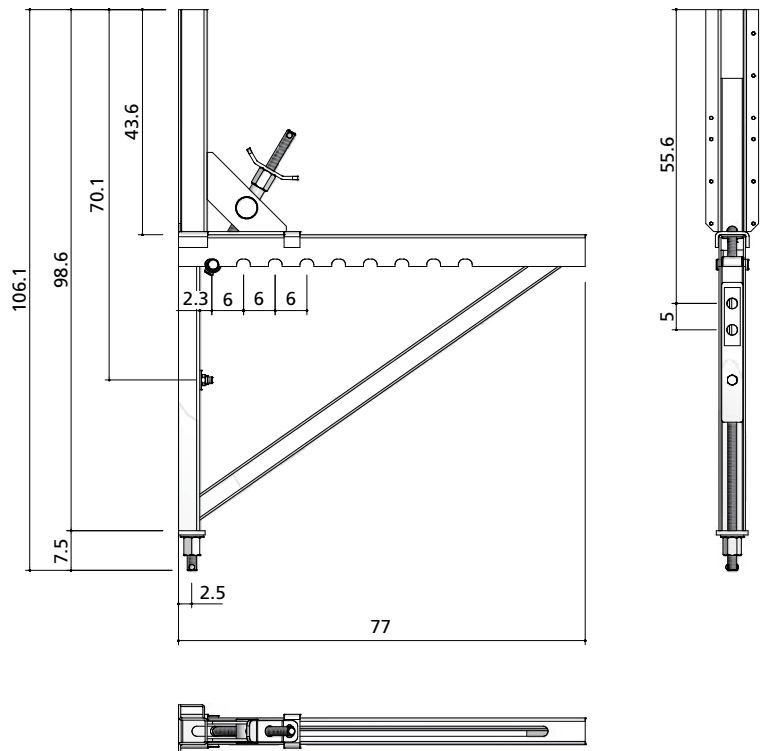


Stop-end bracket MFS

Steel, galvanized. Is used for cantilevers up to 50 cm long and for slabs up to 40 cm thick. Includes formwork support and pin for MEVA guard-railing post.



Ref. No.	Description / Application	m ²	kg
29-921-40	..... Stop end bracket MFS		14.5

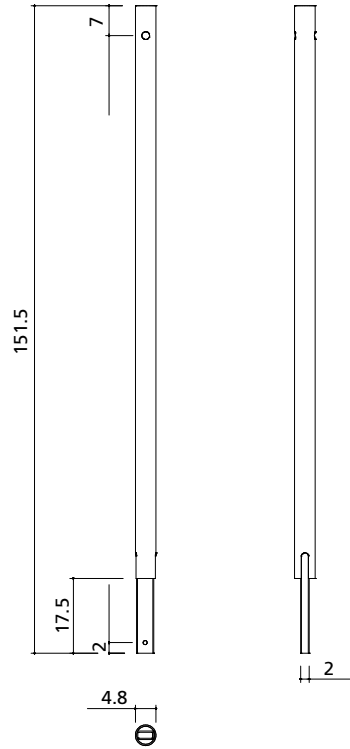


Guard-railing post 48/134

Galvanized. Is used as guard-railing together with the MFS safety mesh. Can be plugged into all MEVA scaffolding brackets, into the stop-end rail MFS, into the stop-end bracket MFS and into the shoe MFS. The scaffold tubes and scaffold couplers must be ordered separately.

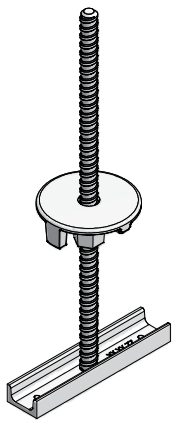


Ref. No.	Description / Application	m ²	kg
29-920-80	Guard-railing post 48/134		5.5

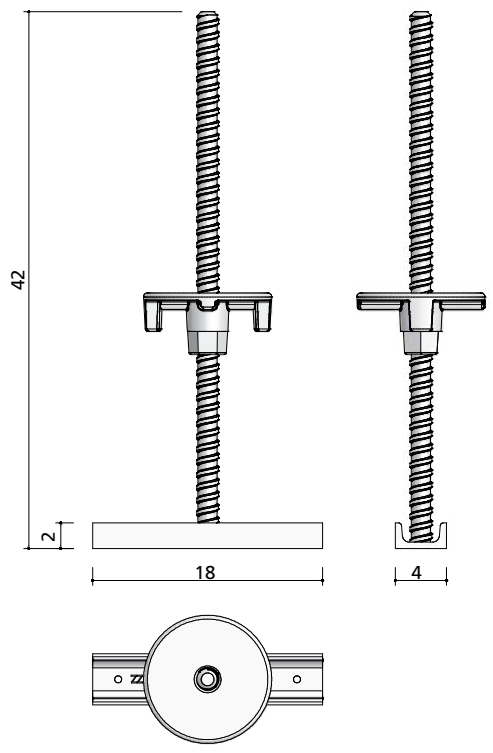


Stop-end spindle MFS

Steel, galv., DW 15. Is used as an anchor for the stop-end rail and the formwork.

