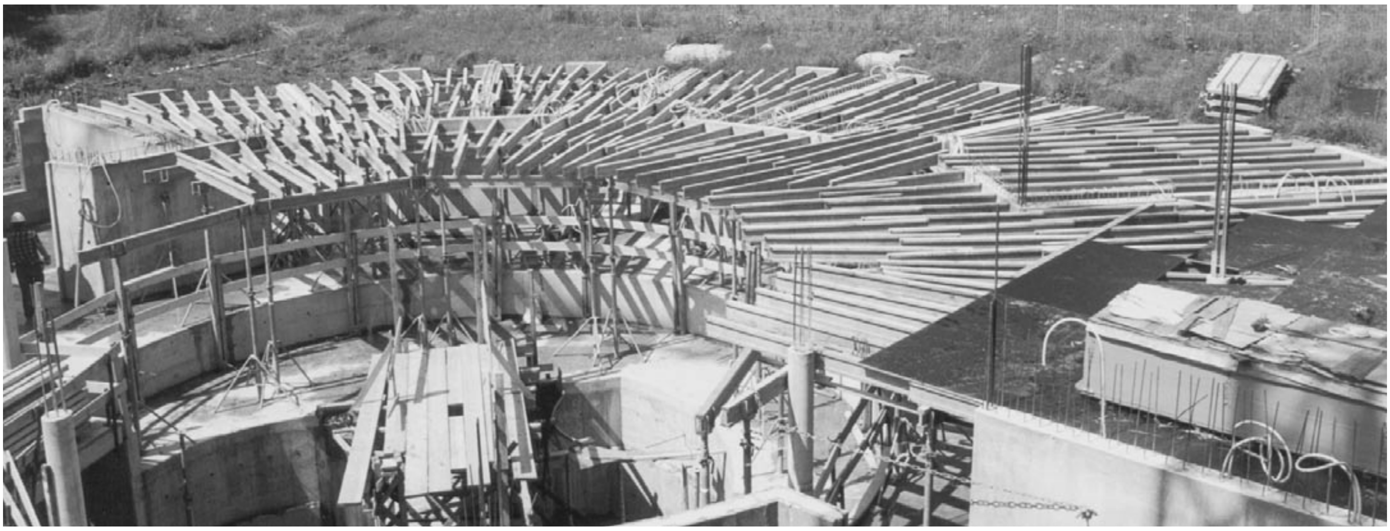

MevaFlex

Assembly and Operating Instructions

MevaFlex is a slab formwork which is not restricted by modular dimensions and therefore doesn't dictate to any rules of a modular system. Due to the versatility of the MevaFlex system, all geometric constructions can be realized easily and without difficulties.

Maximum variability and adaptability makes the MevaFlex profitable. You are working demand-oriented and are saving material, efforts and costs.

Solidity of the construction, stability and robustness, as well as versatility and easy assembly characterise the MevaFlex system.

The MevaFlex girder-slab formwork also impresses by its favourable material costs and is therefore an economical solution wherever the wage level is low.

The assembly and disassembly of the MevaFlex slab formwork may only be made by persons with an adequate knowledge for this. In this Instruction Manual the standard assembly and disassembly is described.

Before use, formwork parts must be checked visually on damages. Only faultless material may be used. The assembly of the MevaFlex slab formwork must be made in the given order of the following stages.

The formwork may only be assembled on sufficiently stable ground. If the ground is not strong enough to bear the load, load-spreading measures must be implemented.

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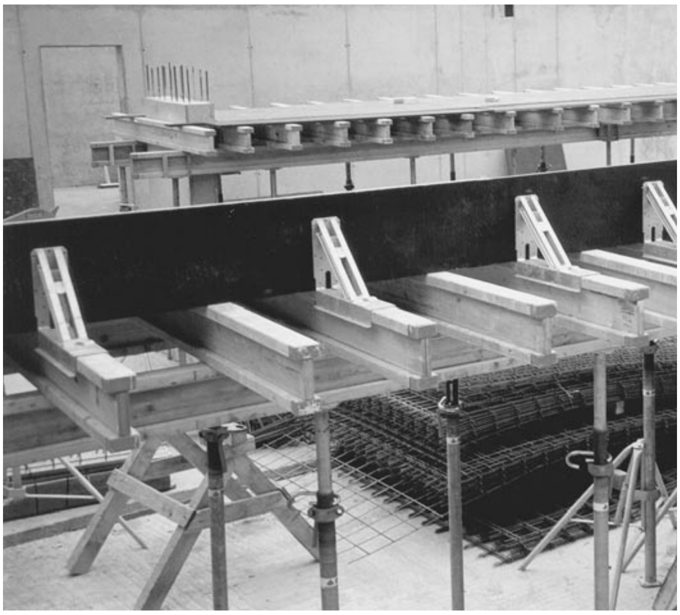

Please note:

This technical manual contains information, instructions and hints how to use the MevaFlex formwork and its transport devices.

Generally only faultless material may be used. Damaged parts have to be sorted out and only original MEVA spare parts for replacement may be applied. When using our products, the federal, state and local codes and regulations must be observed.

What is shown on the follwing pages are assembly sketches for demonstration purposes. In order to represent the details in the sketches more clearly, the security aspects have not always been taken into full consideration.

Most examples shown are standard ones, since they occur in practice most frequently. In the event of more complicated or special cases not dealt with in this manual, please contact the MEVA experts for advice. If necessary, the present Technical Instruction Manual can be used to make the additionally required on-site assembly instruction.

Contents

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The main parts of the MevaFlex system

The MevaFlex is an economical solution due to the sturdy and long-living design of its components.

Because of the modular design principle of the MevaFlex slab formwork, slabs of every length, width and thickness can be assembled.

Fig. 4.1
All individual parts are easy to combine. They are solidly manufactured and have a long working life.

Main and cross girder are of the same construction type and are therefore simplifying the planning of material.

Fig. 4.2
The forked prop head 20 must be attached to the push-pull prop and secured by means of the pin 14/90.

Fig. 4.3
The tripod helps to erect the push-pull props. By means of the G-hook and adjusting nut the push-pull prop will be adjusted provisionally.

