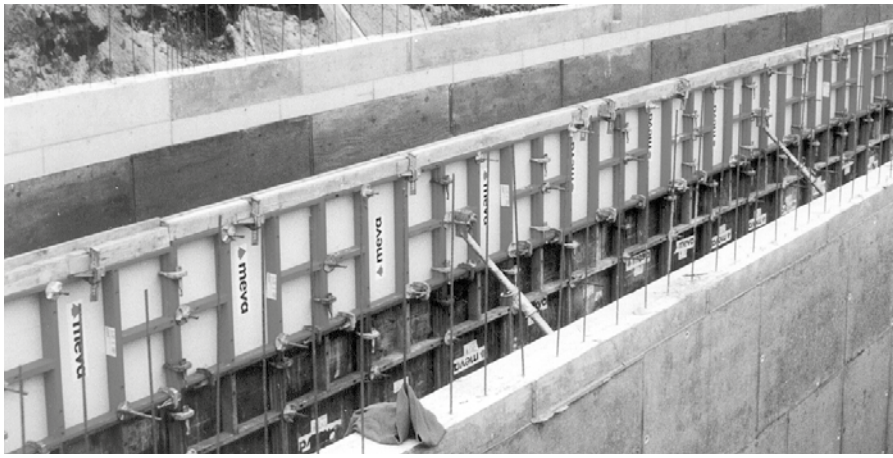


EcoAs

Technical Instruction Manual

meva

Product features

EcoAs is a versatile and flexible modular formwork system made of hot-dip galvanised and post-treated steel for all applications in building construction and civil engineering. It masters irregular floor plans and geometries flexibly and cost-effectively due to the wide range of available panels.

The system's tie hole locations are suited to form all kinds of foundations even when joint tapes are involved or kickers are cast in advance.

Fast and secure panel connection requires only one part: the EA assembly lock. It weights only 1.5 kg and can be positioned anywhere on the panel joint between the cross stiffeners with one hand. Only a few hammer blows are necessary to produce a non-positive connection and a perfectly aligned and flush panel joint.

The tried-and-tested polypropylene and aluminium composite alkus (AL) facing has all the positive properties of plywood plus important advantages: longer lifespan, greater load-bearing capacity, better nail-holding ability, fewer and easier repairs, 100% recyclability. Some EcoAs panel sizes are optionally available with a multi-layer plywood facing (birch ply = BP).

The MEVA multi-function profile with welded-in DW-threaded nuts makes the attachment of accessories easier, for example:

- → Push-pull props and alignment rails with flange screws
- → Walkway brackets with integrated self-locking pin
- → DW tie rods of any length that are used to bridge problem areas.

The advantages of this frame formwork system are easy material requirements planning, low stock levels and no time-consuming, unproductive searching for parts.

The maximum permissible fresh-concrete pressure for the EcoAs system is 50 kN/m². The fresh-concrete pressure for vertical formwork according to DIN 18218:2010-01 can be determined easily and precisely with MEVA's online concrete pressure calculator. This and other aids are available in the download area at www.meva.net and in the app MEVA me for iOS and Android.

Abbreviations, figures and tables, etc.
The abbreviation EA is used for the EcoAs. 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).

Non-defined dimensions are in cm.

The page numbers in this manual start with EA. 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!

Contents

Formwork assembly and stripping

Important
When assembling and stripping formwork, strictly observe the local accident prevention rules. When using our formwork and systems always observe federal, state and local codes and regulations.

Attention
Above a formwork height of 2.00 m both sides of the formwork must be secured against falling.

Planning
If you want to benefit fully from the efficient and economical use that EcoAs offers, we recommend you first plan and prepare its use. Start planning by determining the optimum formwork quantity to be held in stock (the quantity is usually based on the amount of formwork required for a one day's work). The following influencing factors are to be take into consideration here:

→ The formwork weight
→ The assembly and stripping time
→ The crane ganging. Transport of gangs from one pour to the next considerably reduces assembly and stripping effort and time.
→ Capacity of the lifting devices
→ A logical cycle plan that takes into account corner configurations, reinforcements, etc.

Once the formwork planning is complete, the quantities of formwork material can be specified.

Ground
The ground on which the formwork is going to be placed should be clean, even and capable of bearing the expected load, as this will help reduce the time required for assembly and stripping.

Panel transport
When unloading panels or moving panel stacks, make sure to use appropriate transport devices that can bear the load.

The steps required for assembly
For ergonomic reasons the outside formwork is usually assembled and placed first. Start the assembly in a corner or at a determined point and perform the following steps:

Step 1 – Place and brace the outside formwork

Step 2 – Define and mark the pouring height, install the reinforcements and boxouts

Step 3 – Place the inside formwork and tie and close the outside and inside formwork

Refer to the following pages for a detailed description of these steps including the installation of the working platform and formwork stripping.

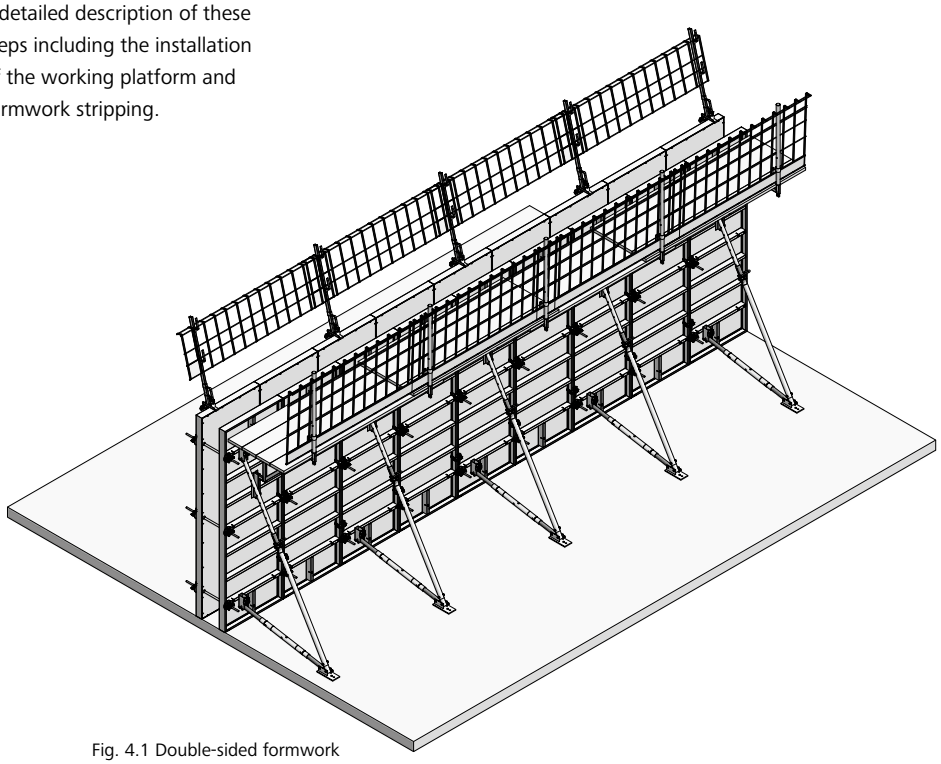


Fig. 4.1 Double-sided formwork

Formwork assembly and stripping

Step 1
Place and brace the outside formwork
The following description is based on an straight wall. Note the following:
When pre-assembling large panel units on an even surface, attach the wall braces and the walkway bracket as well, i.e. before performing step 1.
Short walls of less than 6 m require a filler in the inside formwork for easy stripping (Fig. 5.3), as the formwork may otherwise become wedged and stick to the concrete when it is stripped.

1. Spray the facing with the release agent MevaTrenn pro.

2. Place the first panel and immediately attach it to the ground or concrete slab with two brace frames to prevent it falling over (Fig. 5.1). The foot plate must be firmly connected to the ground or concrete slab – in earth with two ground pegs, in concrete with two heavy-duty dowels. After placing vertical panels, always reinforce them immediately with push-pull props or brace frames so they can withstand tensile and compressive forces and are protected against displacement and wind. The prop spacing is determined by the application (see page EA-17).

If the walkway bracket was not pre-assembled, you can now assemble and install the working platform to the braced formwork.

3. String further panels together and connect them with EA assembly locks.

The panels are usually connected with two to three assembly locks (see page EA-11). For outside corner configurations see page EA-23.

Step 2
Pouring height, reinforcements and boxouts
After performing step 1, the pouring height is defined and marked. Then the reinforcements and boxouts, if required, are installed.

Step 3
Place the inside formwork and tie the outside and inside formwork
The inside formwork is placed after the outside formwork. The inside and outside formwork are tied firmly with tie rods and articulated flange nuts.

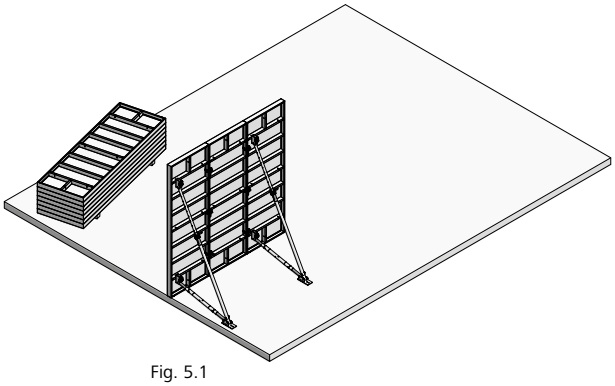


Fig. 5.1

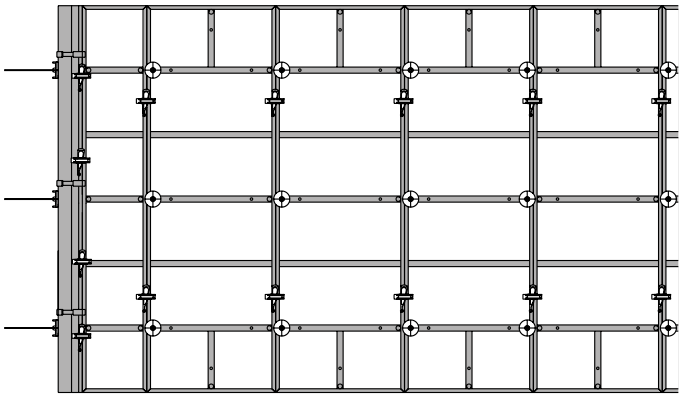


Fig. 5.2

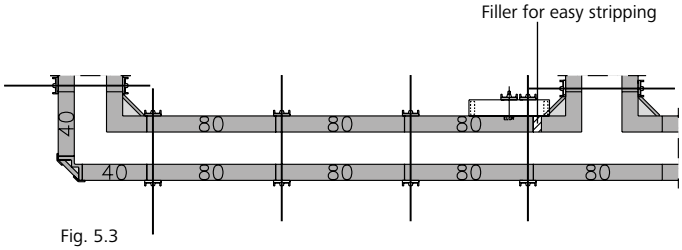


Fig. 5.3

Formwork assembly and stripping

Working scaffold

The plug-in walkway bracket (Fig. 6.1). is used to support the working scaffold. The maximum bracket spacing for a load of 150 kg/m² (platform group 2) is 2.50 m as defined in DIN 4420, Part 1, Table 8. The planking must be at least 4.5 cm thick.

The planking and walkway bracket can be firmly connected. Do not install any planks before securing the formwork with push-pull props or before tying the inside and the outside formwork.

Do not forget to attach a side railing to the working scaffold.

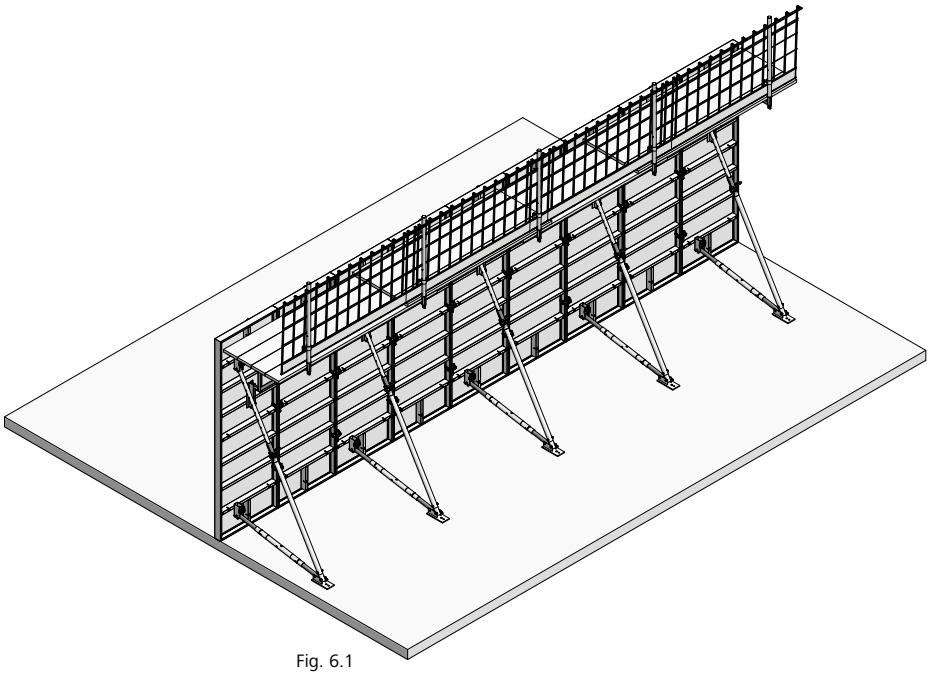


Fig. 6.1

Pouring concrete

Once you have placed, tied, braced and closed the formwork, you can start pouring concrete. When doing so, observe the permissible rate of placing taking the setting behaviour and the consistency of the cement into account (see page EA-14).

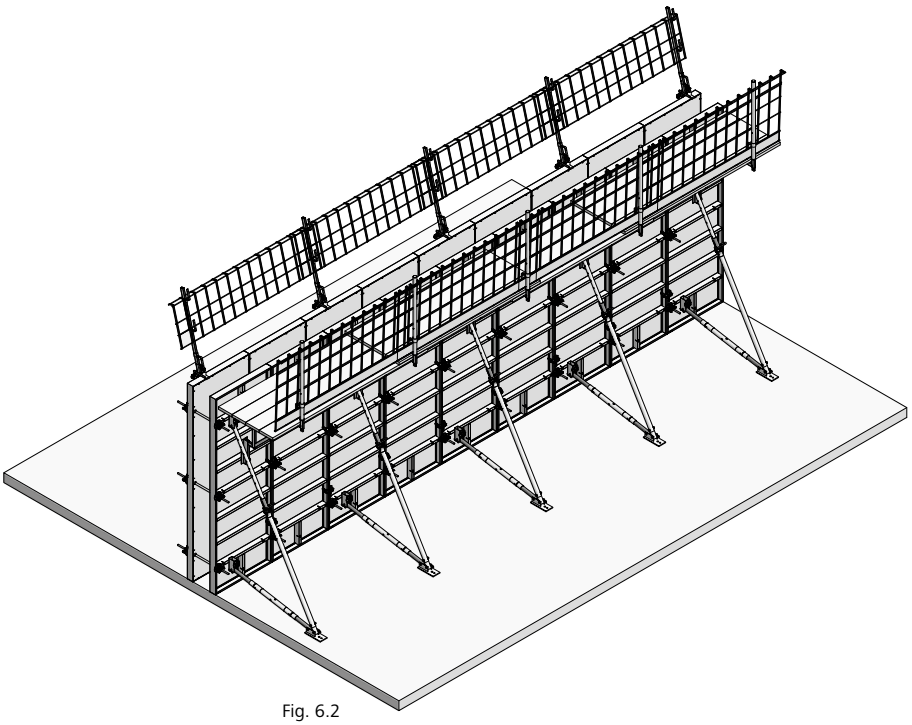


Fig. 6.2

Formwork assembly and stripping

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 at the stop ends or at a short corner. Start stripping with the inside formwork. Stripping of both the outside and inside formwork is performed as follows:

1. Remove the working scaffold.
2. Remove the articulated flange nuts and the tie rods section by section. Make sure the unbraced formwork is immediately secured to prevent it falling over or strip it immediately.
3. 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 hand or by crane. Before removing them with a crane, make sure the formwork is detached from the concrete!
4. 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.

Note

The release agent must not be stored in galvanized containers.

Please observe

When stripping manually, detach and disassemble the working scaffold and the brace frames before stripping the panels.

When transporting large panel units with a crane, the working scaffold and wall braces are moved together with the panel units. While vertical, all components are cleaned and sprayed with release agent before being lifted together to the next cycle (see page EA-38).

If there is no further use for the panel units, the working scaffold and wall braces are detached and disassembled in a horizontal position, and cleaned and stacked for transport.

The panels are to be stacked with the facing side facing upwards.

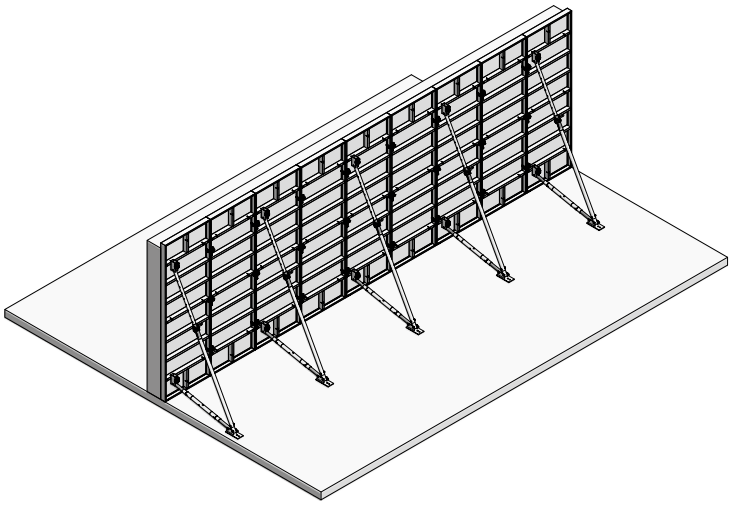


Fig. 7.1

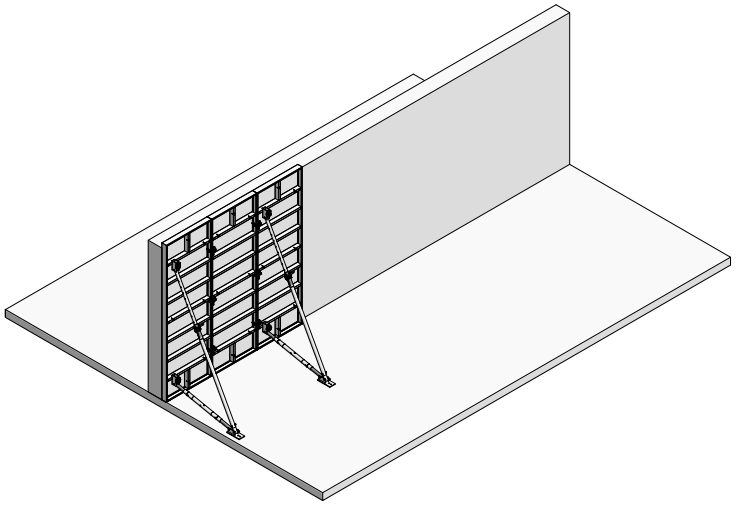


Fig. 7.2

The EcoAs panel

Fig. 8.2
The steel frames are made of closed hollow profiles with welded-in mitred joints. The profiles are provided with a simple groove and edge protection.

Fig. 8.3
Panel connection with the EA assembly lock (see page EA-11).

Fig. 8.4
Quick and secure attachment of accessories using welded-in DW 15 threaded nuts (see page EA-16).

Fig. 8.5
Cross stiffeners made of sturdy closed steel profile.

Fig. 8.6
Tie hole with conical anchor sleeve for easy installation of tie rods (see page EA-13).