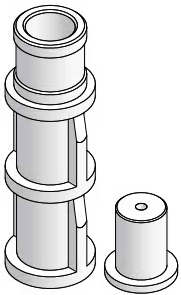


Ref. No.	Description / Application	m ²	kg
29-921-55	Stop end spindle MFS DW 15		1.9

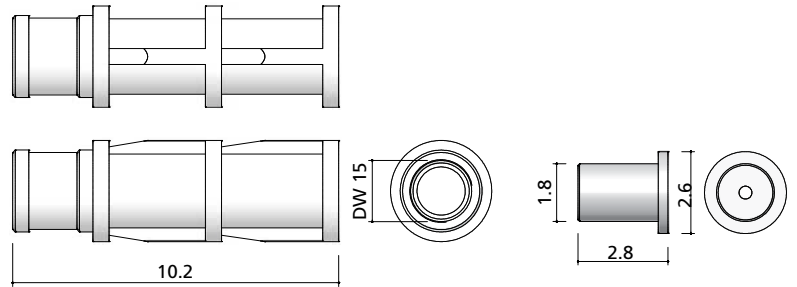


Anchor sleeve

High-density plastic. With nail holder 18.
Is pressed onto the nail-holder that is
nailed to the formwork. Technical data:
Extraction force: 40 kN
Admissible load: 6.5 kN (DW 15)
Required concrete strength: 15 N/mm²



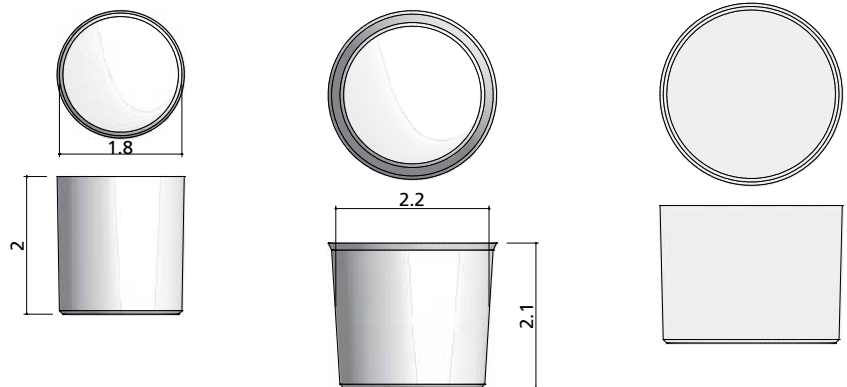
Ref. No.	Description / Application	m ²	kg
29-917-90	Anchor sleeve DW 15		
29-917-95	Anchor sleeve DW 20		7.5


Plug

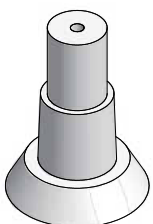
Plastic. Is used to seal anchor sleeves
and plastic tubes.



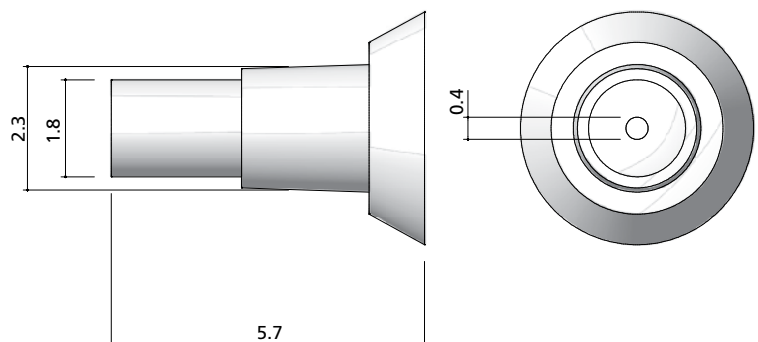
Ref. No.	Description / Application	m ²	kg
29-922-10	Plug 18		0.6
29-922-15	Plug 22		0.7
29-922-20	Plug 26		0.8


Nailable connector for fair-faced concrete

Plastic, for fair-faced concrete plug
DW 15, red colour. Is used to attach the
anchor sleeve DW 15.

