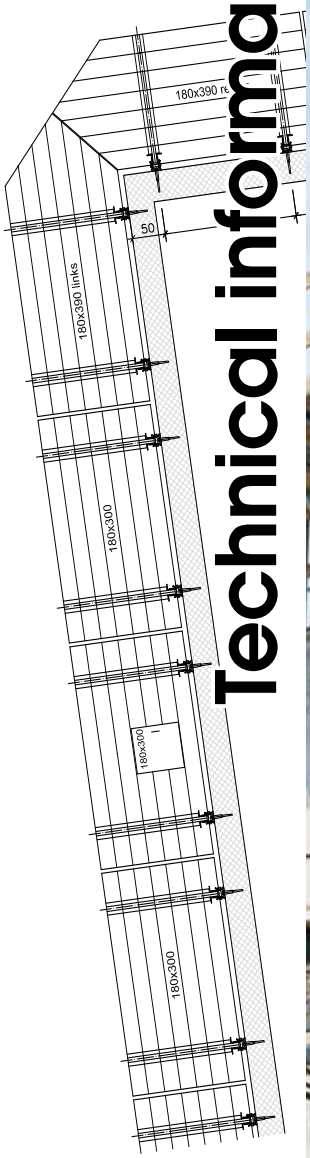
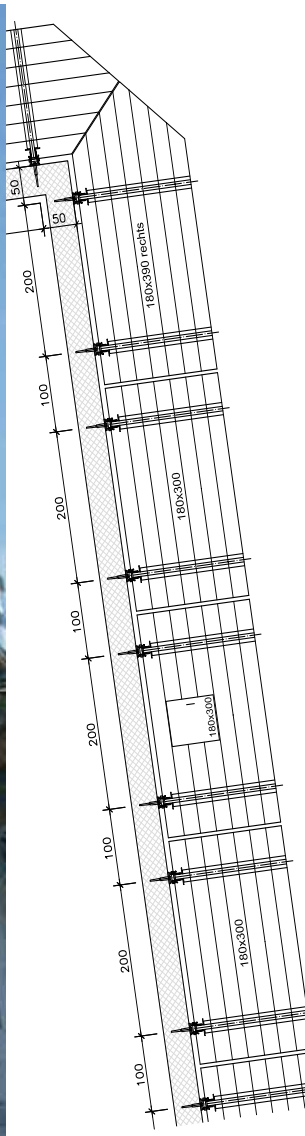
Climbing platform KBK 180

Technical information





PASCHAL

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**GSV (Güteschutzverband Betonschalungen e.V., www.gsv-betonschalungen.de) Guideline:
Instructions for the proper, safe use of formwork and shoring.
As of 28th August 2009**

The contractor has to compile a risk assessment and installation instructions. The latter is generally not identical to an assembly instruction.

• Risk assessment
The contractor is responsible for compiling, documenting, implementing, and revising a risk assessment for each building site. His employees are obligated to implement the resulting measures in conformity with the law.

• Installation instruction
The contractor is responsible for compiling written installation instructions. The assembly instruction forms one of the bases for compiling installation instructions.

• Assembly instruction
Formwork is a technical working appliance intended for commercial use only. Proper application has to be done exclusively by professionally qualified personnel and appropriately qualified supervisory personnel. The assembly instruction is an integral part of formwork construction. They contain at least safety instructions, information about standard design and intended use, as well as the system description.
The functional instructions (standard design) in the assembly instruction are to be obeyed exactly. Extensions, deviations, or changes represent a potential risk and therefore require separate verification (with the aid of a risk assessment) or installation instructions in compliance with applicable laws, standards, and safety regulations.
The same applies to on-site provided formwork/shoring parts.

• The availability of an assembly instruction
The contractor has to ensure that the assembly instruction provided by the manufacturer or formwork supplier is present at the installation location, known to the employees before assembly and use, and always accessible.

• Illustration
The illustrations shown in the assembly instruction are partly assembly situations and are thus not always complete in a safety-related sense. Safety equipment possibly not shown in these illustrations must nevertheless be present.

• Storage and transport
The respective formwork constructions' special requirements relating to transport procedures and storage are to be followed. The use of proper lifting accessories is cited as an example.

• Material inspection
Formwork and shoring material is to be checked for sound condition and function before entrance to the building site or at the destination point as well as before each use. Changes to the formwork material are impermissible.

• Replacement parts and repairs
Only original parts may be used as replacement parts. Only the manufacturer or authorized organisations may conduct repairs.

• Use of other products
Mixtures of formwork components from different manufacturers contain possible dangers. They should be checked separately and can lead to the need to compile in-house installation instructions.

• Safety symbols
Individual safety symbols must be obeyed.
Examples:


Safety notice: Non-compliance can lead to property damage or damage to health (including danger to life).

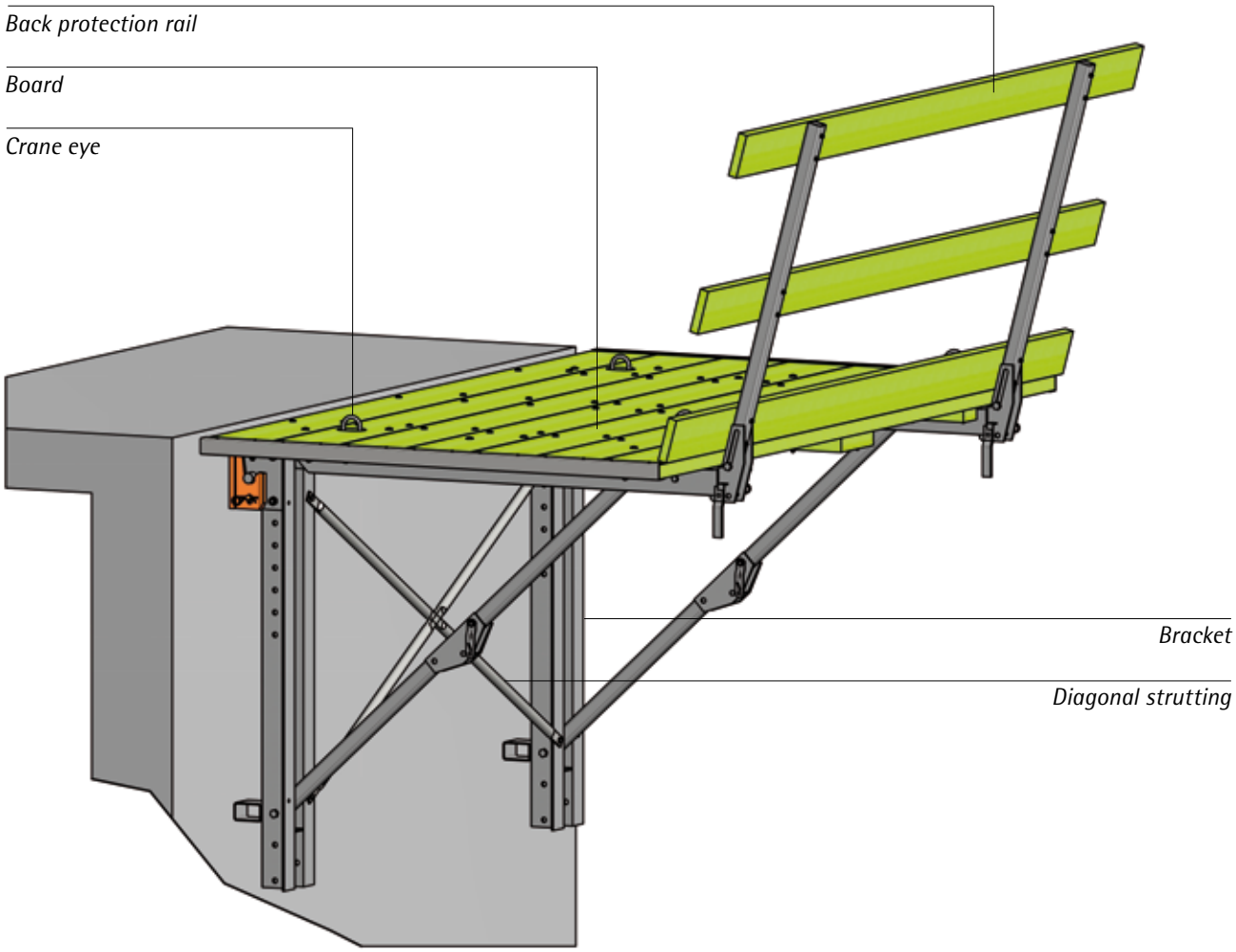

Visual test: The action undertaken is to be done via a visual inspection.