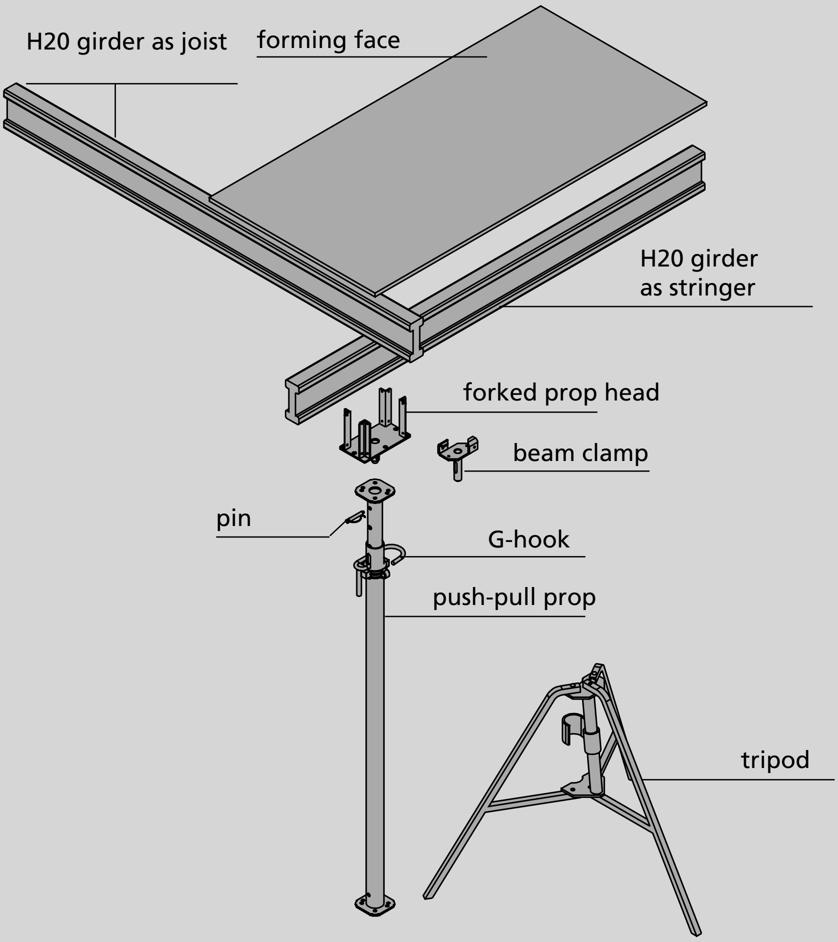

fig. 4.1

fig. 4.2

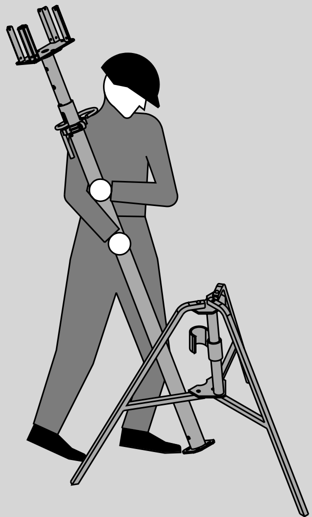

fig 4.3

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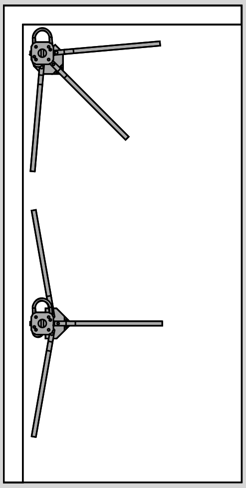

fig. 5.1

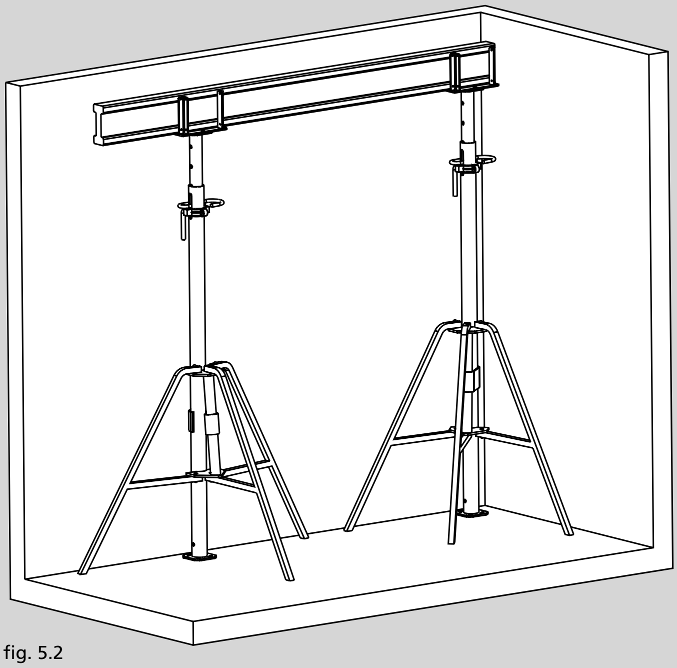

fig. 5.2

Fig. 5.1
The tripod can be erected in the edge and at the wall, due to its swivelling legs.

Fig. 5.2
The stringer will be inserted into the forked head 20. The forked head can support single girders as well as double girders (overlapping).

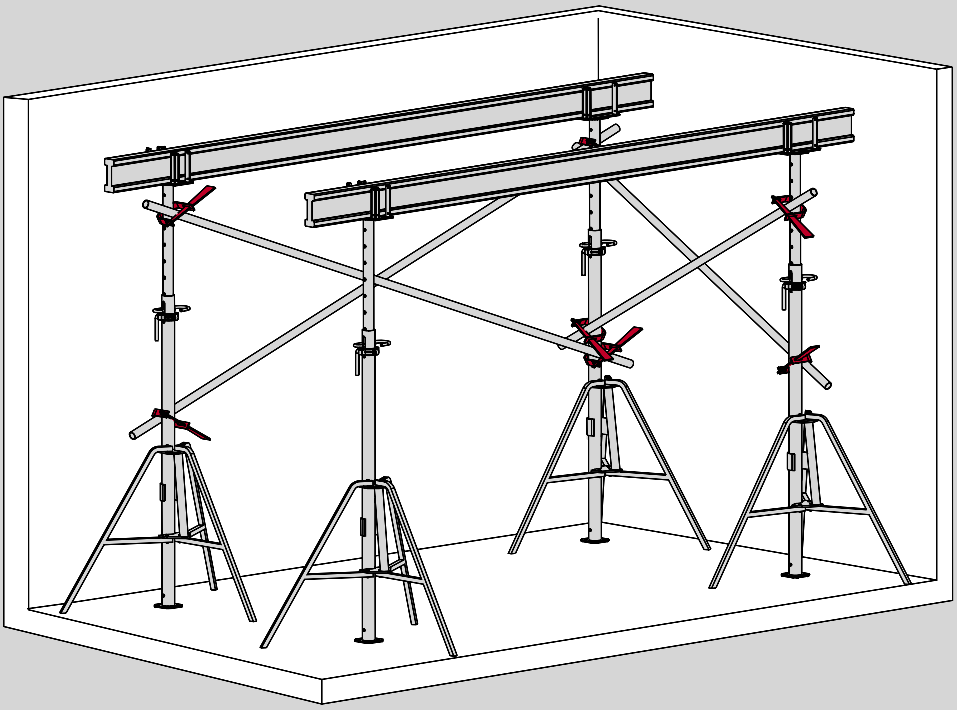

fig. 5.3

Fig. 5.3
If the forming height exceeds 3.00 m, a diagonal bracing must be mounted by means of the cross-bracing clamp, in order to secure stability.
In the case of using MEP props, the bracing can be made by application of the correspondent MEP frames (without illustration).

Description	Ref.-No.
MD prop 300/20 (175-300)	29-907-35
MD prop 400/20 (225-400)	29-907-40
Forked prop head H20	29-206-40
Beam clamp H20	29-907-00
Pin 14/90	29-909-94
Cross-bracing clamp	29-907-10

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Assembly

Fig. 6.1
The props with forked prop head must be levelled and then the stringers inserted from below into the forked prop heads by means of the forked assembly stick.
The forked prop head provides a stable support for one or two stringers.