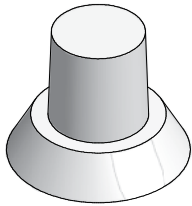


Ref. No.	Description / Application	m ²	kg
29-921-80	Nailable connector for fair-faced concrete DW 15		2.0

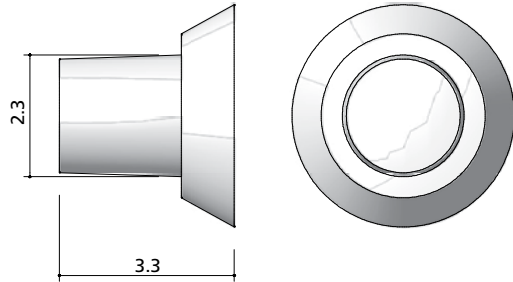


Fair-faced concrete plug

Made of concrete. Seals the nailable connector for fair-faced concrete. Is glued with concrete glue (A + B).

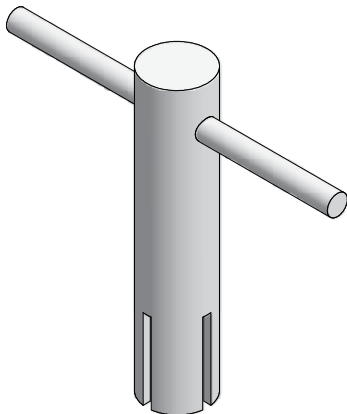


Ref. No.	Description / Application	m ²	kg
29-921-85	Fair-faced concrete plug DW 15	.....	5.0

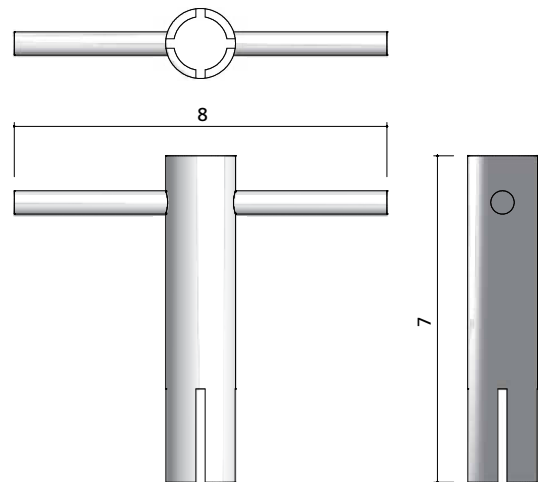


Wrench MFS

Steel, galvanized. Facilitates unscrewing the nailable connector for fair-faced concrete.



Ref. No.	Description / Application	m ²	kg
29-921-45	Wrench MFS	.....	1.0



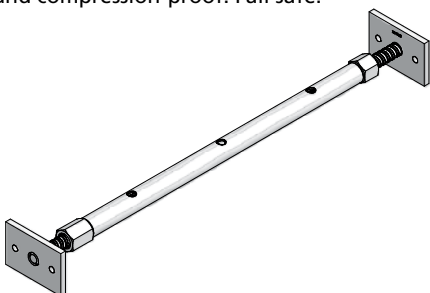
Concrete glue (A + B)

Not shown here. 2-component concrete glue for concrete plugs. Quantity is sufficient for 150 plugs.

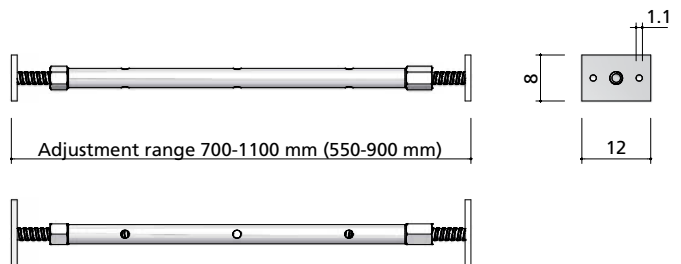
Ref. No.	Description / Application	m ²	kg
53-210-70	Concrete glue (A + B)	.....	3.0

Door spindle MFS

Steel, galv., DW 20. Adjustment ranges are 700-1100 mm and 550-900 mm. Is used to brace door and window block-outs, contains nail holes. Torsion-proof and compression-proof. Fail safe.



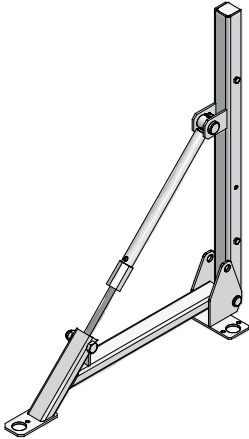
Ref. No.	Description / Application	m ²	kg
29-921-65	Door spindle MFS 700-1100 mm	.....	4.6
29-921-63	Door spindle MFS 550-900 mm	.....	4.0