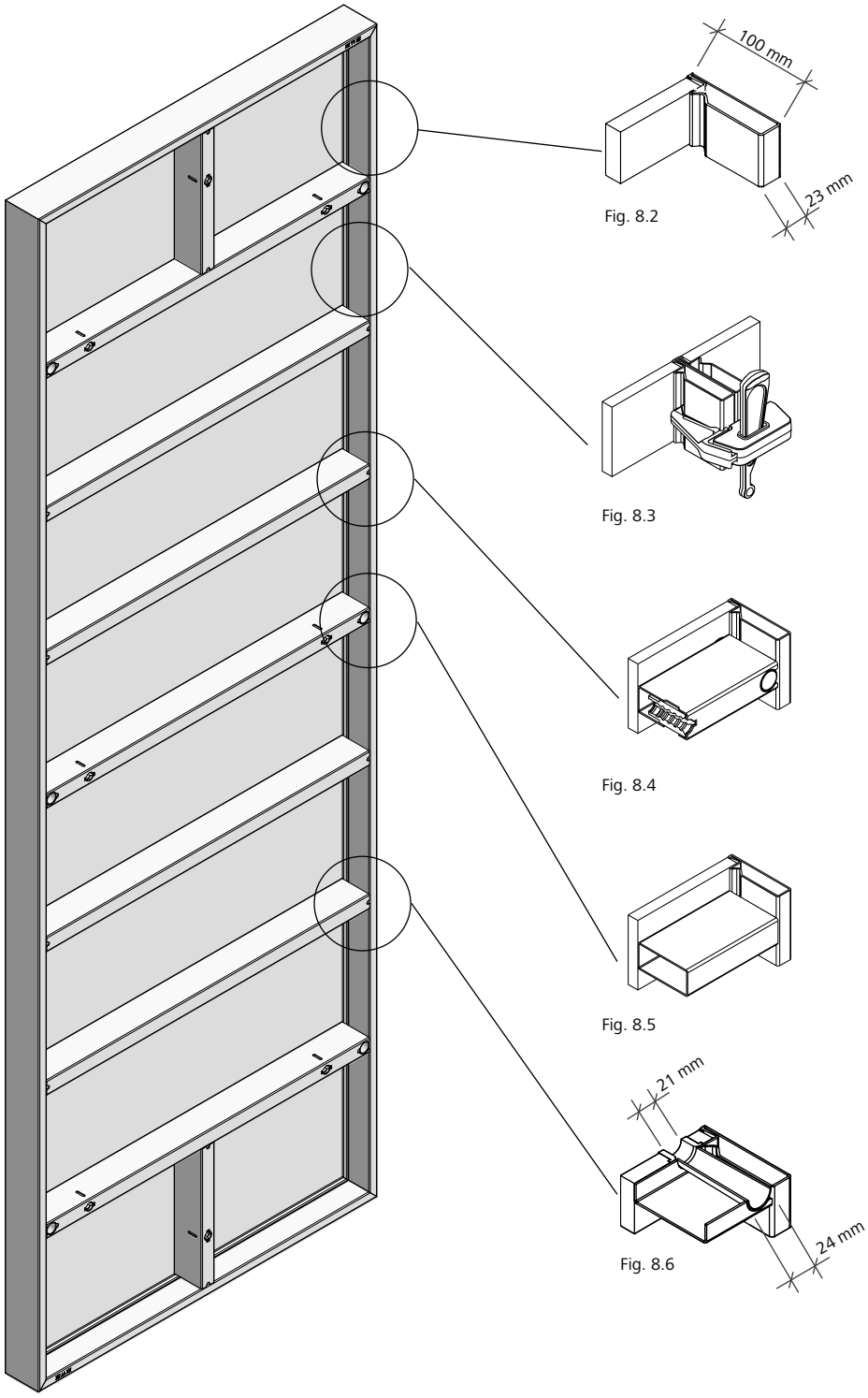


Fig. 8.2

Fig. 8.3

Fig. 8.4

Fig. 8.5

Fig. 8.6

Fig. 8.1 EA panel 300/100

Overview of panels

Five panel heights between 80 cm and 300 cm (Fig. 9.1) result in optimised height increments for efficient forming without height extensions. Trouble-free corner solutions can be formed with only a few panel widths.

The range of standard panels is supplemented with EcoAs column panels with the heights 350, 300 and 150 cm and the multi-purpose panel.

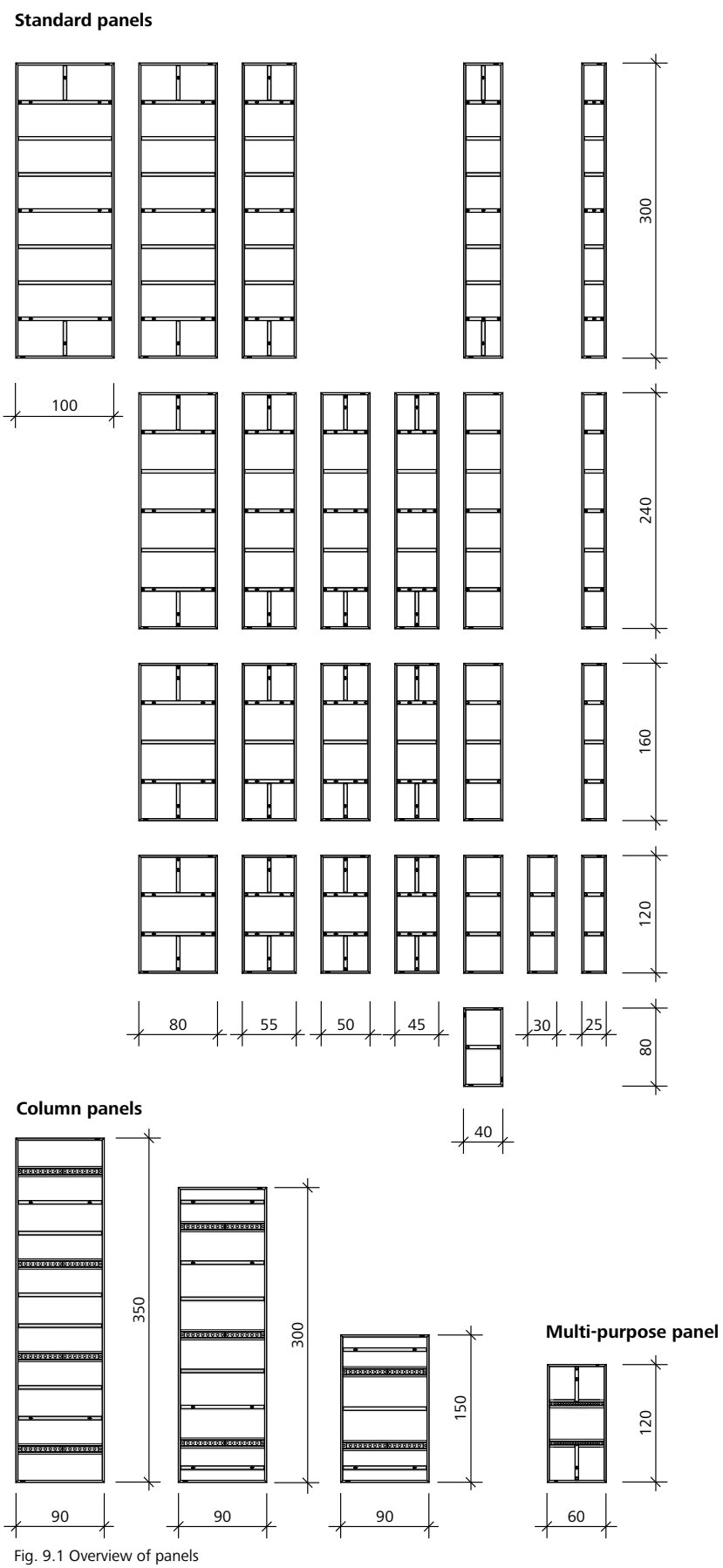


Fig. 9.1 Overview of panels

The alkus all-plastic facing

The tried-and-tested polypropylene and aluminium composite facing (Fig. 10.3) has all the positive properties of plywood plus important advantages: longer lifespan, greater load-bearing capacity, better nail-holding ability, fewer and easier repairs, 100% recyclability.

Besides the obvious advantages such as considerably reduced cleaning effort, minimum consumption of release agent and an excellent, uniform concrete finish, alkus offers substantial ecological benefits.

Substituting plastic for wood saves valuable timber resources. Also, alkus avoids the release of highly toxic dioxin that is released when burning plywood bonded with phenolic resin.

Used or damaged alkus facings can be recycled to produce new facings. They are 100% recyclable and subject to a global return policy.

Frame profile with plywood facing

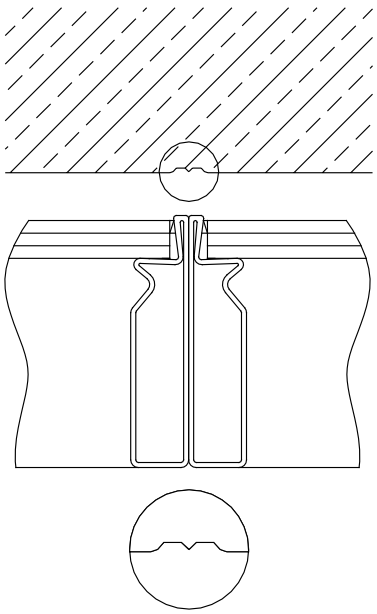


Fig. 10.1 Negative frame imprint on the concrete surface when using conventional plywood facings.

Frame profile with alkus all-plastic facing

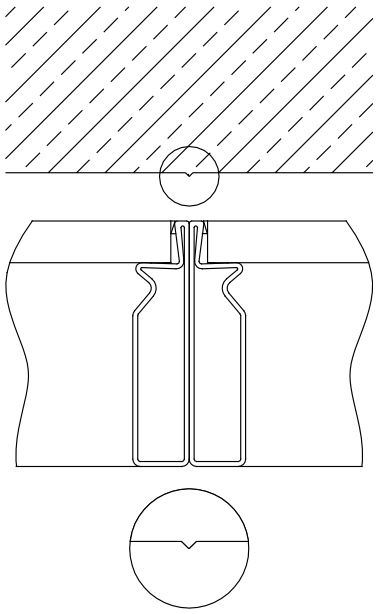


Fig. 10.2 Smooth and even concrete surface as the profile of the panel frame does not stand proud.

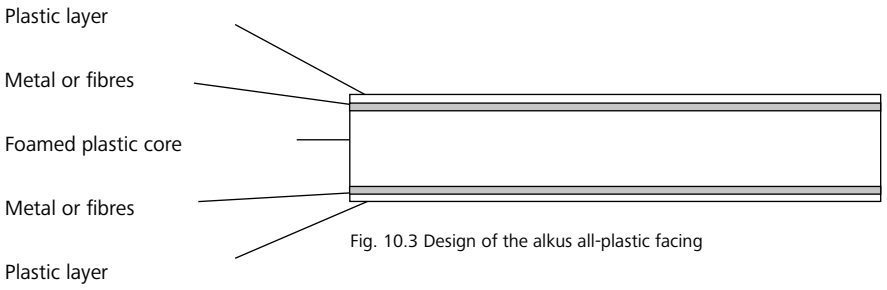


Fig. 10.3 Design of the alkus all-plastic facing

Panel connection

Fast and efficient connection of the panels is accomplished with the EcoAs assembly lock (Fig. 11.1) whether the panels are assembled side by side or on top of each other (height-extended). The assembly lock can be attached at any position on the panel joint between the cross stiffeners to produce a non-positive connection. Since it weighs only 1.5 kg, it can be easily attached with only one hand.

For a formwork height of 300 cm three assembly locks are required for the vertical panel connections; for heights 240, 160, 120 and 80 cm two assembly locks are sufficient.

When pouring architectural concrete with SB3 quality (German architectural concrete class for immaculate architectural concrete surface), panels that are 240 cm high or higher require an additional assembly lock.

Horizontal panel connections generally require two assembly locks.

For the quantity of assembly locks required for outside corners and columns refer to pages EA-23 and EA-39.

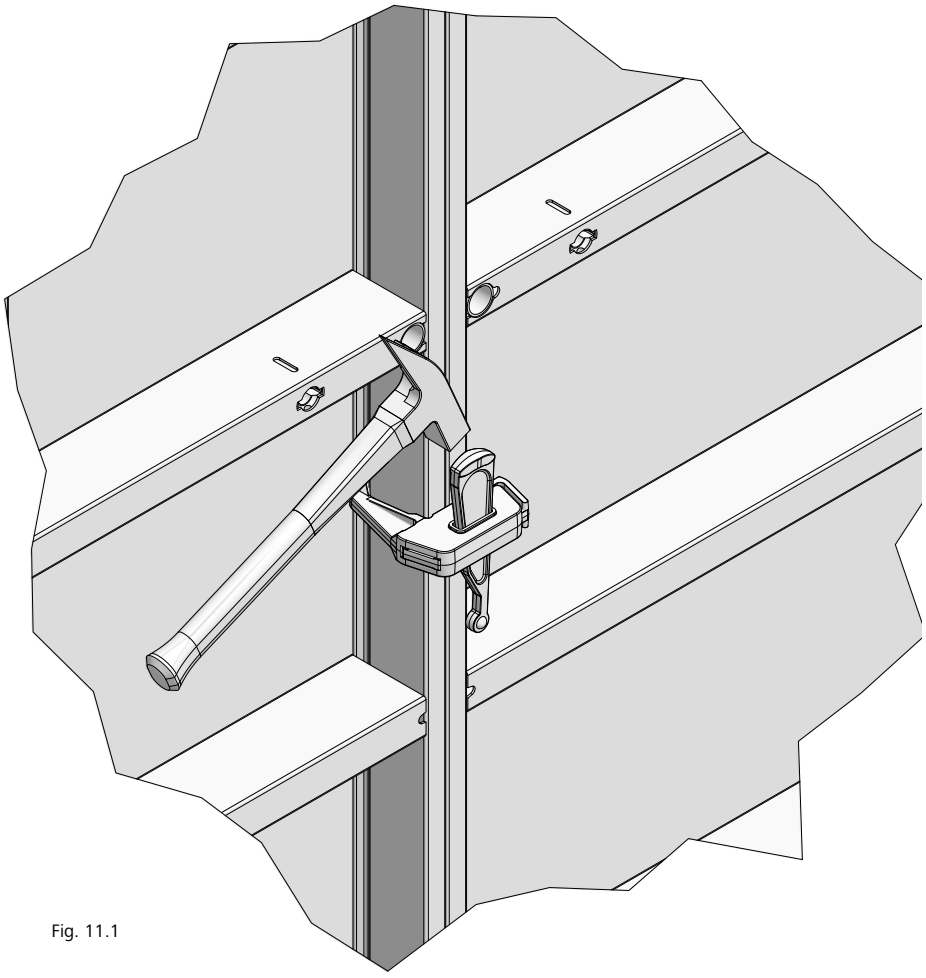


Fig. 11.1

Description	Ref. No.
EA assembly lock	**29-205-50**

Panel connection

The EA assembly lock can be attached at any position on the panel joint between the cross stiffeners. Its five-point contact draws the panels together and aligns them. Secure connection and perfect alignment are achieved with only a few hammer blows (Figures 12.1 to 12.4).

Figures 12.1 and 12.2 show the profile of the EA panels with a simple groove.

Figures 12.3 and 12.4 show the profile of the EA panels with a double groove.

○ = 5-point contact

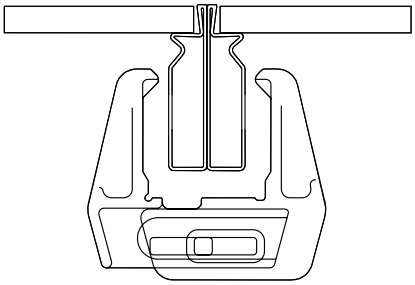


Fig. 12.1

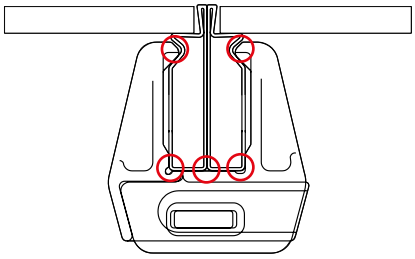


Fig. 12.2

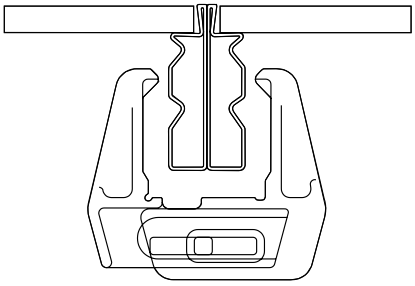


Fig. 12.3

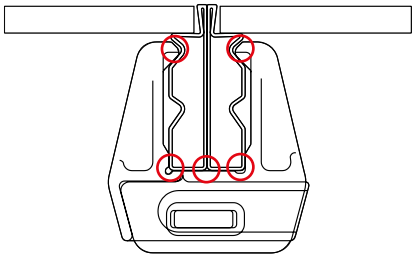


Fig. 12.4

Description	Ref. No.
EA assembly lock	**29-205-50**

Tie holes

The conical anchor sleeve (Fig. 13.1) for DW 15 tie rods is welded to the frame.

When forming inclined walls, the EcoAs can be tilted up to 5 cm per metre or 3°. Inclined formwork requires articulated flange nuts and must be secured against uplift.

The articulated flange nuts can be tightened using a hammer (Fig. 13.2).
The articulated flange nut 15/120 can be handled easily and without causing damage using the 27 mm spanner (Fig. 13.3).

When connecting panels with different widths, always anchor them through the wider panel (Fig. 13.4).

All usable tie holes must be used for tying. Non-usable tie holes must be closed with plug D20.

Panels are tied outside the panel using the tie claw 23 (Figures 13.5 and 13.6).

For further tying options refer to page EA-34.

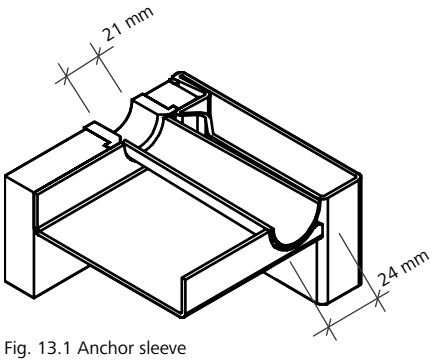


Fig. 13.1 Anchor sleeve

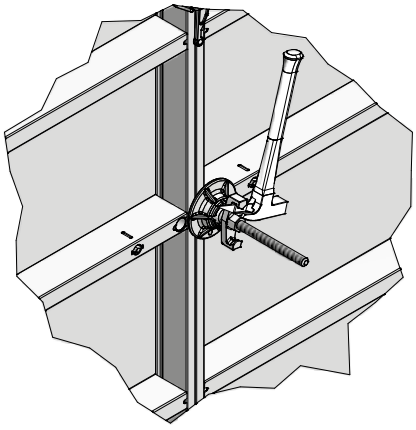


Fig. 13.2

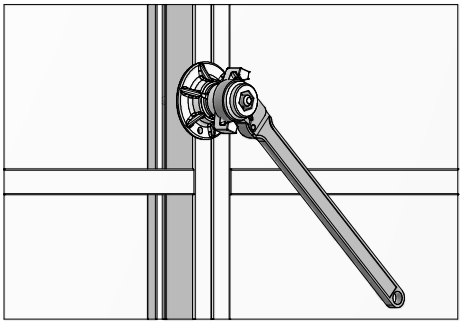


Fig. 13.3

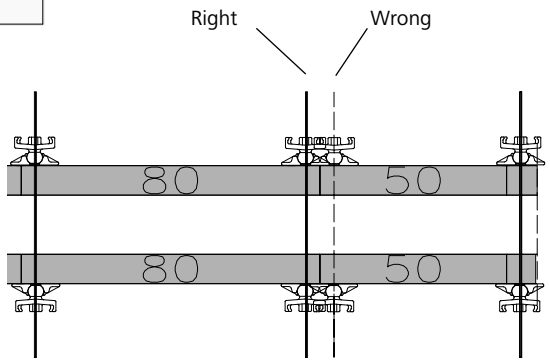


Fig. 13.4

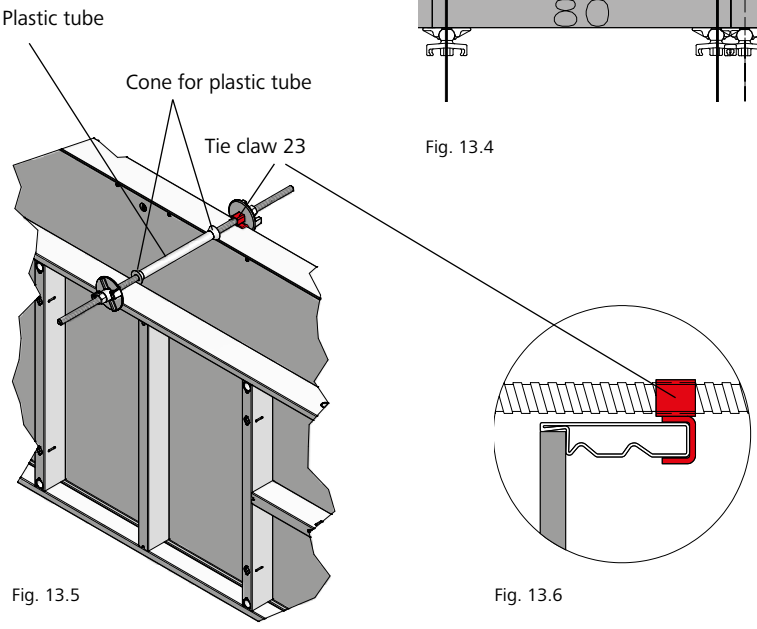


Fig. 13.5

Fig. 13.6

Description	Ref. No.
Tie rod DW 15/90	**29-900-80**
Plastic tube D22/200	**29-902-30**
Cone for plastic tube D22/10	**29-902-40**
Cone for plastic tube D22/30	**29-902-50**
Flange nut 100	**29-900-20**
Articulated flange nut 15/120	**29-900-10**
Plug D20	**29-902-63**
Tie claw 23	**29-901-44**
Spanner size 27	**29-800-10**

Rate of placing

Rules for concrete pouring

→ According to DIN 4235, concrete should be placed in layers whose thickness can vary from 0.50 m bis 1.00 m.