Tips for the field:
Please turn the props beneath the edge girders in a way that the G-hooks are parallel to the wall.

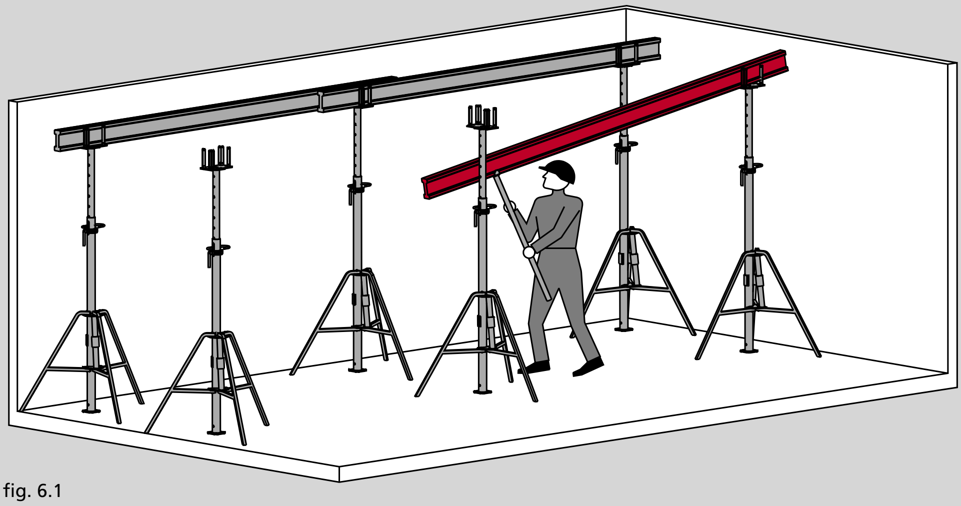

fig. 6.1

Fig 6.2
Also the joists must be applied from below.
Please attend to place a girder or a double girder below every intended forming face joint.

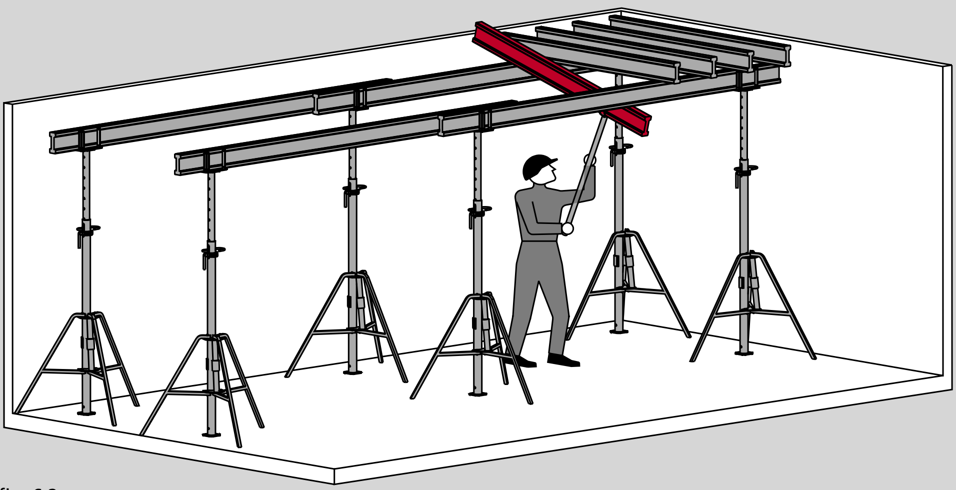

fig. 6.2

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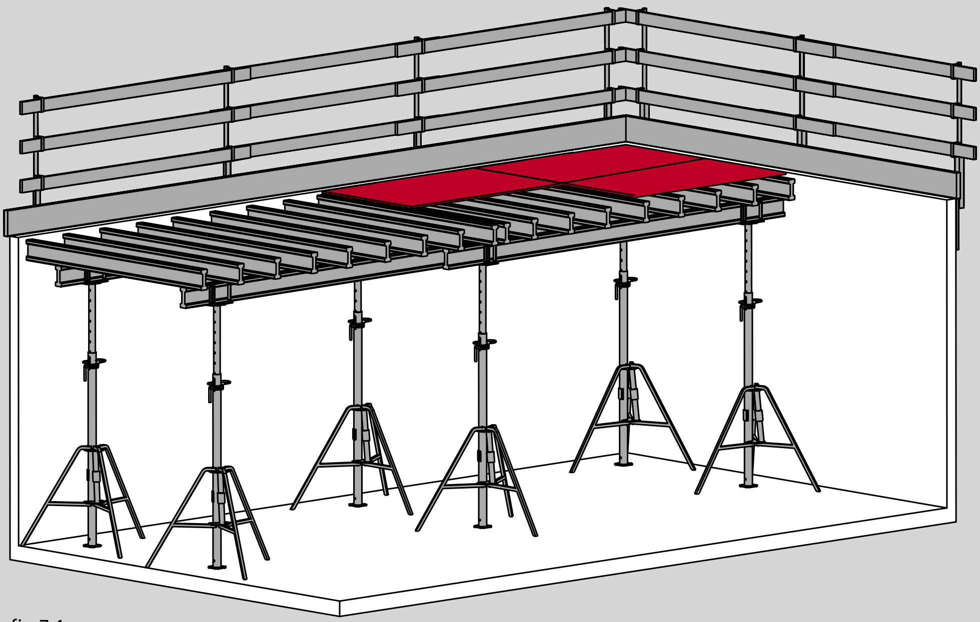

fig 7.1

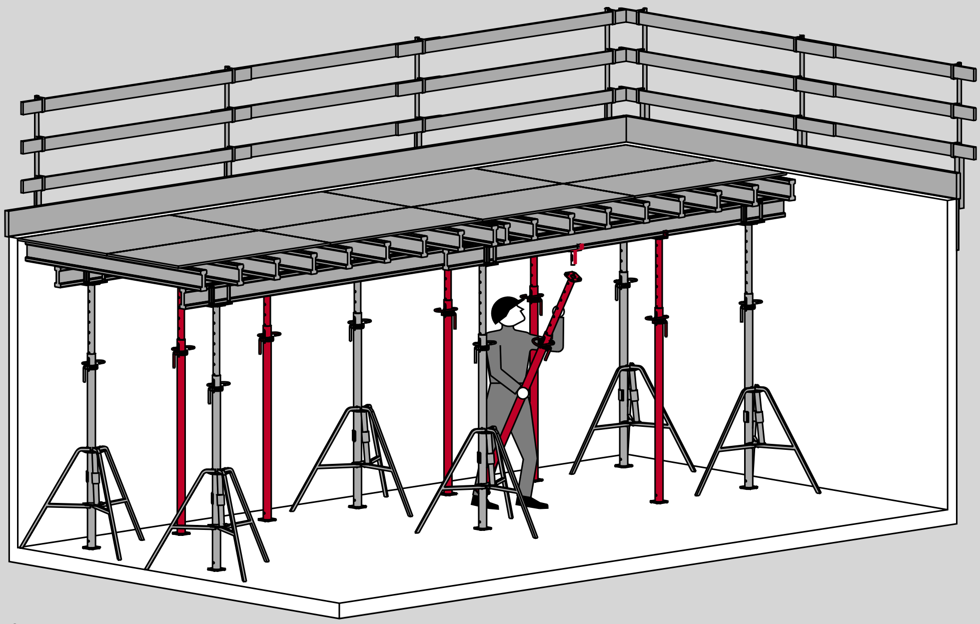

fig. 7.2

Fig. 7.1
Before entering the slab formwork, the threepart side railing must be attached.
Please also observe any relevant safety regulations and/or codes of professional associations of your country.
The forming faces will be applied to the cross girders and fixed by means of nails, in order to avoid the tilting of the cross girders.
Before placing additional loads, e.g. H20 girders, forming faces, reinforcement, etc. on the slab form-work, the necessary intermediate props must be erected, see table, page 15.