Note: Supplementary information for the activities' safe, proper, and professional conduct.

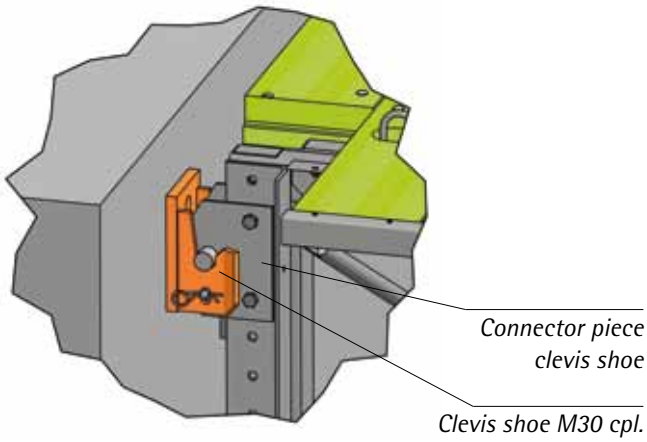
• Miscellaneous
Changes during the course of technical development are expressly reserved. The most current versions of country-specific laws, standards, and other safety regulations are to be used for the safety-related application and use of the products. They form part of the employers' and employees' duties with respect to work safety. Among other things, the contractor's duty to ensure the stability of formwork and shoring structures, as well as that of the construction during all states of construction derives from this. This includes basic assembly, and the disassembly and transport of the formwork and shoring constructions and their parts. The overall construction is to be checked during and after assembly.

Content

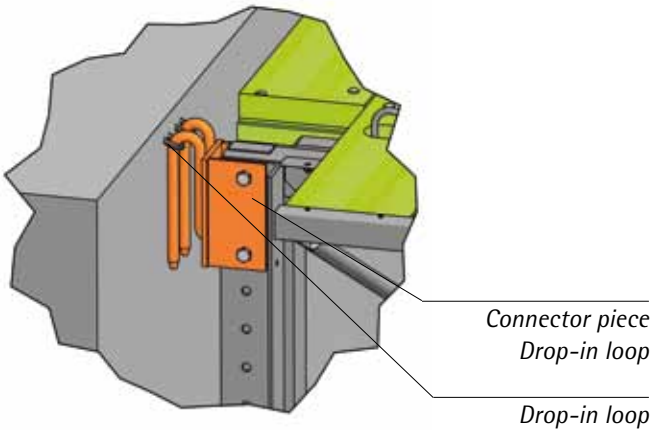
Status: 17.07.2013



Ill.1



Ill.2



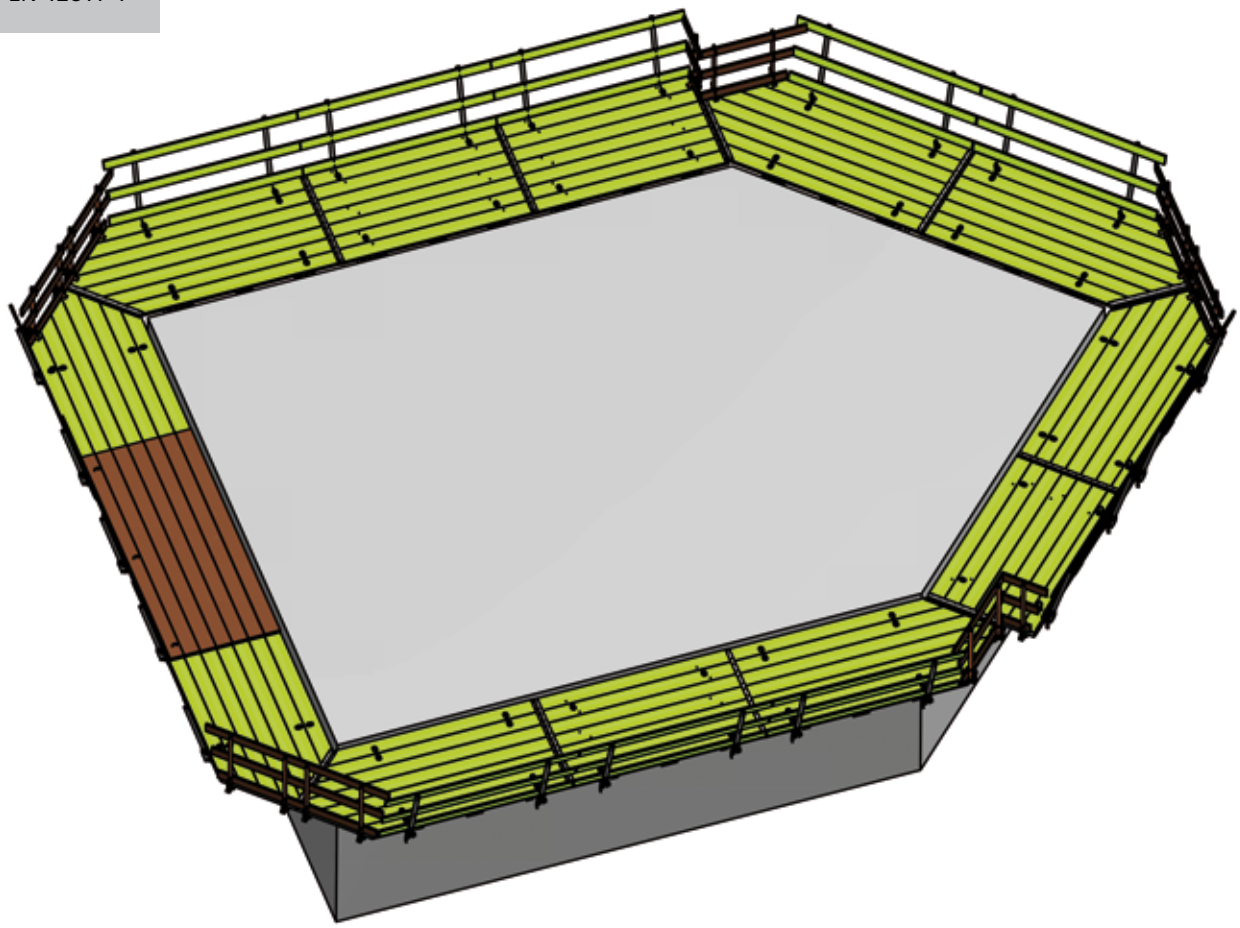
Ill.3

- The climbing platform KBK 180 forms a work- and safety scaffolding consisting of one standard and two corner platforms.
- The individual platforms are one complete part consisting of board, back protection rail and two stiffening brackets.
- For storage and transportation the parts connected with joints are folded in a space-saving manner.
- For use at the construction site the back protection rails and the brackets are folded out, and the whole platform can be hung to an existing building element using an anchor.
- The standard platform has a width of 2.95 m (system measure = 3.00 m) and a corbel of 1.80 m. The brackets are spaced at 2.00 m.
- The permissible load is 3.0 kN/m² for platforms with erected formwork. If used as work platform (without formwork) 4.5 kN/m² are permissible, and if anchored with anchor loops according to DIN 4420 and used as work- and safety scaffold another 2.0 kN/m² can be applied.