→ Concrete must not be placed above heights of 1.50 m in free fall.

→ When vibrating the concrete, which is done layer by layer, the vibrator must not penetrate more than 0.50 m into the layer below.

→ A final vibrating step over the overall concrete height is not recommended. It does not provide any advantage, since concrete that has been vibrated once cannot be compacted further. This may result in water bubbles (shrinkage cavities) on the concrete surface.

Rate of placing

The permissible rate of placing can be precisely determined according to DIN 18218:2010-01 using MEVA's online calculation programme available on the MEVA website. This and other digital aids are available in the download area at www.meva.net and in the app MEVA me for iOS and Android.

Specific values of DW 15 tie rods

DW tie rod	15
d1 (mm)	15
d2 (mm)	17
Nominal cross section (mm²)	177
Permissible working load according to DIN 18216 (kN)	90
Tie rod elongation when using the permissible working load (mm/m)	2.5

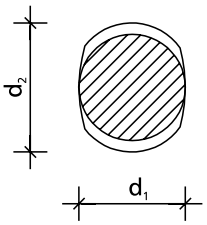


Table 14.1

Walls up to 2.40 m

Concrete can be poured without considering the rate of placing.

Walls higher than 2.40 m

The admissible rate of placing can be precisely determined according to DIN 18218:2010-01 using MEVA's online calculation programme available on the MEVA website. The concrete pressure calculator is also available as a mobile app for use on the construction site. Or refer to the rates of placing shown in Table 14.2. Note that you cannot use Table 14.2 unless you know the end of setting of the concrete, t_E. This value can be determined on-site using MEVA's ultrasonic SolidCheck measuring device or knead-bag tests as described in DIN 18218:2010-01. Or simply ask the concrete supplier for the concrete's end of setting.

Note

Table 14.2 shows the recommended rates of placing according to DIN 18218:2010-01 that are compatible with the fresh-concrete pressure and applicable when using DW 15 tie rods and articulated flange nuts 15/120.

Maximum rate of placing v_b (depending on the concrete's consistency and end of setting t_E)* in m/h					
EcoAs (50 kN/m²)		t_E = 5h	t_E = 7h	t_E = 10h	t_E = 15h
Consistency range	F3	2.29	1.81	1.29	0.73
	F4	1.94	1.30	0.73	0.23
	F5	0.83	0.60	0.42	0.23
	F6	0.66	0.47	0.33	0.22
	SCC	0.76	0.54	0.38	0.25

Table 14.2

* According to DIN 18218:2010-01 (fresh-concrete pressure on vertical formwork)

t_E = End of setting of the concrete

v_b = Maximum rate of placing

Flatness of surface

The permissible deflection of formwork parts is defined in DIN 18202, Table 3, lines 5 to 7 (Table 15.1). Here, the maximum permissible deflection is defined in relation to the distance between the measuring points. The permissible fresh-concrete pressure for EcoAs that is in line with the flatness tolerances as defined in DIN 18202,Table 3, line 6 is 50 kN/m².

DIN 18202, Table 3

Column	1	2	3	4	5	6
		Distances as limiting values in mm for distances between measuring points in m				
Line	Reference	0.1	1*	4*	10*	15*
5	Unexposed walls and undersides of slabs	5	10	15	25	30
6	Exposed walls and undersides of slabs, e.g. plastered walls, panelling, suspended ceilings	3	5	10	20	25
7	Like line 6, but with stricter requirements	2	3	8	15	20

Table 15.1

* Intermediate values can be found in Fig. 15.2 “Flatness tolerances”. Round up values found to full millimetres.
The measuring lath is placed on the highest protruding points of the surface and the deflection is measured at the deepest point in-between.
The distance between measuring points corresponds to the distance between the highest protruding points.

Flatness tolerances of walls and undersides of slabs
(according to DIN 18202, Table 3)

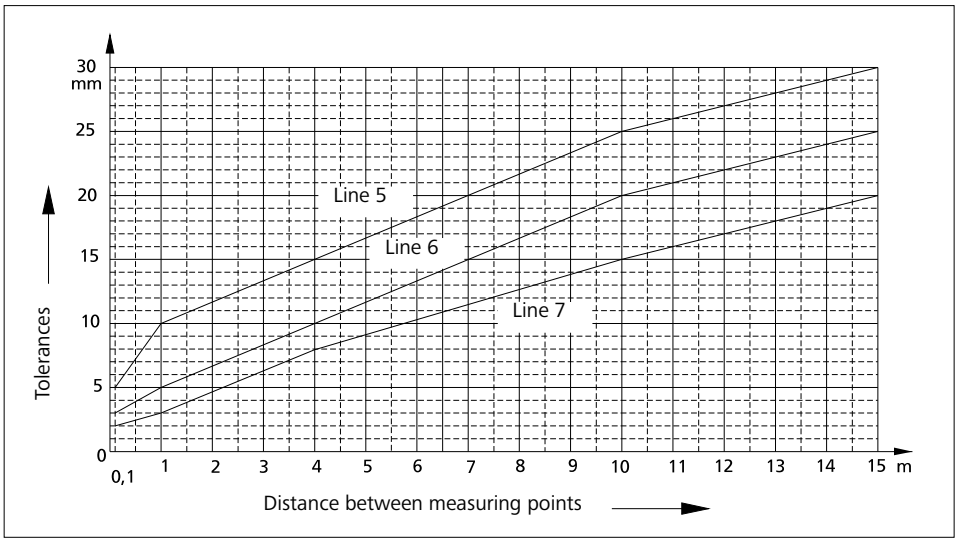


Fig. 15.2

Attachment of accessories

All panels are provided with multi-function profiles with welded-in Dywidag-threaded nuts (Figures 16.1, 16.4 and 16.5). The difference between the multi-function profiles and the cross stiffeners is that the multi-function profiles allow accessories to be attached.

Walkway brackets are provided with integrated self-locking pins (Fig. 16.2) and are mounted on the multi-function profiles and secured with a flange screw 18.

Alignment rails should be attached to the multi-function profiles with flange screws in order to stabilise ganged panels when lifting them by crane, bridge problem areas and brace and stabilise the fillers used to bridge gaps between the panels.

Formwork is set vertically using push-pull props attached to the panel with formwork-prop connectors as shown in Fig. 16.3.

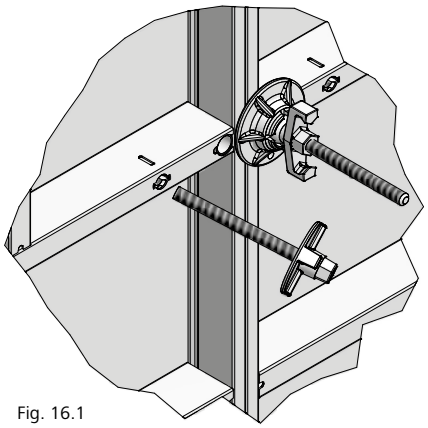


Fig. 16.1

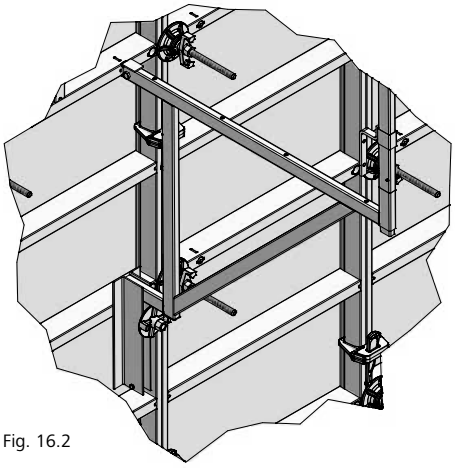


Fig. 16.2

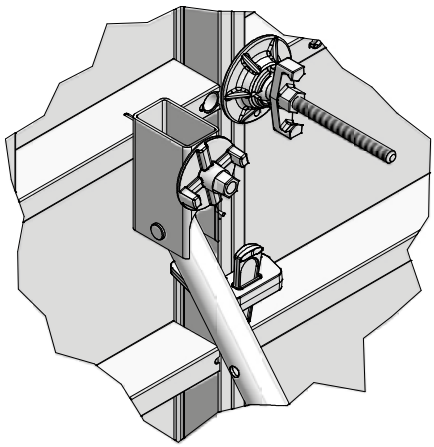


Fig. 16.3

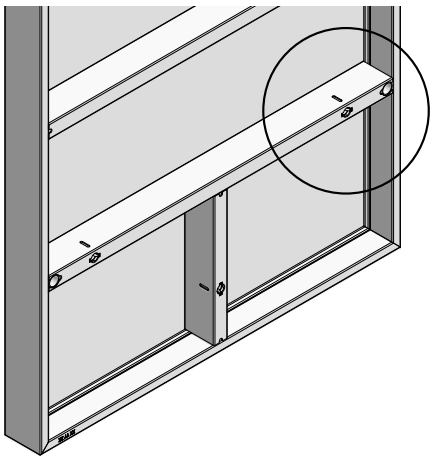


Fig. 16.4

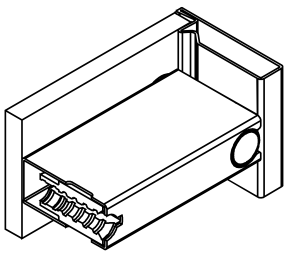


Fig. 16.5

Wall braces

The push-pull props or the brace frame 250 with formwork-prop connector are attached to the panel's multi-function profile with flange screw 18 (Fig. 17.2 and page EA-16).

The brace frame 250 is made up of the push-pull prop R 250, the brace SRL 120, two formwork-prop connectors and the double-jointed foot plate.

If push-pull props or brace frames are only used to align the formwork, we recommend a max. spacing of 4.00 m. In order to withstand wind loads, refer to Table 17.1. For further applications contact MEVA.

Assumptions for Table 17.1

- → Wind loads according to DIN EN 1991-1-4
- → Wind zone 2, inland (mixed profile between terrain categories II & III)
- → Pressure coefficient used $c_p = 1.8$
- → Exposure time factor ψ = 0,7
- → Formwork on upper edge of terrain
- → Values are characteristic values

Wall braces	Formwork height h (m)						
	2.00	2.40	2.80	3.00	3.60	4.20	4.60
Push-pull prop	R160+ SRL120	R250+ SRL120	R250+ SRL120	R250+ SRL120	R250+ SRL120	R460+ SRL170	R460+ SRL170
Permissible influence width e (m)	8.18	5.77	5.20	4.94	3.66	3.31	2.72
Brace load F_1 (kN)	6.77	5.84	6.06	6.15	4.59	4.99	3.84
Push-pull prop load F_2 (kN)	11.95	11.35	11.96	12.19	12.52	12.87	12.88
Lifting force V_{Wind} (kN)	1.41	1.95	2.22	2.36	3.17	3.57	4.29
Dowel force V_{dowel} (kN)	13.62	14.34	14.14	14.05	14.56	14.34	14.77
H_{dowel} (kN)	13.40	11.34	11.92	12.14	10.79	11.39	10.25
a (m)*	0.40	0.40	0.40	0.40	0.80	0.80	1.20
b (m)**	1.12	1.18	1.41	1.52	1.64	1.99	1.99

Table 17.1

* Upper pivot point a, distance measured between top edge of formwork and attachment point of the upper formwork-prop connector

** Distance to the foot plate b, measured from the rear edge of the formwork to the attachment of the foot plate

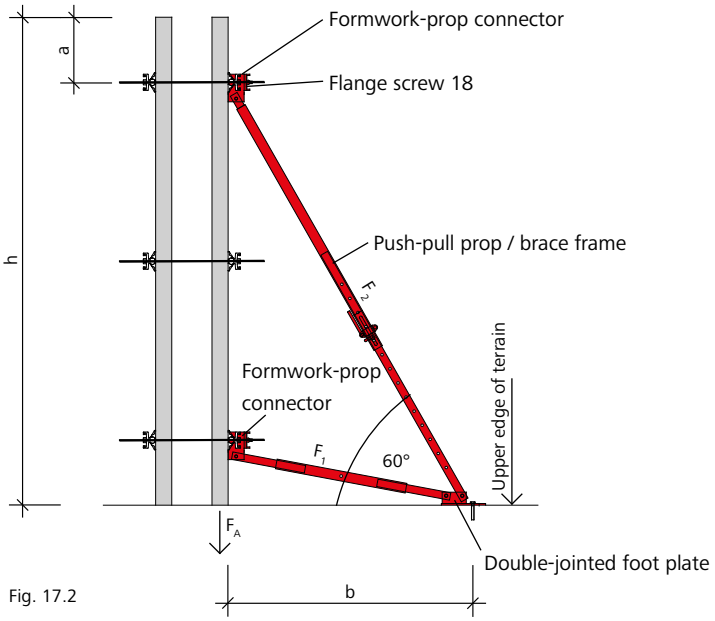


Fig. 17.2

Description	Ref. No.
Braces SRL	
SRL 120	**29-108-80**
SRL 170	**29-108-90**
Push-pull props R	
R 160	**29-109-40**
R 250	**29-109-60**
R 460	**29-109-80**
R 630	**29-109-85**
Formwork-prop connector	**29-804-85**
Brace frame 250 with formwork-prop connector	**29-109-20**
Flange screw 18	**29-401-10**
Double-jointed foot plate	**29-402-32**

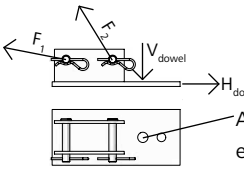
Note:
A restraint mechanism is required when the lifting force $F_A = 1.5 \times V_{Wind} - 0.9 \times G \times h > 0$.
G = weight per unit area of the formwork (including platforms)

Wall braces

The brace is attached to the double-jointed foot plate (Fig. 18.1) using MEVA quick anchors or anchor bolt, for example.

The permissible influence width of the bracing (e) can be reduced at the edge of the formwork as shown in Fig. 18.2.

→ e = permissible influence width (see Table 17.1)



Attachment point for dowel/bolt,
e.g. MEVA quick anchor,
Fischer anchor bolt FAZ II 20/30 or equivalent

Fig. 18.1 Double-jointed foot plate

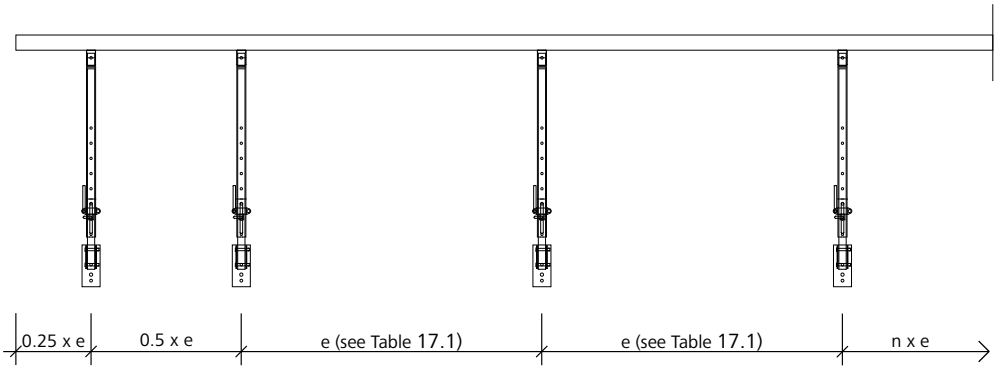


Fig. 18.2

Description	Ref. No.
Double-jointed foot plate.....	**29-402-32**
Quick anchor	**29-922-70**

Workplaces

Walkway bracket
The pluggable walkway bracket 90 (Fig. 19.2) is mounted to a multi-function profile. To insert the bracket, turn it by 45°, then turn it back to the vertical position and secure it with a flange screw 18 to the multi-function profile below. The planks can then be bolted to the brackets. Maximum bracket spacing for a load of 150 kg/m² (scaffold group 2): 2.50 m according to DIN 4420. The minimum thickness of the planks is 4.5 cm and their minimum width is 24 cm.

Guardrailing posts and side railing
The guardrailing posts and the side railing (Figures 19.3 to 19.5) are inserted into the walkway brackets. If the fall height exceeds 2.00 m, a side railing (Fig. 19.5) is required.
Note that this regulation is valid for Germany.

Always observe the federal, state and local regulations of the country where the formwork is used.

The guardrailing post 48/120 can be used to allow scaffold tubes to be installed as a fall protection measure. These guardrailing posts are made of round tube with a diameter of Ø 48 mm. Swivel-joint couplers for the scaffold tubes are attached to the guardrailing posts. The round guardrailing posts are inserted into the walkway brackets with their rectangular adapters (Fig. 19.4).

Note
Minimum cross section of handrail and midrail:
For a post spacing of up to 2.00 m: 15 x 3 cm
For a post spacing of up to 3.00 m: 20 x4 cm (Fig. 19.1).

Working scaffold according to DIN 4420, Part 1

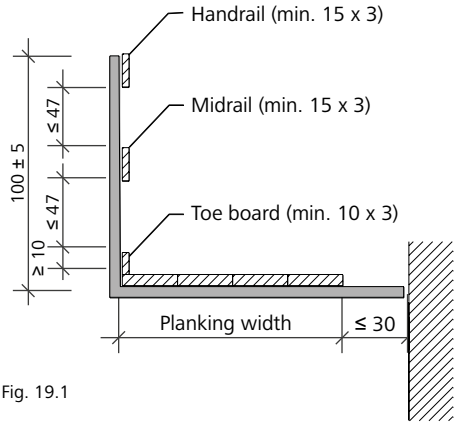


Fig. 19.1

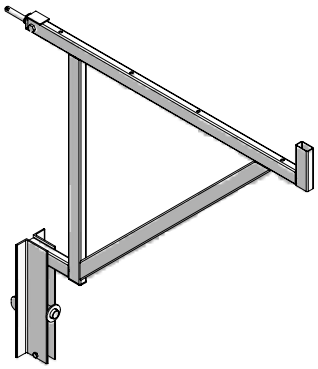


Fig. 19.2 Walkway bracket 90

Description	Ref. No.
Walkway bracket 90	**29-106-00**
Flange screw 18	**29-104-10**
Guardrailing post 100	**29-106-75**
Guardrailing post 140	**29-106-85**
Guardrailing post 48/120 UK	**29-106-80**
Side railing 90/100	**29-108-20**
Swivel-joint coupler 48/48	**29-412-52**
Scaffold tube 48/200	**29-412-23**
Scaffold tube 48/300	**29-412-26**
Scaffold tube 48/400	**29-412-27**
Scaffold tube 48/500	**29-412-25**
Scaffold tube 48/600	**29-412-28**

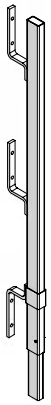


Fig. 19.3 Guardrailing post 100 or 140

Fig. 19.4 Guardrailing post 48/120 UK

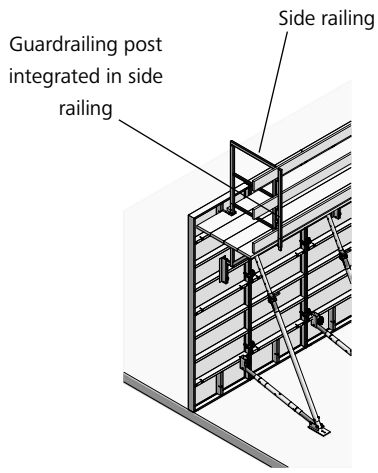


Fig. 19.5 Side railing

Working scaffolds – tilting bracket 23

An additional fall protection device on the opposite side of the working scaffolds, i.e. on the other side of the formwork, is required for heights above 2.00 m. Note that this regulation is valid for Germany. Make sure to observe the federal, state and local regulations of the country where the formwork is used.

The tilting bracket 23 (Fig. 20.1) is designed for the MEVA wall formwork systems AluFix and EcoAs and is used to attach MEVA guardrailing posts to create a fall protection system.

It is attached to the panel's frame profile with the integrated wedge (Fig. 20.2).

MEVA guardrailing posts 100, 140 and 48/120 UK can be connected to the bracket.