Fig. 7.2
In order to facilitate the adjustment of the intermediate props to the H20 girders, the beam clamp 20 must be attached to the prop by means of the pin and is located in position with a turn.
The formwork must be levelled at the bottom side of the girders and the forming face surface must be sprayed with form release agent MevaTrenn.
Important:
It may be slippery when entering new or sprayed forming faces.

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Stripping

Fig. 8.1
When stripping, first all intermediate props between the girder ends must be taken out and laid into the mobile piling racks. Referring to the stripping times, please adhere to the codes of the professional associations in your country.
The remaining props below the girder ends can now be lowered for approx. 5 cm.

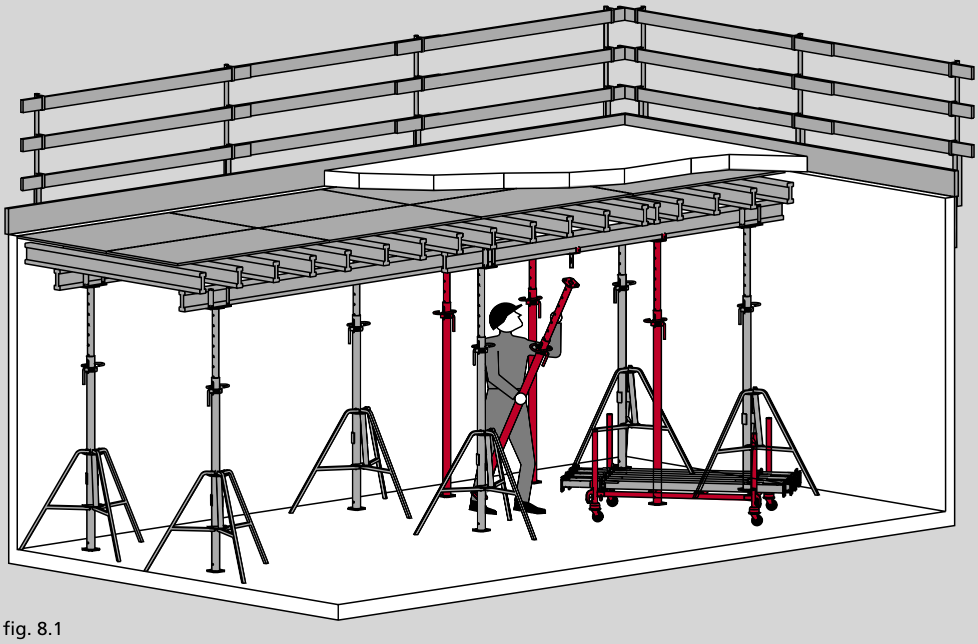

fig. 8.1

Fig. 8.2
Afterwards the joists between the forming face joints will be tilted, pulled out and laid into the mobile piling racks, while the girders below the joints are still remaining.

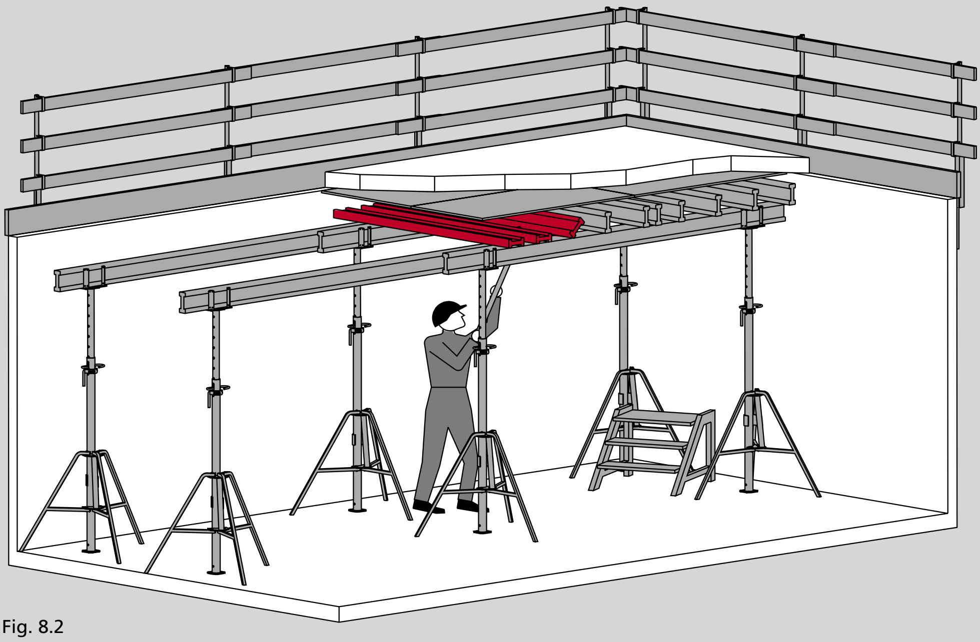

Fig. 8.2

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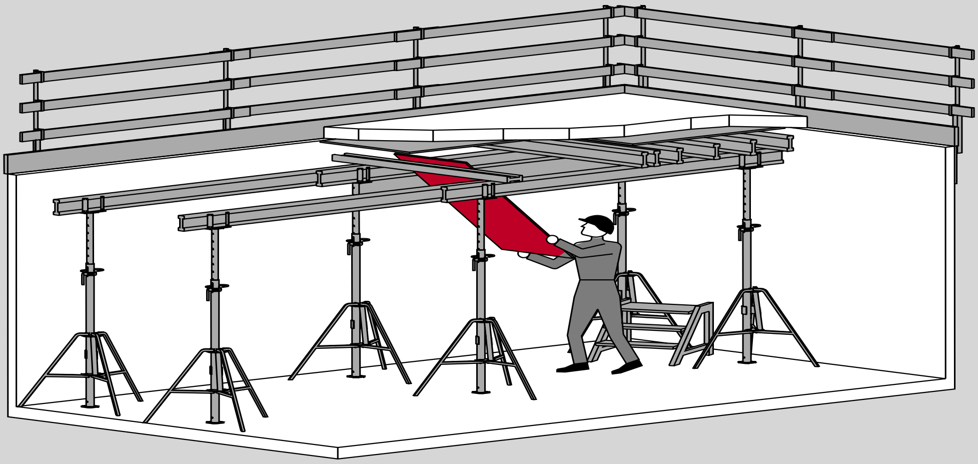

Fig. 9.1
After the joists are pulled out, the forming faces will be dismantled and piled up.
Before moving the props, the forked prop heads or beam clamps must be secured against falling out by means of pins 14/90.