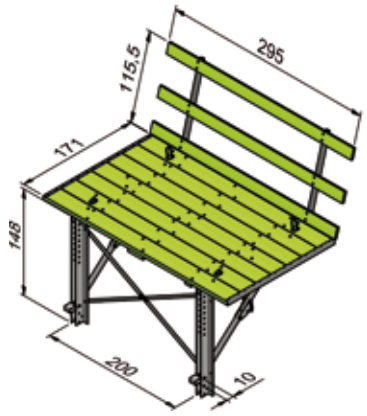
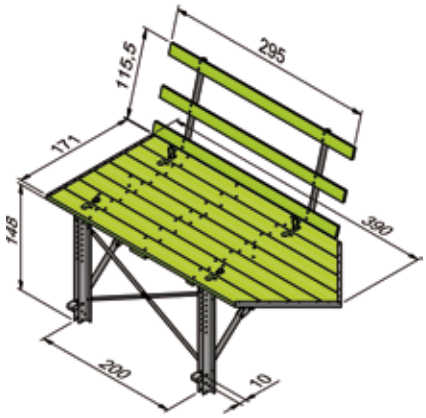
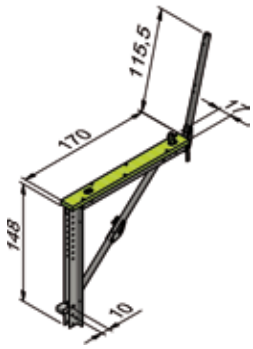
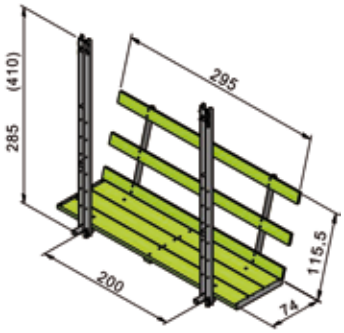
The KBK 180 offers a simpler solution to create safe workspaces compared to individual brackets and boards provided by the customer. All safety components are always provided with the complete part.

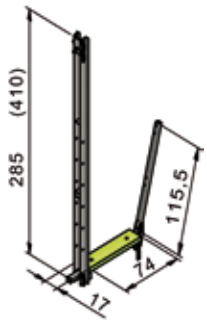
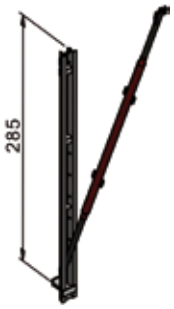
Applicable norms:

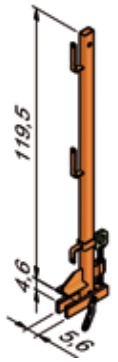
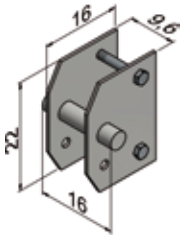
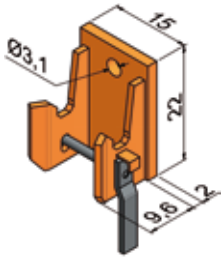
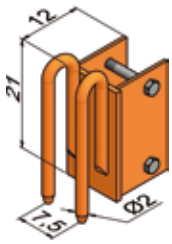
DIN 4420-1
DIN EN 12811-1

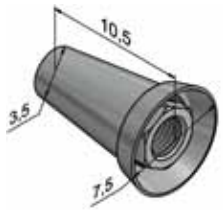
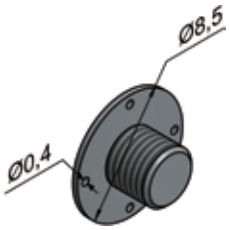
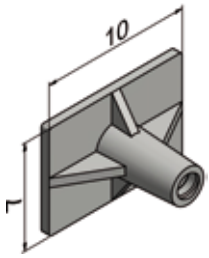
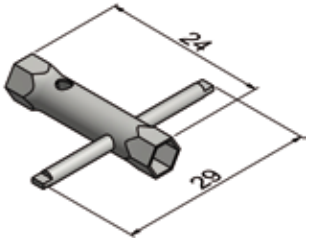


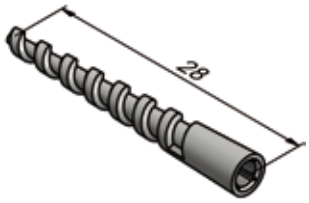
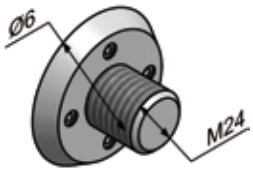
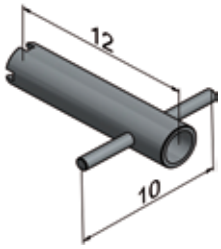
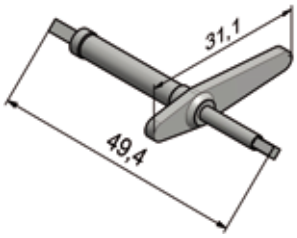
Ill.4

	Weight [kg]	Art.-No.	Description
			**Climbing platform folding KBK**
	351,00	154.000.1800	180 x 300 cm
	370,00	154.000.1810	180 x 300 cm with trap
			**Climbing platforms for corners folding KBK**
	360,00	154.000.1802	180 x 390 cm right
	360,00	154.000.1803	180 x 390 cm left
	125,00	186.003.0000	**Climbing platform folding KBK** 180 cm mount.
			**Suspending scaffold 300 cm KBK cpl.**
	165,00	186.003.0014	up to 3.75 m height
	205,00	186.003.0029	up to 5.00 m height

	Weight [kg]	Art.-No.	Description
			**Suspending scaffold single bracket**
	52,60	186.003.0015	KBK cpl. up to 3.75 m height
	60,00	186.003.0030	KBK cpl. up to 5.00 m height
	122,00	186.003.0025	**Extension KBK 180 x 300 cm cpl.**
	61,00	186.003.0026	**Extension single bracket KBK cpl.**

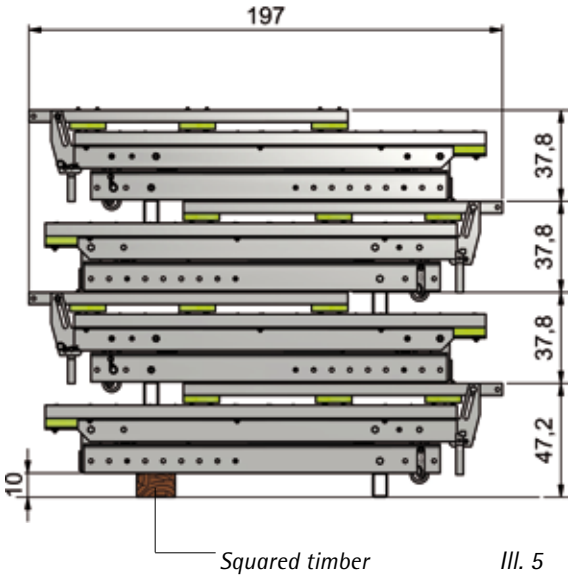
	Weight [kg]	Art.-No.	Description
	12,00	186.003.0010	**Railing post for lateral protection** assembled
	6,00	186.003.0005	**Connecting piece for clevis shoe** climbing platform KBK cpl.
	8,80	186.003.0006	**Clevis shoe M 30 cpl.**
	4,60	186.003.0004	**Connecting piece for drop-in loop** climbing platform KBK cpl.
	4,60	186.003.0008	**Drop-in loop Ø1 x 50 cm** climbing platform KBK