The tilting bracket can be turned so that it is vertical to facilitate the installation of safety meshes or railing boards. It can also be tilted by 15° to create sufficient room for the concrete bucket (Fig. 20.2).

One guardrailing post per bracket must be ordered separately.

Plug-in support for:
MEVA guardrailing posts 100, 140 and 48/120 UK

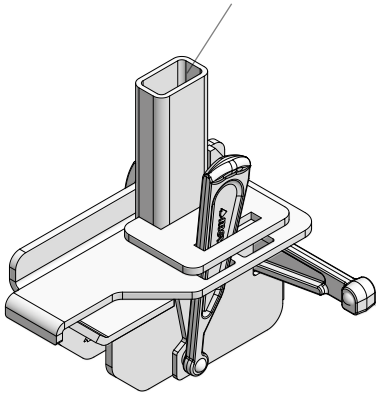


Fig. 20.1

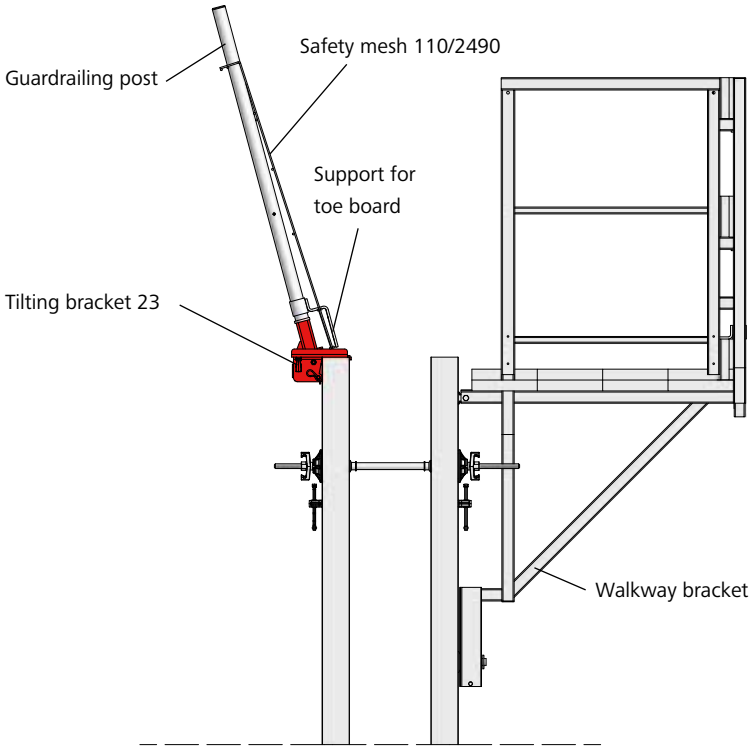


Fig. 20.2

Description	Ref. No.
Tilting bracket 23	**29-920-84**
Guardrailing post 100	**29-106-75**
Guardrailing post 140	**29-106-85**
Guardrailing post 48/120 UK	**29-106-80**
Safety mesh 1100/2490	**29-920-00**

Crane hook

The permissible load of an EA/AF crane hook (Fig. 21.1) is 600 kg.

Handling

1. Open the safety lever as far as possible.
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.

Attention

Always use two EA/AF crane hooks, even when moving single panels. Always attach the crane hooks symmetrically to the centre of gravity (Figures 21.3 and 21.4).

When moving single horizontal panels, both crane hooks must be attached at the centre of gravity over the cross stiffeners of the profile (Fig. 21.3). When moving several panels at once, make sure each crane hook is attached at a panel joint to prevent the crane hook slipping (Fig. 21.5).

When to replace the crane hook

If the reference dimension exceeds 24 mm, the crane hook must be replaced immediately. This also applies if only one side of the hook exceeds this dimension (Fig. 21.2).

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.

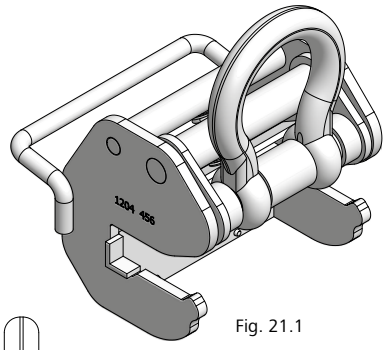


Fig. 21.1

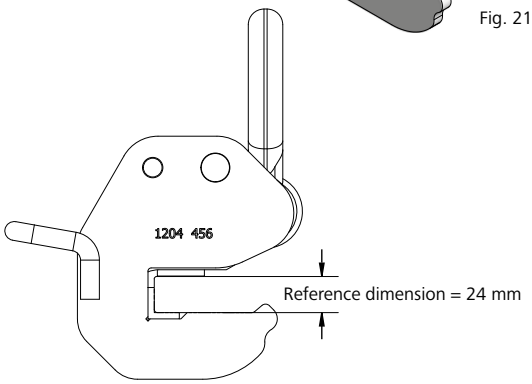


Fig. 21.2

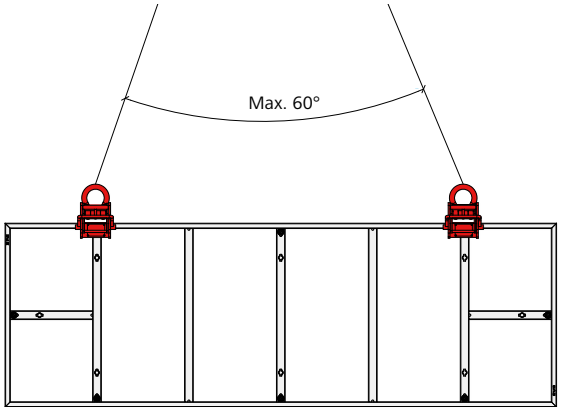


Fig. 21.3

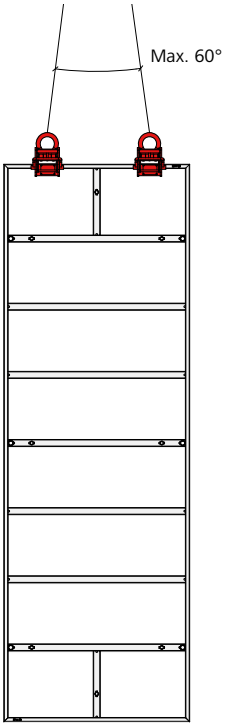


Fig. 21.4

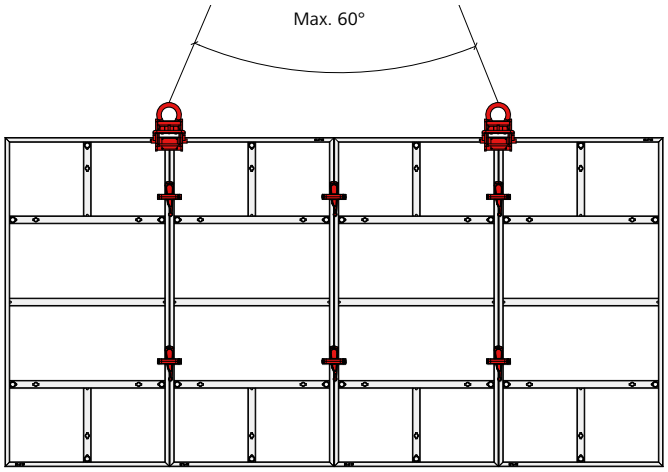


Fig. 21.5

Description	Ref. No.
EA/EF crane hook.....	**29-103-05**

Inside corner 90°

The EcoAs inside corner is equipped with the alkus all-plastic facing and is connected using EA assembly locks like a standard panel (Fig. 22.1 and page EA-11).
The side length of the inside corner′ is 25 cm (Fig. 22.2).

Compensation at inside corners can be created using fillers or timbers (Fig. 22.3). The filler (Fig. 22.4) has a width of 5 cm. The connection is made by means of Uni-assembly locks. An AS alignment rail is required at every tie hole level to provide rigidity (Fig. 22.3).

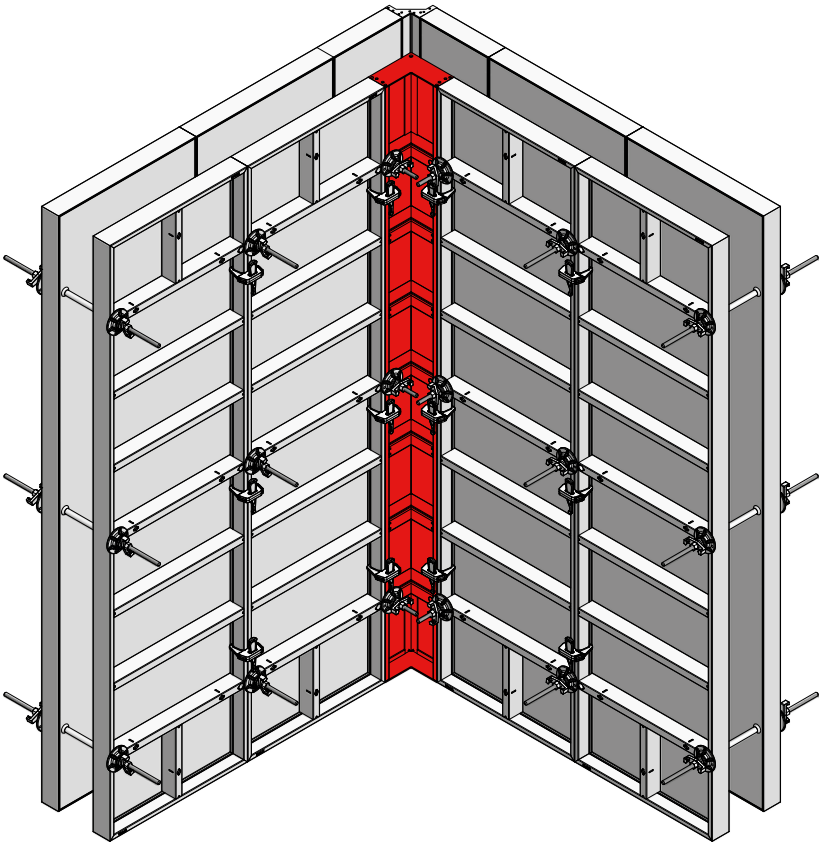


Fig. 22.1

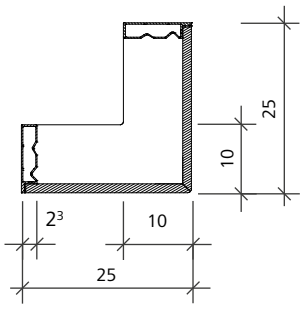


Fig. 22.2

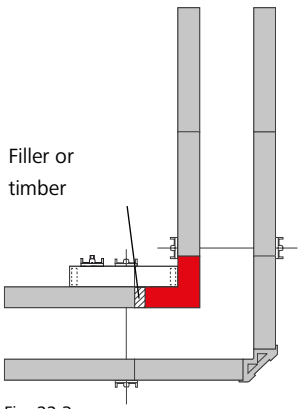


Fig. 22.3

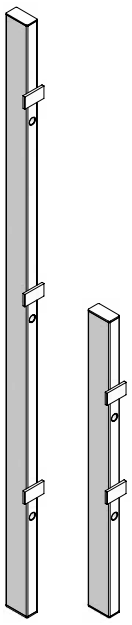


Fig. 22.4

Description	Ref. No.
EcoAs inside corner	
AL-IC 300/25	**21-724-10**
AL-IC 240/25	**21-724-20**
AL-IC 160/25	**21-724-30**
AL-IC 120/25	**21-724-40**
Uni-assembly lock 22	**29-400-85**
Uni-assembly lock 28	**29-400-90**
EA steel filler 240/5	**21-726-00**
EA steel filler 120/5	**21-726-10**

Aluminium 90° outside corner

The EA outside corner with a 5 cm wide forming area and integrated chamfer strip (Fig. 23.1) together with the EcoAs panels and the EA assembly lock results in a solid 90° outside corner solution (Figures 23.2 and 23.3).

Corner height 300 cm
Panel heights of 300 cm require four assembly locks per joint (a), the corner panel requires four assembly locks on the first panel joint (b), all other panel joints require three assembly locks (c).

Corner height 240 cm
Panel heights of 240 cm require four assembly locks per joint (a), the corner panel requires three assembly locks on the first panel joint (b), all other panel joints require two assembly locks (c).

Corner height 160 cm
Three assembly locks (a)
First panel joint:
two assembly locks (b)
All additional panel joints: two assembly locks (c)

Corner height 120 cm
Two assembly locks (a)
First panel joint:
two assembly locks (b)
All additional panel joints: two assembly locks (c)

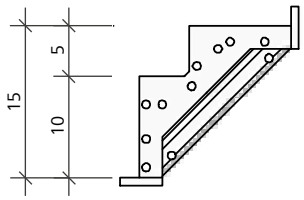


Fig. 23.1

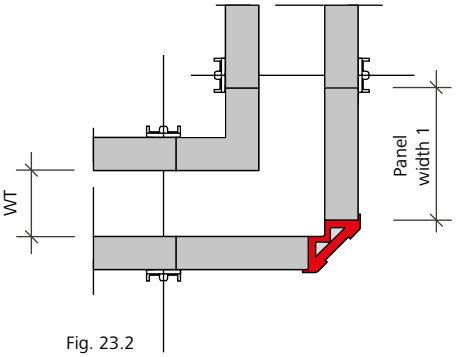


Fig. 23.2

Panel width 1
= wall thickness (WT) + 20 cm

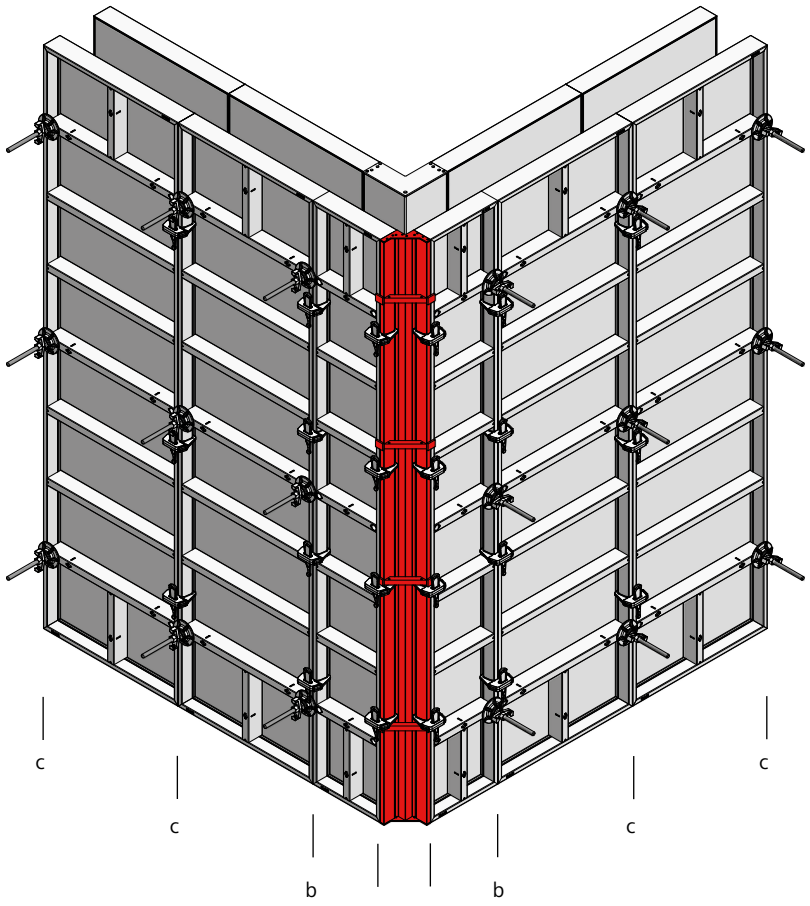


Fig. 23.3 Height 300 cm

Description	Ref. No.
EcoAs outside corner	
OC 300	**21-725-75**
OC 240	**21-725-85**
OC 160	**21-725-90**
OC 120	**21-725-95**

Hinged corners

Acute and obtuse angled corners are formed using hinged inside and outside corners.

At the outside corner, alignment rails must be attached to the multi-function profiles with flange screws (Figures 24.1 and 24.2).

For the number of assembly locks required refer to page EA-23.

If the inside angle is greater than 100°, alignment rails and a wooden blocking are also required on the inside (Fig. 24.1).

Timber fillers and Uni-assembly locks 22 are used for length compensation.

Side length of outside corner: 7.5 cm.
Side length of inside corner: 30 cm.
Adjustment range: 60 to 180°.

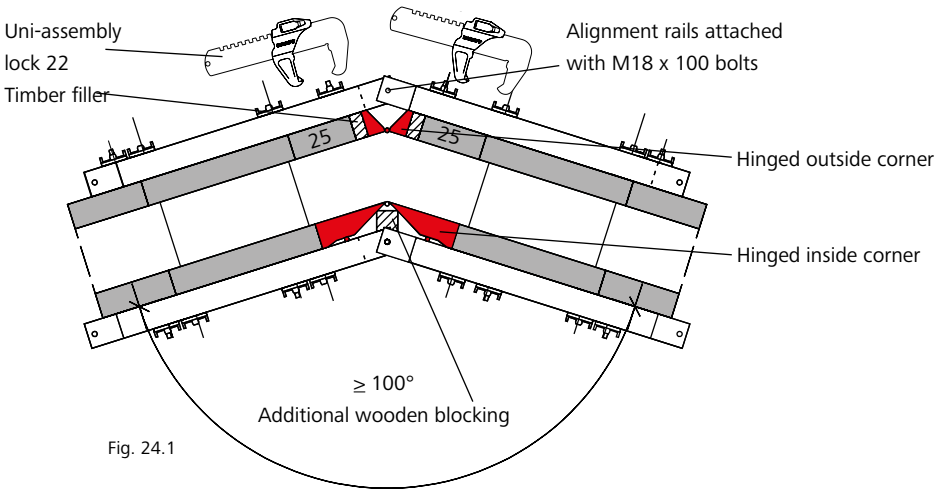


Fig. 24.1

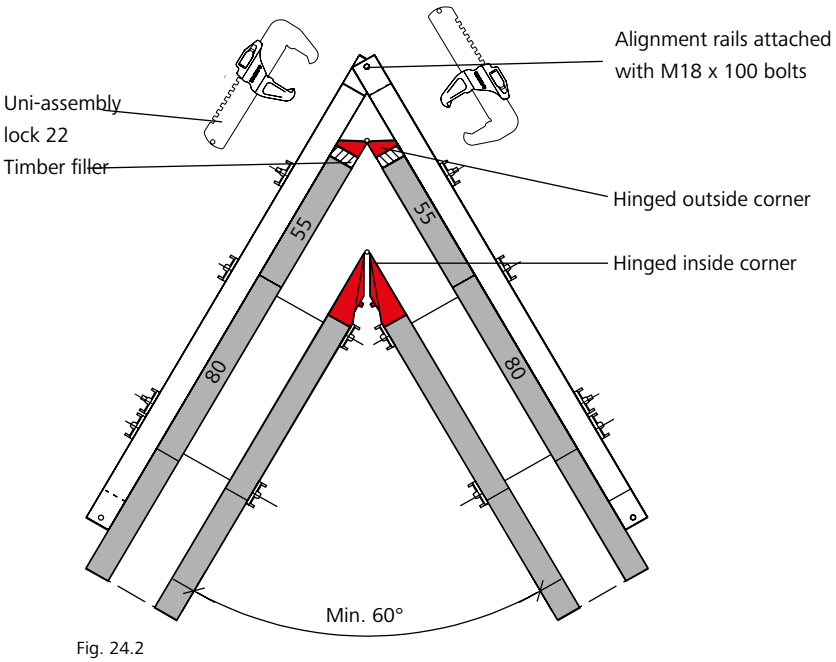


Fig. 24.2

Description	Ref. No.
EcoAs hinged corners	
HIC 120/30	**21-726-40**
HIC 240/30	**21-726-30**
HOC 120	**21-726-60**
HOC 240	**21-726-50**
Uni-assembly lock 22	**29-400-85**
Uni-assembly lock 28	**29-400-90**

Hinged corners

We recommend that the alignment rail is secured with flange screws before installing the tie rods (Fig. 25.1).

The timber fillers required in accordance with the wall thickness, inside angle and the panel width are specified in Table 25.2.

For the number of assembly locks required refer to page EA-23.