Abb 9.1

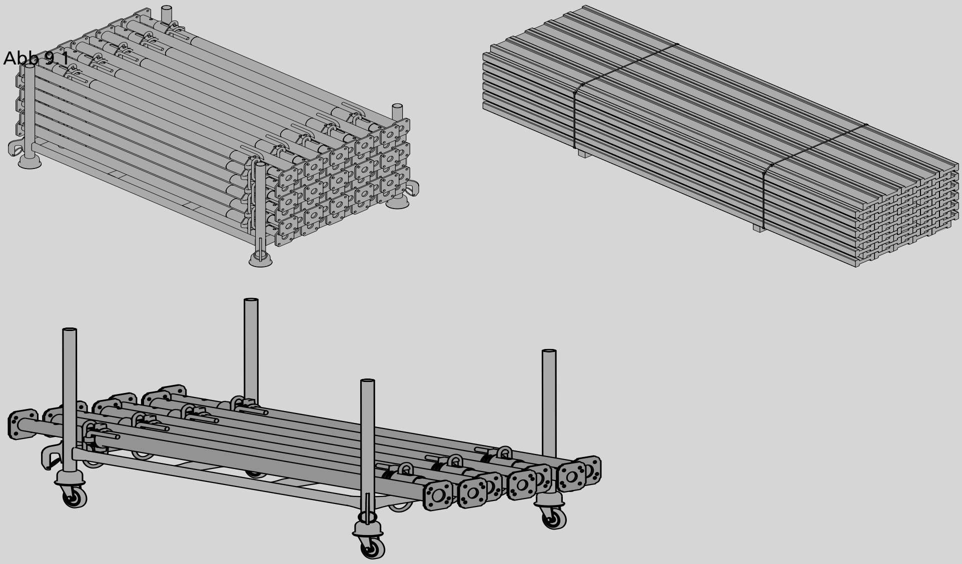

fig. 9.2

Fig. 9.2
Lengthwise sorted props, joists and stringers will be laid in piling racks or in mobile piling racks.
Then the piles or piling racks will be transported to the crane area.

Description	Ref.-No.
Piling rack	27-000-20
Swivel-type castor 100	29-305-95

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Transport hints

For transport on trucks MEVA applies square timbers of 7 x 7 cm, in order to assure the loading or unloading by means of fork lift trucks or lifting devices (crane, excavator or similar).

In order to unload the trucks on site, appropriate transport devices (crane slings, etc.) must be provided.

H20 girders are packed in piles of 60 pieces tied up with two steel strappings. On the truck, three piles can be placed upon each other and two piles side by side.

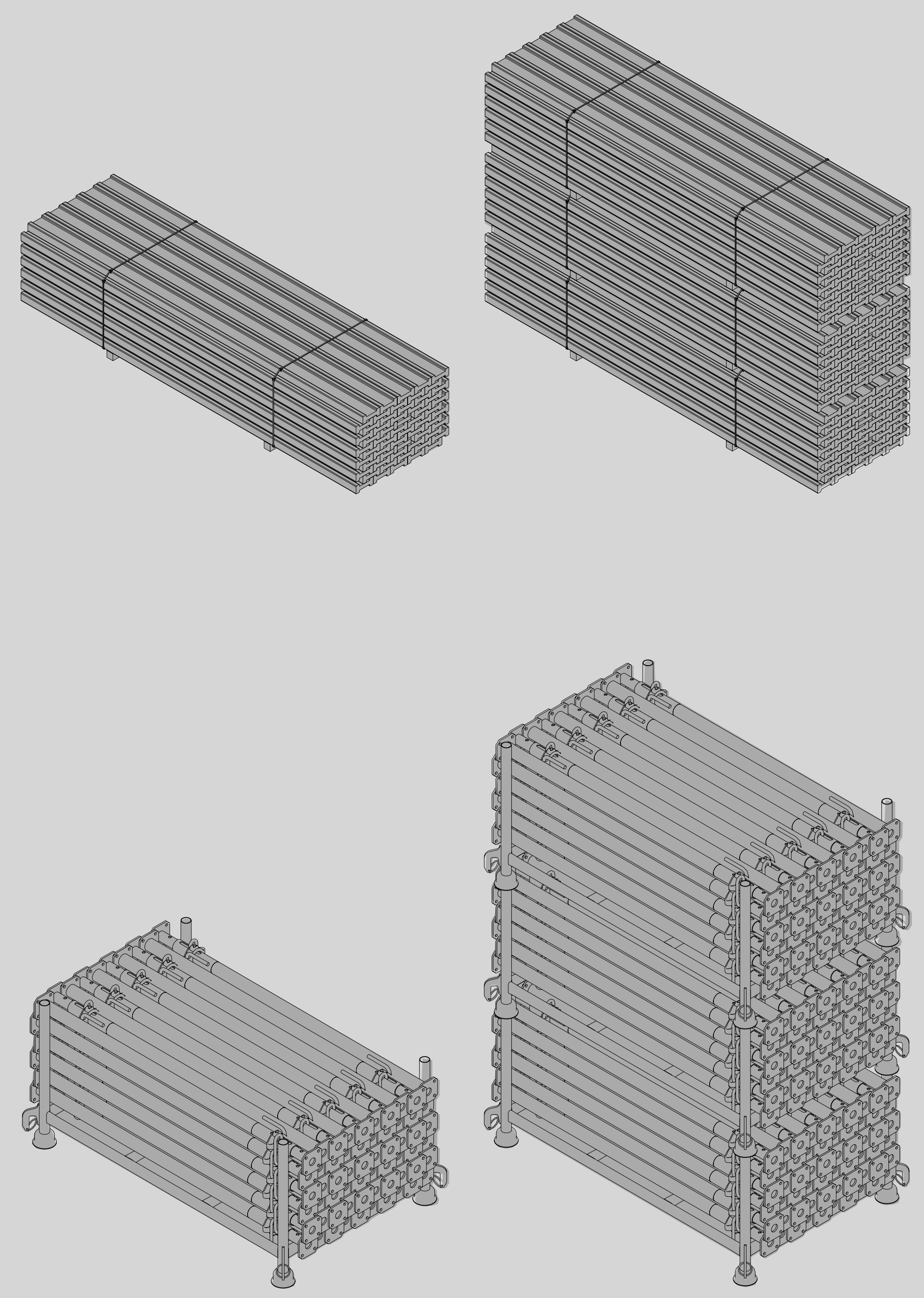
Weights per pile of H20 girders:

l = 5.90 m	1770 kg
l = 4.90 m	1470 kg
l = 4.50 m	1358 kg
l = 3.90 m	1170 kg
l = 3.30 m	990 kg
l = 2.90 m	870 kg
l = 2.45 m	738 kg

Props are transported in piling racks. Depending on the weight, two or three piling racks can be placed upon each other and two racks side by side on the truck.