	Weight [kg]	Art.-No.	Description
	1,00	186.000.0050	**Anchor cone M 30 DW 15 x 10,5 cm**
	0,59	900.933.1701	**Hexagon screw M 30 x 60** DIN933 8.8
	0,20	186.000.0051	**Nail plate M 30 galvanized**
	0,45	940.014.0112	**Fixing anchor DW 15 10/7 x 6 cm** No. 15F3074/G with appendage
	0,15	189.006.0100	**Tie rod DW 15 x 10 cm**
	1,50	186.000.0052	**Special key SW 41/46** galvanized

	Weight [kg]	Art.-No.	Description
	1,09	940.014.0002	**Screw anchor M 24 x 28 cm** No. 06207508
	0,29	900.933.1601	**Hexagon screw M 24 x 45** DIN933 8.8
	0,01	940.014.0003	**PVC screw insert M 24** No. 31. 91-24
	0,20	940.014.0018	**Socket spanner for screw insert** M 10 - M 30 No. 31. 91-99
	2,20	940.014.0008	**Special key M 24** No. 06207525

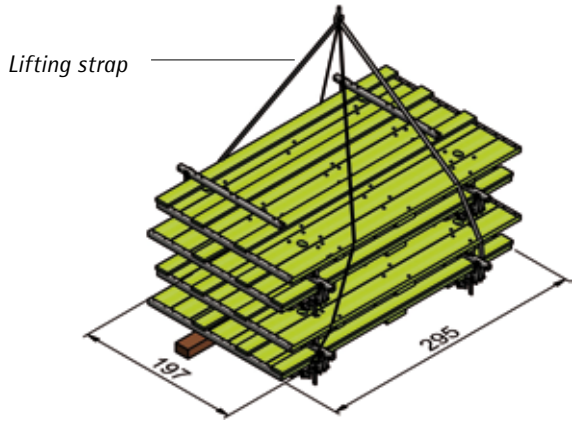
Notes

When stacking multiple platforms in storage or for transportation make sure to arrange them in and alternating pattern of 180° turns. (Ill. 5)
The lowest platform must be supported with a 10 x 10 cm squared timber at the point where the connecting pieces are attached after unfolding.

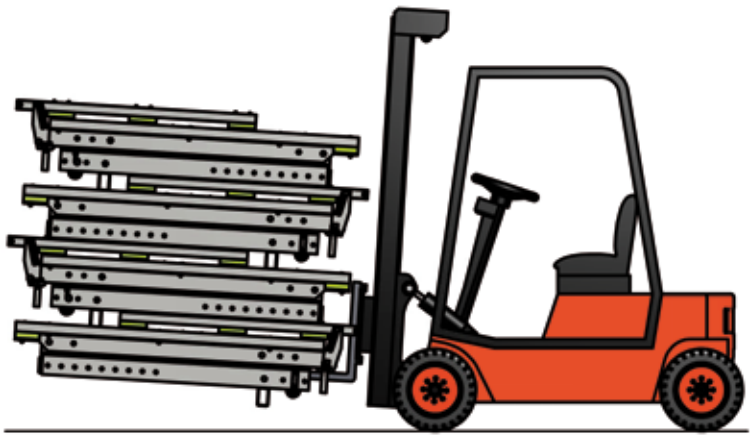


Ill. 5

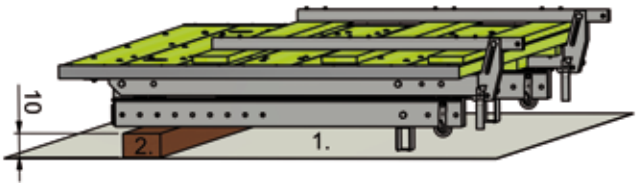
Stacked platforms are moved using lifting straps. If a forklift is available, it should pick up the stack between the folded brackets. (Ill. 6/7)



Ill. 6



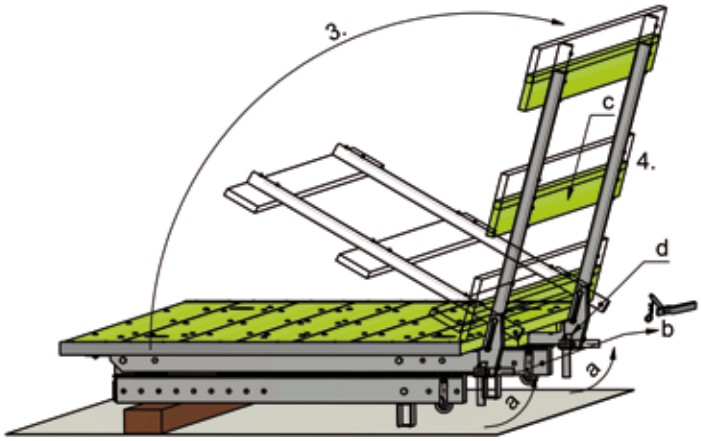
Ill. 7



Ill. 8

1. Place climbing platform on even ground

2. Support one side with square timber



Ill. 9

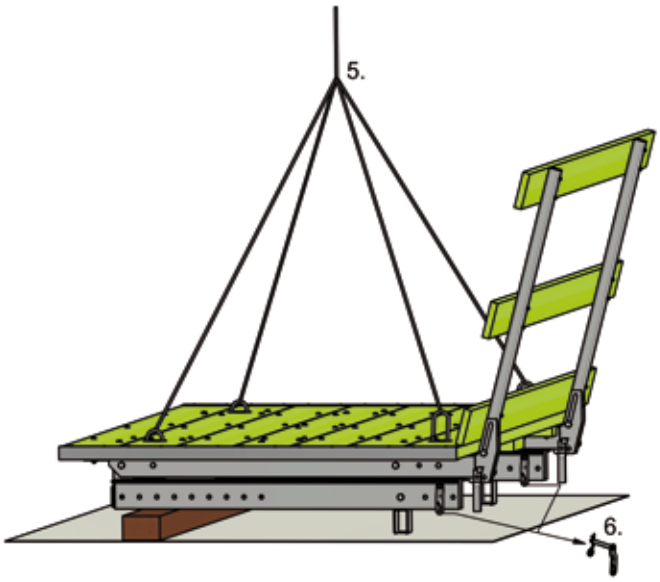
3. Fold up the back protection rail

4. Secure the back protection rail:

- Turn security bolt (a) 90° (b) and pull it out
- Push side protection down (c)
- Reinsert the security bolt to secure the back protection rail (d) (bolt is secured against slipping out behind safety plate)