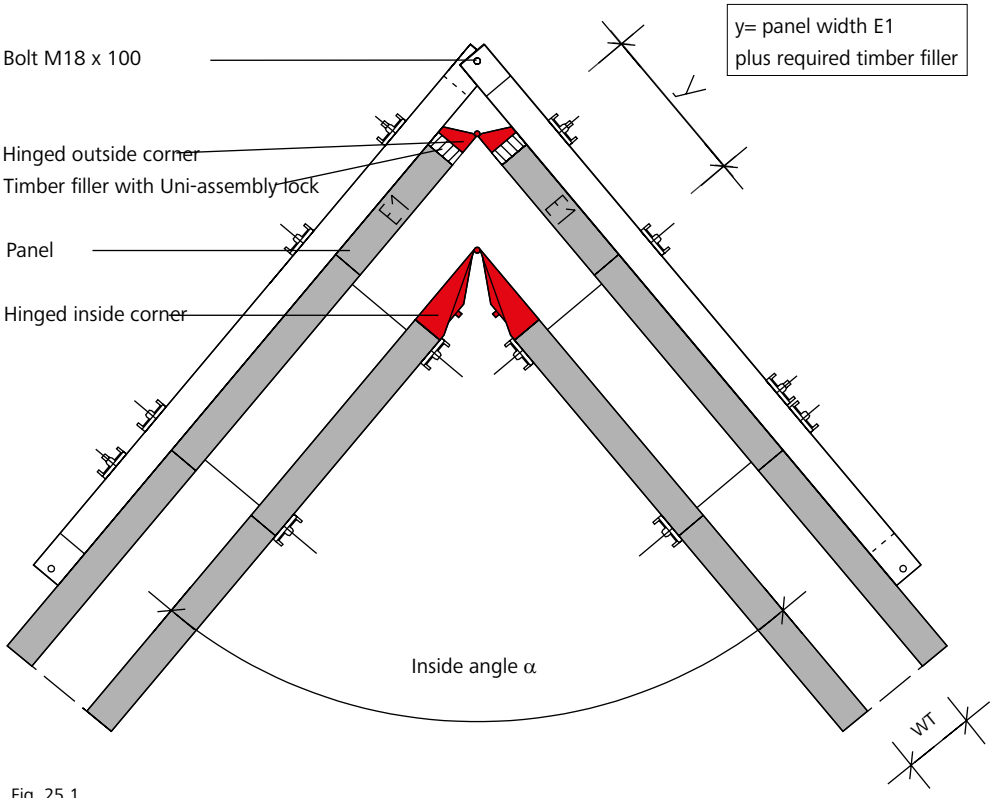


Fig. 25.1

Equation to calculate the width $y = \frac{WT}{\tan \frac{\alpha}{2}} + 22.5$ [cm]

Wall thickness (WT) in cm	Inside angle α	y in cm	
		Panel width E1	Required timber filler
24	70° – 75°	55	1.8 – 0
	75° – 85°	50	5.0 – 0
	85° – 96°	45	5.0 – 0
	96° – 110°	40	5.0 – 0
	110° – 146°	30	10.0 – 0
	146° – 168°	25	5.0 – 0
	168° – 180°	Job-built compensation 25.0 - 22.5	
25	70° – 75°	55	3.2 – 0
	75° – 85°	50	5.0 – 0
	85° – 96°	45	5.0 – 0
	96° – 110°	40	5.0 – 0
	110° – 146°	30	10.0 – 0
	146° – 168°	25	5.0 – 0
	168° – 180°	Job-built compensation 25.0 - 22.5	
30	70° – 75°	55	10.3 – 0
	75° – 85°	50	5.0 – 0
	85° – 96°	45	5.0 – 0
	96° – 110°	40	5.0 – 0
	110° – 146°	30	10.0 – 0
	146° – 168°	25	5.0 – 0
	168° – 180°	Job-built compensation 25.0 - 22.5	

Table 25.2

Length compensation

Timber filler

Gaps up to 17 cm can be formed on-site using corresponding timber fillers and Uni-assembly locks 22. The reinforcement is achieved with alignment rails (Figures 26.1 and 26.2).

Compensation plate

Length compensations between 6 and 20 cm can be created using the compensation plate. It is attached to the panel using two EA assembly locks. Alignment rails are to be used for bridging and reinforcement purposes (Figures 26.3 to 26.5).

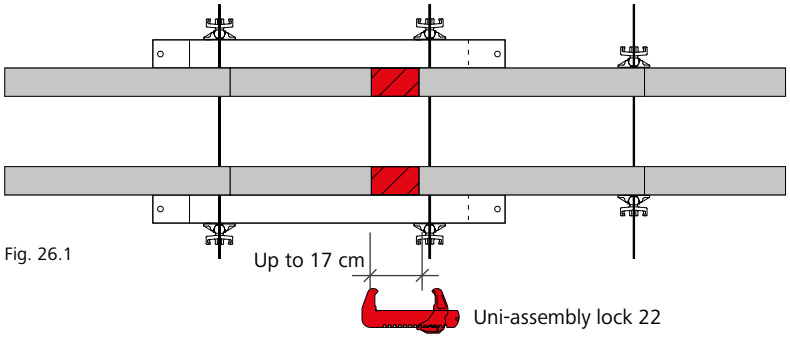


Fig. 26.1

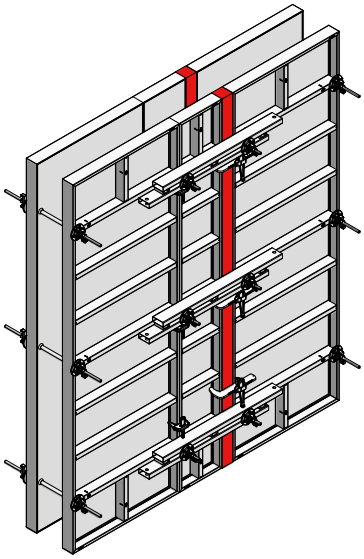


Fig. 26.2

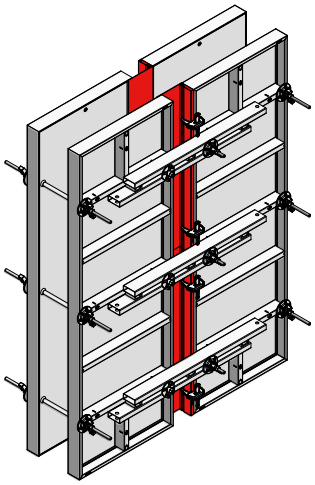


Fig. 26.3

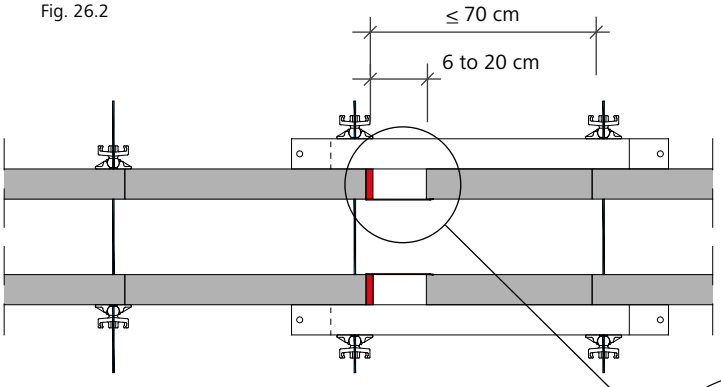


Fig. 26.4

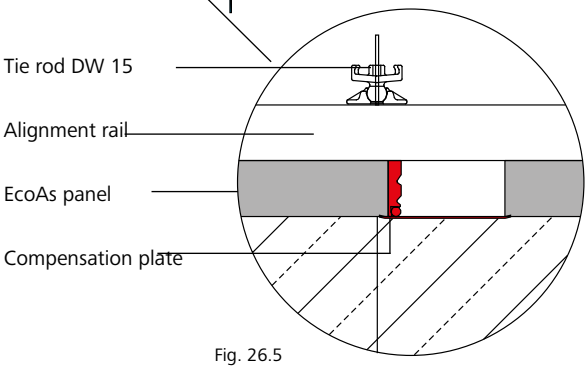


Fig. 26.5

Description	Ref. No.
Uni-assembly lock 22	**29-400-85**
Uni-assembly lock 28	**29-400-90**
EA compensation plate 120/20	**21-726-20**

T wall connections

T wall connection with two inside corners (Figures 27.1 to 27.5). Differences in wall width can be compensated for using the EA compensation plate (6 to 20 cm) and the EA assembly lock (Fig. 27.4) or using a timber filler (up to 17 cm) and Uni-assembly lock 22 (Fig. 27.5).

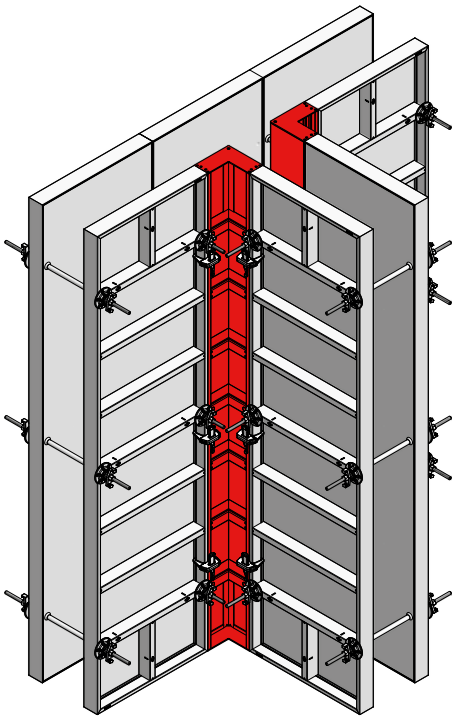


Fig. 27.1

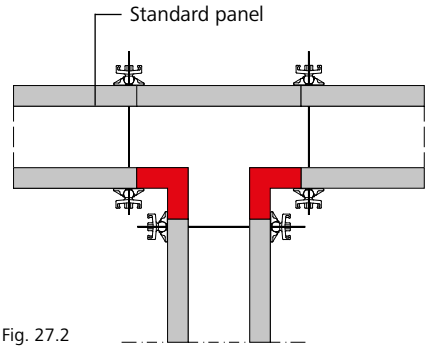


Fig. 27.2

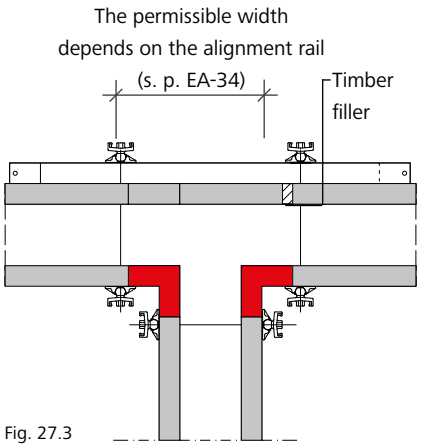


Fig. 27.3

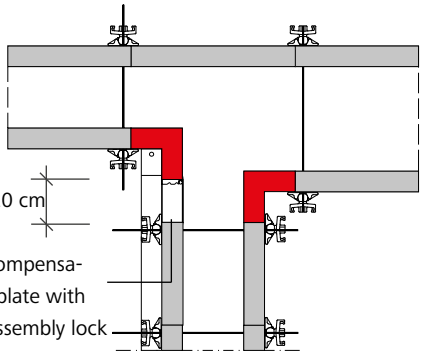


Fig. 27.4

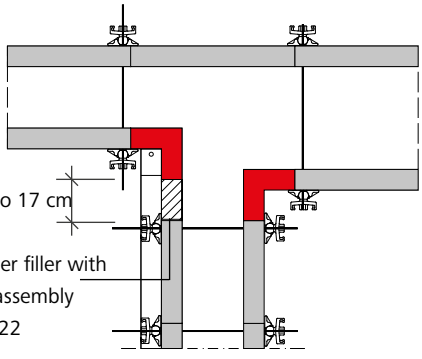


Fig. 27.5

Description	Ref. No.
EcoAs inside corner	
AL-IC 300/25	**21-724-10**
AL-IC 240/25	**21-724-20**
AL-IC 160/25	**21-724-30**
AL-IC 120/25	**21-724-40**
Uni-assembly lock 22	**29-400-85**
Uni-assembly lock 28	**29-400-90**
EA compensation plate 120/20	**21-726-20**

Connection to existing walls

Depending on the conditions on the construction site, the most suitable solution may vary from case to case. Different options are depicted here (Figures 28.1 to 28.7).

Always make sure the formwork is firmly pressed up against the existing wall in order to avoid leakage of the fresh concrete and a patchy concrete surface.

For connections to an existing wall or for the next cycle using the multi-purpose panel see Figures 28.6 and 28.7 and page EA-43.

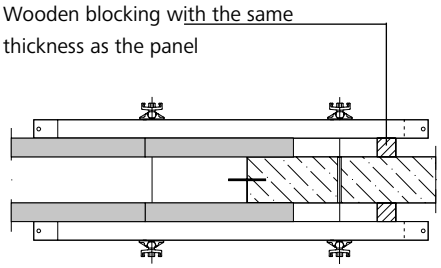


Fig. 28.1

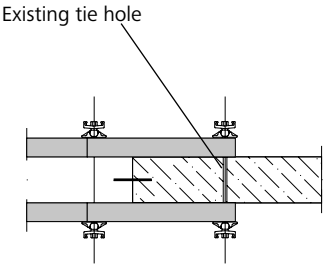


Fig. 28.2

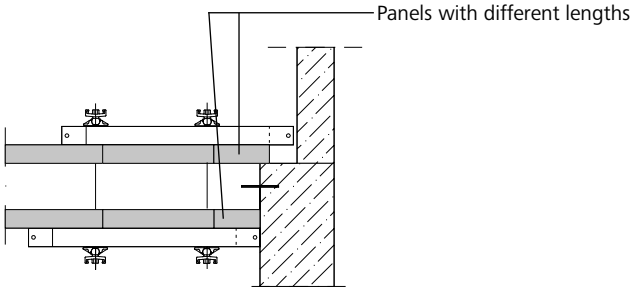


Fig. 28.3

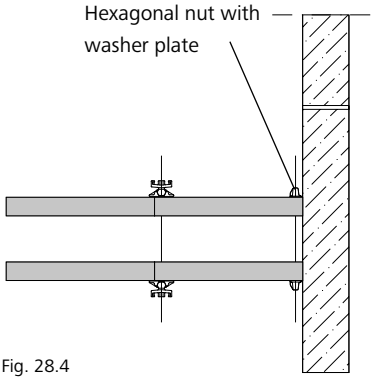


Fig. 28.4

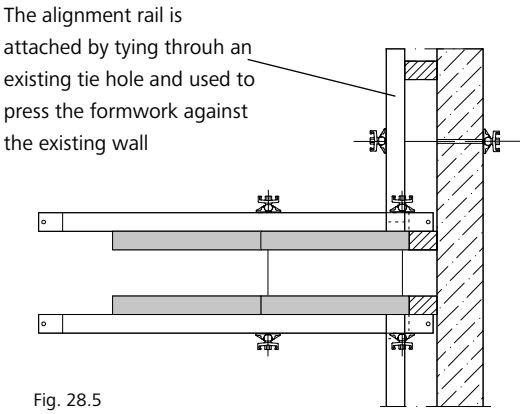


Fig. 28.5

Connection for next cycle with multi-purpose panel

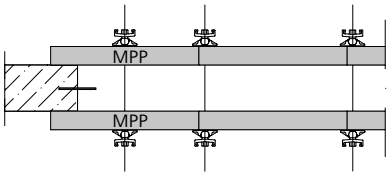


Fig. 28.6

Connection to existing wall with multi-purpose panel

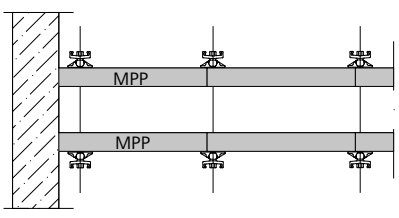


Fig. 28.7

Stop ends

Stop ends can be formed using stop end brackets (Figures 29.1 and 29.2) or using outside corners and standard panels (Figures 29.3 and 29.4).

Two stop end brackets with different lengths are available:

- Stop end bracket 23/40 for wall thicknesses up to 35 cm and
- stop end bracket 60/23 for wall thicknesses up to 75 cm.

One stop end bracket is required at each tie hole level.

Stop ends with outside corners and standard panels require additional bracing with alignment rails when the panels are 50 cm wide or wider (Figures 29.3 and 29.4).
One alignment rail is required for reinforcement at each tie hole level. For the number of assembly locks required at the outside corner and at the first panel joint refer to page EA-23.

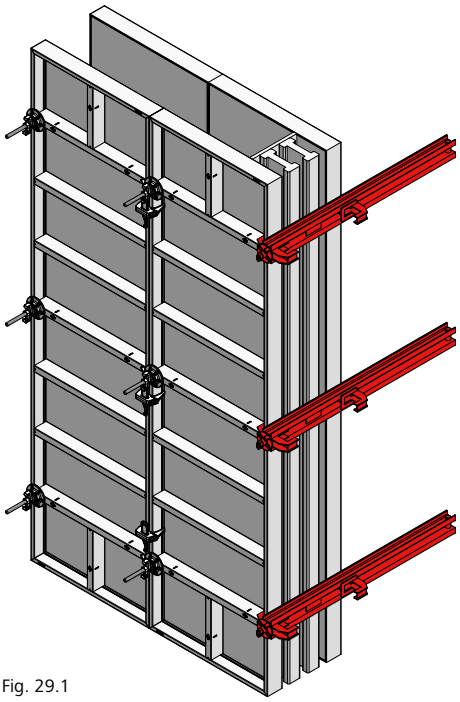


Fig. 29.1

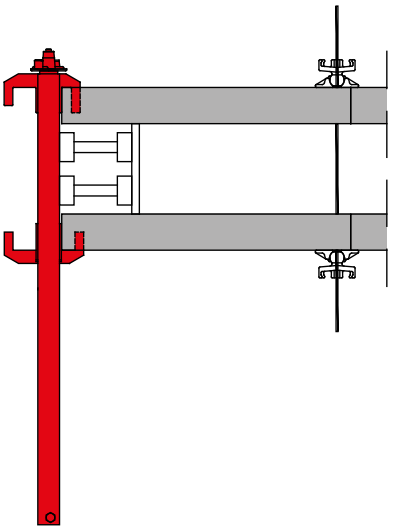


Fig. 29.2

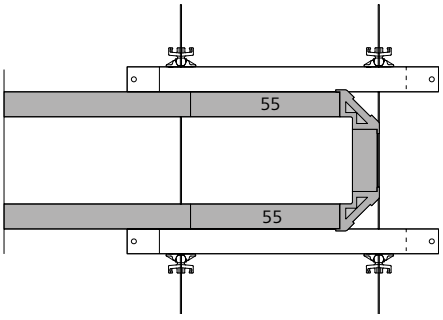


Fig. 29.3 Stop end with EA outside corner with additional bracing

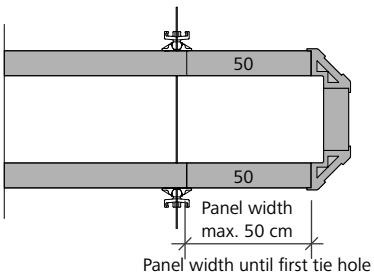


Fig. 29.4 Stop end with EA outside corner without additional bracing

Description	Ref. No.
Stop end bracket 23/40	**29-105-45**
Stop end bracket 60/23	**29-105-60**
EcoAs outside corner	
OC 300	**21-725-75**
OC 240	**21-725-85**
OC 160	**21-725-90**
OC 120	**21-725-95**

Wall offset

Wall offsets of up to 8 cm are formed by moving back the corresponding standard panel (Figures 30.1 and 30.4). For offsets greater than 15 cm inside corners should be used (Figures 30.2, 30.3, 30.5 and 30.6).

Alignment rails are always required for wall offsets (Figures 30.1 to 30.3).

Tie rods of any length can be used to firmly bridge problem areas, e.g. pilasters, wall offsets, projecting building parts. They can be attached at all multi-function profiles irrespectively of the tie holes.

