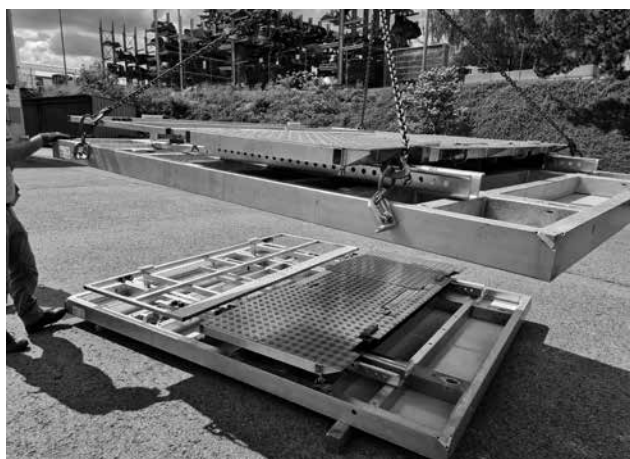




MIS – MEVA Integrated Safety

Technical Instruction Manual





Product features

The system MIS – MEVA Integrated Safety is the all-in-one solution for a robust safety system that ensures safety at every construction stage.

The safety system (DIN EN 12811 and DIN EN 12812) with working platform, access ladder, rear railing, front railing, side railings, brace frames, platform extensions made of hot-dip galvanised steel and aluminium checkered sheet flooring is designed as a modular system for use with Mammut XT wall formwork. The well-thought-out product design increases the safety on the platform and makes it possible to work comfortably and efficiently.

MIS has a load capacity up to 150 kg/m² (load class 2).

As an access solution for Mammut XT with two platform widths (250 cm and 125 cm), MIS can be used up to a formwork height of 10.50 m. The foldable platforms can be height-adjusted due to the play in the linkage and can remain permanently attached to the formwork panel if required. Mammut XT wall formwork and working platforms can be relocated as a fixed unit.

Tie rods and accessories can be used safely at all heights. Integrated assembly lock holders and tie rod fixtures on the railing enable efficient work routines.

The units are stackable for space-saving storage and transport and thus provide for simplified construction site logistics.

The MIS safety system can be retrofitted to the Mammut XT wall formwork system at any time.

Different safety regulations apply in many countries in which MEVA formwork systems are used. Please note that the company performing the construction work is always responsible for safety and must reduce the risk to its employees to a minimum.

To ensure safe and cost-effective use, please also observe the Technical Instruction Manual for the Mammut XT wall formwork system.

The technical instruction manuals and other aids are available at www.meva.net.

Abbreviations, figures and tables, etc.

The abbreviation MIS stands for MEVA Integrated Safety. 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. Any further abbreviations are explained where they are used for 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, i.e. m (for metre), cm (for centimetre) and mm (for millimetre).

The page numbers of this manual start with MIS and 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. This is indicated by the product code with which the cross-reference begins.



Please note

This Technical Instruction Manual contains information, instructions and tips that describe 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. They will help you without delay.

When using our products, local health and safety regulations must be observed. 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 the working area and fall protection equipment required
- Attachment points for panel transport by crane. With regard to panel transport, please observe this manual. Any deviation will require structural verification.

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

Attention: Never wax or oil assembly locks!

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Product overview

The safety system MIS (MEVA Integrated Safety) is designed for the Mammut XT wall formwork system (Figures 4.1 and 4.2).

MIS has a load capacity up to 150 kg/m² (load class 2).

The safety system can be used on formwork units up to a height of 10.50 m. Individual planning is required for greater heights.

MIS platforms are available for the standard panel widths 250 (Figures 4.1 and 4.2) and 125 cm (Fig. 4.2).

The platforms for panel width 250 cm are available both with and without access hatches. The platform for the panel width 125 cm does not have an access hatch.

The MIS platforms have a working width of 90 cm.

Smaller panel widths up to 100 cm can be achieved using the MIS platform extension (2 x 50 cm) (see page MIS-24).

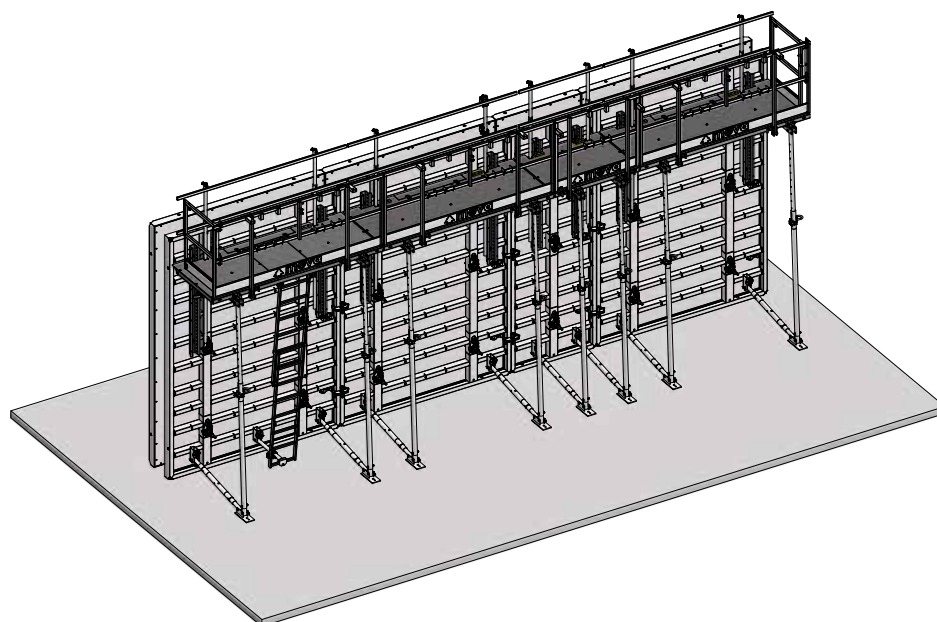


Fig. 4.1

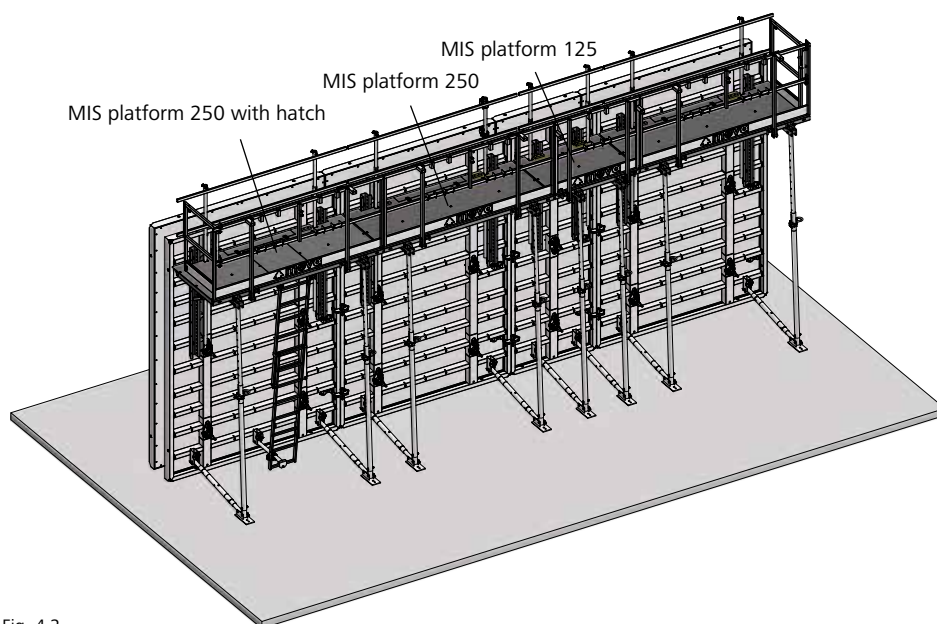


Fig. 4.2

Product overview

MIS comprises a complete, foldable platform with rear railing and rails. The platform can be flexibly adapted and extended with front railings, platform extensions, side railings, etc.

1. MIS platform
2. MIS linkage
3. MIS side railing
4. MIS front railing post
5. MIS handrail
6. MIS platform extension
7. MIS lifting arm M 1750
8. Brace frame 250
9. Formwork-prop connector
10. Ladder fixture panel SB
11. Flange screw 18

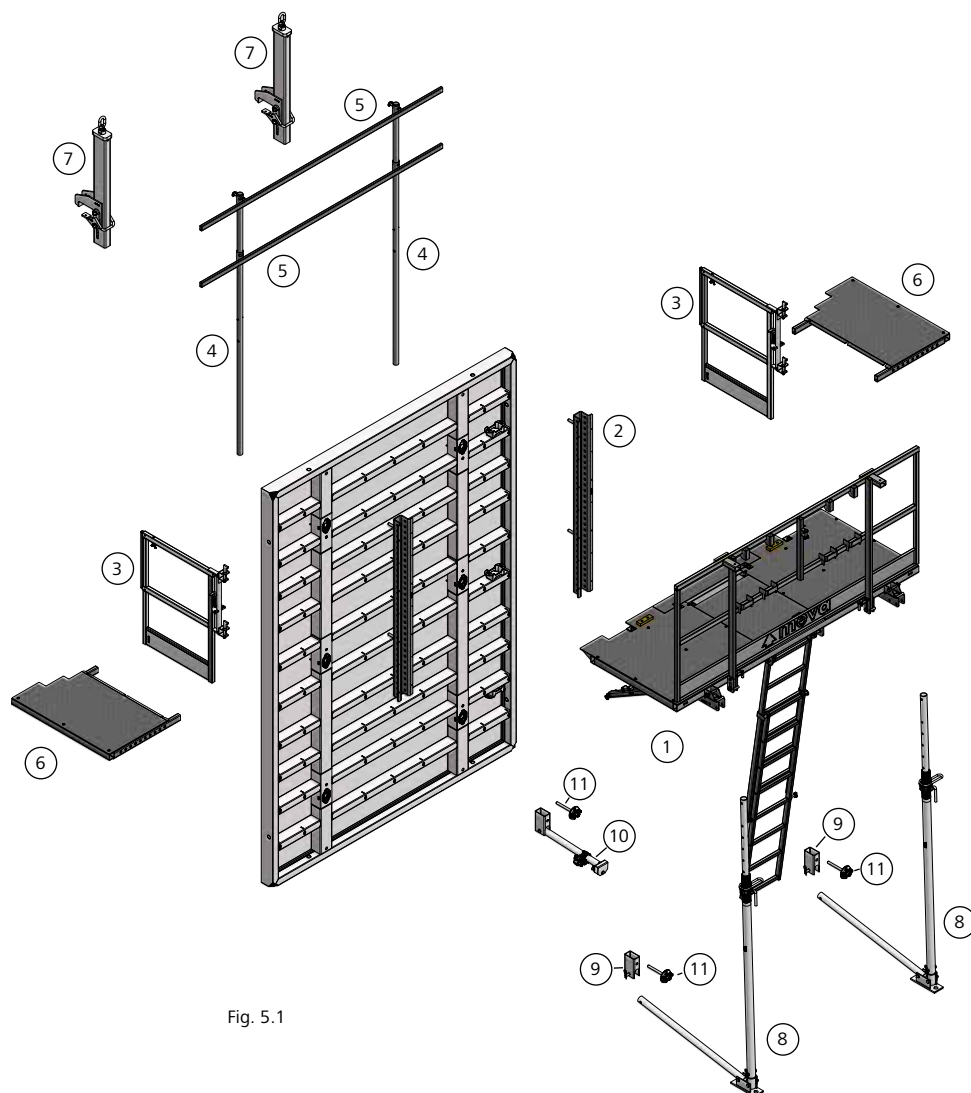


Fig. 5.1

Description	Ref. No.
MIS platform 250 with hatch..	X22-0030
MIS platform 250	X22-0029
MIS platform 125	X22-0031

Product overview

The MIS platform with linkages and rear railing, here 250 with hatch and ladder (Fig. 6.1).

Integrated assembly lock holders and tie rod fixtures on the railing enable efficient work routines (Fig. 6.1).

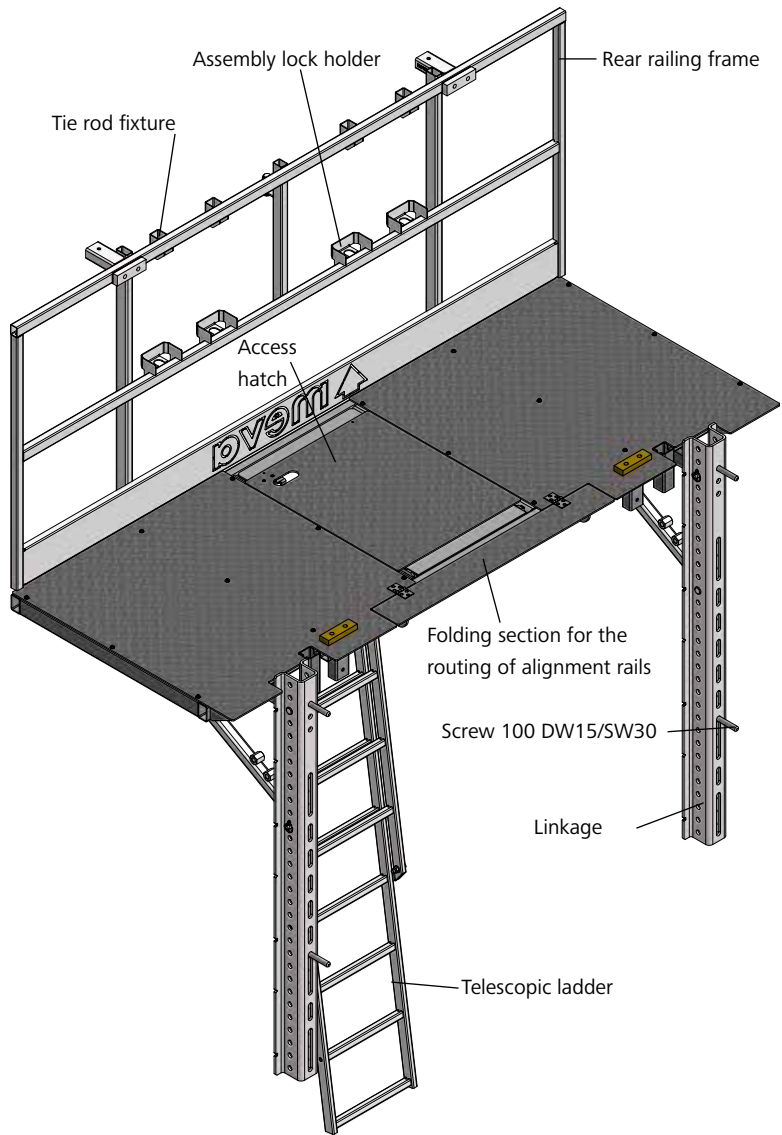


Fig. 6.1

Description	Ref. No.
MIS platform 250 with hatch..	X22-0030
MIS platform 250	X22-0029
MIS platform 125	X22-0031

Formwork assembly – Initial formwork

For the basic assembly of the MIS platform on the Mammut XT panel refer to pages MIS-10 to -13.

If the platform is already installed on the panel, the assembly is performed as described in steps 8 to 20 on pages MIS-14 to -19.

During the application planning, the permissible total weight of the units as a function of the quantity and size of the panels is to be observed for the erection and relocation of the unit (see pages MIS-25 to -29).

The first unit with installed MIS platform (Fig. 7.1) is to be secured immediately to the foot plates of the brace frames on the ground or on the precast concrete slab after it has been erected to prevent it falling over. The foot plate must be firmly connected to the ground or concrete slab with two heavy-duty dowels.

The remaining panel units are now erected in a row and connected with M assembly locks (Fig. 7.2).

Integrated assembly lock holders and tie rod fixtures on the railing enable efficient work routines.

To ensure safe and cost-effective use, please also observe the Technical Instruction Manual for the Mammut XT wall formwork system.