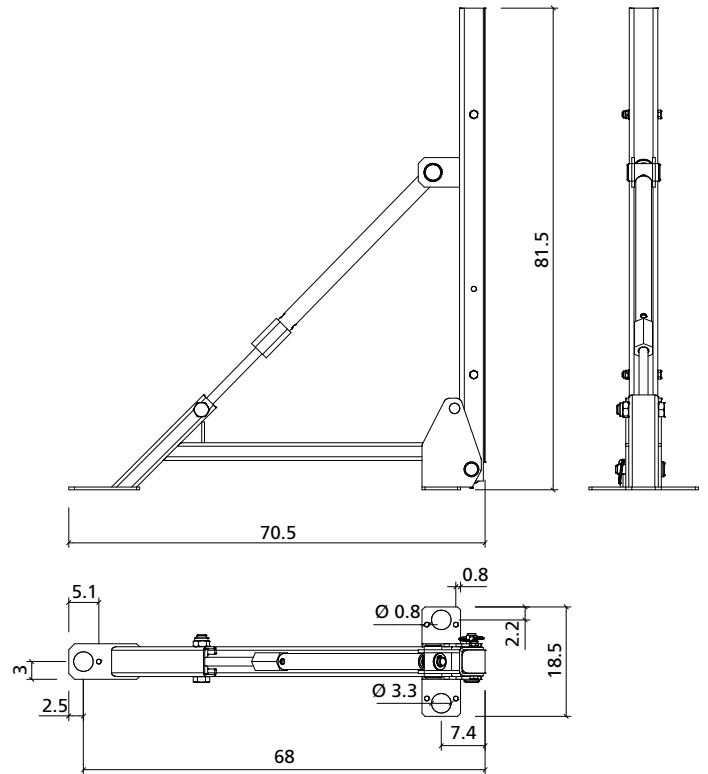
(The figures in parentheses refer to door spindle MFS 550-900 mm)

Brace bracket 80

Galvanized. Can be used for floor slabs and slab ends up to 80 cm high. Can be inclined by up to +/- 15°. With plastic nail bar. Can be folded for transport.



Ref. No.	Description / Application	m ²	kg
29-921-35	Brace bracket 80		10.5



Double-headed ground nail 25/280

Not shown. Is used to attach brace bracket 80. Double-headed. Is removed from the earth with the extractor for double-headed ground nail (to be ordered separately).

Ref. No.	Description / Application	m ²	kg
29-800-45	Double-headed ground nail		2.0

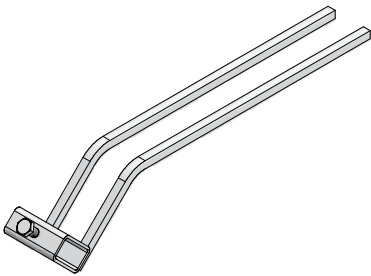
Extractor for double-headed ground nail

Not shown. Is used to remove the ground nail from the earth together with a lever rod (not supplied).

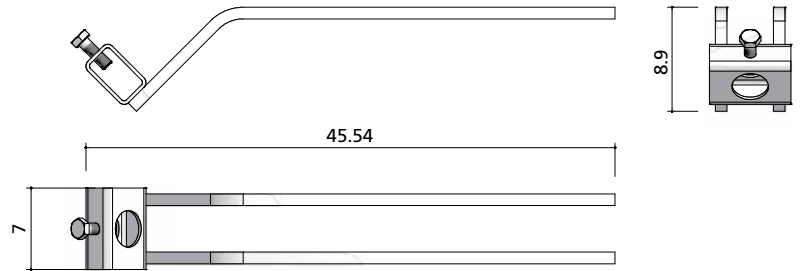
Ref. No.	Description / Application	m ²	kg
29-800-50	Extractor for double-headed ground nail		0.8

Anchor support DW 15 - DW 26

Steel, uncoated. Is attached at upper rebars. Bent by 45°. For direct support of tie rods DW 15, DW 20 and DW 26. The tie rods can be recovered and re-used if PVC sleeves are used. Is always attached with integrated adjusting screw.