a

Security bolt 135 galvanized for climbing platform KBK
Art. no.: 186.003.0001



Ill. 10

5. Attach quad-hangers to loops

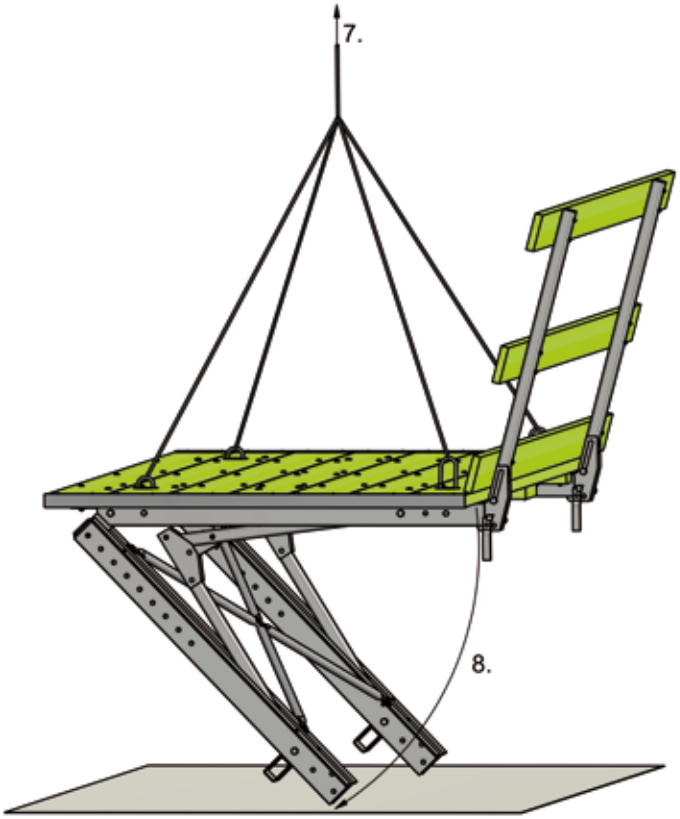
6. Pull out security bolt

6.

Security bolt 130 cpl.
Art. no.: 189.001.0069

7. Lift climbing platform

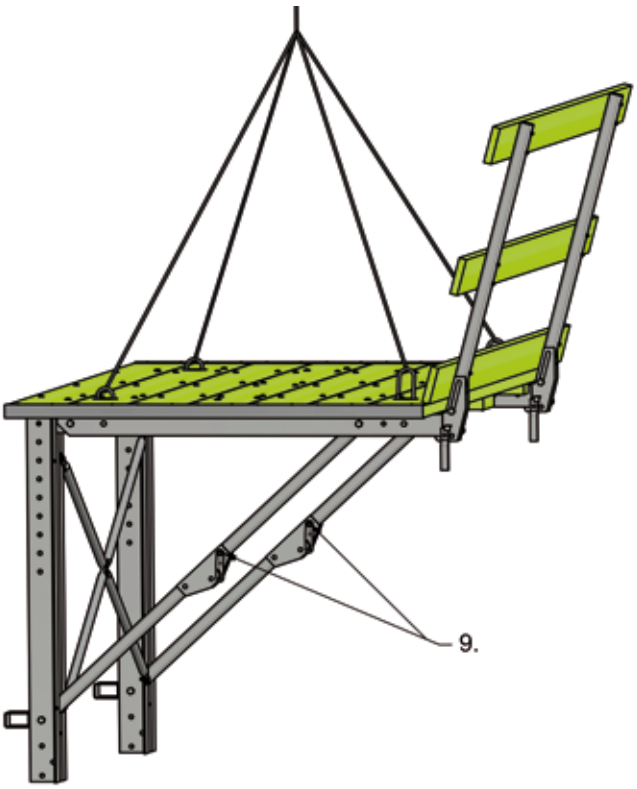
8. Brackets fold out



Ill. 11

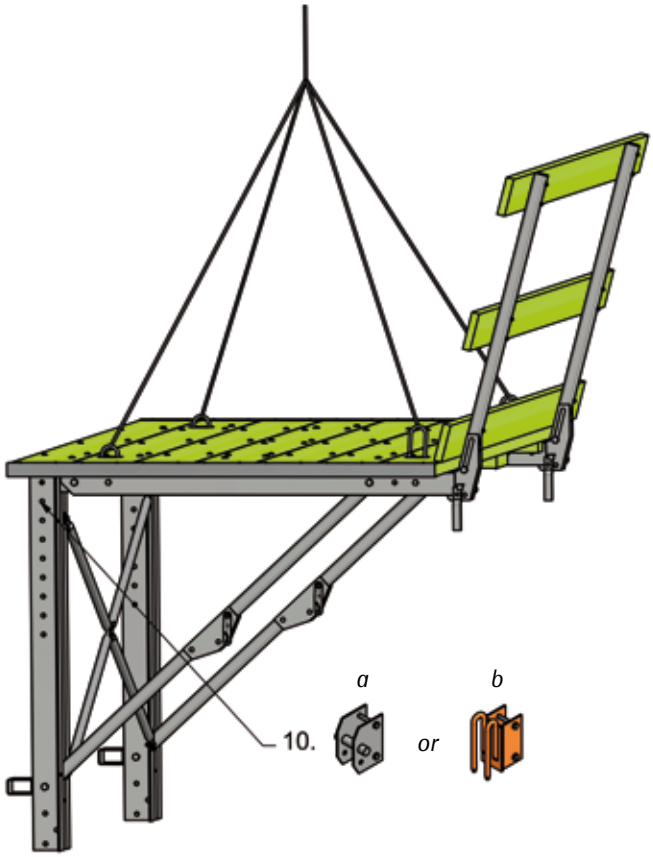
9. Secure the joint of the pressure diagonals using the security bolt (attach cotter pin to security bolt)

Security bolt 130 cpl.
Art. no.: 189.001.0069



Ill. 12

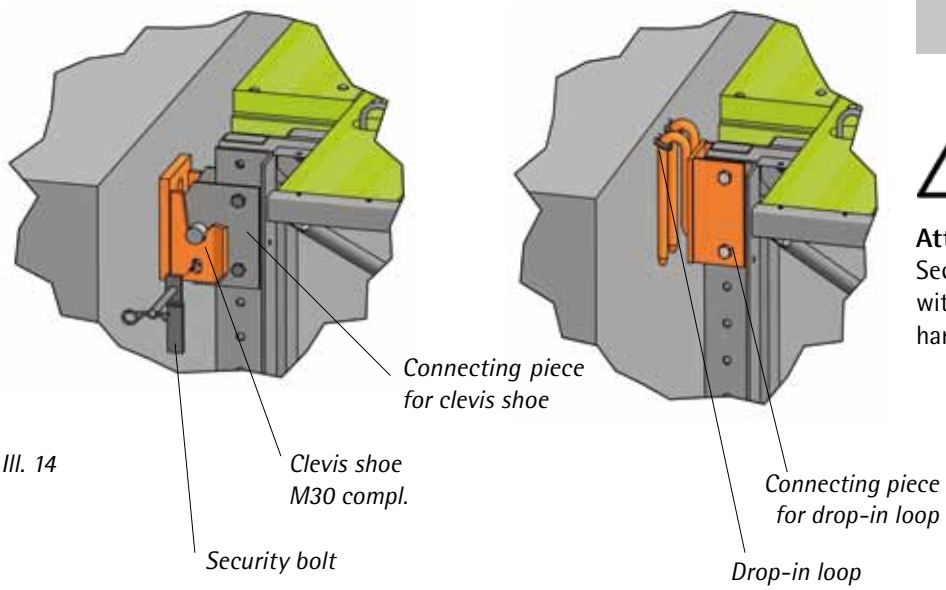
10. Screw connecting piece clevis shoe (a) or connecting piece drop-in loop (b) to the climbing platform