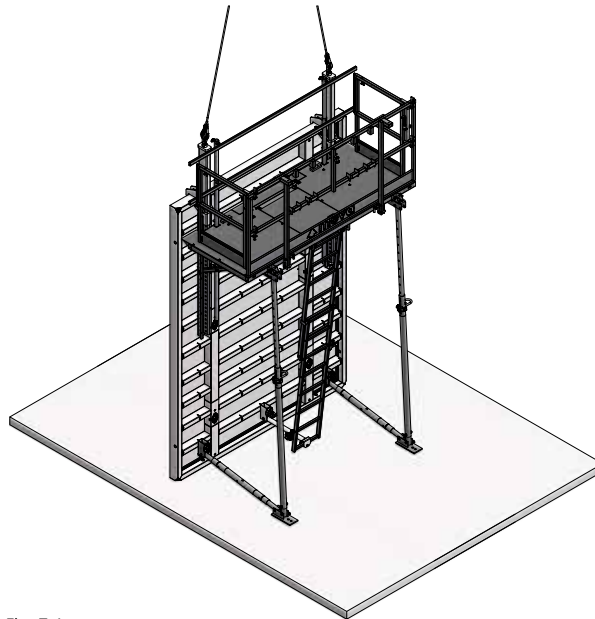


Fig. 7.1

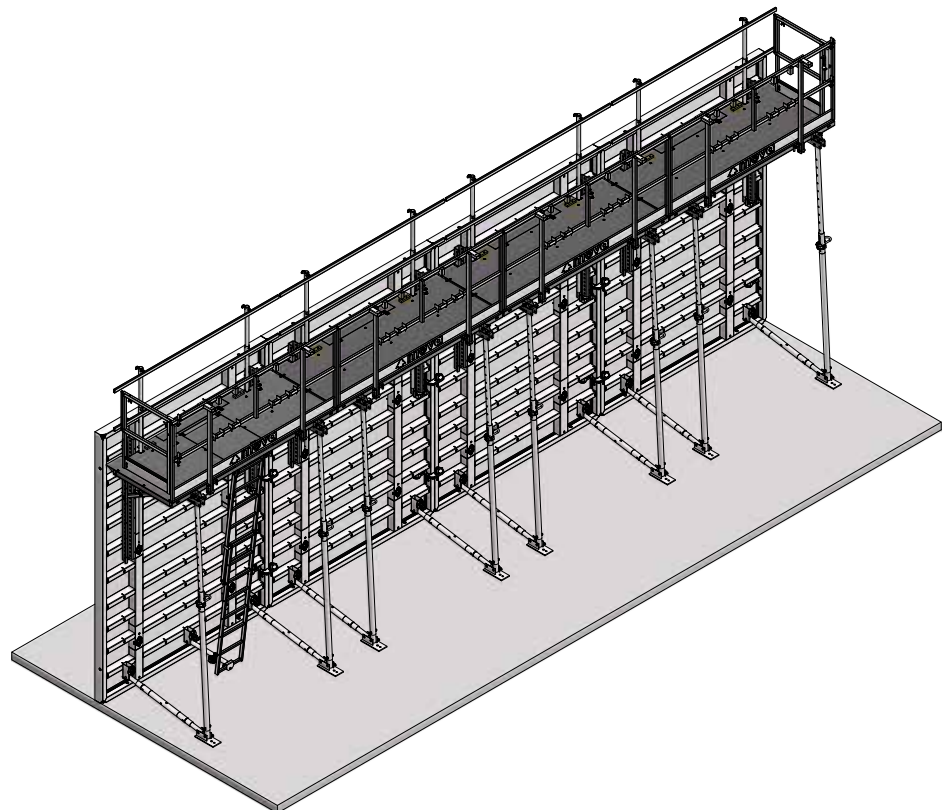


Fig. 7.2

Formwork assembly – Final formwork

When the final formwork has been installed, the two sides of the formwork are firmly connected using tie rods (Figures 8.1 and 8.2).

During the entire assembly and stripping process vertical panels must be supported or secured against toppling by other means. This applies to all panel types, i.e. also to corner panels, etc.

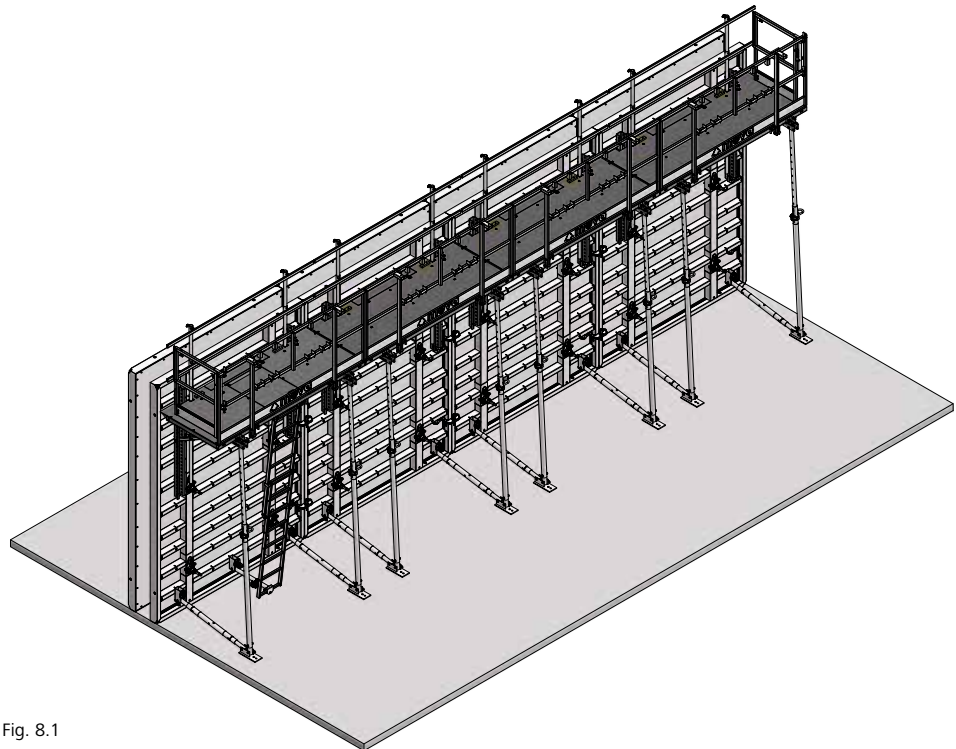


Fig. 8.1

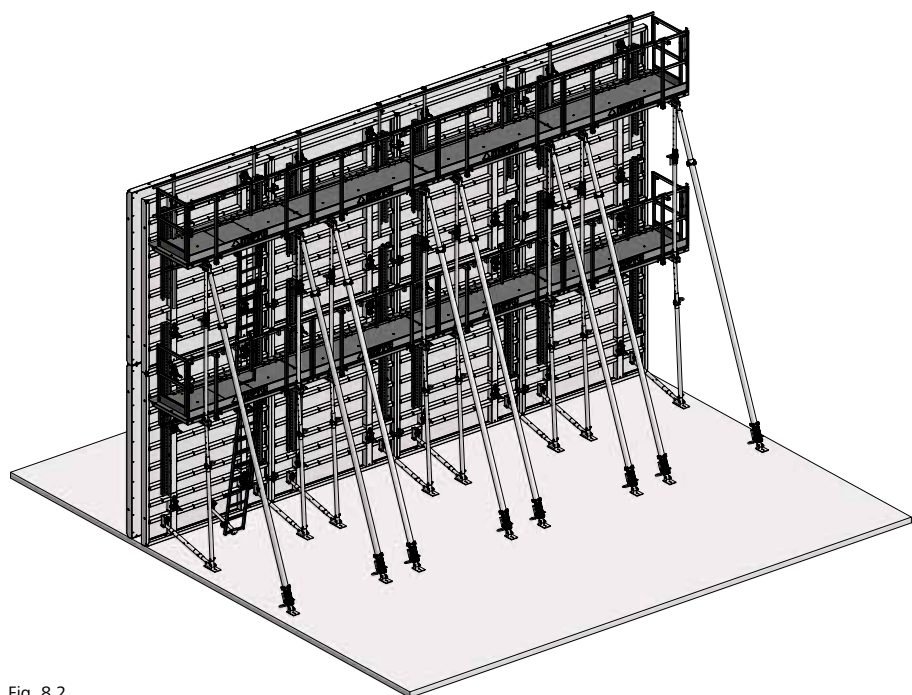


Fig. 8.2

Formwork stripping

Do not start stripping before the concrete has set to the point where it can no longer deform.

It is best to start stripping with the inside formwork. Stripping of both the outside and inside formwork is performed as follows:

Steps:

1. Remove the tie rods section by section. Make sure the unbraced formwork is immediately secured to prevent it falling over or strip it immediately.
2. On the formwork panels or large panel units the assembly locks are removed at the joints, and the panels or panel units are then lifted out by crane. Before removing them with a crane, make sure the formwork is detached from the concrete!
3. Clean the facing and remove any concrete. Before the next use, spray the facing with the release agent MevaTrenn pro (for alkus facings). Observe the operating instructions for the alkus facing.

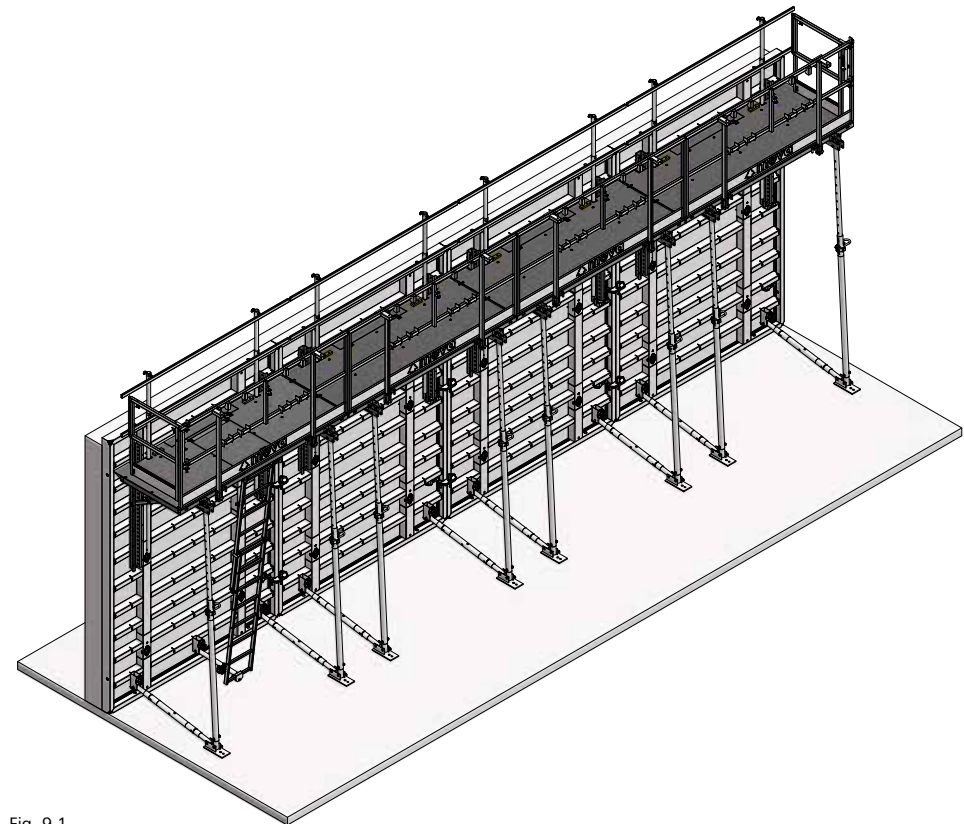


Fig. 9.1

Note

→ The formwork panel with MIS installed is cleaned when it is upright. The unit must not be placed on the platform. If the unit is to be cleaned or reconditioned when it is lying down, it must be placed on trestles.

→ The release agent must not be stored in galvanized containers.

4. If they are no longer needed, the units are placed on the ground, the push-pull props, the front railings and the side railings removed and the platforms folded out, and the units are then stacked and bundled for transport (see page MIS-32). The MIS platform can remain attached to the Mammut XT panel.

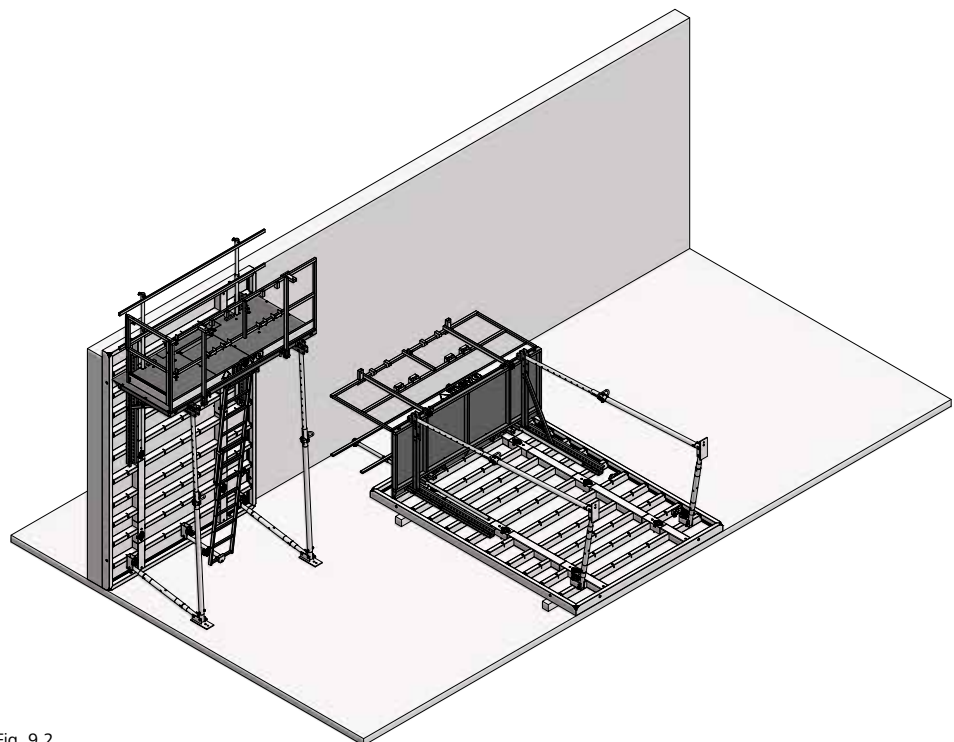
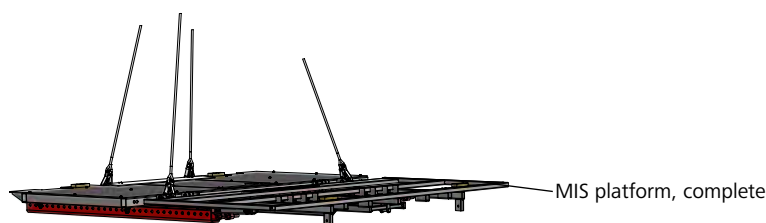


Fig. 9.2

Basic assembly – Linkage attachment

The basic assembly is carried out when the panel is lying on the ground. This applies to both single panels and height-extended panel units. Mammut XT panels with widths 250 cm and 125 cm can be equipped with MIS platforms.



Steps:

1. Place the Mammut XT panel on square timbers with the frame side facing upwards (Fig. 10.1).
2. Completely attach the MIS platform to the 4-rope crane sling and move it above the formwork panel using a crane (Figures 10.1 and 10.2).
3. Before placing the platform on the formwork panel, detach both linkages by removing the two integrated head bolts 16/90 from each linkage (Fig. 10.2).

Remove the two integrated screws 100 DW15/SW30 (30 mm across flats) used to secure each linkage to the panel from their parking positions in the diagonal braces of the platform (Fig. 10.2).

Mammut XT panel

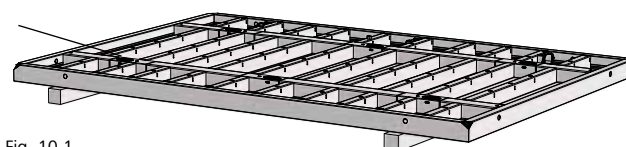


Fig. 10.1

Attention

The MIS lifting arm must be attached to the MIS linkage on the top panel. For the exact position refer to table MIS-11.6.

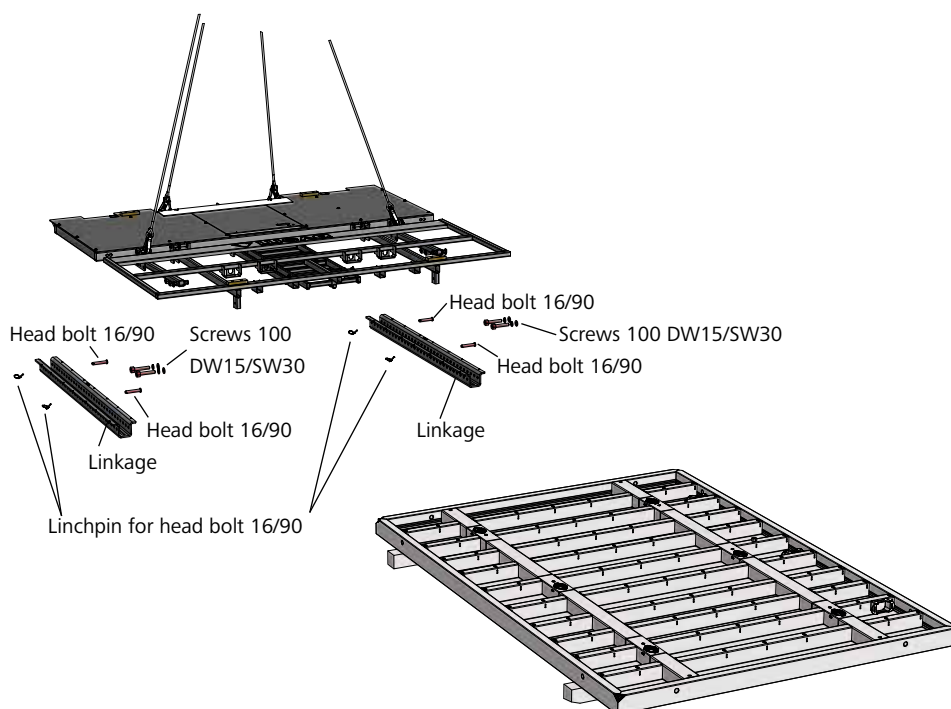


Fig. 10.2

Description	Ref. No.
MIS linkage.....	X22-0041

Basic assembly – Linkage attachment

The MIS linkage (Figures 11.1 to 11.3) connects the MIS platform to the Mammut XT panel. The position of the platform can be adjusted by selecting the attachment points (Fig. 11.3 and Table 11.6).