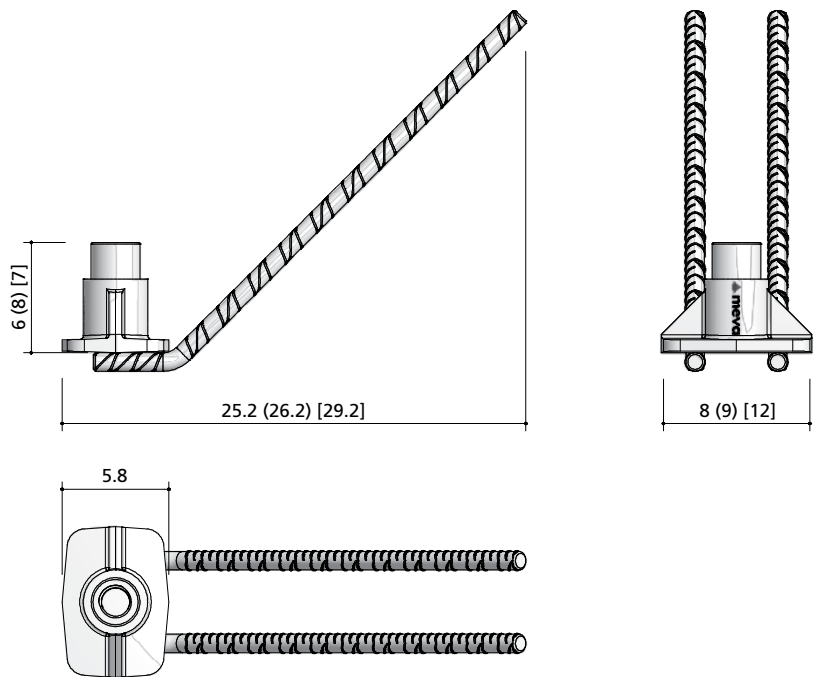
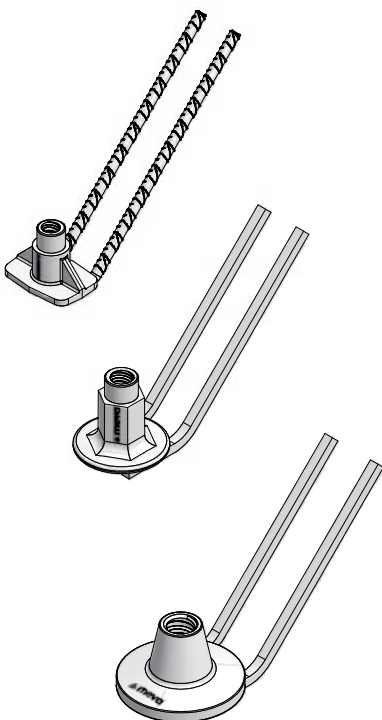
Ref. No.	Description / Application	m ²	kg
29-925-80	Anchor support DW 15 - DW 26		0.9



Single anchor DW

Steel, uncoated. Is used for 45° anchoring of support frames in the bottom slab. Attachment at bottom rebars. Admissible tensile force:
 DW 15: 90 kN
 DW 20: 160 kN
 DW 26: 250 kN

Ref. No.	Description / Application	m ²	kg
29-925-40	Single anchor DW15		0.8
29-925-45	Single anchor DW 20		1.3
29-925-50	Single anchor DW 26		2.4



(The figures in parentheses refer to single anchor DW 20)
 [The figures in brackets refer to single anchor DW 26]

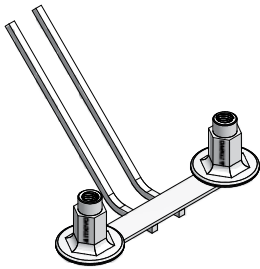
Double anchor DW

Steel, uncoated. Is used for 45° anchoring of support frames to the concrete slab. Attachment at bottom rebars.

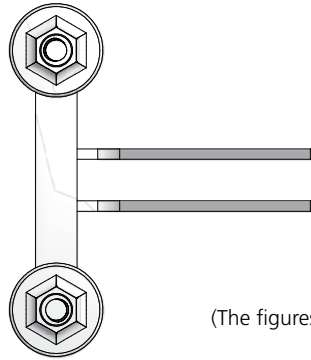
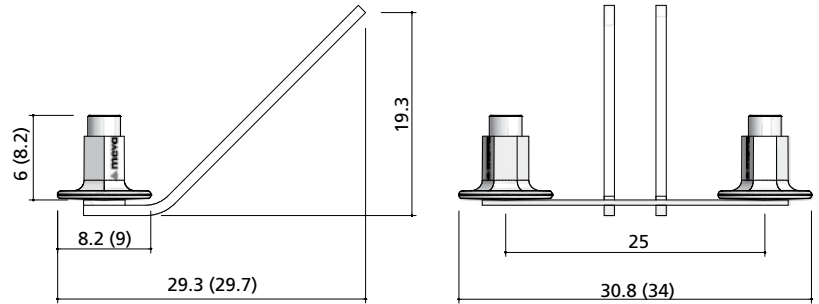
Admissible load:

DW 15: 180 kN

DW 20: 320 kN.



Ref. No.	Description / Application	m ²	kg
29-925-60	..... Double anchor DW 15	.....	1.8
29-925-65	..... Double anchor DW 20	.....	2.7



(The figures in parentheses refer to double anchor DW 20)

Pressure gauge

Not shown here. Is used to measure anchor forces from 250 to 400 kN.

Includes compensating plate for tie rods, with 50 mm hole diameter.