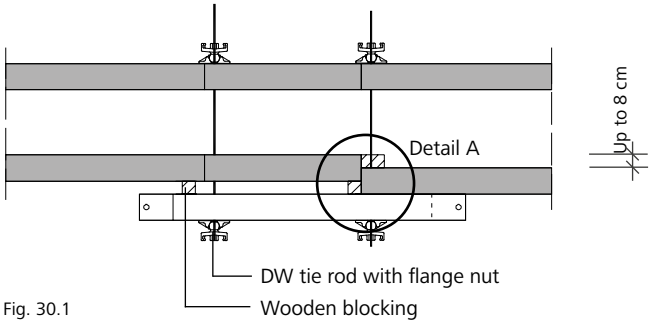


Fig. 30.1

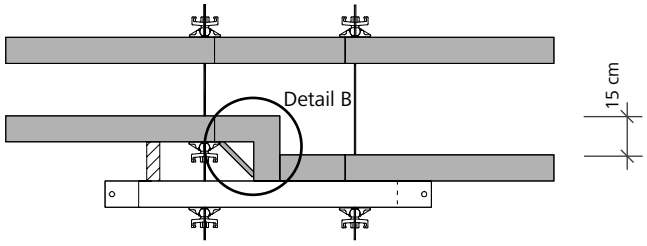


Fig. 30.2 Clamped in place using Uni-assembly lock 22

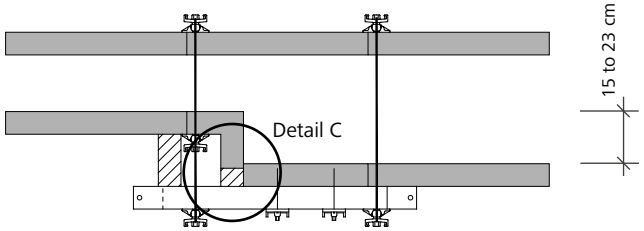


Fig. 30.3 Clamped in place using Uni-assembly lock 22

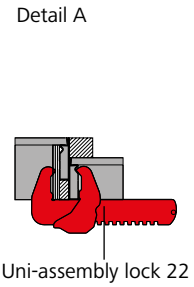


Fig. 30.4

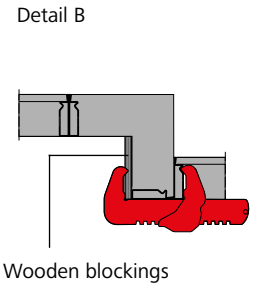


Fig. 30.5

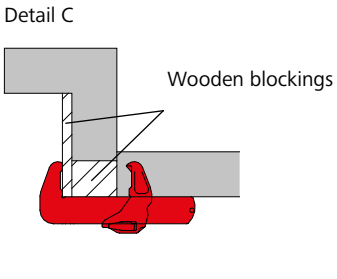


Fig. 30.6

Description	Ref. No.
EcoAs inside corner	
AL-IC 300/25	**21-724-10**
AL-IC 240/25	**21-724-20**
AL-IC 160/25	**21-724-30**
AL-IC 120/25	**21-724-40**
Uni-assembly lock 22	**29-400-85**

Pilasters

Standard pilasters are easily formed with inside corners, standard panels and, where necessary, wooden blockings. Alignment rails must be attached for reinforcement (Figures 31.1 to 31.3).

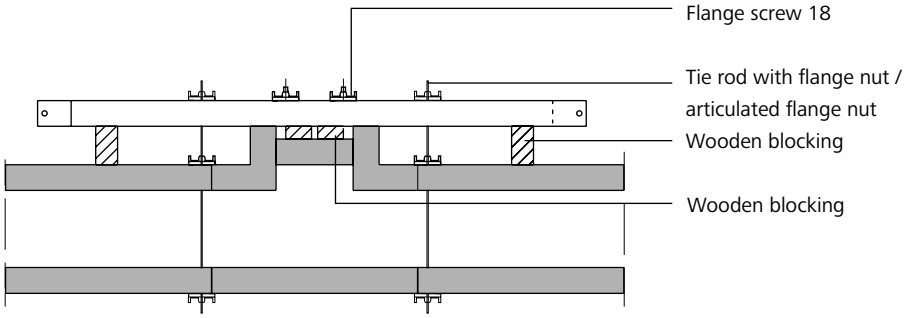


Fig. 31.1

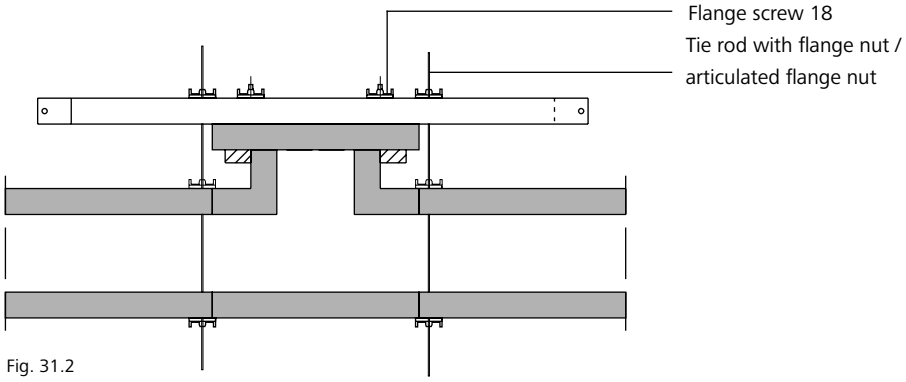


Fig. 31.2

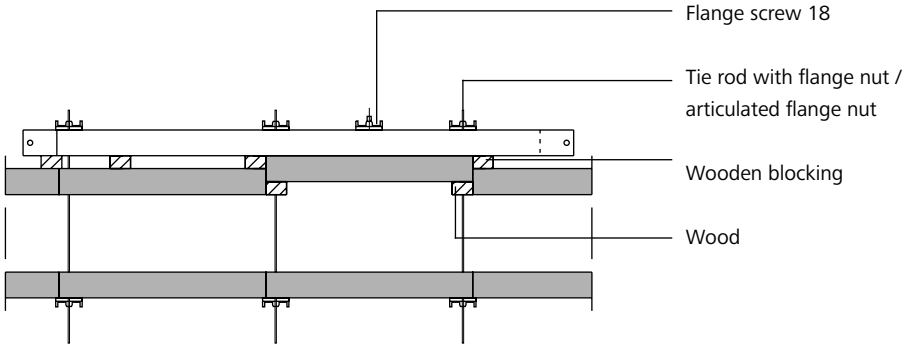


Fig. 31.3

Differences in height

The formwork's grid-free design does not require additional accessories for panel connection. Vertical, horizontal and vertically offset panels can all be safely and firmly connected with EA assembly locks, even on inclines (Fig. 32.1). The compensation is created using planks, facings correspondingly cut to size, and, if necessary, a square timber. These connections can also be made using the standard EA assembly lock.

If required, the loading in the compensation area caused by the concrete pressure can be taken up using alignment rails (Figures 32.1 and 32.2 and EA-34).

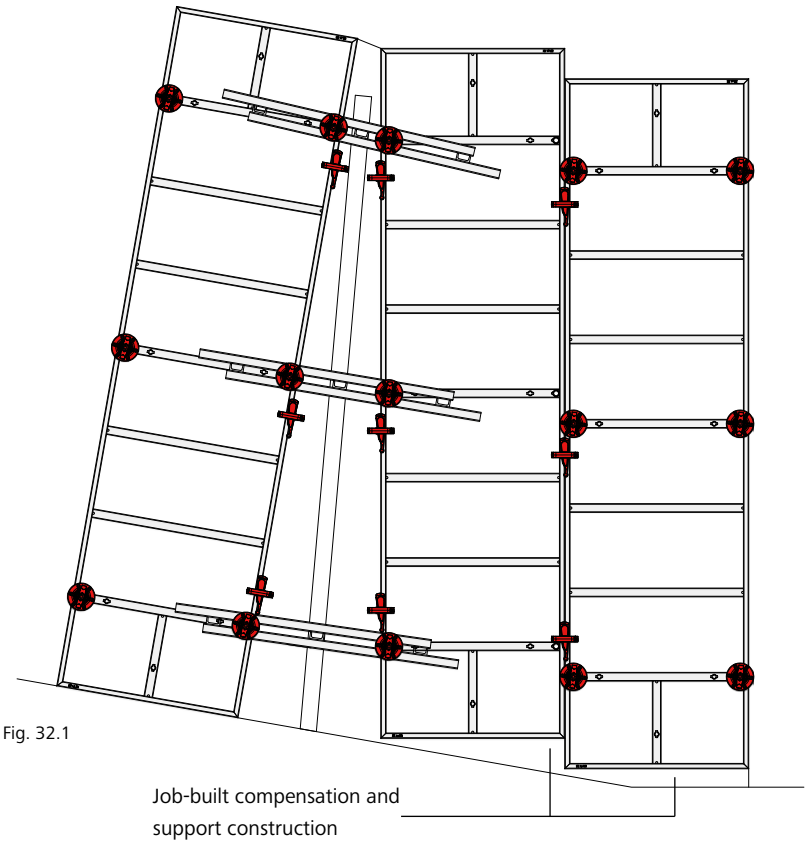


Fig. 32.1

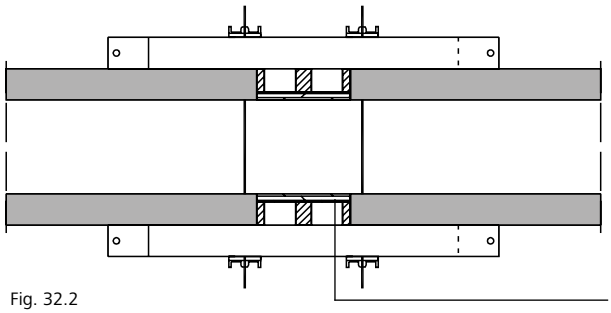


Fig. 32.2

Horizontal panels

EcoAs is particularly suited for job-built solutions to form complicated foundations even when joint tapes or kickers are involved due the central position of the tie holes when using horizontal panels (exception: panel height 300 cm) (Figures 33.1 to 33.3). When combined with the inside corner 120, the panels with a width of 80 cm are used horizontally.

The use of foundation tapes and tensioners for foundation tapes (Figures 33.4 to 33.6) eliminates the time-consuming job of installing bottom ties. The tensioner for foundation tape is attached to the formwork using a wedge.

The top tie in the concrete can be replaced as follows:

→ Push-pull strut
This firmly connects the opposite panels up to a wall or foundation thickness of 64 cm (Figures 33.2 and 33.5).

→ Tie claw 23
Two tie claws 23, one tie rod DW 15 and two flange nuts 100 are required per tie connection (Fig. 33.8). We recommend using a plastic tube D22, as it serves as a spacer and protects the tie rod against dirt.

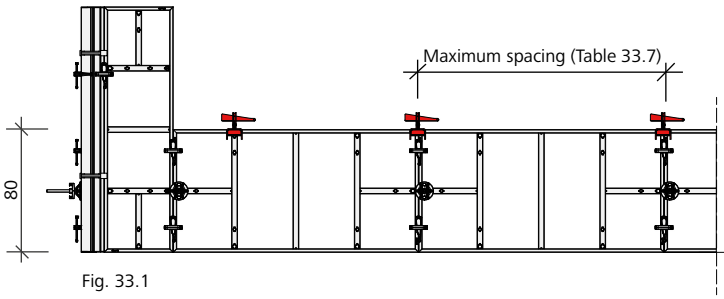


Fig. 33.1

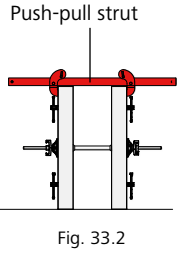


Fig. 33.2

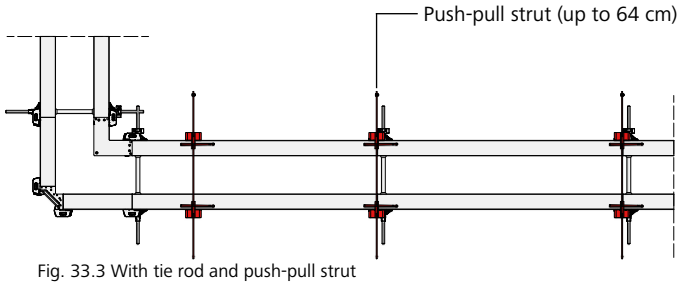


Fig. 33.3 With tie rod and push-pull strut

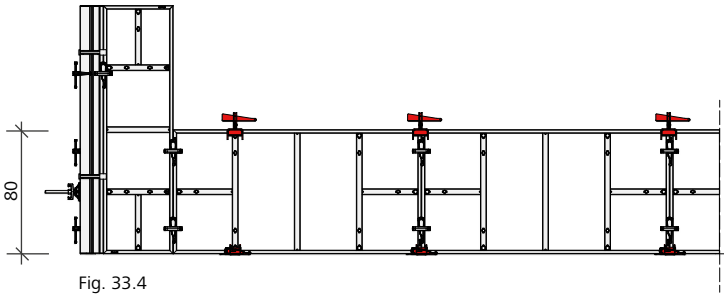


Fig. 33.4

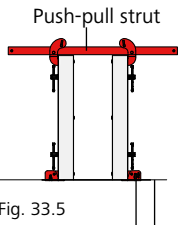


Fig. 33.5

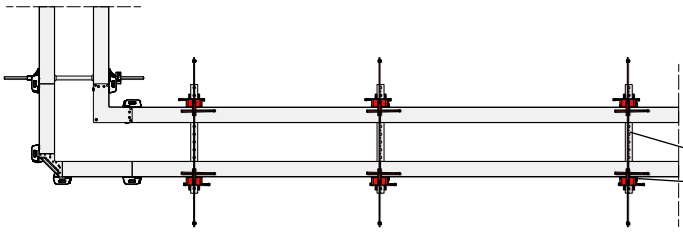


Fig. 33.6 With tensioner for foundation tape and push-pull strut

Maximum tensioner spacing	
Pouring height 80 cm	185 cm
Pouring height 100 cm	120 cm
Pouring height 135 cm	70 cm

Table 33.7

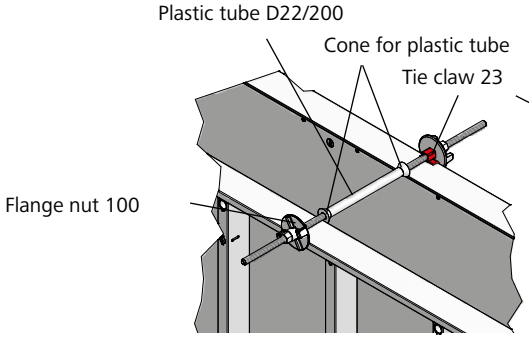


Fig. 33.8

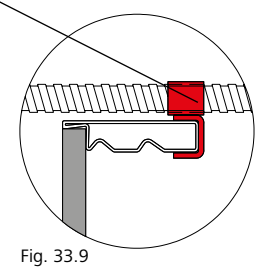


Fig. 33.9

Description	Ref. No.
Push-pull strut	79-105-70
Tie claw 23	29-901-44
Flange nut 100	29-900-20
Foundation tape	29-307-50
Tensioner EA for foundation tape	29-307-75
Trolley for foundation tape	29-307-55
Plastic tube D22/200	29-902-30
Cone for plastic tube D22/10	29-902-40
Cone for plastic tube D22/30	29-902-50

Substitution of ties

When extending a vertical panel 160/80 with a horizontal panel 160/80 (Fig. 34.1), one row of ties can be replaced by attaching two AS alignment rails 125 to the multi-function profile at the level tie holes.

When setting up length compensations (Fig. 34.2), the use of corresponding alignment rails means that it is not necessary to use the tie holes in the filler. For perfect alignment we recommend attaching the alignment rails at the multi-function profile level and limiting the filler width to half the length of the alignment rails (Table 34.3 and Fig. 34.4).

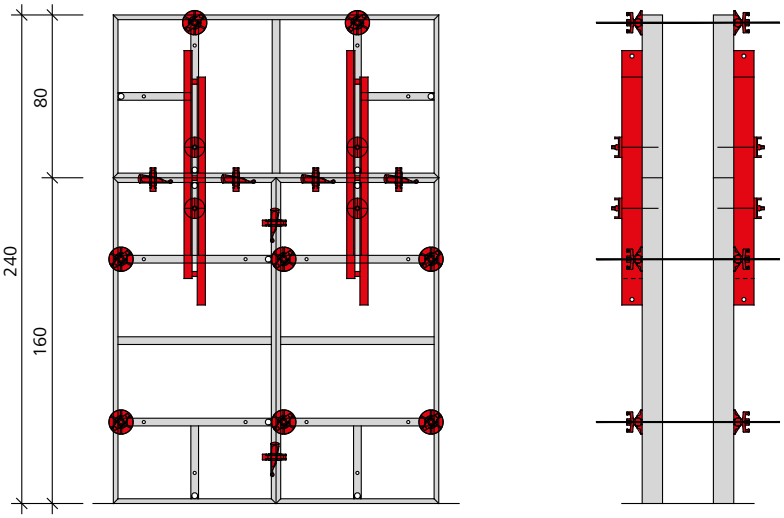


Fig. 34.1

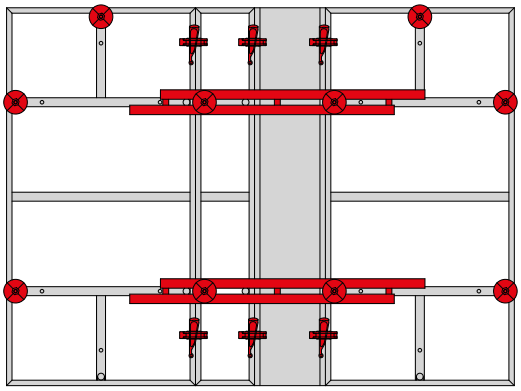


Fig. 34.2

If the fresh-concrete pressure is P_{bmax} = 50 kN/m² and if lines 5 and 6 of DIN 18202 are observed, the following residual gap can be bridged using alignment rails:

Alignment rail	Residual gap
AS-RS 50	Up to 0.30 m
AS-RS 125	Up to 0.60 m
AS-RS 200	Up to 0.70 m

Table 34.3

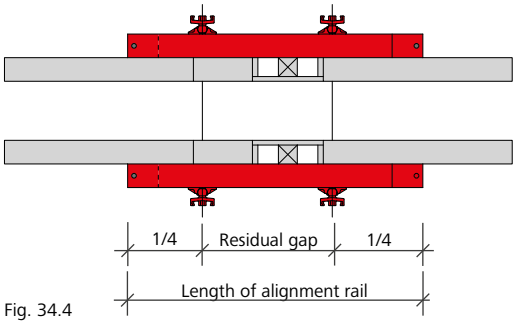


Fig. 34.4

Description	Ref. No.
AS alignment rail 50, galv.	**29-201-73**
AS alignment rail 125, galv.	**29-201-75**
AS alignment rail 200, galv. ...	**29-201-80**

Height extension

Free combination of vertical and horizontal panels

All panels can be height-extended vertically or horizontally. The panels must be connected using the EA assembly lock. The standard panels are 300, 240, 160 and 120 cm high. When combined accordingly, this results in height increments of 40 cm (Fig. 35.1).

Possible height extensions

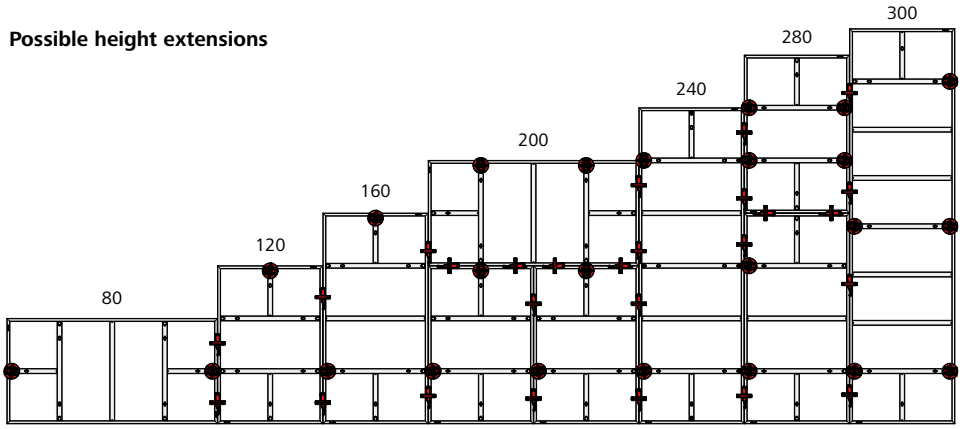


Fig. 35.1

Height extension

When creating height extensions with vertical panels, an alignment rail with the corresponding length is required to provide rigidity.

When moving groups of connected panels with a crane, an alignment rail is required on every second panel (Figures 36.1 and 36.2).