Rectangular and V-shaped notches (Fig. 11.2) provide orientation with regard to the correct distance between the attachment points in order to install the MIS platform at a 90° angle. For inclined wall formwork refer to page MIS-15.

If, for example, the platform is secured using the first hole below the top V-shaped notch, the diagonal brace is secured using the first hole below the next V-shaped notch, etc.

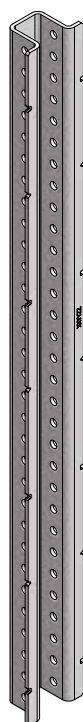


Fig. 11.1

Holes A/B/C for screw 100 DW15/SW30 (top attachment point)

Slotted holes for screw 100 DW15/SW30 (bottom attachment point)

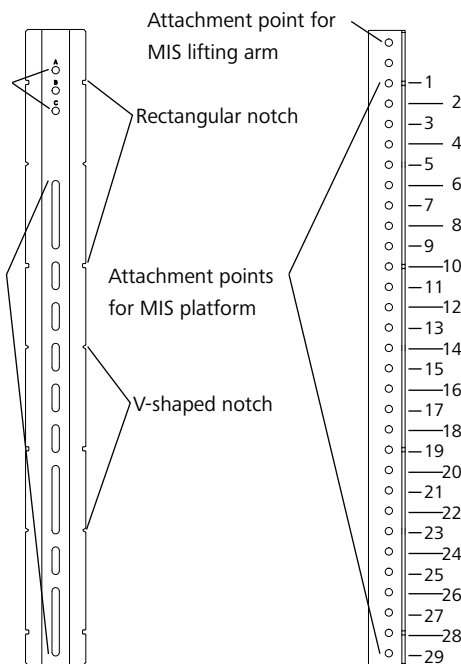


Fig. 11.2 Front view

Fig. 11.3 Side view

Steps:

4. Place the linkages on the panel. For the positioning of the linkage for a vertical panel refer to Fig. 11.5 and for a horizontal panel Fig. 11.4 and in both cases to Table 11.6.

When planning for two or more platforms, take into account that the vertical spacing between two platforms must be between 2.00 m and 3.00 m.

Multi-function profile a.

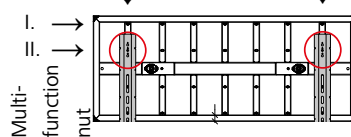


Fig. 11.4

Top attachment point for screw 100 DW15/SW30

Multi-function nut a. b.

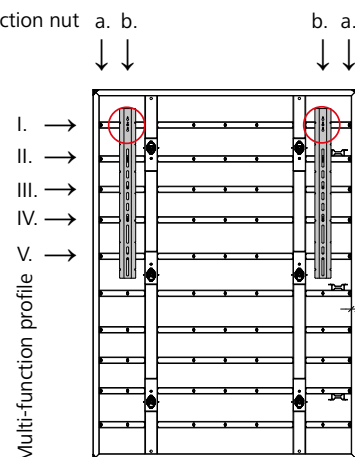


Fig. 11.5

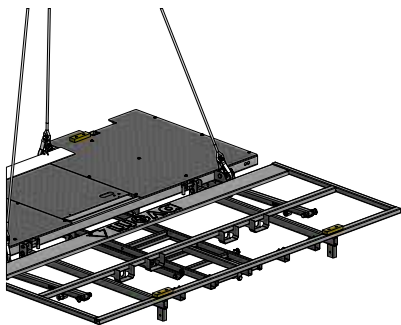
System	Size	Top formwork panels / top linkages (MIS lifting arm M 1750 must be installed)				Bottom formwork panels / bottom linkages (MIS lifting arm M 1750 does not need to be installed)			
		Top attachment point for screw 100 DW15/SW30 to linkage / formwork panel			Attachment points for MIS platform (Fig. 11.3)	Top attachment point for screw 100 DW15/SW30 to linkage / formwork panel			Attachment points for MIS platform (Fig. 11.3)
		Multi-function profile (Fig. 11.4, 11.5)	Multi-function nut (Fig. 11.4, 11.5)	Hole A/B/C (Fig. 11.2)		Multi-function profile (Fig. 11.4, 11.5)	Multi-function nut (Fig. 11.4, 11.5)	Hole A/B/C (Fig. 11.2)	
Mammut XT vertical	350/250	I.	b.	B	3, 4, 5 ...	I., II., III. ...	b.	A, B, C	1, 2, 3 ...
	350/125			B	4, 5, 6 ...				
	300/250			C	3, 4, 5 ...				
	300/125			C	4, 5, 6 ...				
	250/125			B	4, 5, 6 ...				
Mammut XT horizontal	250/75	a.	II.	C	3, 4, 5 ...	b.	I., II., III. ...	A, B, C	1, 2, 3 ...
	125/75			C	4, 5, 6 ...				
	250/100			B	3, 4, 5 ...				
	125/100			B	4, 5, 6 ...				
	250/125			B	3, 4, 5 ...				
	125/125			B	4, 5, 6 ...				

Table 11.6

Basic assembly – Linkage attachment

Steps:

5. Secure the two linkages to the panel using the two integrated screws 100 DW15/SW30 (30 mm across flats) for each linkage (Figures 12.1 and 12.2 as well as page MIS-11).



Screws 100 DW15/SW30

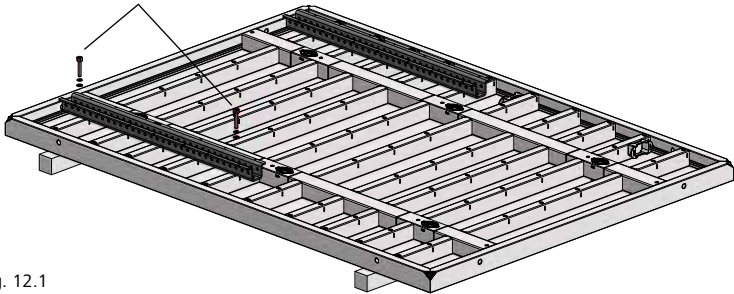


Fig. 12.1

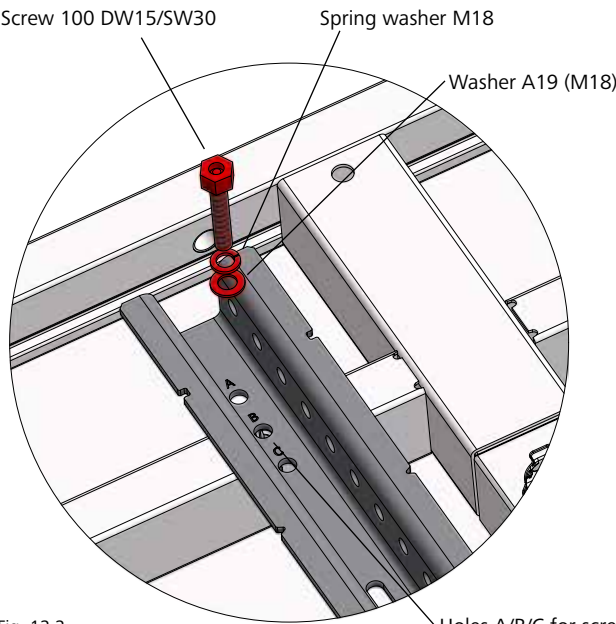


Fig. 12.2

Holes A/B/C for screw 100 DW15/SW30, see MIS-11 Table 11.6

Description	Ref. No.
MIS platform 250 with hatch...	X22-0030
MIS platform 250 w/o hatch...	X22-0029
MIS platform 125	X22-0031
Spring washer M18	62-035-47
Washer A19 (M18)	62-030-44

Basic assembly – Platform

Steps:

- 6. Place the MIS platform on the linkages (Fig. 13.1) and secure it in the planned position using the top two attachment points (front edge of the platform) with the integrated head bolts 16/90 (Fig. 13.2). For the correct position refer to page MIS-11 Table 11.6.
- 7. Remove the crane sling.

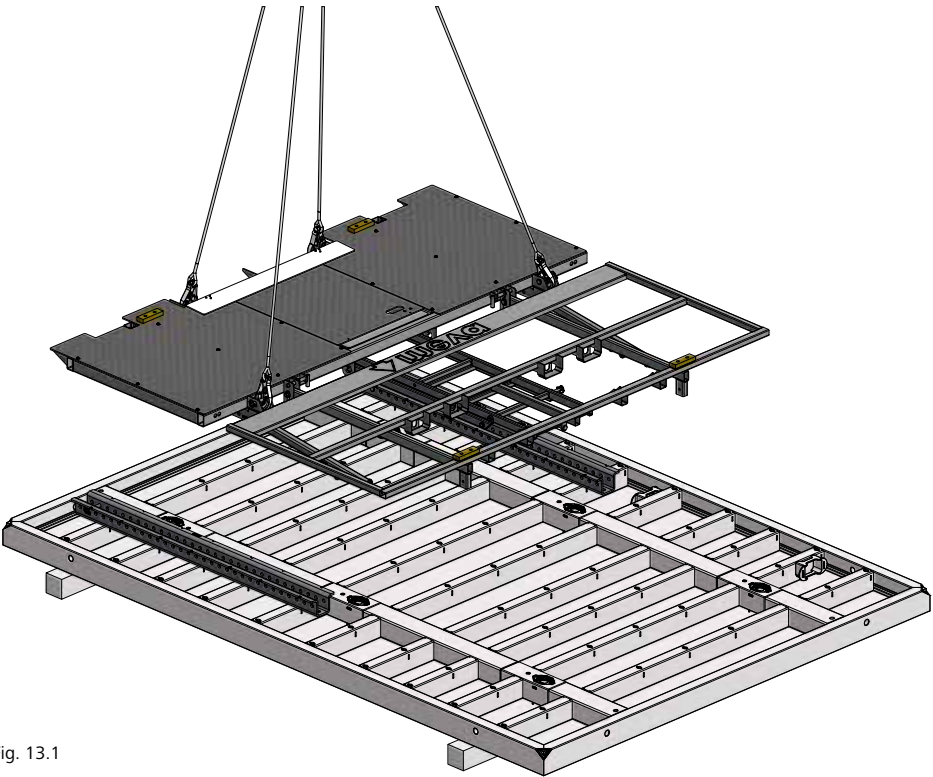


Fig. 13.1

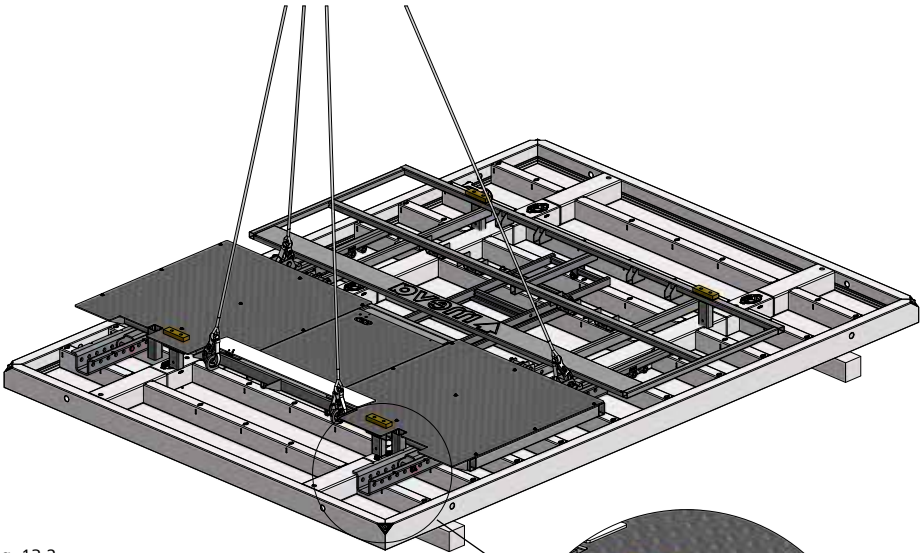


Fig. 13.2

Head bolt 16/90

Linchpin for head bolt 16/90

Description	Ref. No.
MIS platform 250 with hatch..	X22-0030
MIS platform 250 w/o hatch...	X22-0029
MIS platform 125	X22-0031

Platform

Steps:

8. Remove the head bolt to release the telescopic ladder on the rear railing frame (Fig. 14.1).
9. Remove the two pins 16/115 at the rear edge of the MIS platform (Fig. 14.2) and swing the rear railing up through 90° (Fig. 14.3).
10. Replace the pins 16/115 in the locking position (Fig. 14.3).

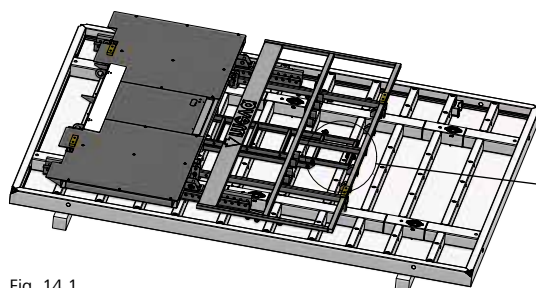
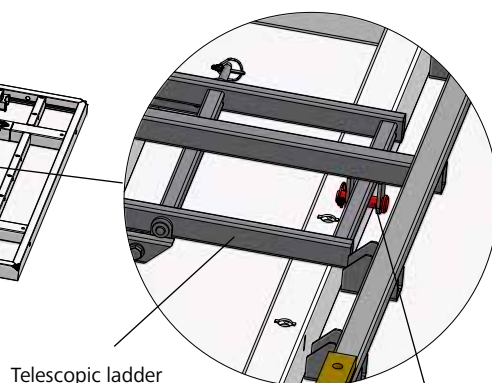


Fig. 14.1



Telescopic ladder

Head bolt

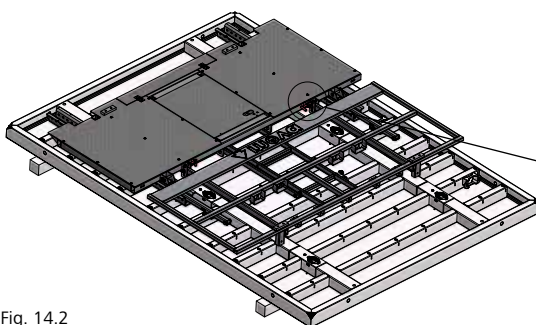
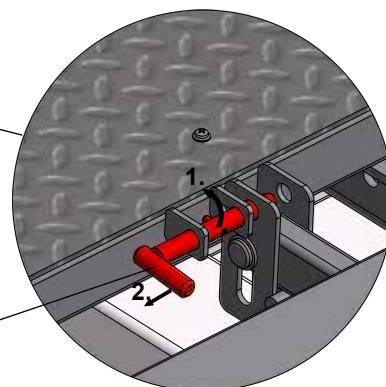


Fig. 14.2



Pin 16/115

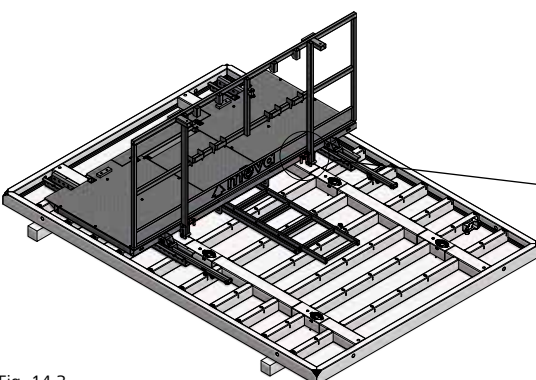
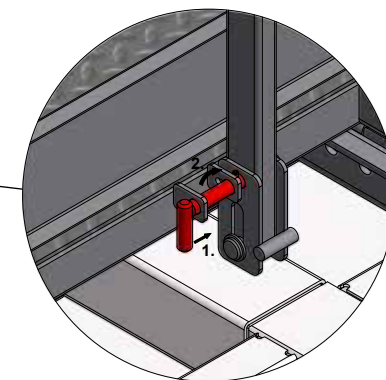


Fig. 14.3



Description	Ref. No.
MIS platform 250 with hatch..	X22-0030
MIS platform 250 w/o hatch...	X22-0029
MIS platform 125	X22-0031

Platform

Steps:

11. Swing the platform with rear railing up through 90° (Fig. 15.1).
12. Secure the two diagonal braces under the platform to the linkages at the planned position using the integrated head bolts 16/90 (Fig. 15.2). For the correct position refer to page MIS-11.