Ref. No.	Description / Application	m ²	kg
29-915-15	..... Pressure gauge 250 kN	.....	6.4
29-915-00	..... Pressure gauge 400 kN	.....	6.4

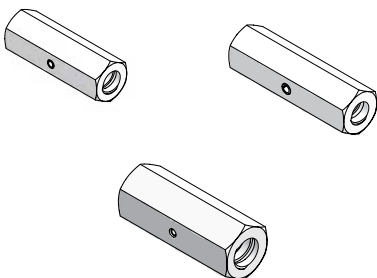
Coupling nut

With Dywidag-thread, DIN 18216. Is used to connect tie rods to the anchors cast in the concrete slab. Adm. load capacity and spanner width (mm):

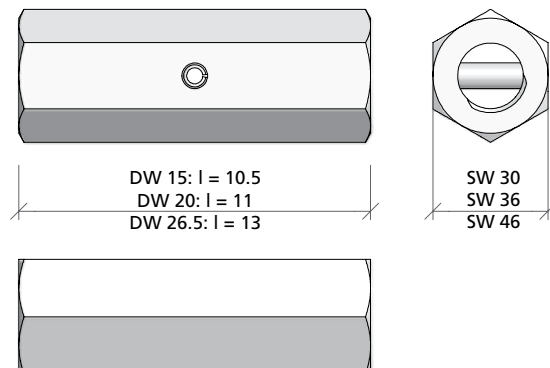
Ø 15 mm: 90 kN, SW 30

Ø 20 mm: 160 kN, SW 36

Ø 26.5 mm: 250 kN, SW 46

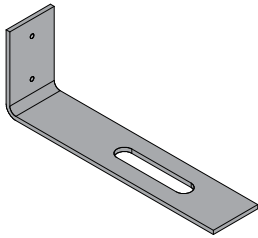


Ref. No.	Description / Application	m ²	kg
29-900-55	..... Coupling nut 15 (SW 30)	.....	0.4
29-900-50	..... Coupling nut 20	.....	0.7
29-900-56	..... Coupling nut 26.5	.....	1.4

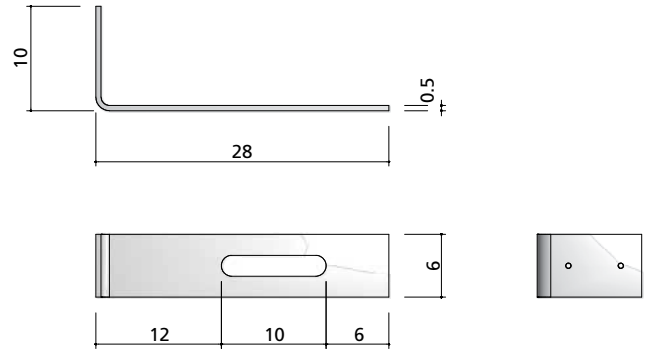


Upstand bracket

Adjustment range 100 mm. Is used to brace upstand formwork.

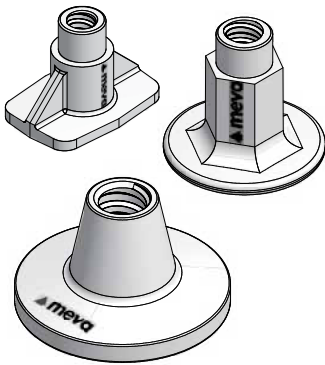


Ref. No.	Description / Application	m ²	kg
29-925-10	Upstand bracket		

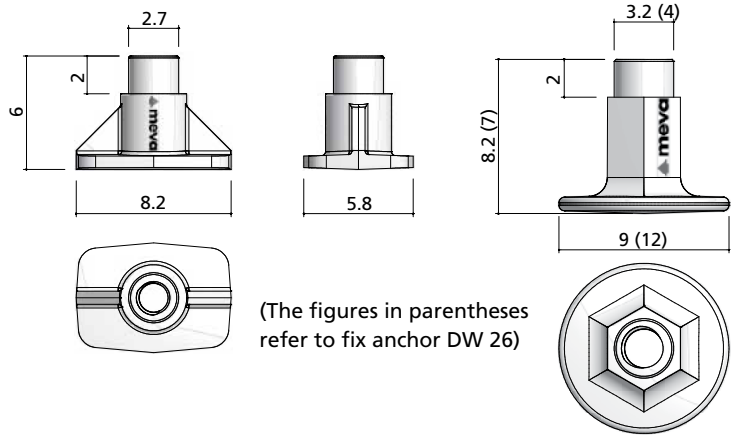


Fix anchor

Uncoated. Is used to anchor tie rods in the concrete with anchor supports, single or double anchors.