Ill. 13

See pages 19 and 22 for information pertaining to height adjustability of the climbing platform

11. Hanging the platform into the anchors
(see also pages 18, 20 and 21)



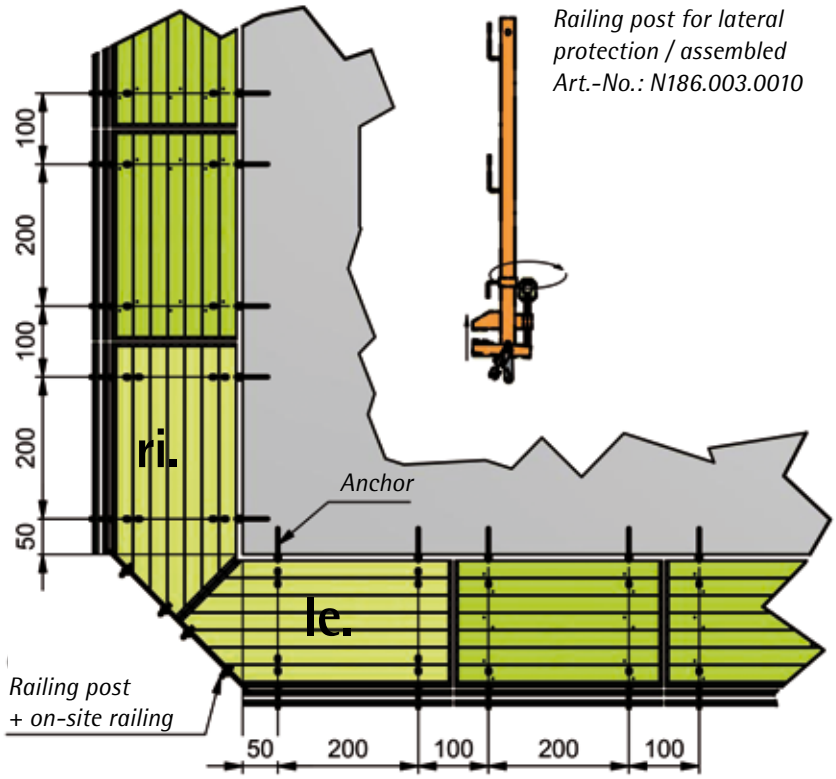
Ill. 14

Attention:
Secure the platform against slipping off with the security bolt immediately upon hanging it into the clevis shoe.

For complete scaffolding of any desired ground plan, the climbing platform and two corner platforms (l. and r.) as well as one single bracket are available. The following outlines solutions for various constraint points and the necessary anchor spacing.

90°-outer corner: **(Ill.15)**

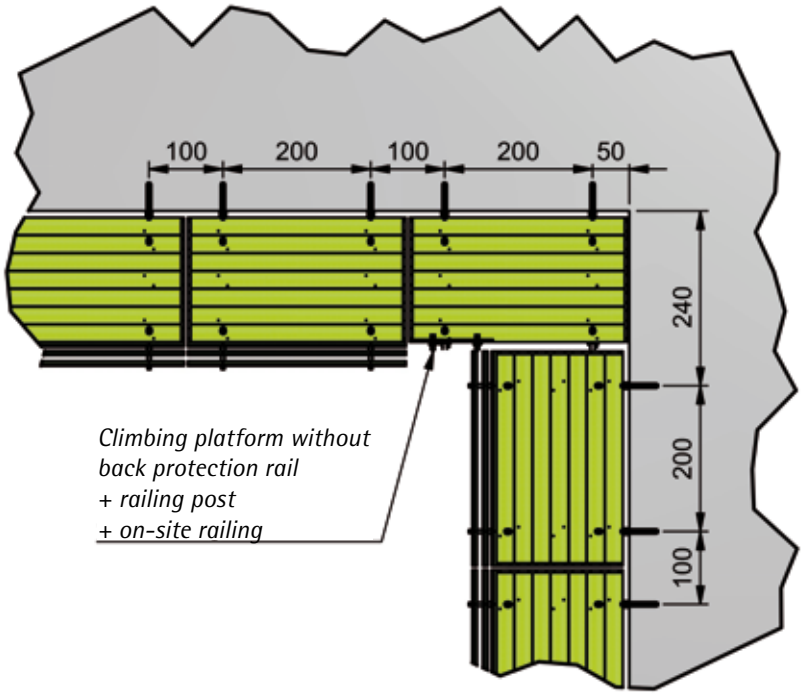
One corner platform right and one corner platform left are arranged directly on the corner so that the arrow-shape formed by the boards provides a continuous workspace. On the angular sides of the boards the missing side protection is to be attached with the handrail posts, railing post, center post and board. Additional platforms can be attached to the corner platforms in both directions.



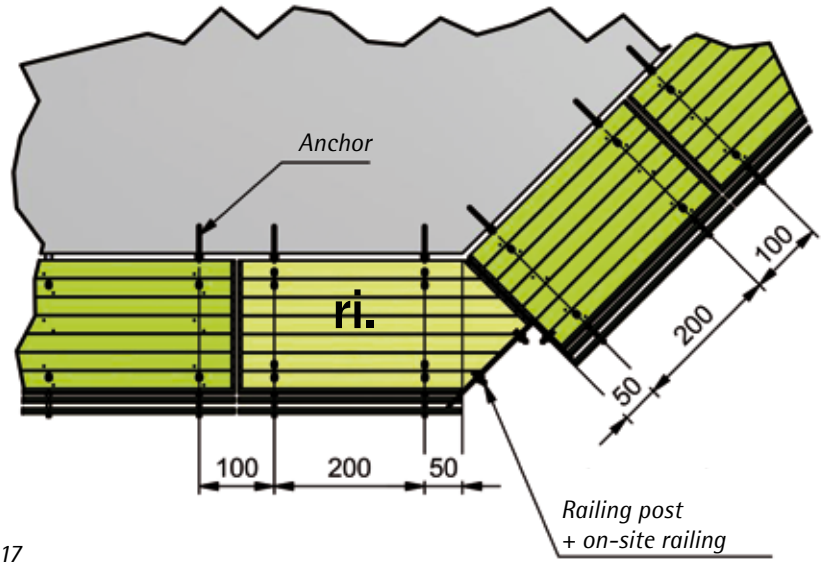
Ill. 15

90°-inside corner: **(Ill.16)**

A climbing platform is installed in the corner. The side protection is to be removed on this platform to allow rotational force. The interrupted side protection is to be added to the following platforms.



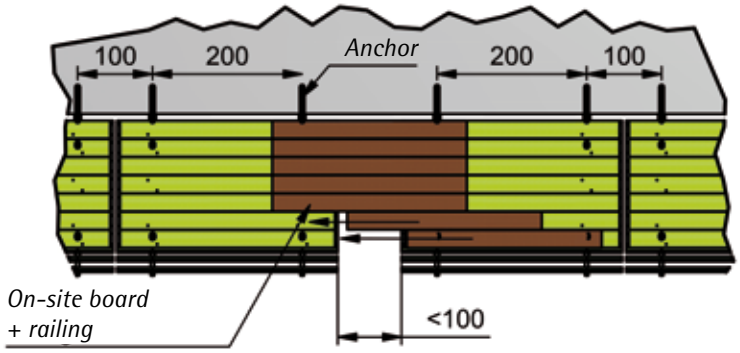
Ill. 16



Ill. 17

135°-corner: (Ill.17)

In this application, one climbing platform and one corner platform (l. or r.) form one continuous board. On the angular side of the board on the corner platform the missing side protection with handrail posts, railing post, center post and board are to be attached.