Note

The platform is generally installed at a 90° angle to the panel.

Rectangular and V-shaped notches on the linkage provide orientation with regard to the correct distance between the attachment points in order to install the MIS platform at a 90° angle.

If, for example, the platform is secured using the first hole below the top V-shaped notch, the diagonal brace is secured using the first hole below the next V-shaped notch, etc.

When installing the platform at an angle under 90°, every tenth attachment point on the linkage is used.

By attaching the diagonal braces at defined positions, the platform can be installed to wall formwork with an angle of inclination between +3° (every ninth attachment point) and -10° (every thirteenth attachment point) (Fig. 15.3).

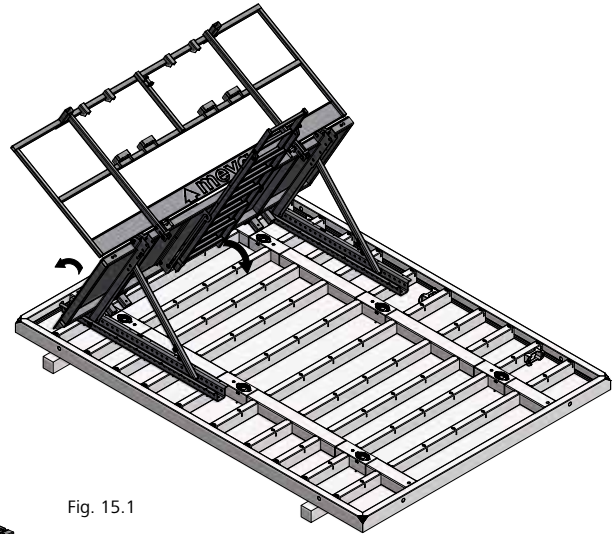


Fig. 15.1

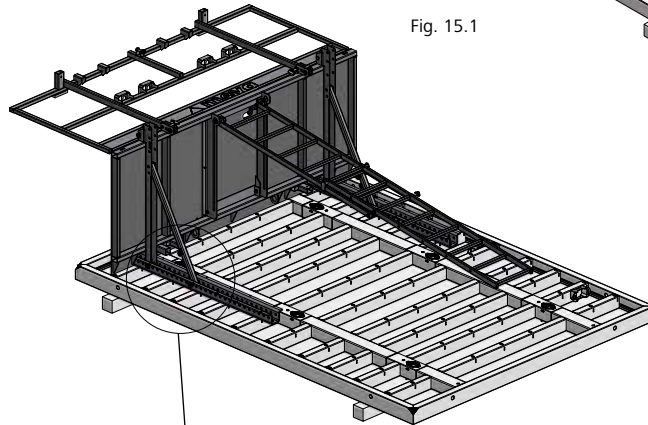
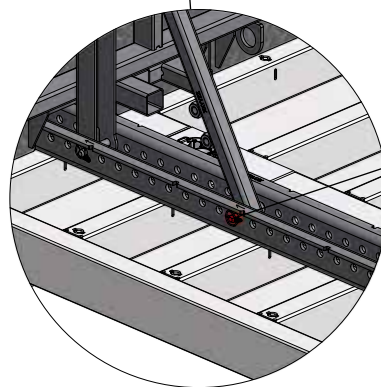


Fig. 15.2



Head bolt 16/90

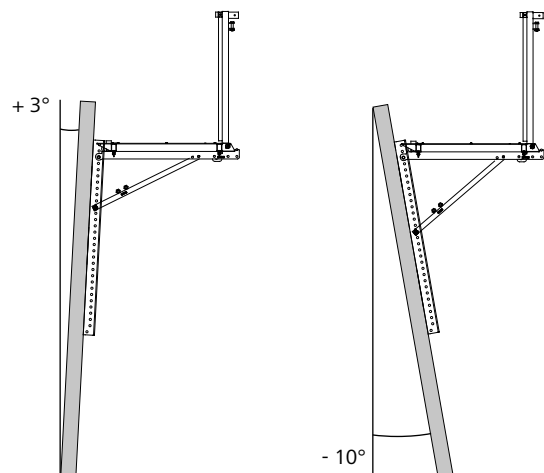


Fig. 15.3

Description	Ref. No.
MIS platform 250 with hatch..	X22-0030
MIS platform 250 w/o hatch...	X22-0029
MIS platform 125	X22-0031

Ladder

The integrated telescopic ladder has an adjustment range from 188 to 313 cm and can thus be used for all common formwork panel heights.

Steps:

- 13. Move the ladder in the guide until it reaches the rear edge of the platform and is in the locking position (Fig. 16.1).
- 14. At the foot of the ladder, attach the ladder fixture panel SB to the central multi-function nut of the Mammut XT panel with a flange screw 18 (Fig. 16.1).
- 15. Hook the ladder fixture panel SB over the bottom rung of the ladder and secure it using the integrated bolt and cotter pin (Fig. 16.1).

MIS platform without hatch and ladder

MIS platforms without hatch are assembled in the same sequence as described on pages MIS-10 to-19. Only steps 13 to 15 are not required.

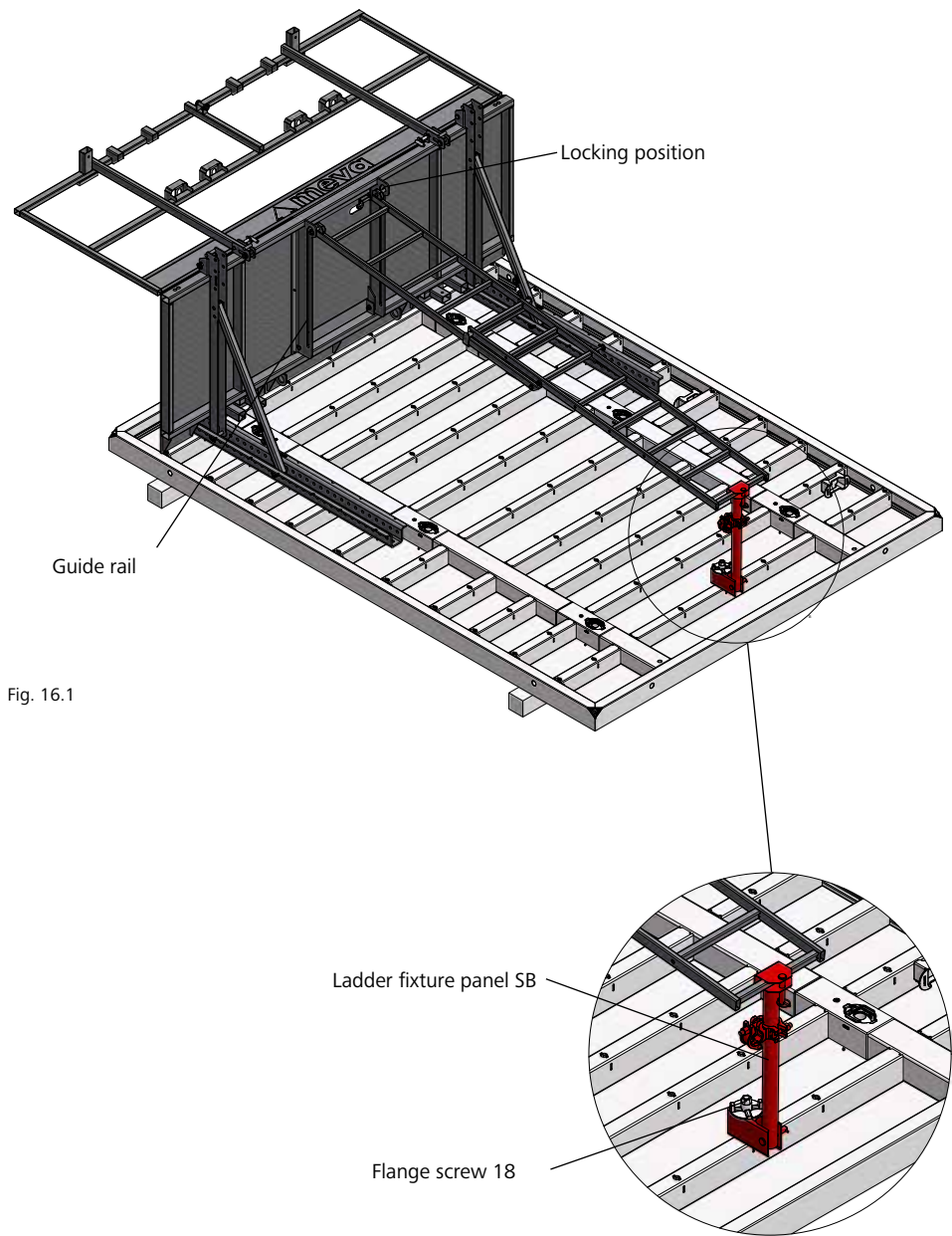


Fig. 16.1

Description	Ref. No.
Ladder fixture panel SB	29-603-80
Flange screw 18.....	29-401-10

Side railing

The MIS side railing (Fig. 17.1) is hinged and can be locked in three positions:

- - 90°
- 0°
- + 90° (Fig. 17.2)

The built-in spring prevents the locking mechanism being released accidentally.

Beside its main use as lateral fall protection, the side railing can also be used to provide protection for length compensations (see page MIS-24).

The telescopic extension widens the railing by up to 44 cm.

Steps:

- 16. Attach the MIS side railing to the rear railing frame using the two integrated wedges (Fig 17.3).

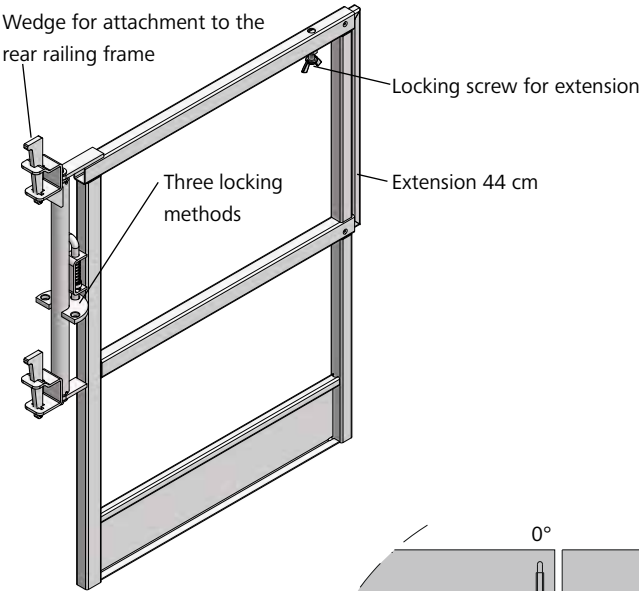


Fig. 17.1

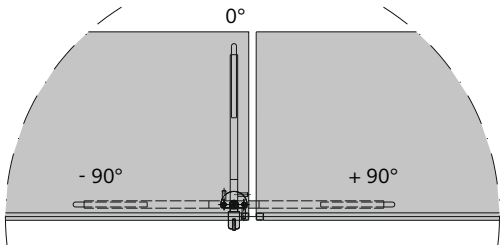


Fig. 17.2

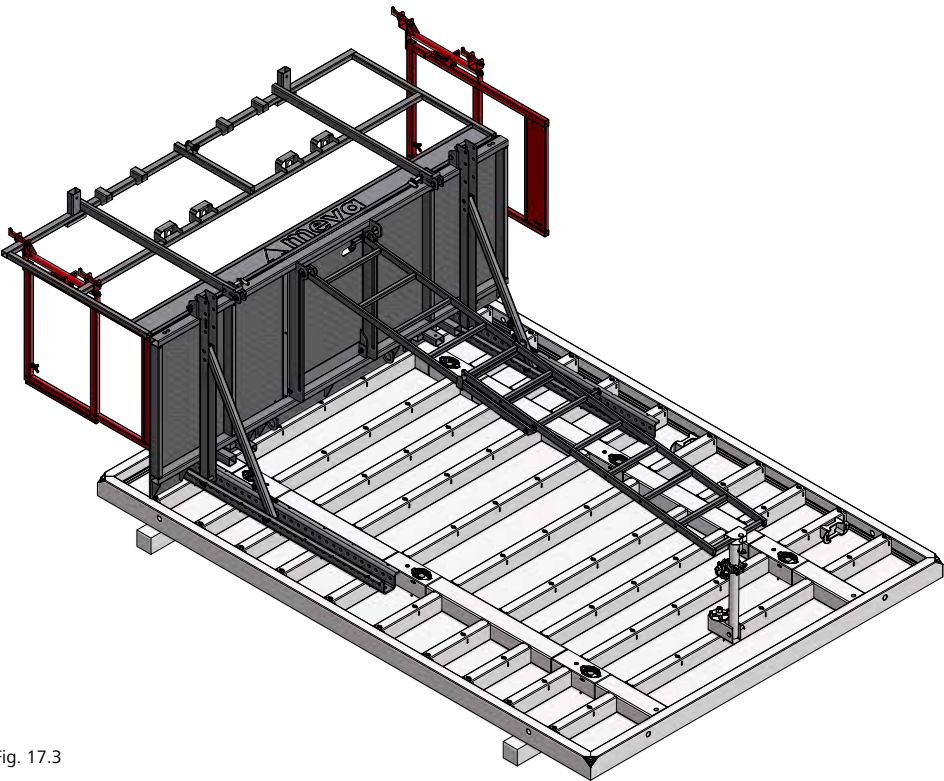


Fig. 17.3

Description	Ref. No.
MIS side railing	X22-0032

Push-pull props

The push-pull props and brace frames are used to align and support the formwork unit.

→ The height of the formwork and the length of the push-pull prop should be equal.

→ Brace frames and push-pull props must be anchored to the floor, e.g. to the floor plate or the precast concrete slab, through the foot plates using dowels.

→ Once the formwork has been erected (see page MIS-29) and before anchoring the formwork in the ground or precast concrete slab, ensure that the properties of the ground and the rating of the dowels meet the applicable federal, state and local codes and regulations.

Steps:

17. Push-pull props and brace frames are:

→ Bolted at the top to the rails on the MIS platform (Fig. 18.1) and

→ attached at the bottom with formwork-prop connectors and flange screws 18 to the multi-function profiles of the formwork panel (Fig 18.2).

Note

Head bolt 16/90 and linchpin 4.5 must be ordered separately for the brace frame without formwork-prop connector.