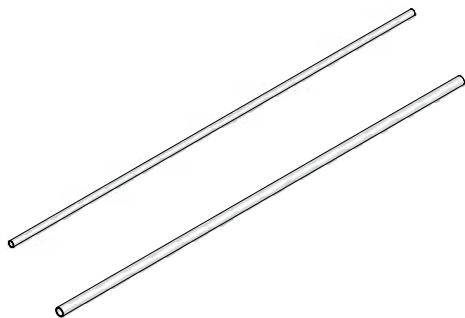


Ref. No.	Description / Application	m ²	kg
29-926-60	Fix anchor DW 15		0.5
29-926-65	Fix anchor DW 20		0.9
29-926-70	Fix anchor DW 26		1.9

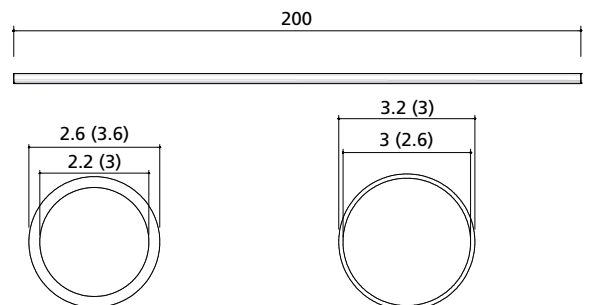


Plastic tube

Is used as a plastic sleeve for a tie rod that is to be recovered and re-used. Standard length 2.00 m.



Ref. No.	Description / Application	m ²	kg
29-902-30	Plastic tube D22/200		0.4
29-902-28	Plastic tube D30/200		0.4
29-902-29	Plastic tube D26/200 for fix anchor DW 15		0.4
29-902-27	Plastic tube D32/200 for fix anchor DW 20		3.8

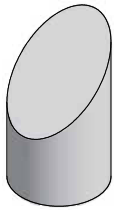


Plastic tube D22/200
(Plastic tube D30/200)

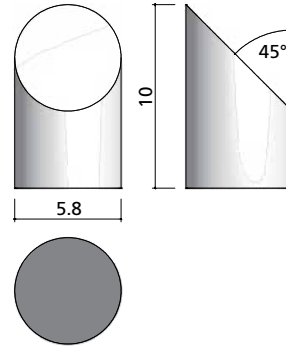
Plastic tube D26/200 for fix anchor
(Plastic tube D32/200 for fix anchor)

Planing cap

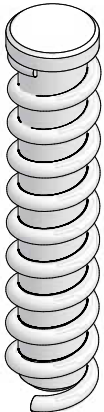
Hard foam, 10 cm long, 45° end piece.
For DW 15 and DW 20. Is plugged onto the DW tie rod or plastic sleeve for one-sided anchoring of support frames STB. Hole depth 5 cm.



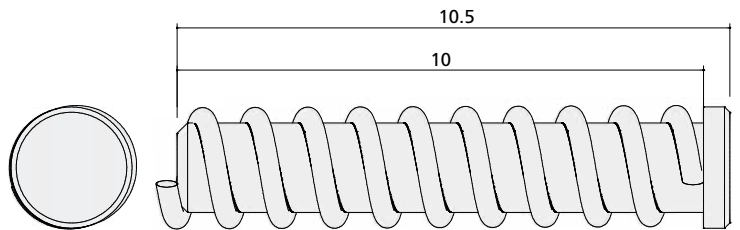
Ref. No.	Description / Application	m ²	kg
29-917-75	..... Planing cap DW 15		1.0


Spiral anchor DW 15/100

Steel spiral bead, 10 cm long, with styropore core. Designed to anchor equipment parts with tie rods DW 15, e.g. push-pull props for aligning formwork. Remove styropore with 14 mm drill.



Ref. No.	Description / Application	m ²	kg
29-921-10	..... Spiral anchor DW 15/100		6.1



Concrete strength	Extraction force	Admissible load (with safety factor 3)
7 N/mm ²	25.5 kN	8.5 kN
13 N/mm ²	35.3 kN	11.8 kN
16 N/mm ²	44.2 kN	14.7 kN
24 N/mm ²	49.9 kN	16.6 kN

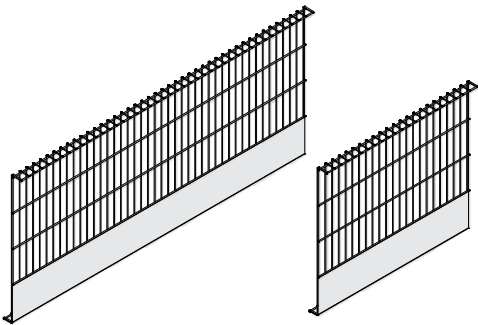
Adjustable spanner

Not shown here. Is suited for DW 15, DW 20 and DW 26 and used to loosen and unscrew recoverable tie rods.