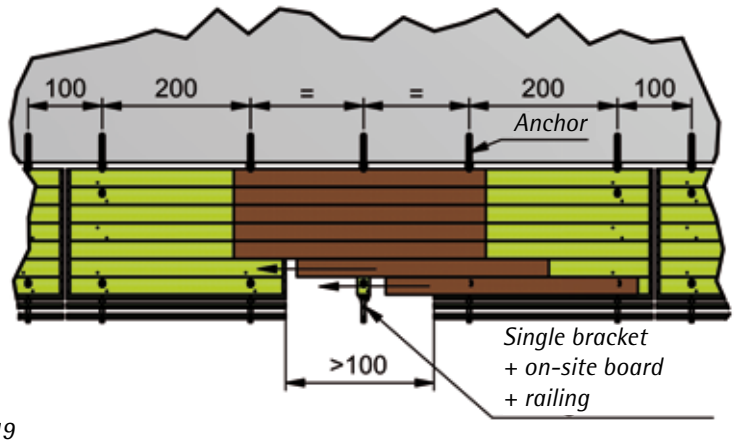
Ill. 18

Length adjustment ≤1.00m: (Ill.18)

Length adjustment between platforms of 1.00 m or less for the board and the side protection are to be closed on site. The regulations of DIN 4420 part 1 „Working- and protection scaffolds" are to be adhered to.

Length adjustment >1,00m: (Ill.19)

For length adjustment of more than 1.00 m between two platforms a single bracket is to be planned at the center of the adjustment to account for static load transfer.
Board and side protection are to be closed on site. The regulations of DIN 4420 part 1 „Working- and protection scaffolds" are to be adhered to.



Ill. 19

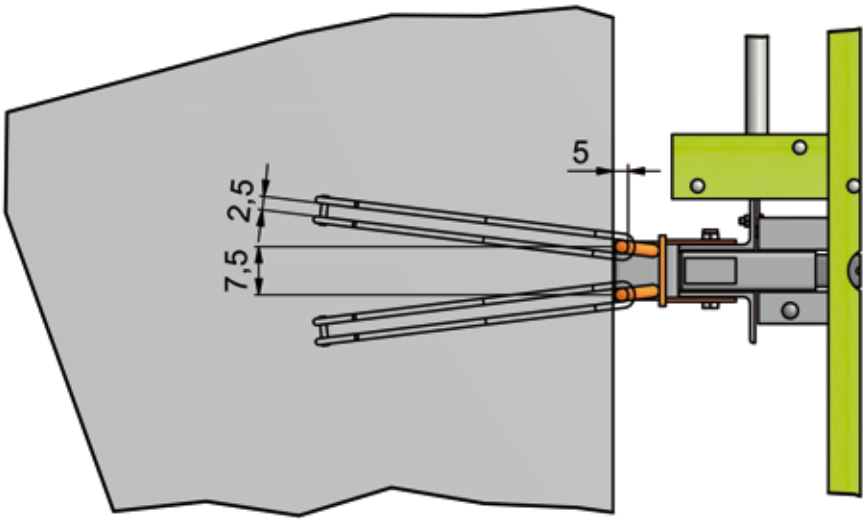
Attention:

For opened ground plans the front end of the last platform must always have side protection with handrail posts, railing post, center post and board.

One option to hang the KBK climbing platform is drop-in loops that are concreted into steel concrete ceilings. The drop-in loops must protrude at least 50 cm into the building element, measured from the ceiling rim (Ill. 21). The regulations of DIN 4420 part 3 must be adhered to.

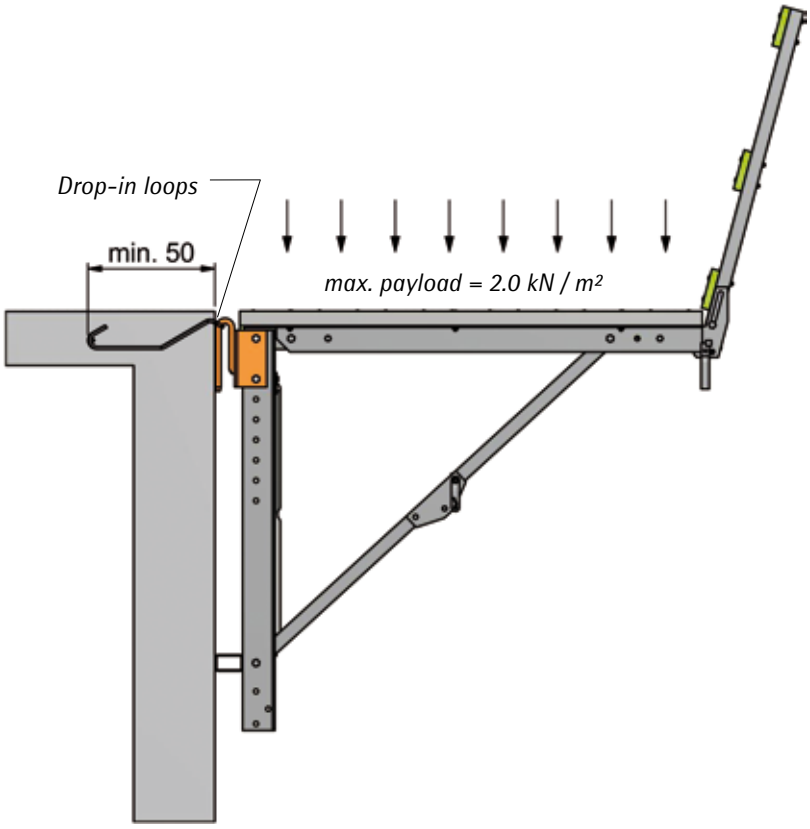
Applicable norms:

DIN 4420-1
DIN EN 12811-1



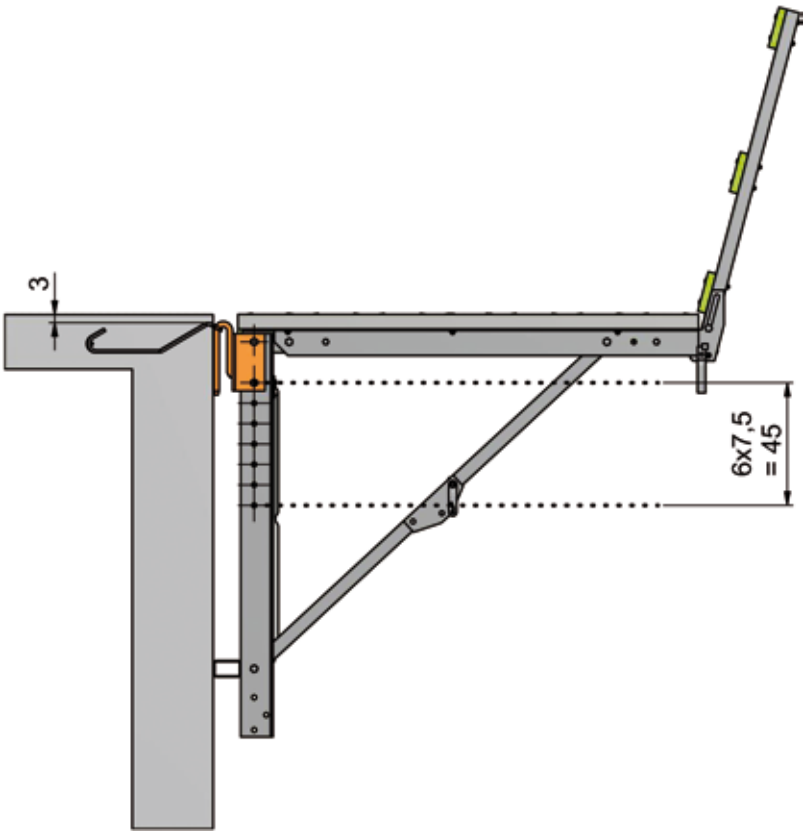
Ill. 20

When drop-in loops are used, the surface-related payload of the climbing platform KBK is 2.00 kN/m².