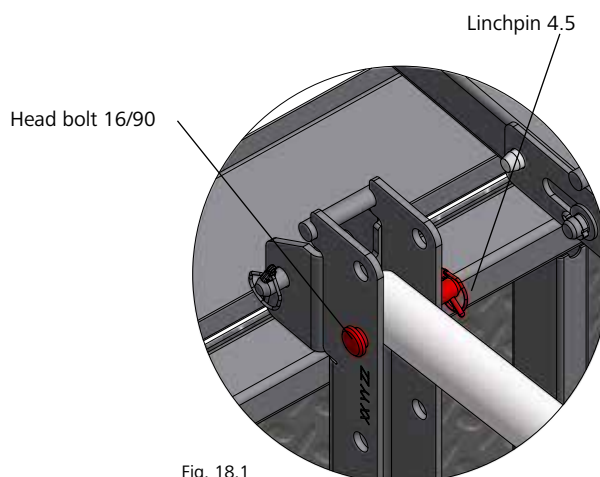


Fig. 18.1

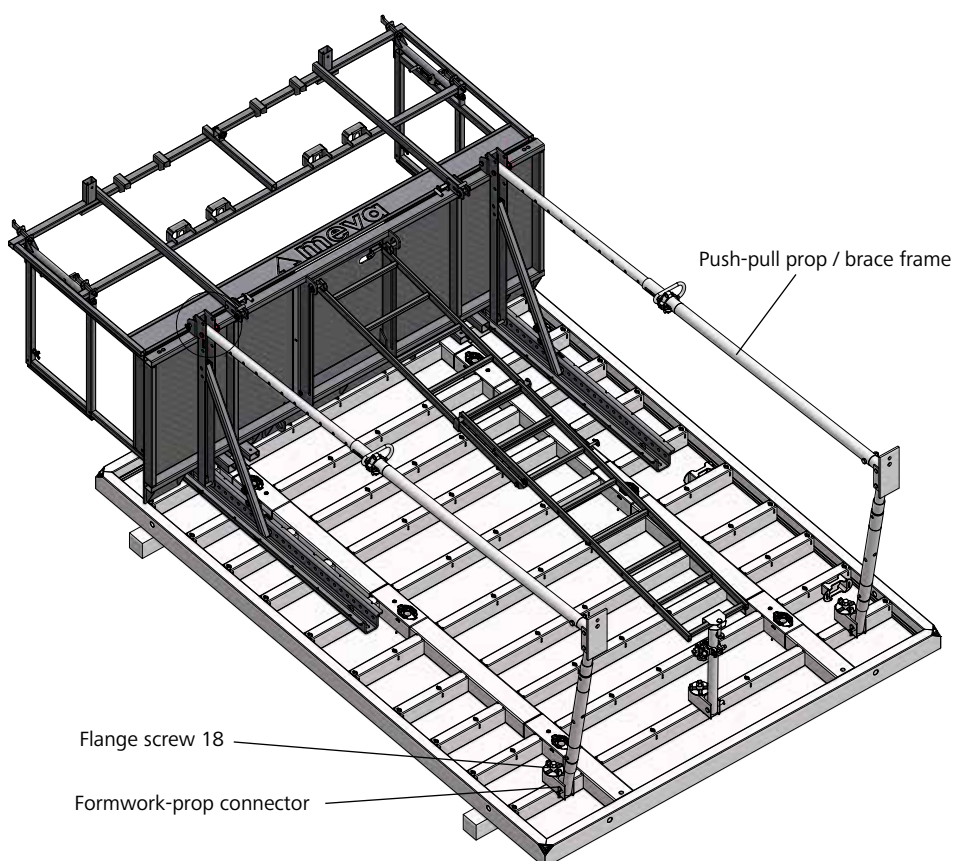


Fig. 18.2

Description	Ref. No.
Brace frame with formwork-prop connector	29-109-20
Brace frame w/o formwork-prop connector	29-109-25
Formwork-prop connector	29-804-85
Flange screw 18	29-401-10
Head bolt 16/90	42-413-50
Linchpin 4.5	62-010-03

Front railing

The MIS front railing (Fig. 19.1) serves as fall protection on the formwork side of the uppermost MIS platform. If an alternative form of fall protection is installed, e.g. on the opposite formwork side, the front railing can be lowered.

The front railing must be configured to suit the formwork panel width with:

- Two MIS front railing posts and
- two MIS handrails 250 for panel widths of 250 cm, or
- two MIS handrails 125 for panel widths of 125 cm.

Steps:

18. Remove the head bolt from the MIS guardrailing post and install the two handrails to suit the panel width.
19. Secure the handrails with head bolts and linchpins.
20. Insert the MIS front railing into the front railing bracket in the cut-out in the platform floor next to the linkages (Figures 19.2 and 19.3).

Lowering the MIS front railing:
Lift up both guardrailing posts slightly, turn the posts through 45° and lower the front railing.

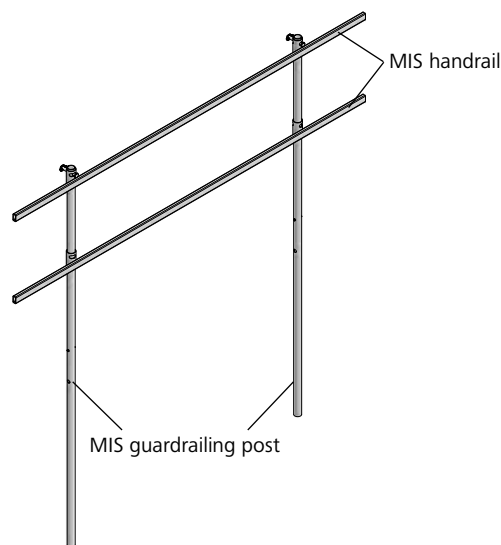


Fig. 19.1

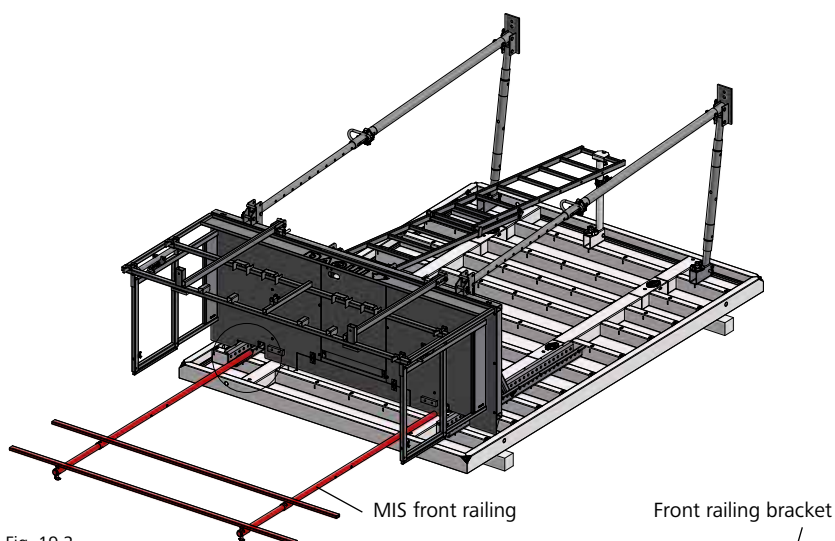


Fig. 19.2

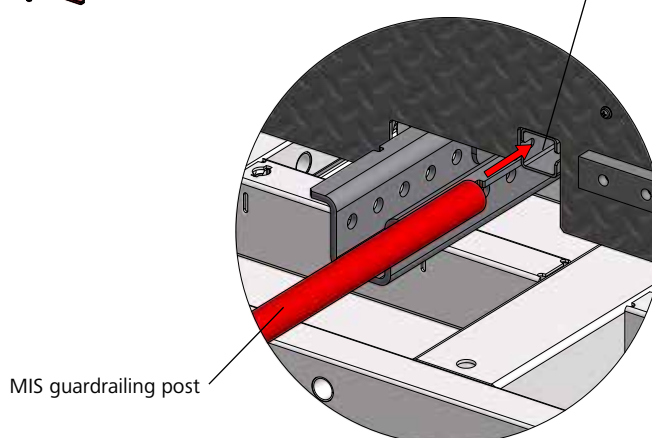


Fig. 19.3

Description	Ref. No.
MIS front railing post.....	X22-0033
MIS handrail 250	X22-0046
MIS handrail 125	X22-0047

Height extension

Height extensions are possible up to a height of 10.50 m. Individual planning is required for greater heights.

When height-extending, rails must be secured across the horizontal panel joints in order to stabilise the panels. MIS linkages can be used for this purpose. To hang the MIS platform at a lower position, the MIS linkage extension (Fig. 20.1) can be used.

For each platform that is to be hung at a lower position, two linkage extensions (Fig. 20.2) are each attached to the two lower attachment points for MIS platforms with two integrated bolts and each attached to the panel with two screws 100 DW15/SW30 (30 mm across flats), washers A19 (M18) and spring washers M18.

Note

The vertical distance between two MIS platforms must be between 2.00 m and 2.70 m. It is generally recommended to secure the access area with a safety net or by similar means. Above a platform spacing of 2.70 m the access area must always be secured. The safety net must be ordered separately.

Alternatively, M alignment rails can be used. These are attached to the panels using at least two flange screws 18 per rail.

The folding section of the MIS platform floor is folded up to allow the alignment rails to be fed through.

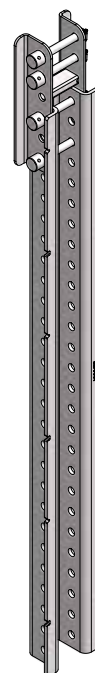


Fig. 20.1

Attention

- The MIS linkages must be attached as rails for height extension using four screws 100 DW15/SW30 for each linkage (two per panel).
- Screws 100 DW15/SW30, washers A19 (M18) and spring washers M18 must be ordered separately for MIS linkages for height extension and MIS linkage extensions.
- The push-pull props for height extensions must be subject to compressive forces and have no play.

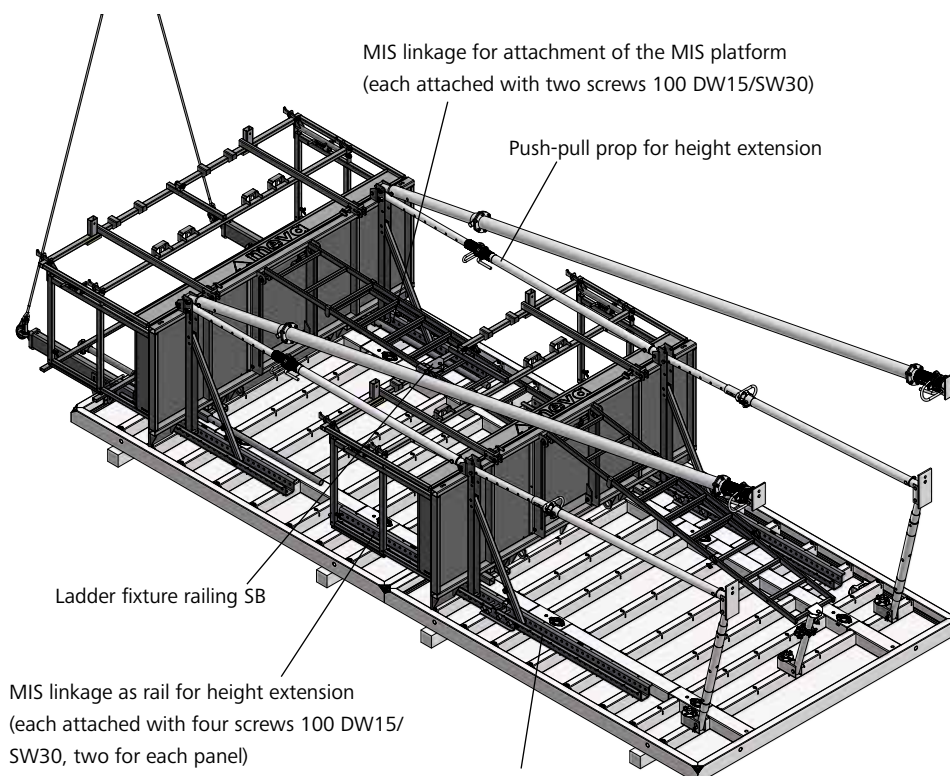


Fig. 20.2

Description	Ref. No.
MIS linkage.....	X22-0041
MIS linkage extension.....	X22-0042
Screw 100 DW15/SW30	31-312-05
Spring washer M18	62-035-47
Washer A19 (M18)	62-030-44
M alignment rail 180, galv.	29-400-92
M alignment rail 250, galv.	29-402-50
Crossbeam 300.....	29-403-05
Flange screw 18.....	29-401-10

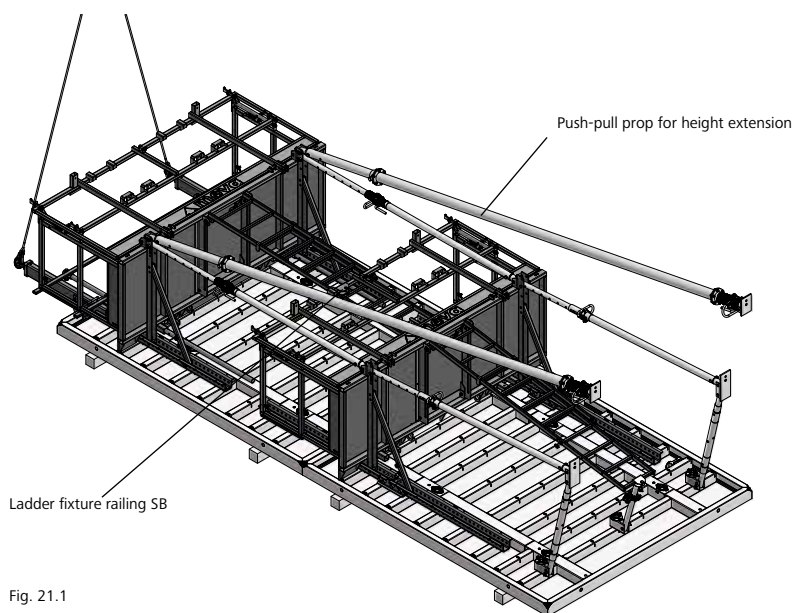
Height extension

1. The preassembly steps for the height-extended unit are the same as those for the assembly of the basic unit on the ground (steps 1 to 20, pages MIS-10 to -19).

2. For the height extension with hatch, the telescopic ladder is secured to the rear railing frame of the MIS platform below by means of the ladder fixture railing SB using the integrated pin and the cotter pin (Fig. 21.1).

3. Push-pull props for height extensions are bolted to the rails of the MIS platform at the top (Fig. 21.2) and at the bottom (Fig. 21.3).

4. Additional braces are bolted at the top to the rails on the MIS platform (Fig. 21.4).



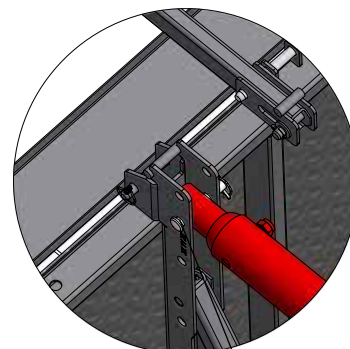
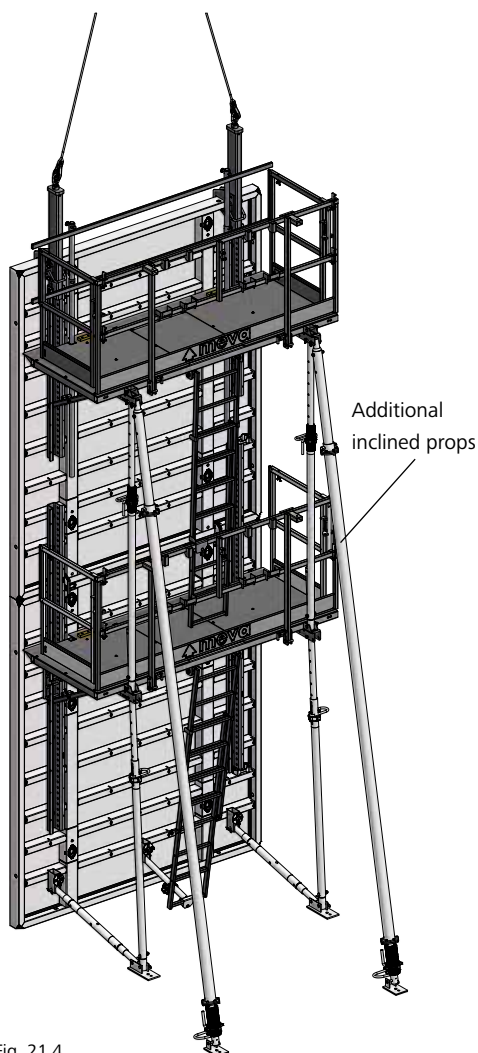
Attention

The following always applies for height extensions:

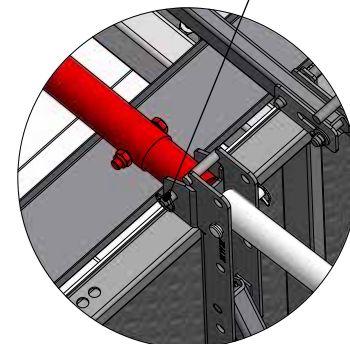
- Vertical push-pull props must be installed to the platforms at the rear.
- Additional inclined props must be attached to every platform.
- When installing three or more platforms above each other, additional inclined props are not required on the uppermost platform.

Note

Head bolts 16/90 and linchpins 4.5 for push-pull props must be ordered separately.



Head bolt 16/90 / linchpin 4.5



Description	Ref. No.
Push-pull prop R 250	29-109-60
Push-pull prop R 460	29-109-80
Push-pull prop R 630	29-109-85
Double-jointed foot plate.....	29-402-32
Articulated foot plate.....	29-802-48
Head bolt 16/90	42-413-50
Linchpin 4.5.....	62-010-03
Ladder fixture railing SB	79-603-75

Height extension

Height extensions are possible up to a height of 10.50 m. Individual planning is required for greater heights.

Two additional diagonal braces (brace SRL 120) are required under the diagonal braces of the platform (Figures 22.1 and 22.2) for every bottom platform.

Note

Head bolts 16/90 and linchpins 4.5 for additional diagonal braces must be ordered separately.