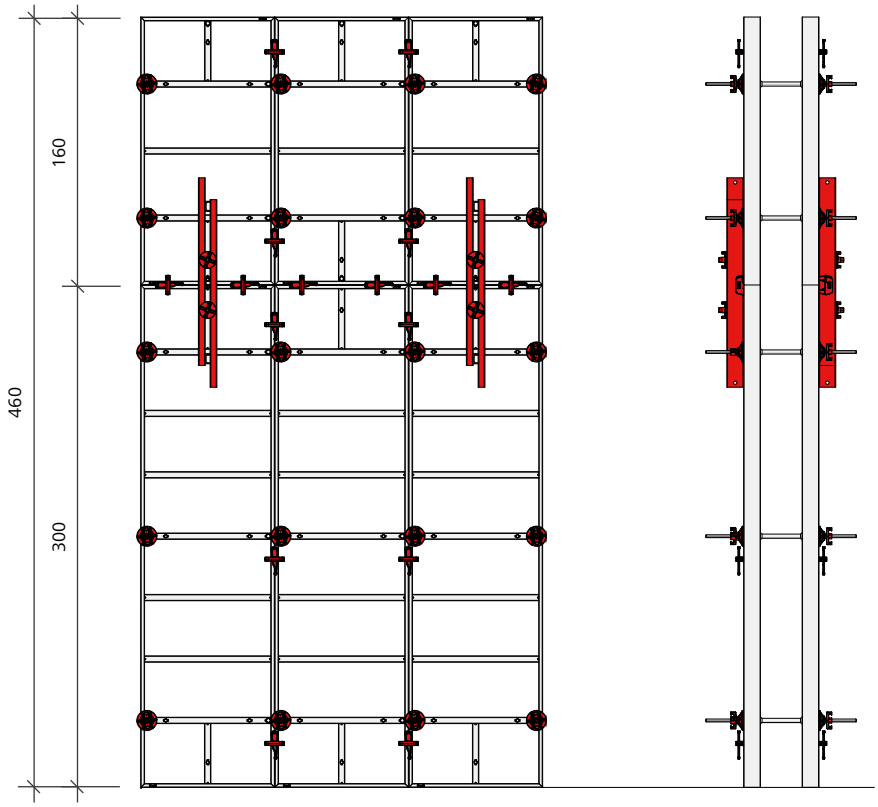


Fig. 36.1

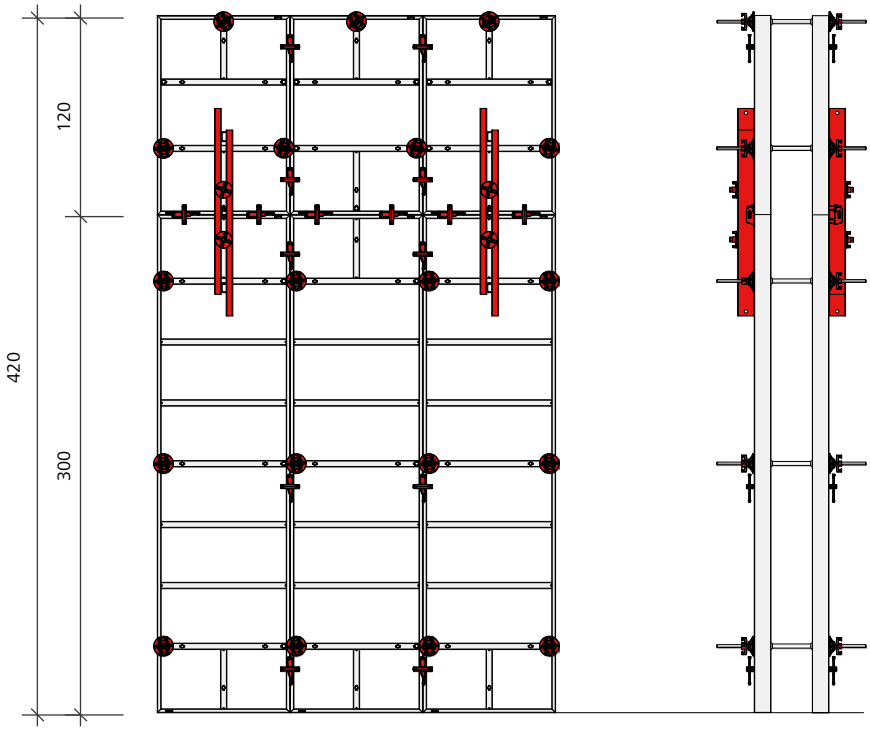


Fig. 36.2

Height extension

Note the following for horizontal height extension

→ If the panel width of the height extension is greater than 30 cm, the tie holes depicted are used (exception: panel height 300 cm (Fig. 37.1).

Horizontal height extension of more than 30 cm

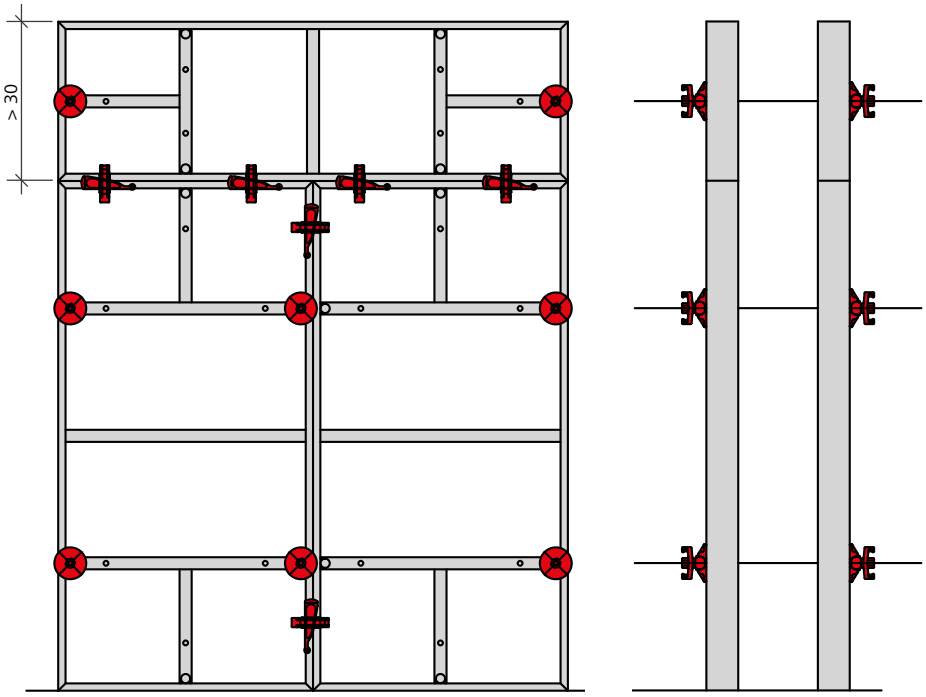


Fig. 37.1

→ For panel widths up to 30 cm the upper tie holes are only used in conjunction with the walkway bracket or the folding access platform (Fig. 37.2).

Horizontal height extension up to 30 cm

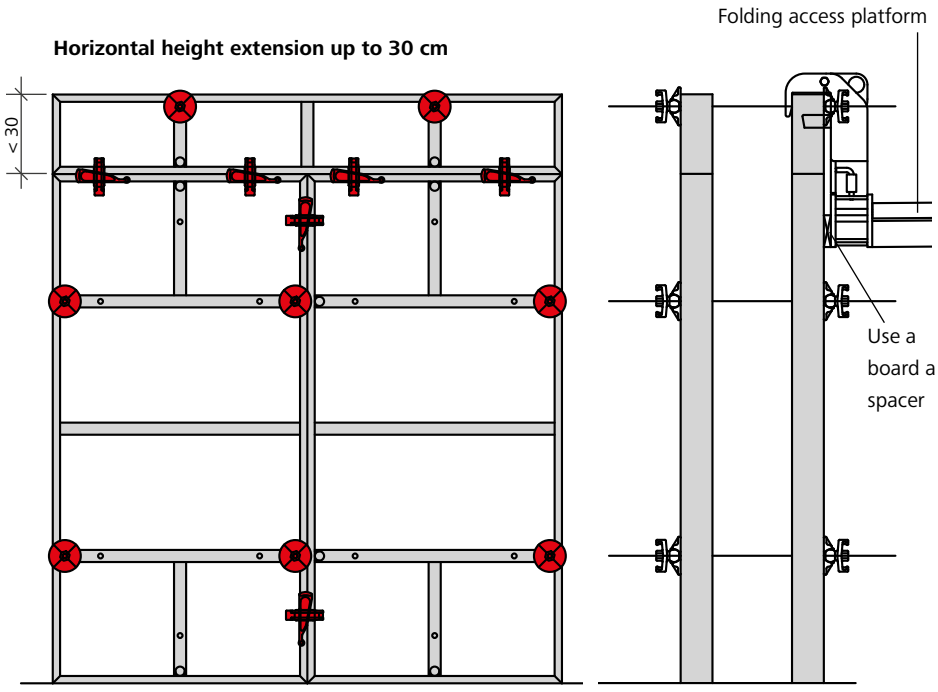


Fig. 37.2

Crane ganging

When transporting large panel units with a crane, make sure each crane hook is attached at a panel joint (Fig. 38.1). This prevents the crane hook slipping sideways.

Example: The transport unit depicted (6.00 m x 4.00 m) with eight EA panels 300/100 including accessories (two AS alignment rails 125 and 26 EA assembly locks) weighs 876 kg (Fig. 38.1).

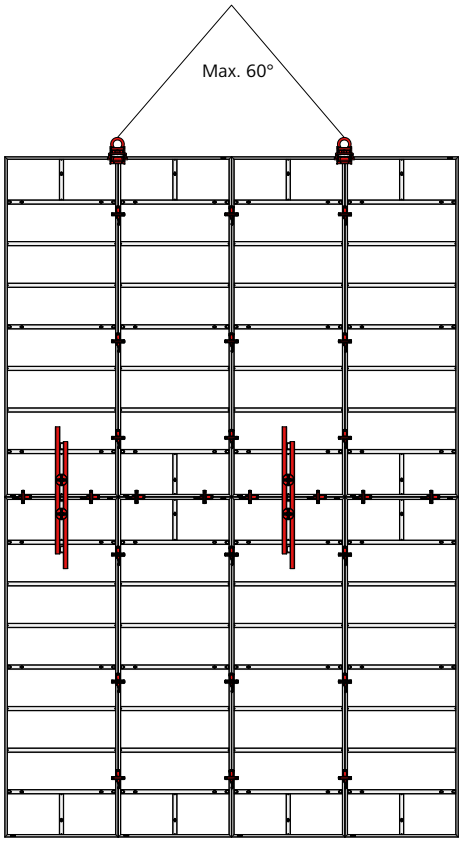


Fig. 38.1

Note that each transport unit always requires a minimum of two crane hooks. The total weight of each transport unit must not exceed 1200 kg when using two crane hooks (600 kg per crane hook).

Transport angle

The transport angles (Fig. 38.2) enable panel stacks to be stored in a space-saving manner without using supporting timber blocks. Even if the stack is not quite full, a 4-rope crane sling (never a 2-rope crane sling) can always be attached directly above the top panel. The transport angle allows 5 to 12 EcoAs panels to be moved at one time. The maximum load capacity is 10 kN per transport angle.

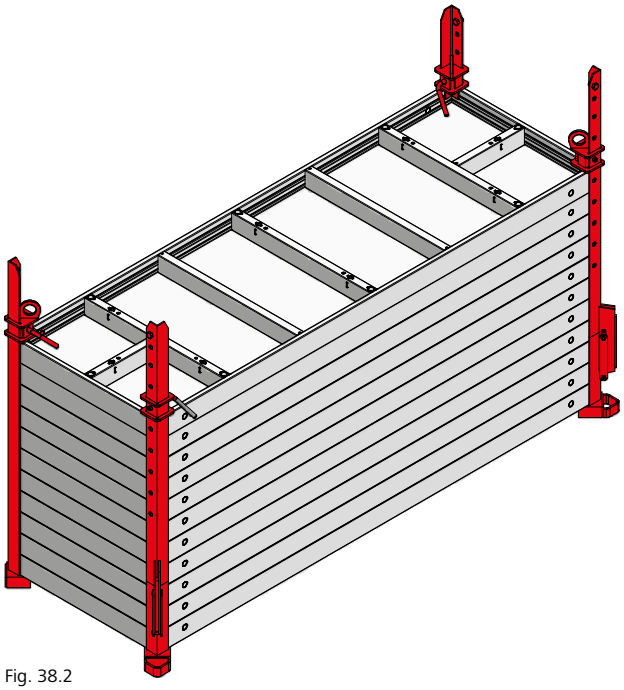


Fig. 38.2

Description	Ref. No.
Transport angle 10	**29-305-10**
Transport angle 10 rigid	**29-305-15**

Column formwork – With standard panels

When pouring foundations, two assembly locks are required for a foundation with a maximum side length of 0.90 m (Fig. 39.2) and a maximum height of 1.20 m (Fig. 39.1).

Columns with a maximum side length of 0.60 m (Fig. 39.4) and a maximum pouring height of 3.00 m can be formed using standard panels and outside corners.

The higher fresh-concrete pressure resulting from higher columns or from longer side lengths means that more assembly locks and additional alignment rails are required (Fig. 39.3 and Table 39.5).

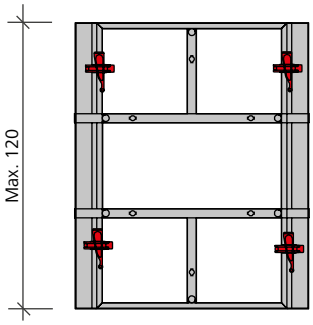


Fig. 39.1

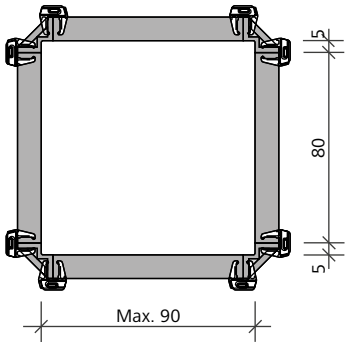


Fig. 39.2

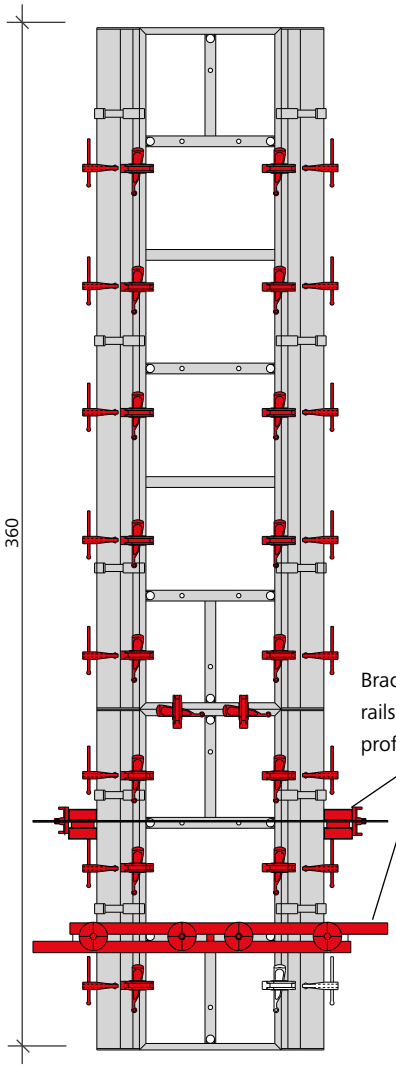


Fig. 39.3

EcoAs column formwork	Number of EcoAs assembly locks
h = 1.20 m	2
h = 1.60 m	3
h = 2.40 m	6
h = 3.00 m	8
h = 3.60 m	8 + 1 brace
h = 4.00 m	9 + 1 brace
h = 4.80 m	12 + 2 braces
h = 6.00 m	16 + 4 braces

Table 39.5

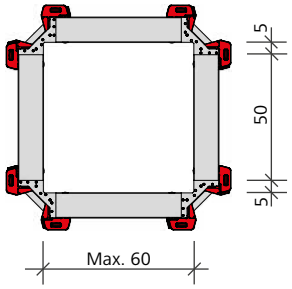


Fig. 39.4

Description	Ref. No.
EcoAs outside corner	
OC 300	**21-725-75**
OC 240	**21-725-85**
OC 160	**21-725-90**
OC 120	**21-725-95**

Column formwork / column panel

The column panels (Fig. 40.1) can be used to pour columns with a side length of up to 75 cm. The column panel is 90 cm wide and available in heights 350, 300 and 150 cm.

The column panel's perforated profile (Fig. 40.2) is used to precisely set column cross sections in increments of 5 cm up to a maximum cross section of 75 cm by 75 cm. The alkus facing is not perforated and thus results in a smooth concrete surface. The required tie holes need to be predrilled using a 25 mm diameter drill.

When pouring, do not exceed the admissible fresh-concrete pressure of 50 kN/m². Also observe DIN 18218 for fresh-concrete pressure and DIN 4235 for compacting concrete with a vibrator.

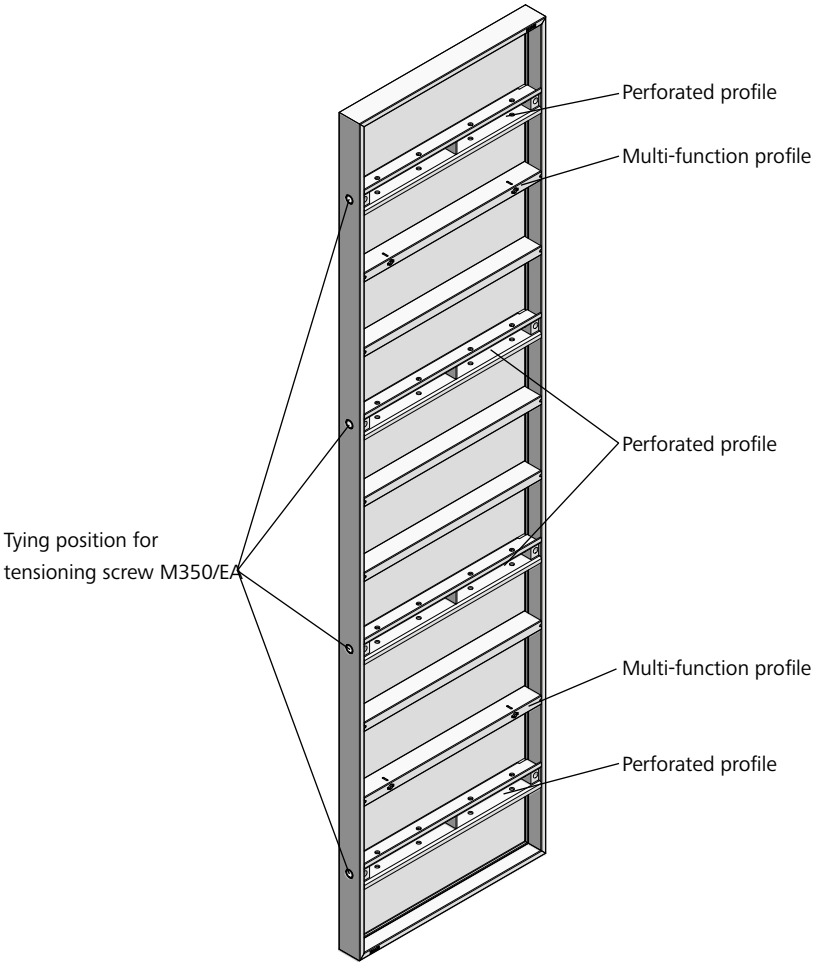


Fig. 40.1

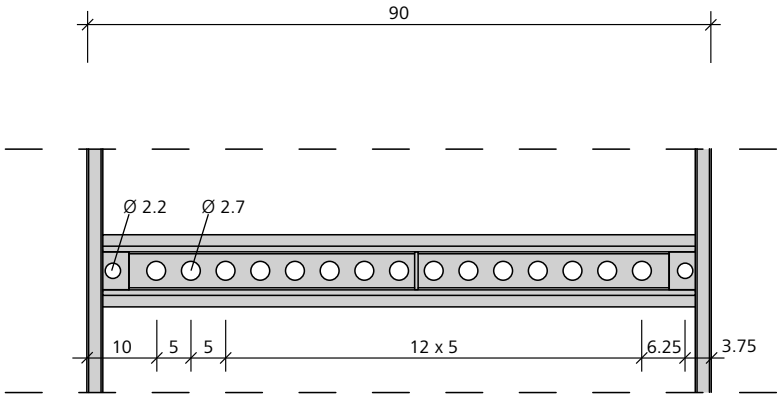


Fig. 40.2 Perforated profile

Description	Ref. No.
EcoAs AL 350/90 SE	**21-704-86**
EcoAs AL 300/90 SE	**21-704-91**
EcoAs AL 150/90 SE	**21-704-96**

Column formwork / column panel

The perforated profile is used to precisely set the rectangular (Fig. 41.1) or square (Fig. 41.2) column cross sections in increments of 5 cm up to a maximum cross section of 75 cm by 75 cm.

The column panels are connected with each other using tensioning screw M350/EA (Figures 41.3 and 41.4) and flange nuts or articulated flange nuts.