Weights per pile of props (including piling rack weight of 28 kg):

60 MD 300	910 kg
40 MD 400	1016 kg
60 ME 250	976 kg
40 ME 350	1012 kg
30 MEP 300	616 kg
30 MEP 450	853 kg



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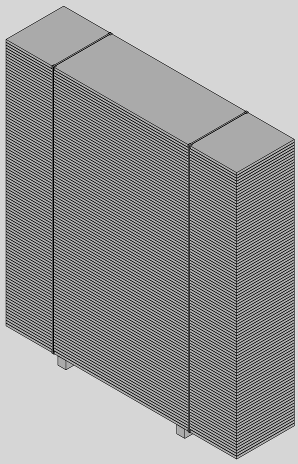
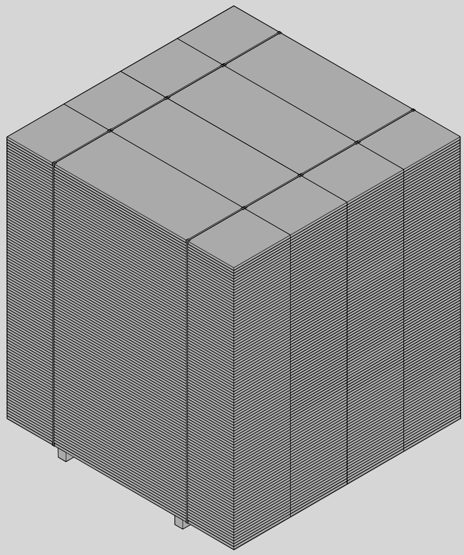
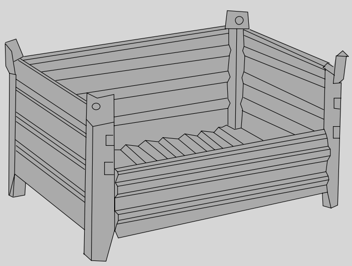
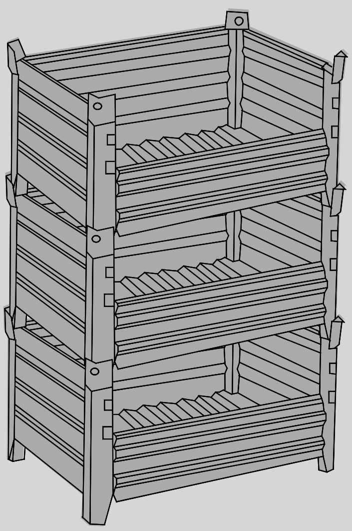
Transport hints









The forming faces are sorted according to size and transported in piles of 100 pieces. Four piles can be placed side by side on the truck.

Weights per pile of forming faces:
200 x 50 cm   1050 kg
250 x 50 cm   1300 kg.

For safety reasons it is not allowed to place square timbers or similar between the piles.

During transport and in order to avoid a shift of cargo, the piles must be positioned close to each other. Before unloading the truck on site, it is recommendable to shift apart the piles by means of long square timbers, in order to ease the lifting of the several piles from the truck.

Storage boxes are filled with accessories, such as forked prop heads, beam clamps, tripods, etc. The maximum load bearing capacity is 2000 kg per each storage box. Depending on the weight, two or three boxes can be piled upon each other.

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Binding girder solutions

Fig. 12.1
The trestle for beams 40/30 can be applied to form binding girders or stop ends of free slab edges.

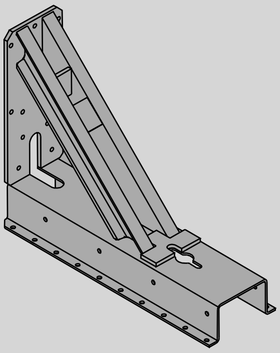

fig.12.1

Fig.12.2
Use to form stop ends.

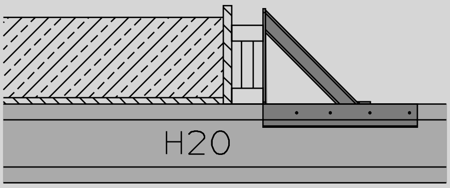

fig.12.2

Fig.12.3
Use to form binding girders

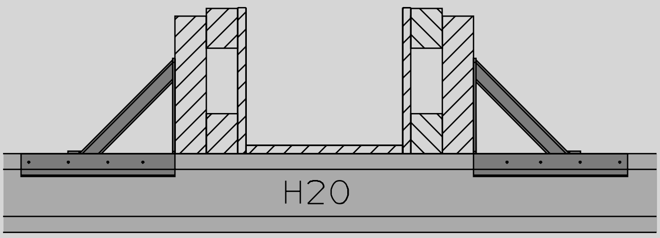

fig.12.3

Description	Ref.-No.
Trestle for beams 40/30	29-500-10

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Fig.13.1
Trestle for beams 40/30 nailed with 4 nails Ø 3.1 x 80 mm on a H20 girder with longitudinal support of the forming face.

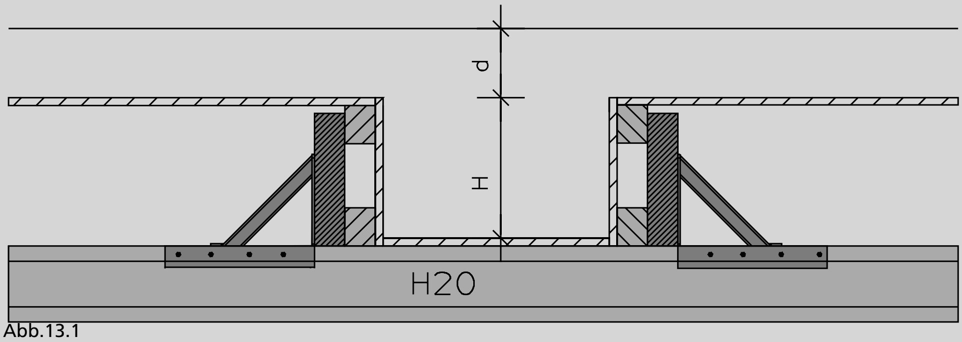

Abb.13.1

Distances between the nailed trestles for beams 40/30

beam height H [cm]	without slab [cm]	slab d=20 cm [cm]	slab d=25 cm [cm]	slab d=30 cm [cm]	slab d=35 cm [cm]	slab d=40 cm [cm]
20	250	250	210	180	165	150
25	250	180	160	140	125	110
30	250	140	120	110	100	90
35	160	110	100	90	80	70
40	105	90	80	70	65	60
50	70	65	60	55	50	45

Basis for calculation: Module for elasticity E ≥ 6000 N/mm² (humid) / forming face = 21 mm

Description	Ref.-No.
Trestle- for beams 40/30	.29-500-10

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Binding girder solutions

Fig. 14.1
Attachment of trestle for beams 40/30 with height extension using wedge clamp to the H20 girder.

Trestle for beams 40/30 with forming face lying directly on the H20 beams.

The height extension serves to extend the trestle for beams 40/30. Depending on the height of the binding girder the height extension has to be slipped into the trestle for beams 40/30 and attached with the integrated hammer head screw.

The beam support must be attached to the height extension by means of the integrated hammer head screw and serves as support for a H20 girder.