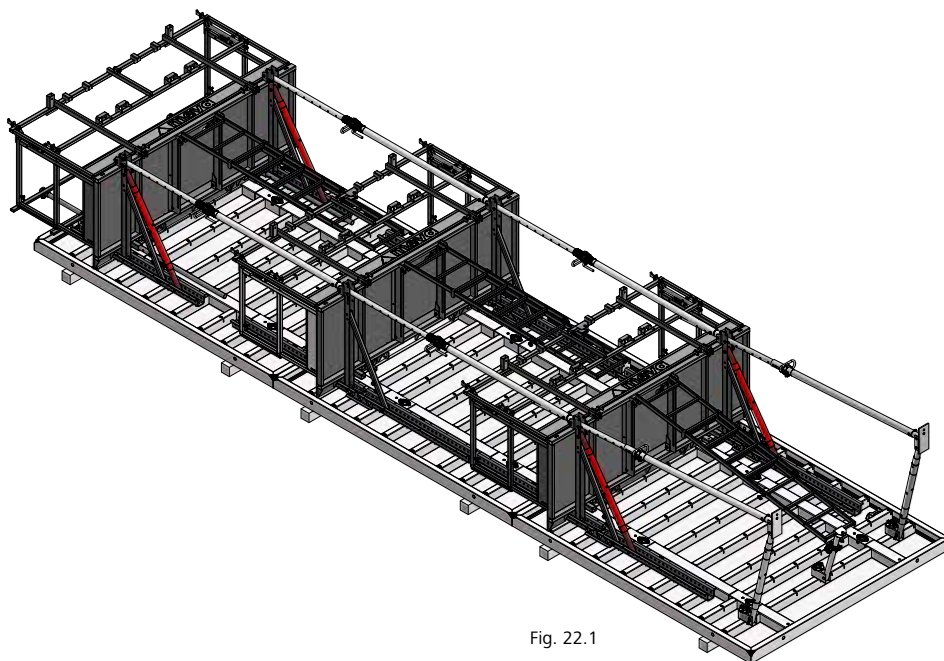


Fig. 22.1

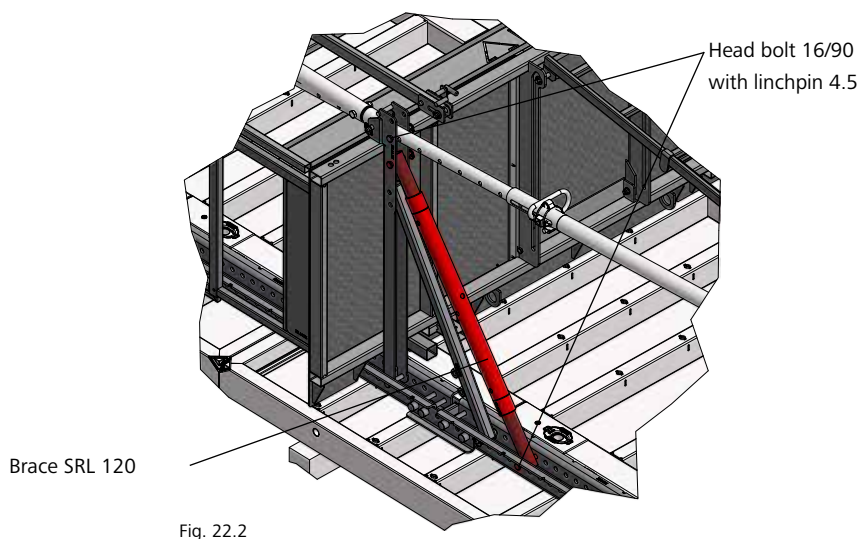


Fig. 22.2

Description	Ref. No.
Brace SRL 120.....	29-108-80
Head bolt 16/90	42-413-50
Linchpin 4.5.....	62-010-03

Height extension with horizontal panels

MIS platforms can also be installed on horizontal 250 cm or 125 cm high Mammut XT height-extension panels with widths 75, 100 and 125 cm (Fig. 23.2). This results in height increments of 25 cm (Fig. 23.1).

Example height extension

4.50 m

The preassembly steps for the height-extended unit are the same as those for the assembly of the basic unit on the ground (steps 1 to 20, pages MIS-10 to -19).

Note

The vertical distance between two MIS platforms must be between 2.00 m and 2.70 m. It is generally recommended to secure the access area with a safety net or by similar means. Above a platform spacing of 2.70 m the access area must always be secured. The safety net must be ordered separately.

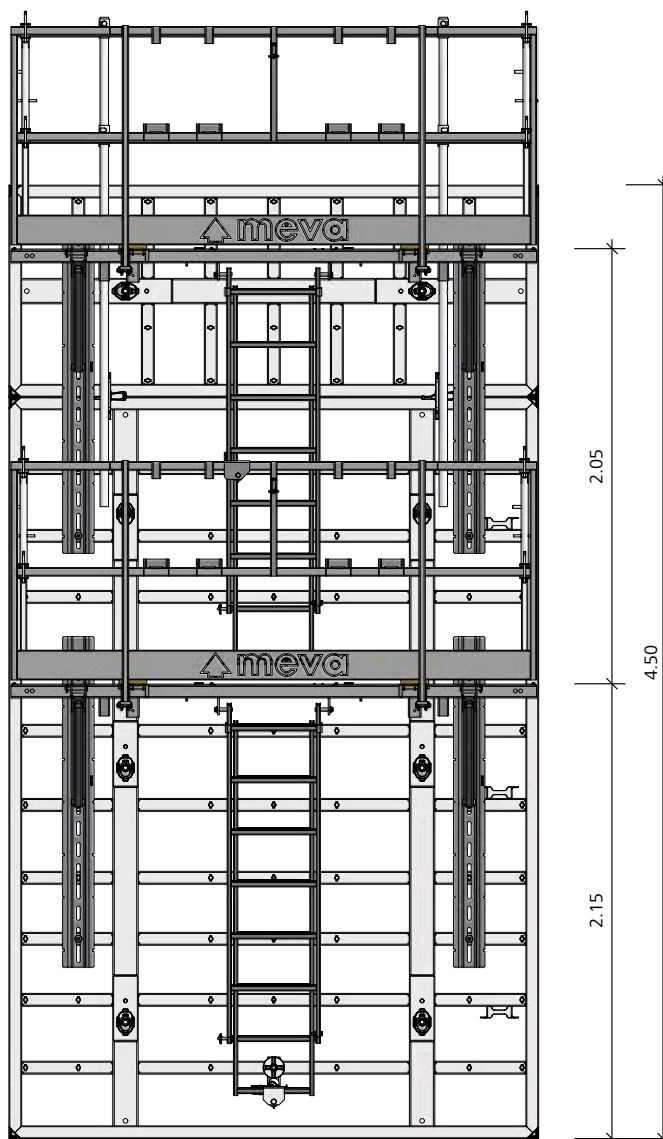


Fig. 23.1

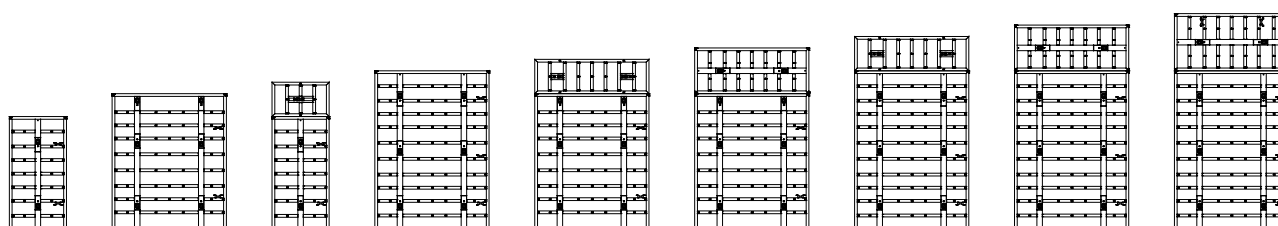


Fig. 23.2

Length compensation

Length compensations and platform extensions up to 1.00 m can be achieved using the MIS platform extensions.

These are available in two sizes:

→ MIS platform extension 500 (Figures 24.1 and 24.2) for compensations/extensions from 5 to 50 cm. This can be used for MIS platforms 250.

→ MIS platform extension 300 (Figures 24.3 and 24.4) for compensations/extensions from 5 to 30 cm. This can be used for MIS platforms 125.

Both sizes can be locked in 2.5 cm increments using the integrated head bolts and linchpins and are available in both left-and right-hand versions (Fig. 24.6).

Attaching a platform extension 500 right and a platform extension 500 left to an MIS platform 250 results in a length compensation of up to 1.00 meters (Fig. 24.5). As railings in the compensated section, MIS side railings can be attached to the rear railing frame and to the MIS front railing using the integrated wedges (Fig. 24.5).

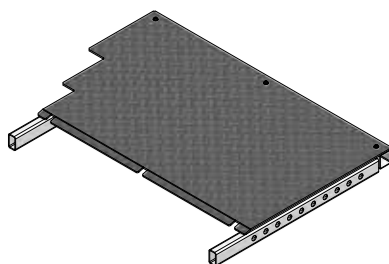


Fig. 24.1 MIS platform extension 500 right

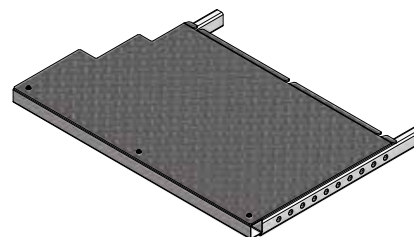


Fig. 24.2 MIS platform extension 500 left

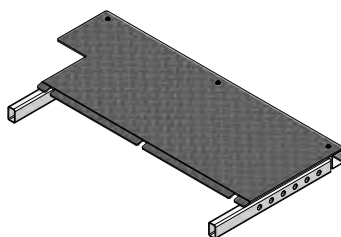


Fig. 24.3 MIS platform extension 300 right

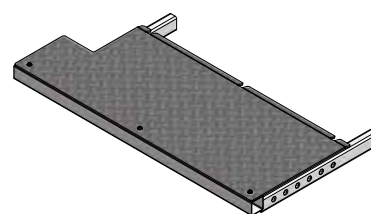


Fig. 24.4 MIS platform extension 300 left

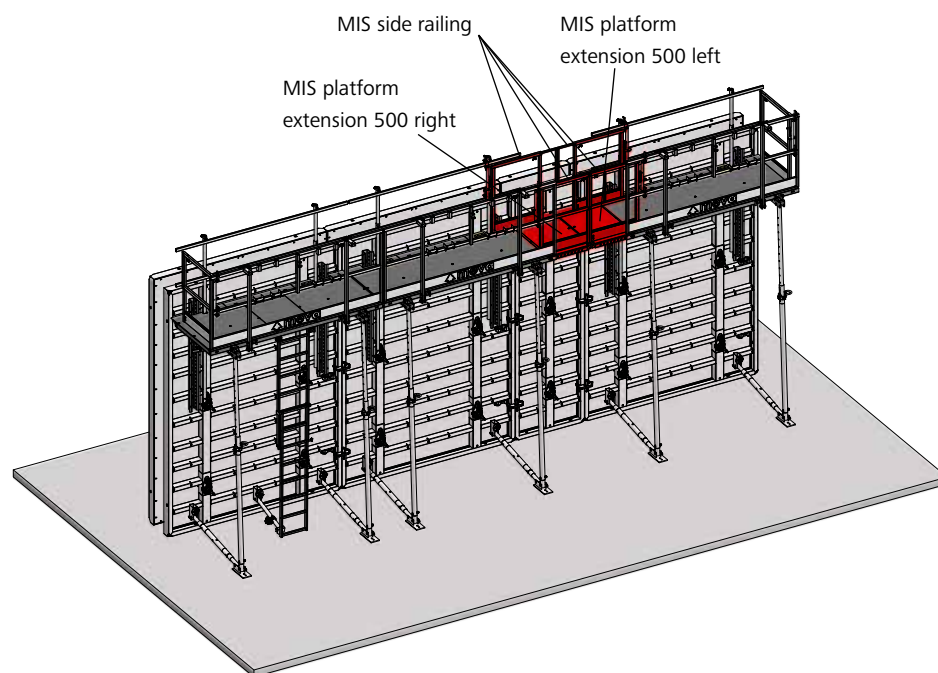


Fig. 24.5

Description	Ref. No.
MIS platform extension	
500 right	X22-0034
500 left.....	X22-0036
300 right	X22-0037
300 left.....	X22-0038
Head bolt 16/90	42-413-50
Linchpin 4.5.....	62-010-03
MIS side railing	X22-0032

Locking using head bolt and linchpin in 2.5 cm increments

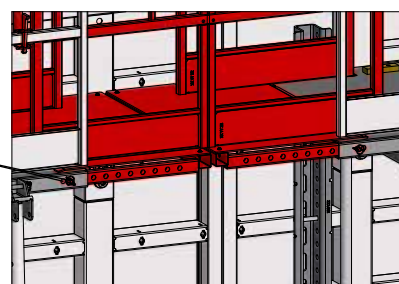


Fig. 24.6

Lifting arm

The MIS lifting arm M 1750 (Fig. 25.1) is used to erect, position, relocate and set down assembly units with MIS platforms installed.

Two lifting arms are required for each assembly unit (Fig. 25.2).

The maximum permissible load capacity of the MIS lifting arm M 1750 is 17.5 kN (1.75 t) per lifting arm.

Upright units can also be relocated using an M crane hook (see pages MIS-27 and -28).

Safety check

Always check the MIS lifting arm M 1750 before use. Do not overload the MIS lifting arm M 1750. Exceeding the permissible loading can result in excessive elongation and thus permanent deformation. A damaged MIS lifting arm M 1750 is not capable of supporting the full load and its safe use can no longer be guaranteed.

Safety regulations

When using our products, the federal, state and local codes and regulations must be observed. Also observe the operating instructions "MIS Lifting Arm M 1750" delivered with the lifting arm.

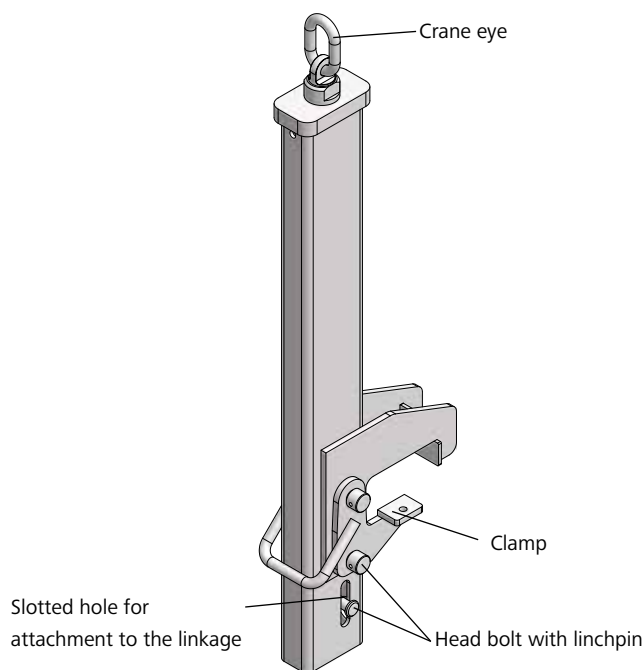


Fig. 25.1

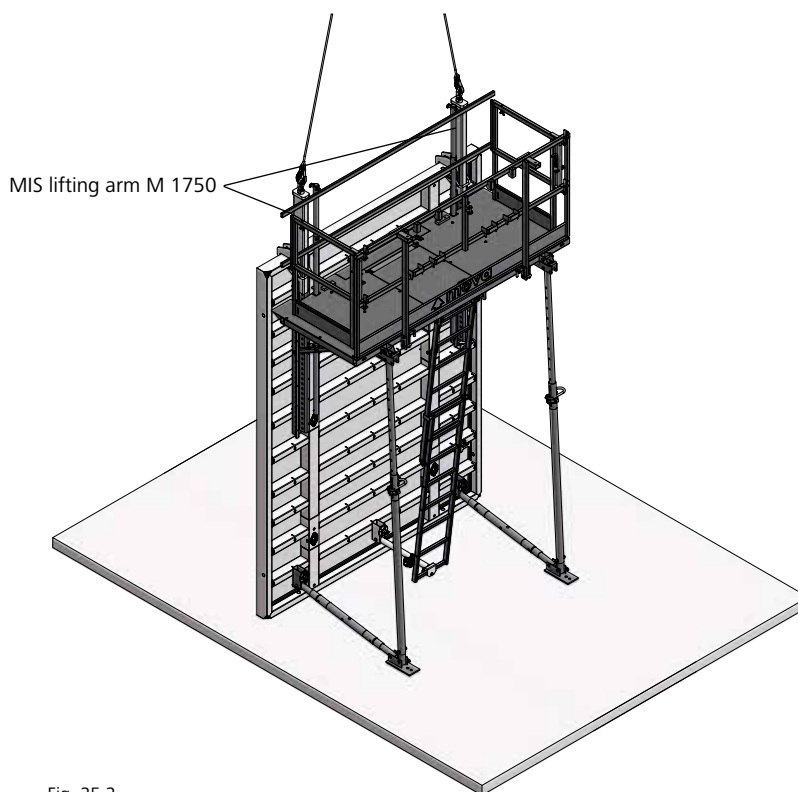


Fig. 25.2

Description	Ref. No.
MIS lifting arm M 1750.....	X22-0040

Lifting arm

Handling:

1. Remove the bottom head bolt and linchpin from the clamp on the MIS lifting arm M 1750. The clamp rotates downwards.
2. Place the lifting arm over the frame of the formwork. The bottom part of the lifting arm must be located in the profile of the linkage (Figures 26.2 and 26.3).
3. Rotate the clamp underneath the frame profile and secure it with the head bolt and linchpin (Figures 26.2 and 26.3).
4. Secure the lifting arm to the linkage through the slotted hole using the head bolt and linchpin (Figures 26.2 and 26.3).