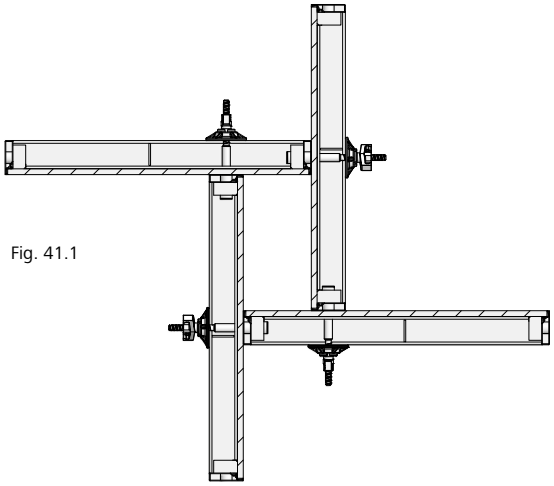


Fig. 41.1

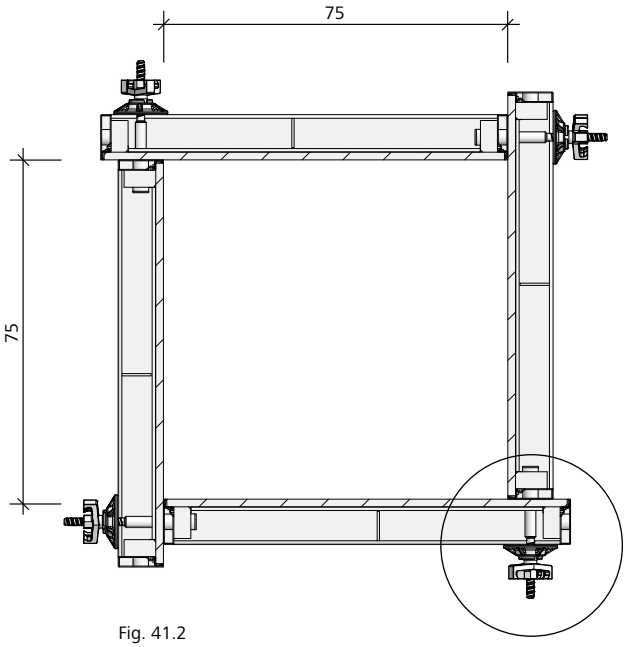


Fig. 41.2

Detail A

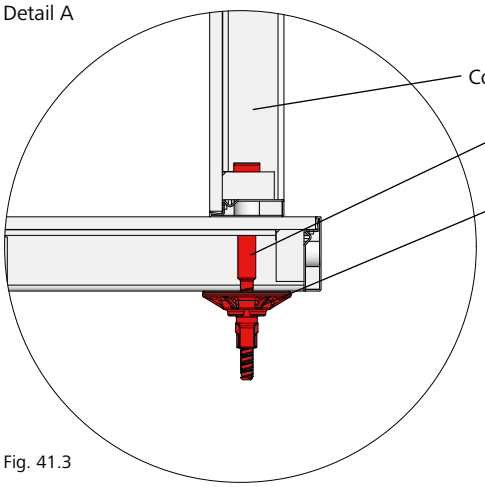


Fig. 41.3

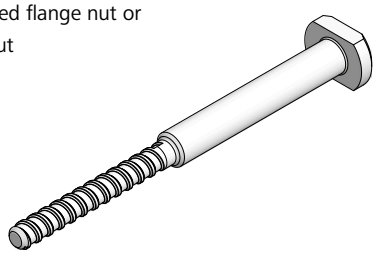


Fig. 41.4

Description	Ref. No.
Tensioning screw M350/EA	**29-402-98**
Articulated flange nut 15/120	**29-900-10**
Flange nut 100	**29-900-20**

Column formwork / column panel

The column panels are assembled when lying horizontally.

Assembly

1. Place the first column panel on a support and place the second panel upright against it.
2. Connect the two panels with the tensioning screw M350/EA and articulated flange nuts or flange nuts. Always place tensioning screws in every tying position (Fig. 42.1).
3. Attach a total of three heavy-duty props to suit the formwork height (Figures 42.2 and 42.3 and page EA-17). Secure each heavy-duty prop with two flange screws 18.
4. Set the panel unit upright using two EA/AF crane hooks (see page EA-21).
5. Repeat steps 1 and 2.
6. Set the second panel unit upright using two EA/AF crane hooks and bolt it to the first panel unit using tensioning screws M350/EA (Fig. 42.3).

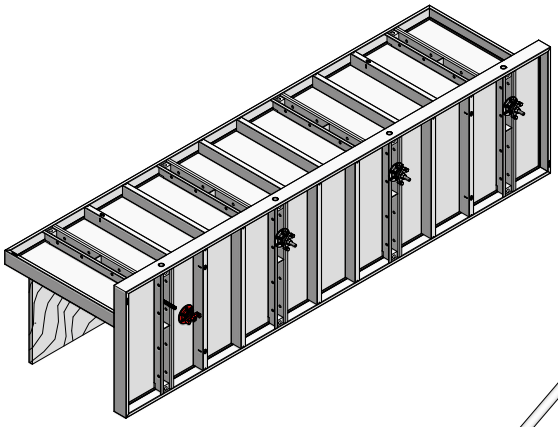


Fig. 42.1

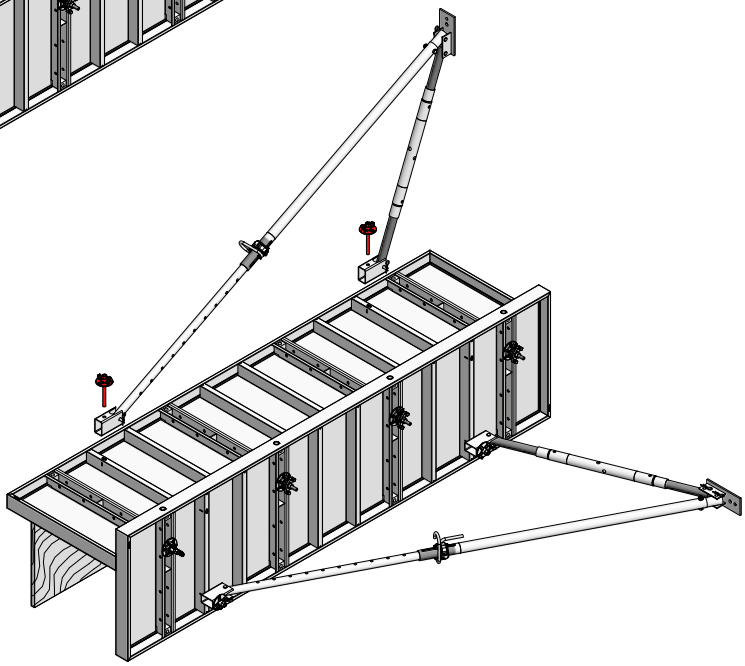


Fig. 42.2

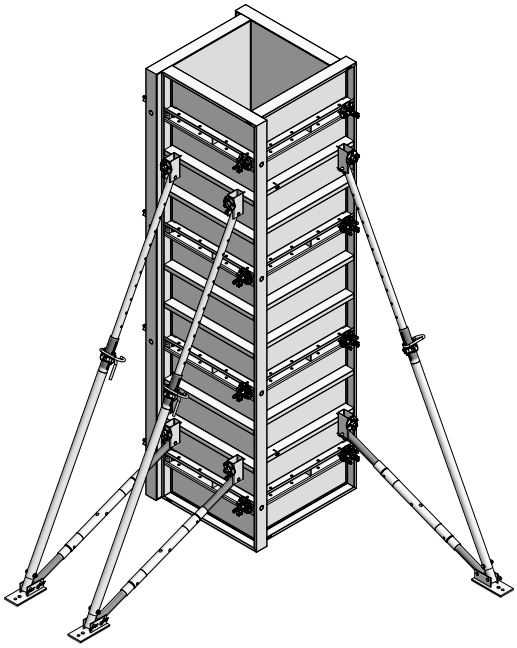


Fig. 42.3

Multi-purpose panel

The multi-purpose panel is used to form pilasters, stop ends, connections to existing walls, 90° corners and wall offsets (Figures 43.1 to 43.3).

Every multi-purpose panel possesses a perforated profile (see EA-44) at the height of the tie hole that enables tie rods, stop end fixtures and flange screws to be installed.

Attention
The stop end fixture must not be tied through the outermost tie hole as it has to fully contact the panel. It is to be used with flange nut 100 (Fig. 43.3).

When using multi-purpose panels with a hinged corner the following applies:
If the length X is less than L/2, no alignment rails are required on the outside (Fig. 43.4).

The perforated profile with a hole spacing of 2.5 cm (EA-44.4) enables the multi-purpose panel be used for a wide variety of applications. For wall connections and connection to existing walls it is thus possible to tie very closely to the existing wall and thus ensure that the connection area is very tight (hardly any leakage at the seam) (Fig. 43.2).

MPP = multi-purpose panel

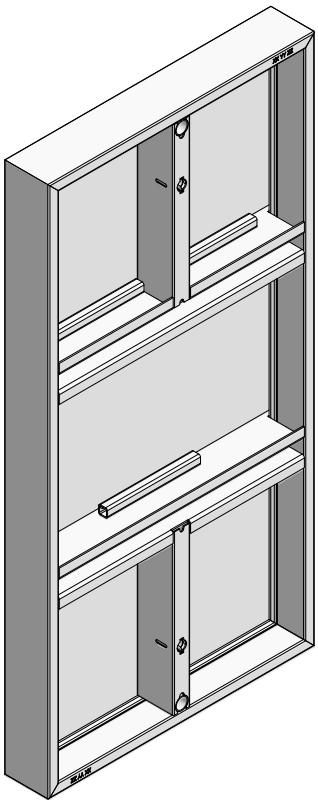


Fig. 43.1

Connection to an existing wall

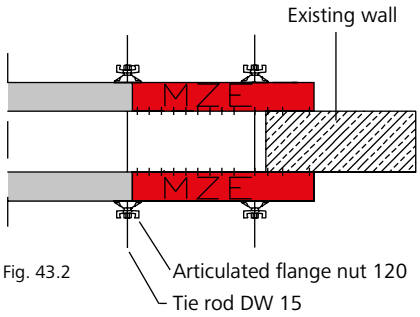


Fig. 43.2

Pilaster

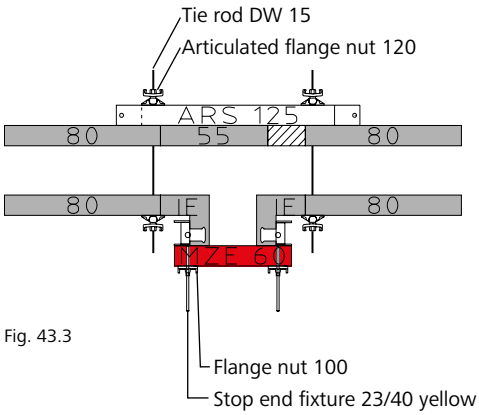


Fig. 43.3

Obtuse-angled corner

If the height of the wall to be formed is less than 1.20 m, no additional measures are required.
If the height of the wall to be formed is greater than 1.20 m, the formwork must be secured with tensioning chains to prevent lateral shifting to the outside.

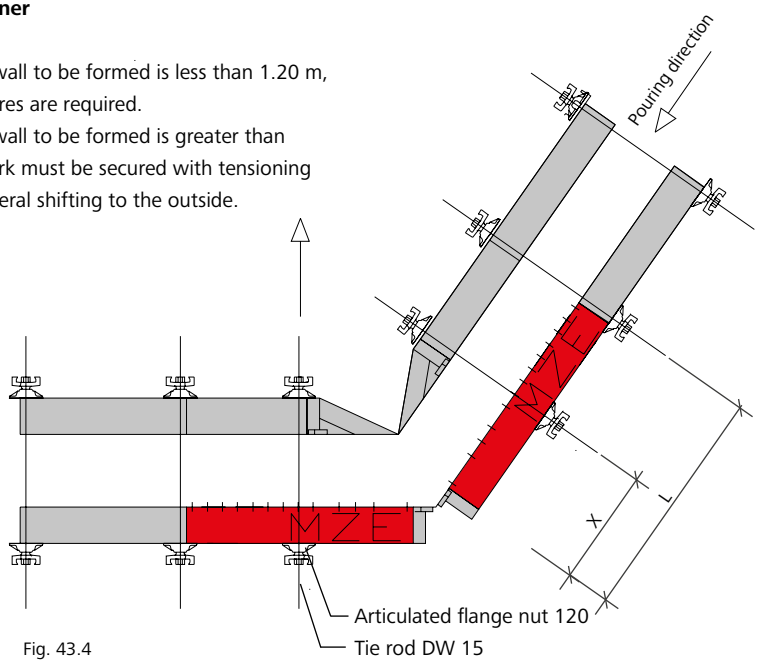


Fig. 43.4

Description	Ref. No.
Multi-purpose panel	
EcoAs AL-MPP 120/60	**21-720-51**
Stop end fixture 23/40 yellow	**29-402-85**

Corner solutions with multi-purpose panels

Figures 44.1 and 44.2 show corner solutions with multi-purpose panels for wall thicknesses of 25 cm, 30 cm and 35 cm. The perforated profile of the panel is punched every 2.5 cm (Fig. 44.4). This allows precise forming of all typical dimensions found involved in stop ends, pilasters, 90° angles and wall offsets.

Attention

The stop end fixture must not be tied through the outermost tie hole as it has to fully contact the panel. It is to be used with the flange nut 100 (Figures 44.3 and 44.4).

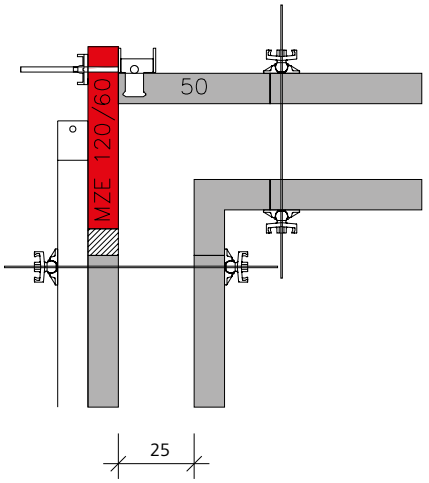


Fig. 44.1

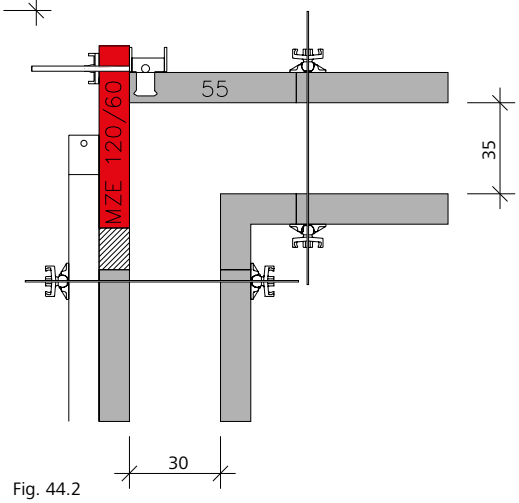


Fig. 44.2

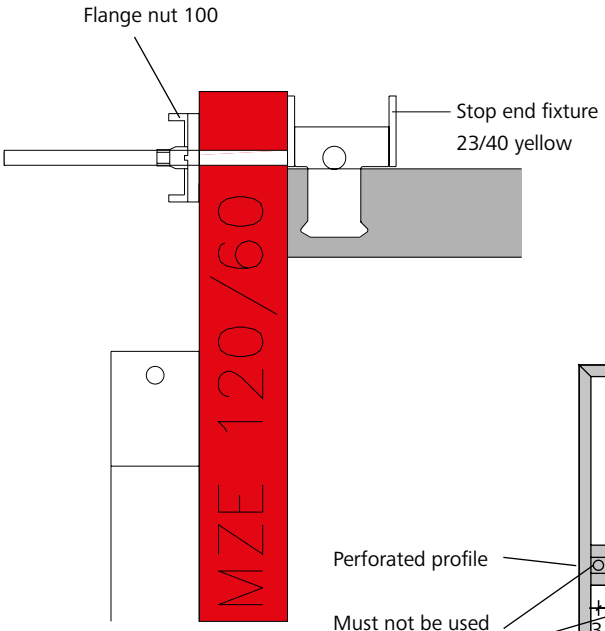


Fig. 44.3

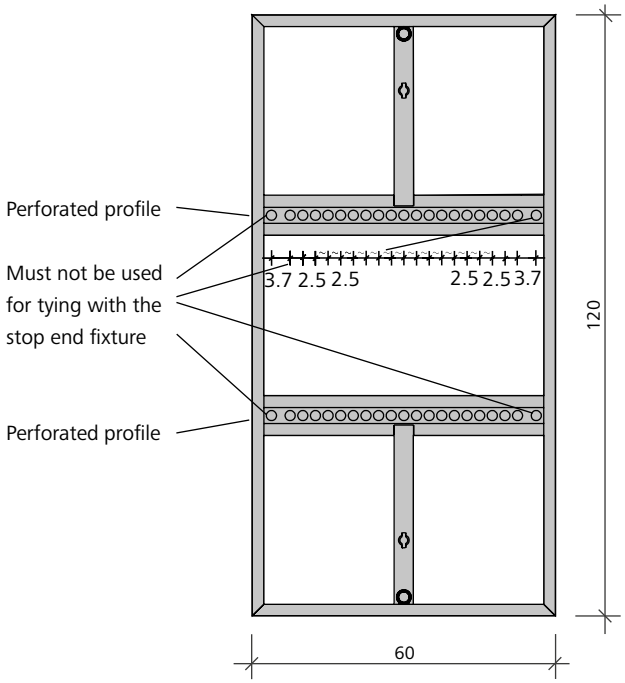


Fig. 44.4

Description	Ref. No.
Stop end fixture 23/40 yellow	**29-402-85**
Flange nut 100	**29-900-20**

Transport guidelines

Make sure that all material is secured properly.

Guidelines

Use one ratchet strap per metre of cargo. This means that at least 14 ratchet straps are required for a fully loaded truck with a trailer length of 13.60 m.

Two or three straps are required to transport EA panels. Two straps are sufficient to secure the EA corners due to their low weight (Fig. 45.1).

When moving several panels, make sure the panel stack is secured are secured against sliding. MEVA secures the EcoAs panels with the safety bolt AS/ST black (Fig. 45.2).

These safety devices should also be used when returning the material from building site.

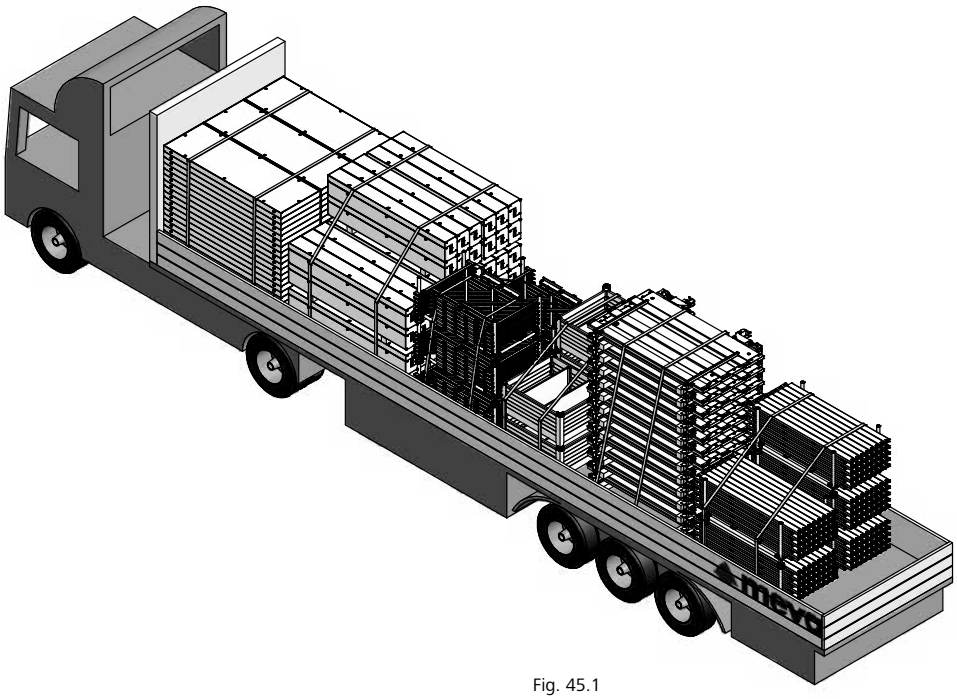


Fig. 45.1

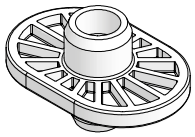


Fig. 45.2

Description	Ref. No.
Safety bolt AS/ST black	40-131-10

Services

Cleaning
The formwork is cleaned professionally using industrial equipment upon return.

Reconditioning
Reconditioning is carried out as follows: The frames are checked and, if necessary, repaired, 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.