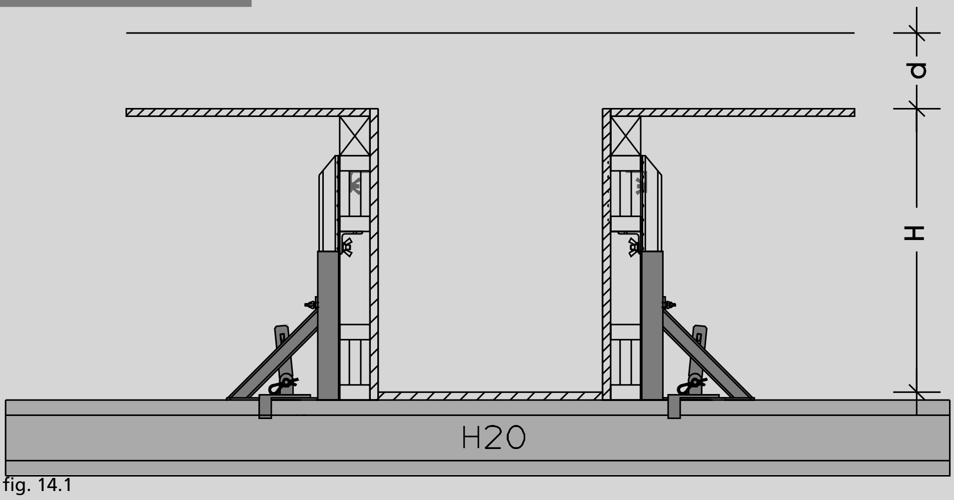

fig. 14.1

Distances between trestle for beams 40/30 using wedge clamp H20

beam height H [cm]	without slab [cm]	slab d=20 cm [cm]	slab d=25 cm [cm]	slab d=30 cm [cm]	slab d=35 cm [cm]	slab d=40 cm [cm]
20	250	250	250	250	220	200
25	250	250	210	190	170	150
30	250	190	170	150	130	120
35	250	150	135	120	110	100
40	200	125	110	100	90	80
50	160	90	80	70	65	60
60	110	65	60	55	50	40
70	60	40	–	–	–	–
75	–	–	–	–	–	–

Basis for calculation: Module of elasticity E ≥ 6000 N/mm² (humid) / forming face = 21 cm

Description	Ref.-No.
Trestlefor beams 40/30	29-500-10
Wedge clamp H20	29-500-45
Height extension	29-500-40
Beam support	29-500-25

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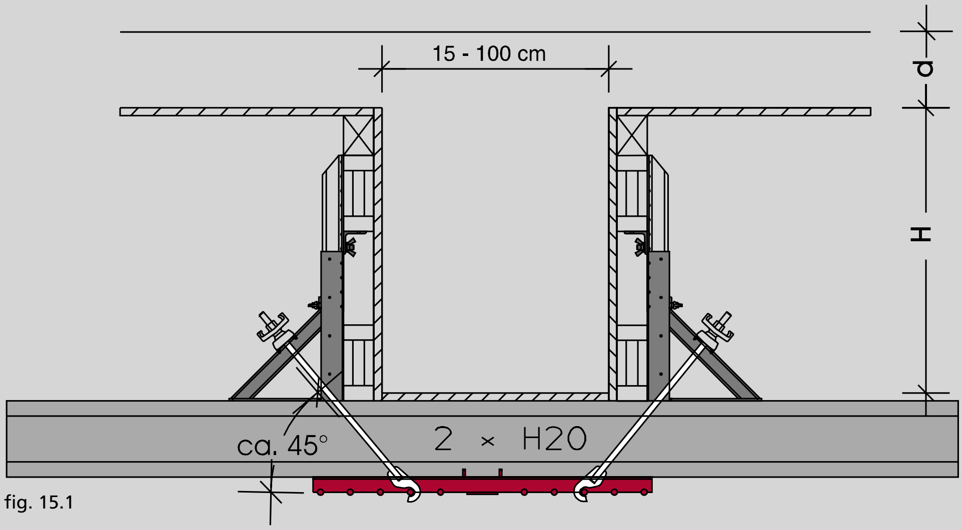

fig. 15.1

Fig.15.1
Attachment of the trestle for beams 40/30 using retaining rail and tensioning device on two H20 beams.
Trestle for beams 40/30 with forming face lying directly on the H20 girders.
The retaining rail serves to attach the trestles for beams and must be mounted, together with the tensioning device, below the joists (2 x H20).
The tensioning device serves to economize on trestles for beams. For a smoothly adjustable and safe connection between the trestle for beams 40/30 and the retaining rail 89.

Distances between trestles for beams 40/30 using tensioning device and retaining rail on two H20 beams

beam height H [cm]	without slab [cm]	slab d=20 cm [cm]	slab d=25 cm [cm]	slab d=30 cm [cm]	slab d=35 cm [cm]	slab d=40 cm [cm]
20	–	–	–	–	–	–
25	–	–	–	–	–	–
30	–	–	–	–	–	–
35	250	200	170	165	160	155
40	250	180	160	155	150	140
50	200	160	145	140	135	125
60	170	150	120	125	110	95
70	135	135	100	105	95	85
75	115	100	90	85	75	60

Basis for calculation: Module of elasticity E ≥ 6000 N/mm² (humid) / forming face = 21 cm

Description	Ref.-No.
Trestle- for beams 40/30	29-500-10
Beam support	29-500-25
Height extension	29-500-40
Retaining rail	29-500-20
Tensioning device	29-500-35

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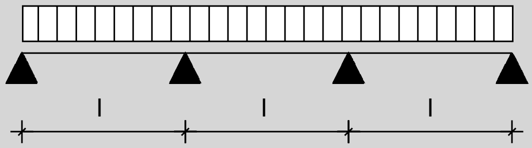
Measurement diagram

Measurement diagram of the 21 mm triple laminated forming face

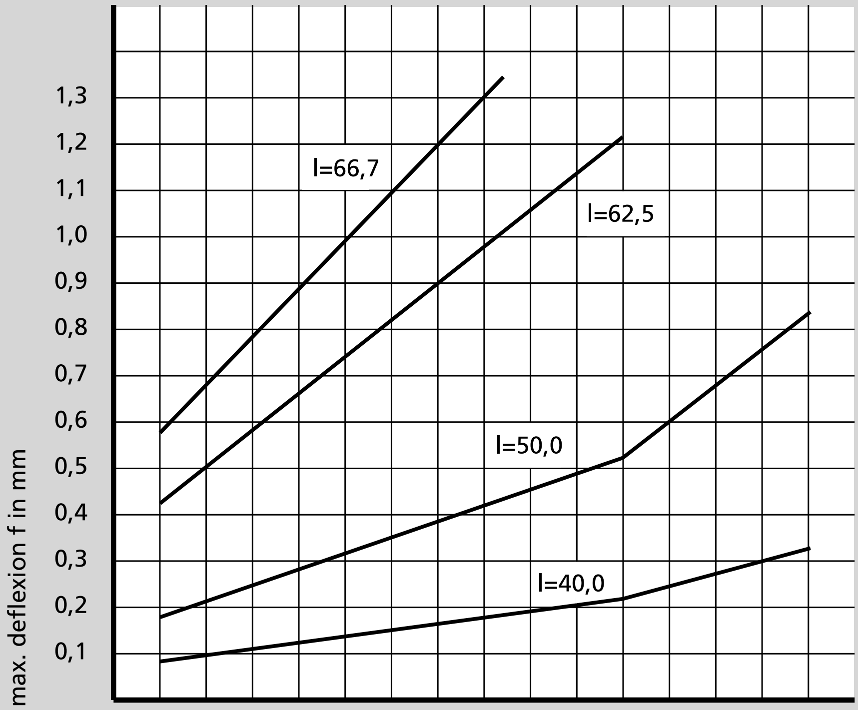
Calculation base:
- triple laminated 21 mm forming face
- Module of elasticity E = 7500 N/mm² (humid)
- adm. bending stress σ_B = 6.5 N/mm² (humid)
- load-bearing capacity defined in the DIN standard 4421
- Deflexion f < l/500 of the distance between props.