Attention

The lifting arm must be firmly secured!

Once the assembly unit has been erected, the push-pull props are secured to the ground. Ensure that the properties of the ground and the rating of the dowels meet the applicable federal, state and local codes and regulations.

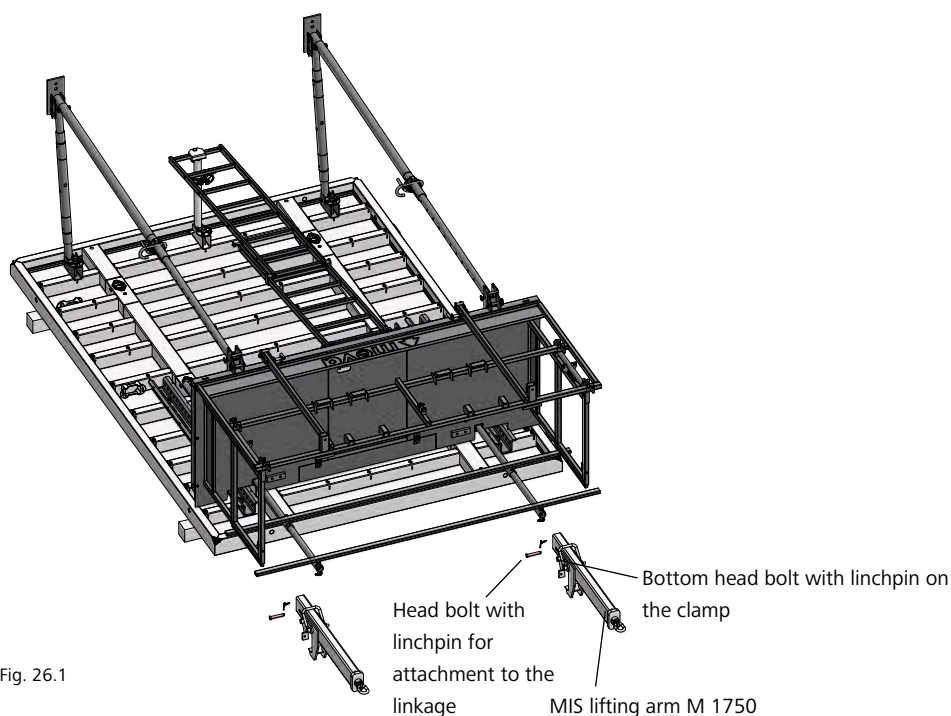


Fig. 26.1

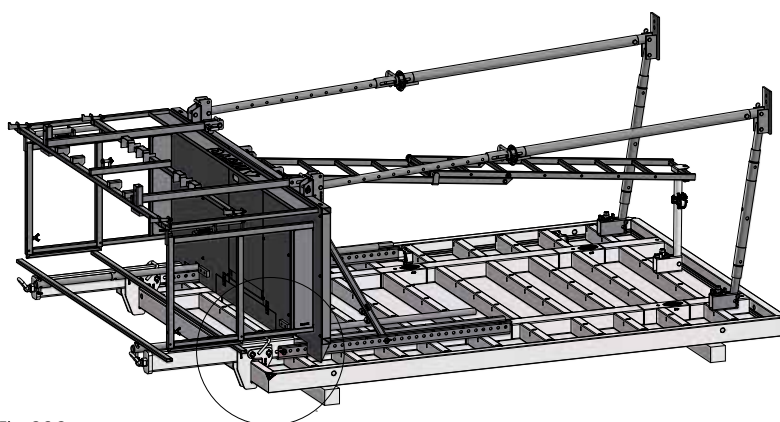


Fig. 26.2

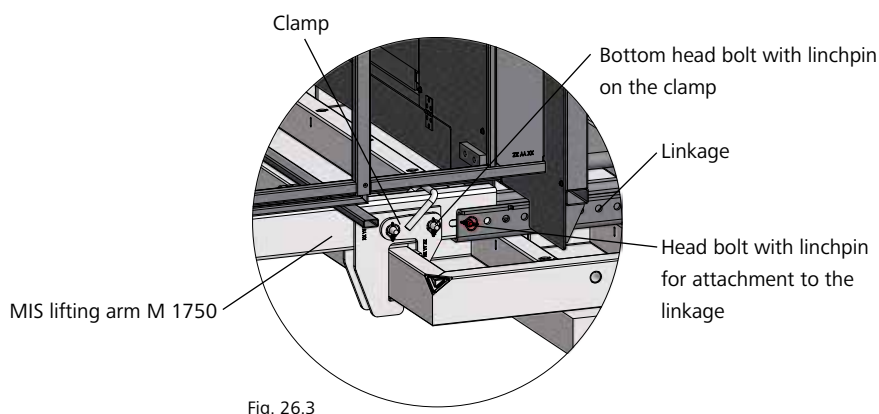


Fig. 26.3

Description	Ref. No.
MIS lifting arm M 1750.....	X22-0040

Crane hook

The upright unit can be relocated with a crane using either an M crane hook (Fig. 27.1) or an MIS lifting arm M 1750 (Fig. 27.2).

Always use two M crane hooks or two MIS lifting arms for each unit.

The maximum permissible loading of the crane hook is 15 kN (1.5 tons).

Attention

Always use two MIS lifting arms M 1750 to erect and set down assembly units (see pages MIS-25 to -26 and -29).

Safety check

Always check the crane hook before use. Do not overload the crane hook. Exceeding the permissible loading can result in excessive elongation and thus permanent deformation. A damaged crane hook is not capable of supporting the full load and its safe use can no longer be guaranteed.

Safety regulations

When using our products, the federal, state and local codes and regulations must be observed.

Also observe the operating instructions delivered with the crane hook.

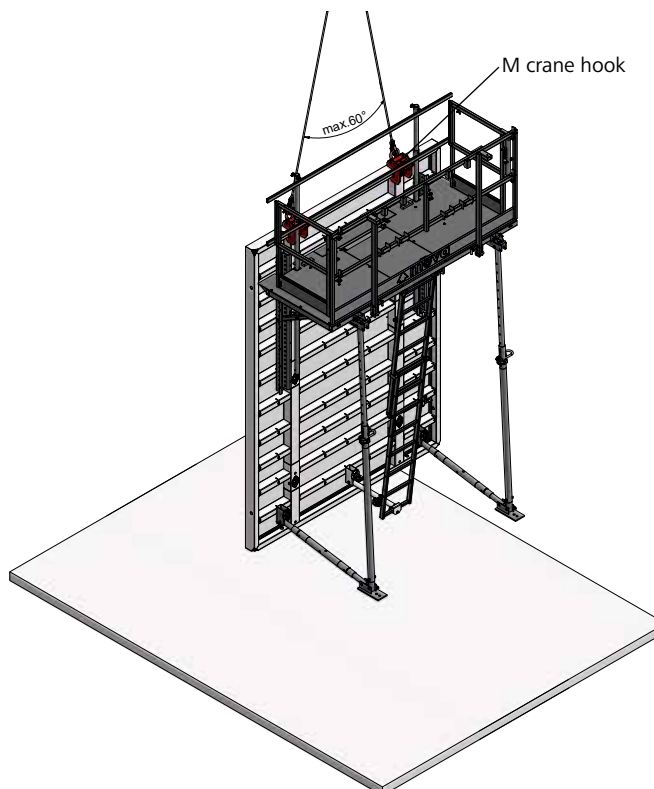


Fig. 27.1



Fig. 27.2

Description	Ref. No.
M crane hook	29-401-21
MIS lifting arm M 1750.....	X22-0040

Crane hook

Handling:

1. Open the safety lever as far as possible (Fig. 28.2).
2. Push the crane hook over the panel profile until the claw engages completely in the groove.
3. Release the safety lever and press it back to its start position so that the crane hook is locked completely (Fig. 28.4).

The M crane hook must be attached symmetrically to the centre of gravity!

To ensure that the crane hooks cannot slip, they must be attached as follows:

- across the centre beam for vertical panels, if possible (Fig. 28.5)
- for several panels at the panel joint
- using the cross stiffeners on horizontal panels (Fig. 28.6)

Attention

Always use two crane hooks, even when moving single panels. Always attach the crane hooks symmetrically to the centre of gravity.

When to replace the crane hook

If the reference dimension exceeds 61 mm (Fig. 28.2), the crane hook must be replaced immediately. This also applies if only one side of the hook exceeds this dimension.

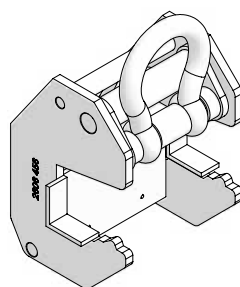


Fig. 28.1

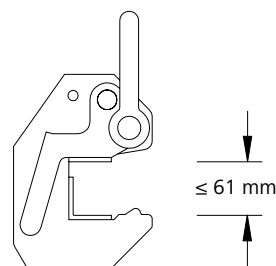


Fig. 28.2

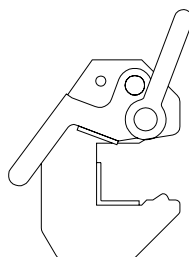


Fig. 28.3

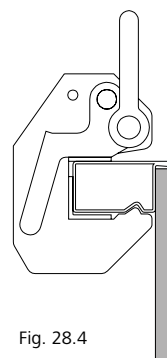


Fig. 28.4

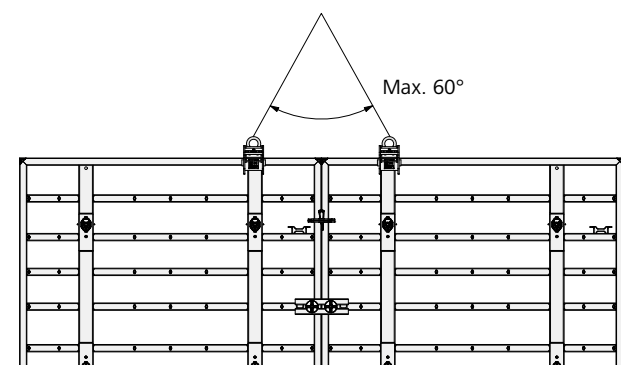


Fig. 28.5

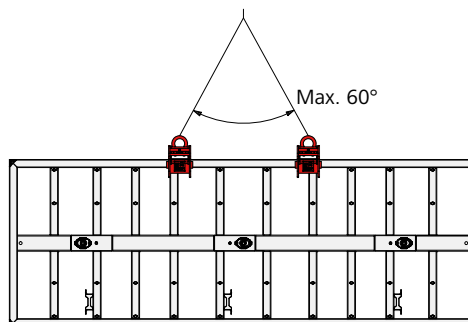


Fig. 28.6

Description	Ref. No.
M crane hook	29-401-21

Erecting the formwork and moving it with a crane

Always use two MIS lifting arms M 1750 to erect an assembly unit (Figures 29.1 to 29.3).

The upright unit can be relocated with a crane using either an MIS lifting arm M 1750 (Fig. 29.3) or an M crane hook (Fig. 29.4).

The maximum permissible load capacity of the MIS lifting arm M 1750 is 1.75 t for each lifting arm with a maximum of two lifting arms for each gang (the maximum weight of the formwork including MIS platforms is 3.5 t).

The maximum permissible load capacity of the M crane hook is 1.5 t for each crane hook with a maximum of two crane hooks for each gang (the maximum weight of the formwork including MIS platforms is 3.0 t).

Loading examples:

Each example includes:

- Formwork panels
- MIS platforms
- Braces
- Assembly locks

Unit 1 (Fig. 29.3)
 $3.50 \times 2.50 \text{ m} = 8.75 \text{ m}^2$
 Weight: 0.94 t

Unit 2 (Fig. 29.1)
 $7.00 \text{ m} \times 2.50 \text{ m} = 17.50 \text{ m}^2$
 Weight: 1.83 t

Unit 3
 $10.50 \text{ m} \times 2.50 \text{ m} = 26.25 \text{ m}^2$
 Weight: 3.10 t
 → Only possible using MIS lifting arm M 1750!

Unit 4
 $3.50 \text{ m} \times 5.00 \text{ m} = 17.50 \text{ m}^2$
 Weight: 1.76 t

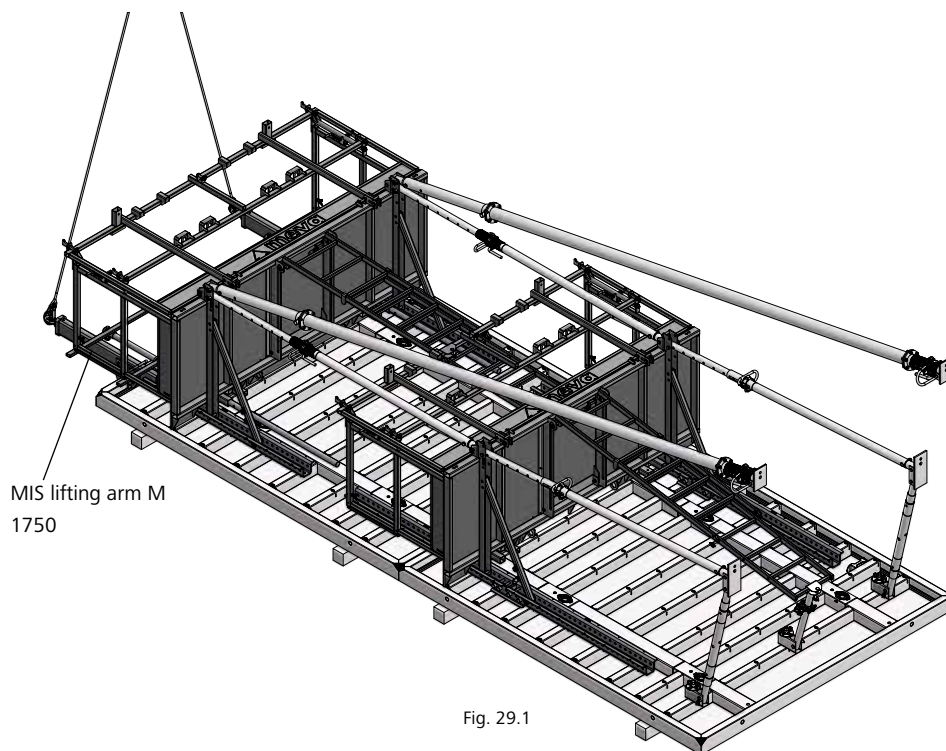


Fig. 29.1

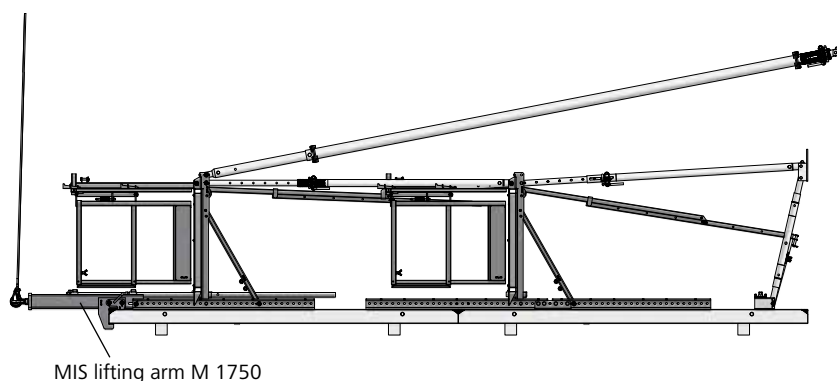


Fig. 29.2

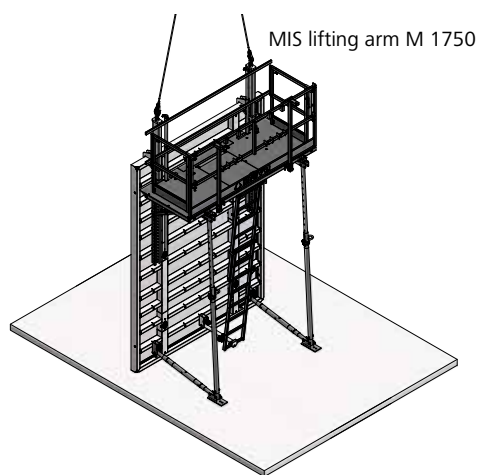


Fig. 29.3

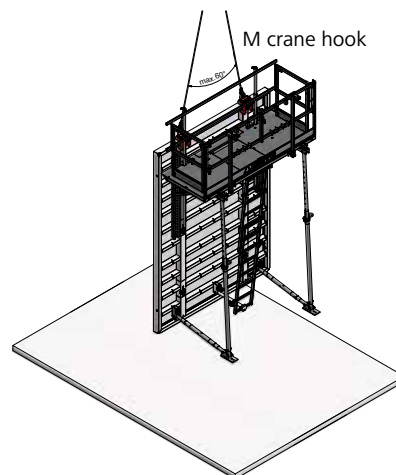


Fig. 29.4

Parts list

The parts lists on this page (Tables 30.1 and 30.2) show the parts required for the MIS system in order to create straight walls (without corners) when used with Mammut XT in the panel widths 250 and 125 cm and for heights from 2.50 m to 6.00 m.