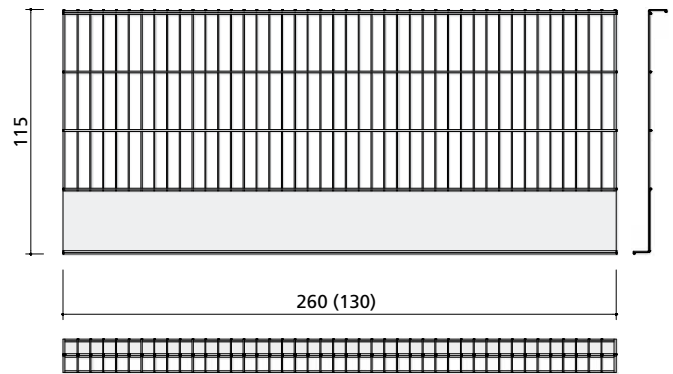
Ref. No.	Description / Application	m ²	kg
29-926-95	..... Adjustable spanner		1.6

Safety mesh

Steel, painted. Sturdy steel mesh with reinforced, bent edges and closed steel sheet to prevent small items from falling. The safety mesh serves as railing, sheet and mesh. 500 kg impact protection. Meets the requirements as defined by European standard EN 133374, classes A, B and C.



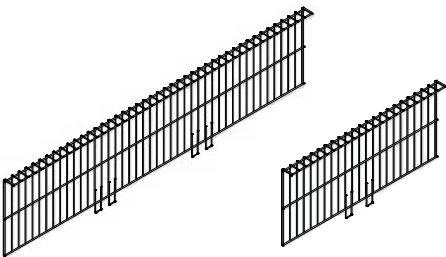
Ref. No.	Description / Application	m ²	kg
29-920-10	Safety mesh 115/260		19.4
29-920-20	Safety mesh 115/130		10.5



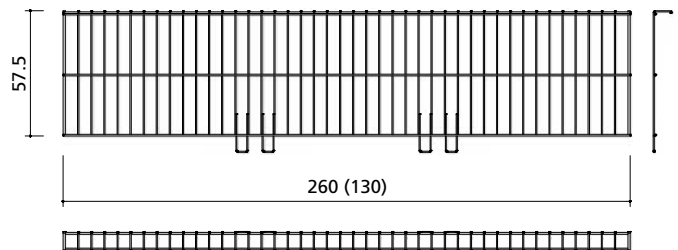
(The figure in parentheses refers to safety mesh 115/130)

Safety mesh extension

Steel, painted. Is used to heighten the safety mesh. 500 kg impact protection. Meets the requirements as defined by European standard EN 133374, classes A, B and C.

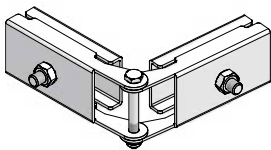


Ref. No.	Description / Application	m ²	kg
29-920-40	Safety mesh extension 57.5/130		5.0
29-920-30	Safety mesh extension 57.5/260		9.3

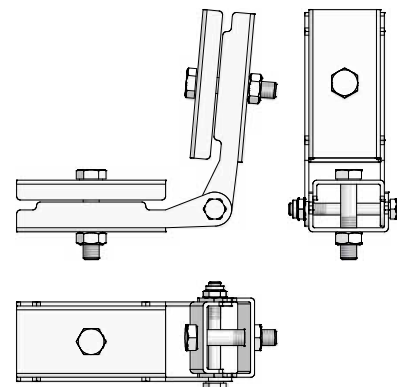


Safety mesh corner hinge

Steel, galvanized. Connects safety meshes at angles from 76° to 284°. Can be attached anywhere at the safety mesh.

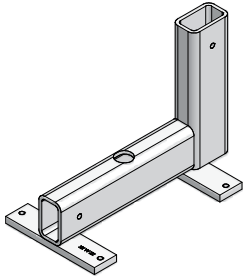


Ref. No.	Description / Application	m ²	kg
29-920-65	Safety mesh corner hinge.....		0.7

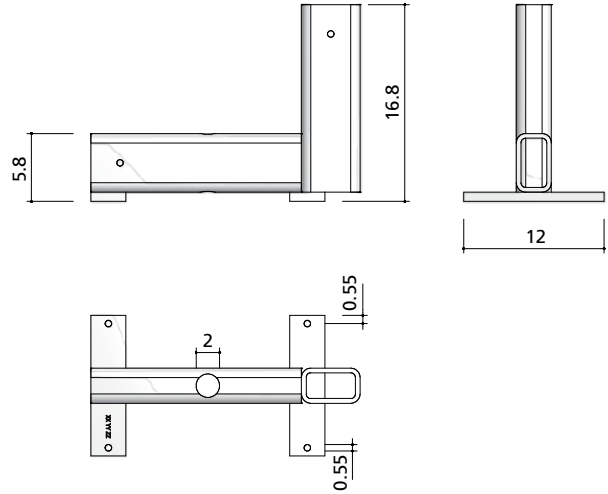


Shoe MFS

Steel, galvanized. Is used together with the spiral anchor, tie rod DW 15 and MEVA guard-railing post to build a fall-down protection at slab edges.



Ref. No.	Description / Application	m ²	kg
29-921-70 Shoe MFS		1.9



Notes

Grid area for notes.



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