Props, stringers and joists are placed on statically necessary and reasonable points.

Static system:



forming faces must cover at least two interspaces L



slab thickness in cm

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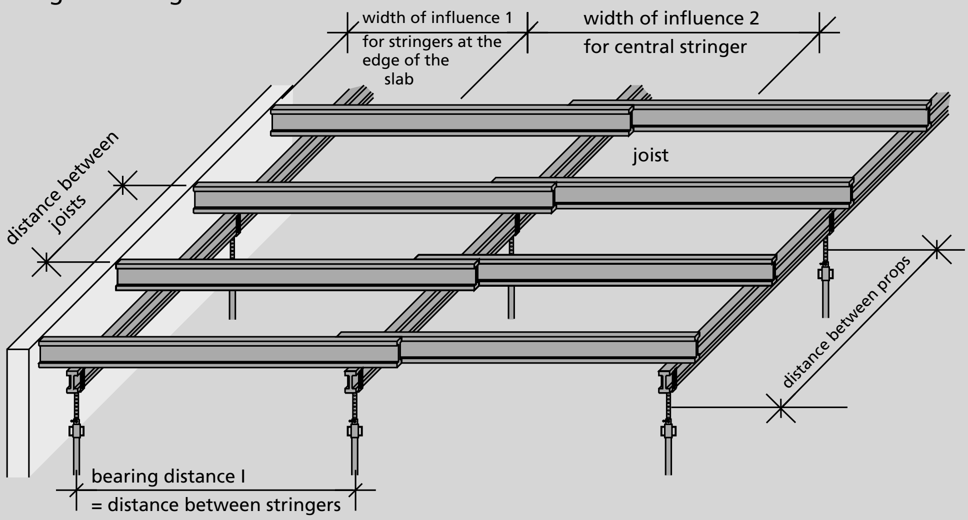
Measurement diagram

$M_{adm.}$ = 5.0 kNm

$Q_{adm.}$ =11.0 kN

weight = 5.5 kg/m



The slab thickness, the chosen distance between the joists and the forming face determine the distance between the stringers and the prop distance.

slab thickness d [cm]	total design load q [kN/m²]	max. bearing distance l between joists [m]					max. adm. bearing distance = distance between props area of influence [m]						
		0.40	0.50	0.625	0.667	0.75	1.50	1.75	2.00	2.25	2.50	2.75	3.00
12	4.92	3.64	3.43	3.19	3.12	3.00	2.33	2.16	2.02	1.90	1.79	1.63	1.49
14	5.44	3.47	3.27	3.04	2.97	2.86	2.21	2.05	1.92	1.80	1.62	1.47	1.35
16	5.96	3.33	3.14	2.92	2.85	2.74	2.12	1.96	1.83	1.64	1.48	1.34	1.23
18	6.48	3.21	3.03	2.81	2.75	2.65	2.03	1.88	1.70	1.51	1.36	1.23	1.13
20	7.00	3.10	2.93	2.72	2.66	2.56	1.95	1.80	1.57	1.40	1.26	1.14	1.05
22	7.52	3.01	2.84	2.64	2.58	2.48	1.88	1.67	1.46	1.30	1.17	1.06	0.98
24	8.04	2.93	2.76	2.57	2.51	2.42	1.82	1.56	1.37	1.22	1.09	1.00	0.91
26	8.56	2.86	2.70	2.50	2.45	2.35	1.71	1.47	1.29	1.14	1.03	0.93	0.86
28	9.08	2.79	2.63	2.44	2.39	2.30	1.62	1.38	1.21	1.08	0.97	0.88	0.81
30	9.66	2.73	2.57	2.39	2.34	2.25	1.52	1.30	1.14	1.01	0.91	0.83	0.76
35	11.22	2.60	2.45	2.27	2.23	2.14	1.31	1.12	0.98	0.87	0.78	0.71	0.65
40	12.78	2.49	2.35	2.18	2.13	2.04	1.15	0.98	0.86	0.77	0.69	0.63	0.57
45	14.34	2.39	2.26	2.10	2.04	1.93	1.02	0.88	0.77	0.68	0.61	0.56	0.51
50	15.90	2.31	2.18	2.01	1.94	1.83	0.92	0.79	0.69	0.61	0.55	0.50	0.46

Example:
slab thickness 22 cm,
chosen:
bearing distance between joists 0.667 m,
results in:
a max. distance between stringers of 2.58 m and a prop distance of approx. 1.13 m interpolated.

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MevaFlex

Load table for props

Admissible load for props [kN] according to the European Draft Standard EN 1065

L [m]	MD 300 175-300 cm	MD 400 225-400 cm	ME 250 150-250 cm	ME 350 200-350 cm	MEP 300 185-300 cm	MEP 450 300-450 cm
1.50			30 kN			
1.60			30 kN			
1.70			30 kN			
1.85	20 kN		30 kN		30 kN / 40 kN in combination with frame	
1.90	20 kN		30 kN		30 kN / 40 kN in combination with frame	
1.95	20 kN		30 kN		30 kN / 40 kN in combination with frame	
2.00	20 kN		30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.10	20 kN		30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.20	20 kN		30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.30	20 kN	20 kN	30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.40	20 kN	20 kN	30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.50	20 kN	20 kN	30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.60	20 kN	20 kN	30 kN	30 kN	30 kN / 40 kN in combination with frame	
2.70	20 kN	20 kN		30 kN	30 kN / 40 kN in combination with frame	
2.80	20 kN	20 kN		30 kN	30 kN / 40 kN in combination with frame	
2.90	20 kN	20 kN		30 kN	30 kN / 40 kN in combination with frame	
3.00	20 kN	20 kN		30 kN	30 kN / 40 kN in combination with frame	
3.10	20 kN	20 kN		30 kN	30 kN / 40 kN in combination with frame	30 kN / 40 kN in combination with frame
3.20		20 kN		30 kN		30 kN / 40 kN in combination with frame
3.30		20 kN		30 kN		30 kN / 40 kN in combination with frame
3.40		20 kN		30 kN		30 kN / 40 kN in combination with frame
3.50		20 kN		30 kN		30 kN / 40 kN in combination with frame
3.60		20 kN				30 kN / 40 kN in combination with frame
3.70		20 kN				30 kN / 40 kN in combination with frame
3.80		20 kN				30 kN / 40 kN in combination with frame
3.90		20 kN				30 kN / 40 kN in combination with frame
4.00		20 kN				30 kN / 40 kN in combination with frame
4.10						30 kN / 40 kN in combination with frame
4.20						30 kN / 40 kN in combination with frame
4.30						30 kN / 40 kN in combination with frame
4.40						30 kN / 40 kN in combination with frame
4.50						30 kN / 40 kN in combination with frame

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