The parts lists depict a typical layout by way of example and can, depending on the requirements and the conditions on the construction site, deviate from the actual quantity and parts requirements.

The following are not included in the lists:

- Formwork panels
- Anchoring material
- Formwork accessories (assembly locks, etc.)
- Platform extensions (for length compensations)

Note

- The vertical distance between two MIS platforms must be between 2.00 m and 2.70 m. It is generally recommended to secure the access area with a safety net or by similar means. Above a platform spacing of 2.70 m the access area must always be secured. The safety net must be ordered separately.
- Where required, height-extended formwork units are listed here with linkage extensions required to stabilise the panels. Alternatively, the panels can be stabilised using alignment rails.
- Platform extensions must be planned in as required.
- In the parts lists every MIS platform is equipped with two side railings. The quantity may be reduced for a continuous working platform made up of a number of MIS platforms.
- Front railings for the top platform are included.

Ref. no.	Description	Formwork height (cm)	250		300		325		350		375		400	
		Panel width (cm)	125	250	125	250	125	250	125	250	125	250	125	250
X22-0029	MIS platform 250				1		1		1		1		1	
	or													
X22-0030	MIS platform 250 with hatch				1		1		1		1		1	
29-603-80	Ladder fixture panel SB				1		1		1		1		1	
79-603-75	Ladder fixture railing SB													
29-401-10	Flange screw 18				1		1		1		1		1	
	or													
X22-0031	MIS platform 125		1	1			1		1		1		1	
	and													
X22-0032	MIS side railing		2	2	2	2	2	2	2	2	2	2	2	2
X22-0033	MIS front railing post		2	2	2	2	2	2	2	2	2	2	2	2
X22-0046	MIS handrail 250				2		2		2		2		2	
X22-0047	MIS handrail 125		2	2			2		2		2		2	
29-109-25	Brace frame 250		2	2	2	2	2	2	2	2	2	2	2	2
29-804-85	Formwork-prop connector		2	2	2	2	2	2	2	2	2	2	2	2
X22-0042	MIS linkage extension													
31-312-05	Screw 100 DW15/SW30										4	4	4	4
29-109-60	Push-pull prop R 250													
29-109-80	Push-pull prop R 460													
29-109-85	Push-pull prop R 630													
29-802-48	Articulated foot plate													
29-401-10	Flange screw 18		2	2	2	2	2	2	2	2	2	2	2	2
42-413-50	Head bolt 16/90		2	2	2	2	2	2	2	2	2	2	2	2
62-010-03	Linchpin 4.5		2	2	2	2	2	2	2	2	2	2	2	2
X22-0040	MIS lifting arm M 1750		2	2	2	2	2	2	2	2	2	2	2	2
62-030-44	Washer A19 (M18)										1	1	1	1
62-035-47	Spring washer M18										1	1	1	1

Table 30.1

Ref. no.	Description	Formwork height (cm)	425		450		475		500		550		600	
		Panel width (cm)	125	250	125	250	125	250	125	250	125	250	125	250
X22-0029	MIS platform 250			2		2		2		2		2		2
	or													
X22-0030	MIS platform 250 with hatch			2		2		2		2		2		2
29-603-80	Ladder fixture panel SB			1		1		1		1		1		1
79-603-75	Ladder fixture railing SB			1		1		1		1		1		1
29-401-10	Flange screw 18			1		1		1		1		1		1
	or													
X22-0031	MIS platform 125		2		2		2		2		2		2	
	and													
X22-0032	MIS side railing		4	4	4	4	4	4	4	4	4	4	4	4
X22-0033	MIS front railing post		2	2	2	2	2	2	2	2	2	2	2	2
X22-0046	MIS handrail 250			2		2		2		2		2		2
X22-0047	MIS handrail 125		2		2		2		2		2		2	
29-109-25	Brace frame 250		2	2	2	2	2	2	2	2	2	2	2	2
29-804-85	Formwork-prop connector		2	2	2	2	2	2	2	2	2	2	2	2
X22-0042	MIS linkage extension								2	2	2	2		
31-312-05	Screw 100 DW15/SW30		4	4	4	4	4	4	8	8	8	8	4	4
29-109-60	Push-pull prop R 250		2	2	2	2	2	2	2	2	2	2	2	2
29-109-80	Push-pull prop R 460		2	2	2	2	2	2	2	2				
29-109-85	Push-pull prop R 630										2	2	2	2
29-802-48	Articulated foot plate		2	2	2	2	2	2	2	2	2	2	2	2
29-401-10	Flange screw 18		2	2	2	2	2	2	2	2	2	2	2	2
42-413-50	Head bolt 16/90		6	6	6	6	6	6	6	6	6	6	6	6
62-010-03	Linchpin 4.5		6	6	6	6	6	6	6	6	6	6	6	6
X22-0040	MIS lifting arm M 1750		2	2	2	2	2	2	2	2	2	2	2	2
62-030-44	Washer A19 (M18)		1	1	1	1	1	1	1	1	1	1	1	1
62-035-47	Spring washer M18		1	1	1	1	1	1	1	1	1	1	1	1

Table 30.2

Combination with walkway bracket 90

If walkway brackets 90 with wooden flooring are used as a working scaffold on the formwork, the MIS can be used to provide a safety access ladder. The adaptation of the MIS platform to suit the desired height (see page MIS-11) allows for a flush transition to the walkway bracket (Fig. 31.1).

Walkway bracket 90

The design of the working scaffold must meet the requirements of DIN 12811-1. Note that this regulation is valid for Germany. Always observe the federal, state and local regulations of the country where the formwork is used.

We recommend the use of safety meshes.

For fall heights above 2.00 m the formwork side opposite the working scaffold must also be secured to prevent falling. For this purpose, the tilting bracket 40/60 is to be installed on the formwork panel and equipped with guardrailing posts and railing boards or a safety mesh.

To ensure safe and cost-effective use, please also observe the Technical Instruction Manual for the Mammut XT wall formwork system.

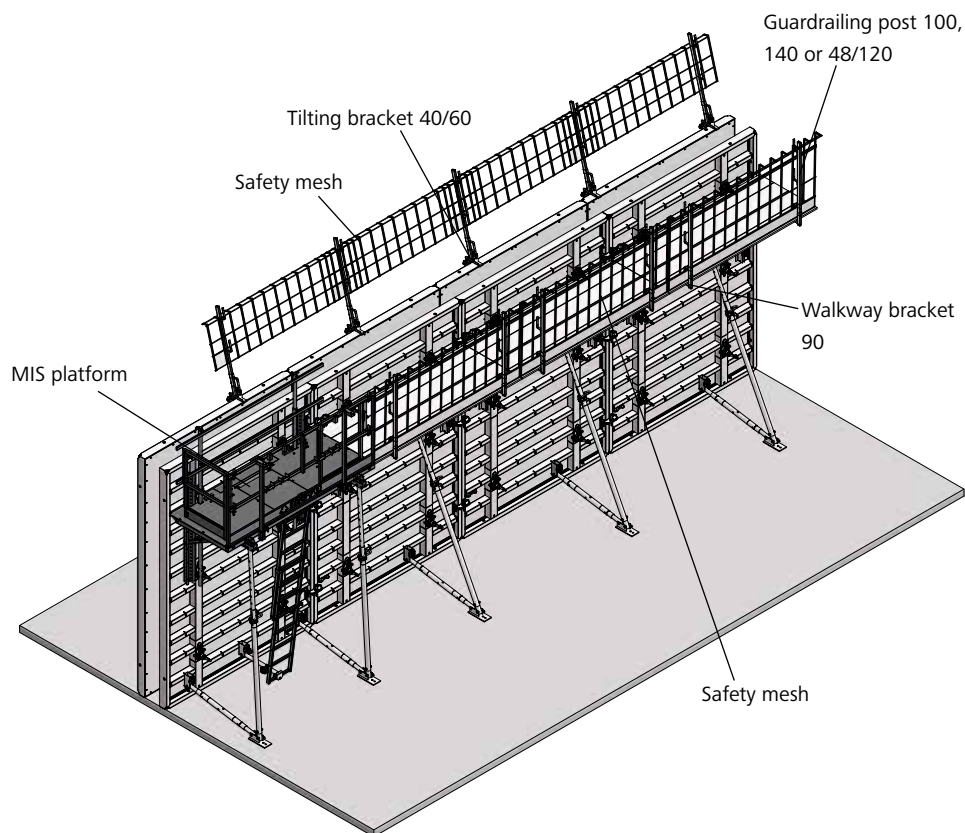


Fig. 31.1

Description	Ref. No.
Walkway bracket 90	29-106-00
Tilting bracket 40/60	29-920-82
Guardrailing post 100	29-106-75
Guardrailing post 140	29-106-85
Guardrailing post 48/120 UK ..	29-106-00
Safety mesh 1100/2490	29-920-00
Safety mesh 600/2490	29-920-05

Transport and storage

If the MIS platform remains attached to the Mammut XT panel, the resulting unit can be relocated (Fig. 32.1) and stored (Fig. 32.3) horizontally.

MIS platforms attached to Mammut XT panels can be stacked horizontally one on top of the other for storage purposes (Fig. 32.3).

The lifting hook 60 (Fig. 32.2) can be used with any 4-rope crane sling on the construction site to transport individual panels or panel stacks (Figures 32.1 and 32.2). Always use four hooks at once.

Attention

A lifting hook must only be used if its eccentric is easy to turn or falls automatically into the locked position (Fig. 32.4). Never use a lifting hook if you need force to turn its eccentric. Turning the eccentric with force may not lock the lifting hook but only make it appear to be in the locked position. This may cause the lifting hook to slip out when lifting the panel stack.

Technical data

- Weight 2.0 kg per lifting hook
- Max. load capacity 10 kN (1 t) per lifting hook. To calculate the admissible load-bearing capacity, assume that only two hooks are used.
- Max. load capacity 20 kN (2 t) per panel stack.
- Max. stack height: two Mammut XT panels 350/250 with MIS platform or three Mammut XT panels 350/125 with MIS platform.

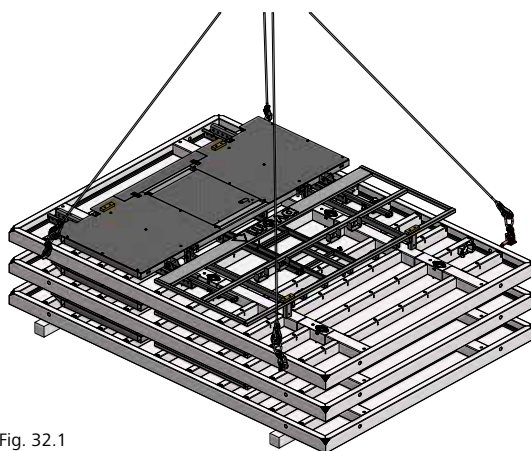


Fig. 32.1

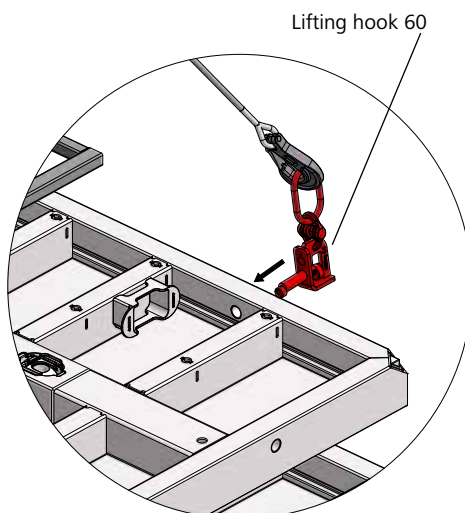


Fig. 32.2

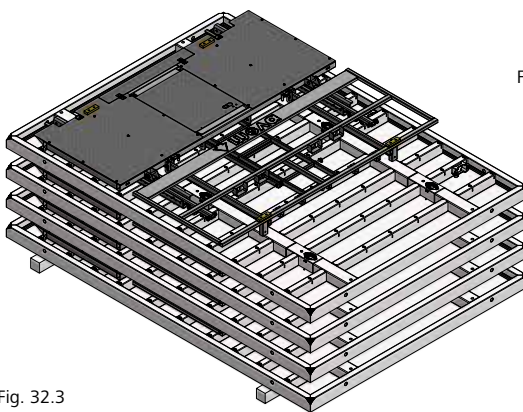


Fig. 32.3

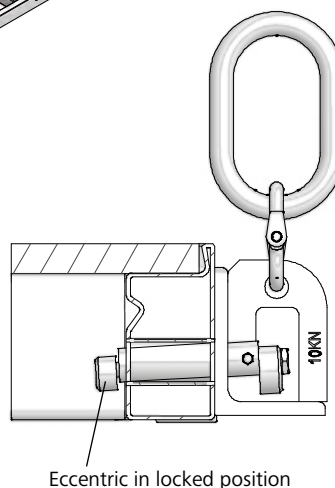


Fig. 32.4

Description	Ref. No.
Lifting hook 60	29-401-40

Services

Cleaning

The formwork and all accessories are cleaned professionally using industrial equipment upon return.

Reconditioning

Reconditioning is carried out as follows: The frames are checked and, if necessary, blasted, coated with a high-quality cured powder coating, and provided with a new facing. As long as the formwork equipment still has its full load capacity, correct dimensions and is fully functional, reconditioning will always be a more economical solution than purchasing new formwork. Please note that the cleaning and reconditioning service is not available in all countries in which MEVA does business.

Rentals

As we have a comprehensive range of equipment in stock, we offer our customers the option of renting supplementary material at peak times. The MEVA logistics centre guarantees rapid delivery throughout Europe. We also give prospective customers the chance to test MEVA formwork so they can see its benefits for themselves in actual use.

RentalPlus

For a flat-rate fee MEVA's "fully comprehensive insurance" for rental formwork and equipment covers all secondary costs that occur after return (excludes losses and write-offs). For the customer this means: Costing certainty instead of additional charges, an earlier end of the rental period and thus lower rental costs because you save the time required for cleaning and repairs.

Formwork drawings

Our application engineers worldwide work with CAD systems. This ensures that you always receive optimum formwork solutions and practice-oriented formwork and work cycle plans.

Special solutions

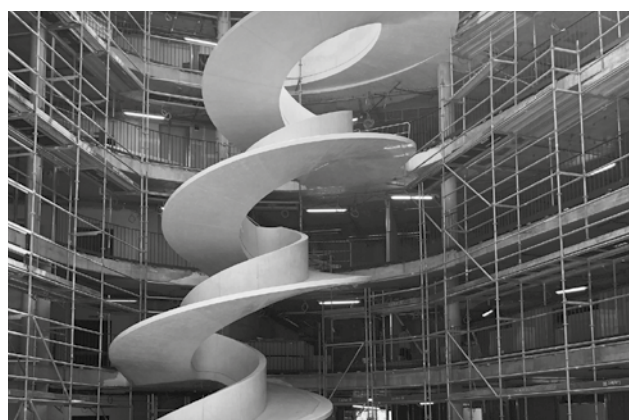
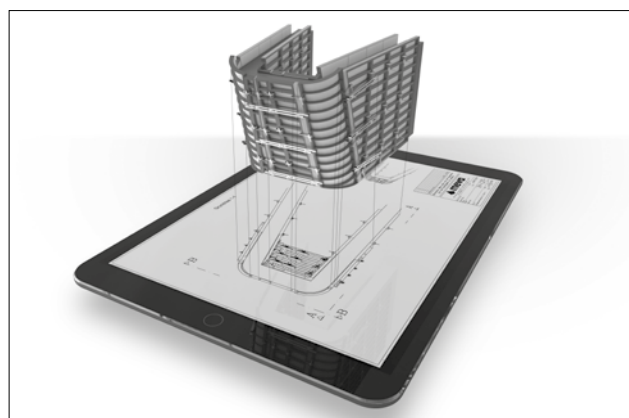
We can help with special parts, custom-designed for your project, to supplement our standard formwork systems.

Structural calculations

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

Formwork seminars

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



Notes