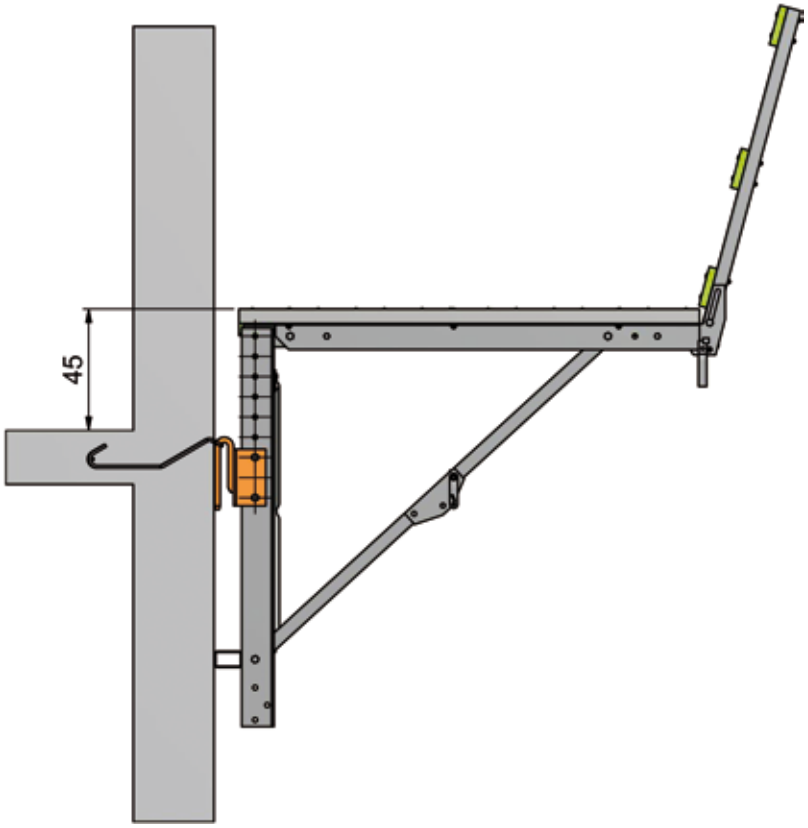
Ill. 21

Height adjustability with drop-in loop



Ill. 22

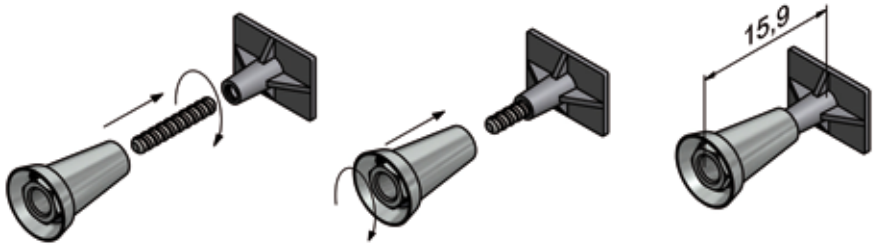
Using the connecting piece drop-in loop the climbing platform KBK can be installed in a manner allowing for the upper edge of the slab and the platform board to be flush.



Ill. 23

If it is necessary to hang the platform higher, e.g. when used as safety scaffold, then the connecting piece drop-in loop can be screwed deeper into the brackets. At a distance of 6 x 7.5 cm a maximum height offset of 45 cm is possible.

When using the clevis shoe to hang the climbing platform KBK, anchors are to be concreted into the previously fabricated walls or ceilings (Ill. 26). One type of anchor is the fixing anchor DW 15, which is screwed to the anchor cone using a short tie rod DW 15.



Ill. 24

In order to fixate the complete anchor to the formwork a nail plate is attached to it, where the anchor is screwed in until the anchor cone is flush with the plywood.

Ill. 25

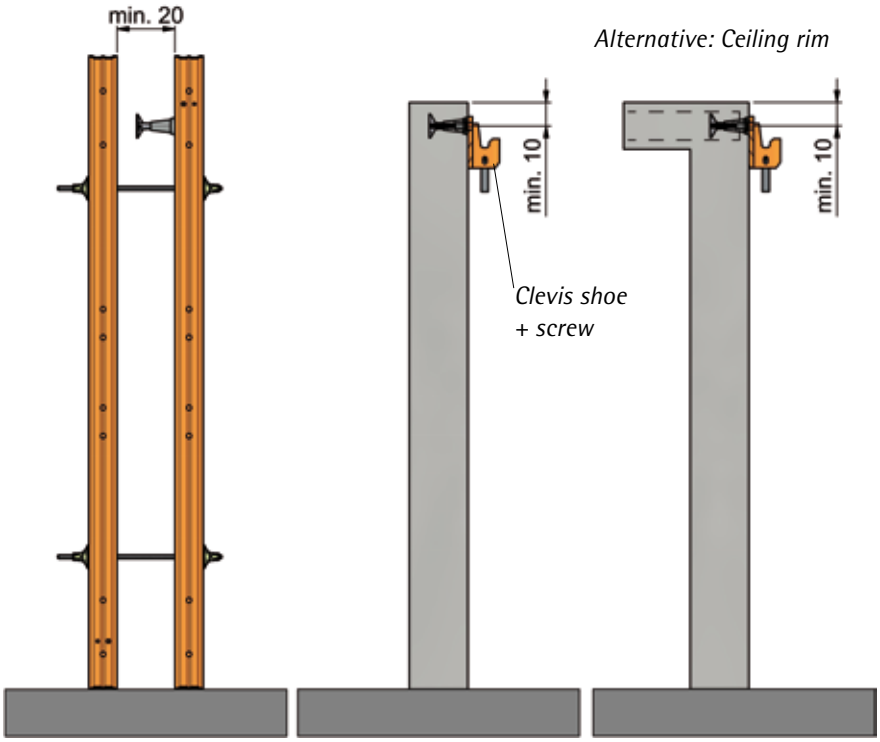
After concreting the wall or the ceiling [Ill. 26) and after striking, the nail plate has to be removed first. Then the clevis shoe is screwed into the anchor.

Concrete compression strength:

min $f_{c,K}$ = 12 N/mm²

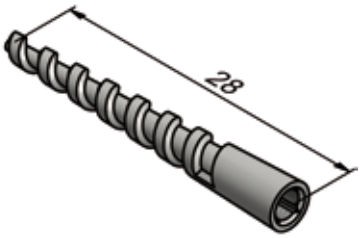
Notes to materials disposition:

For this anchor type, the anchor cone and the tie rod DW 15x10 cm are salvageable. The anchor cone is screwed out using the special key SW 41/46. The fixing anchor DW15 remains in the concrete as a loss part.



Ill. 26

Anchored assembly with screw anchor M 24

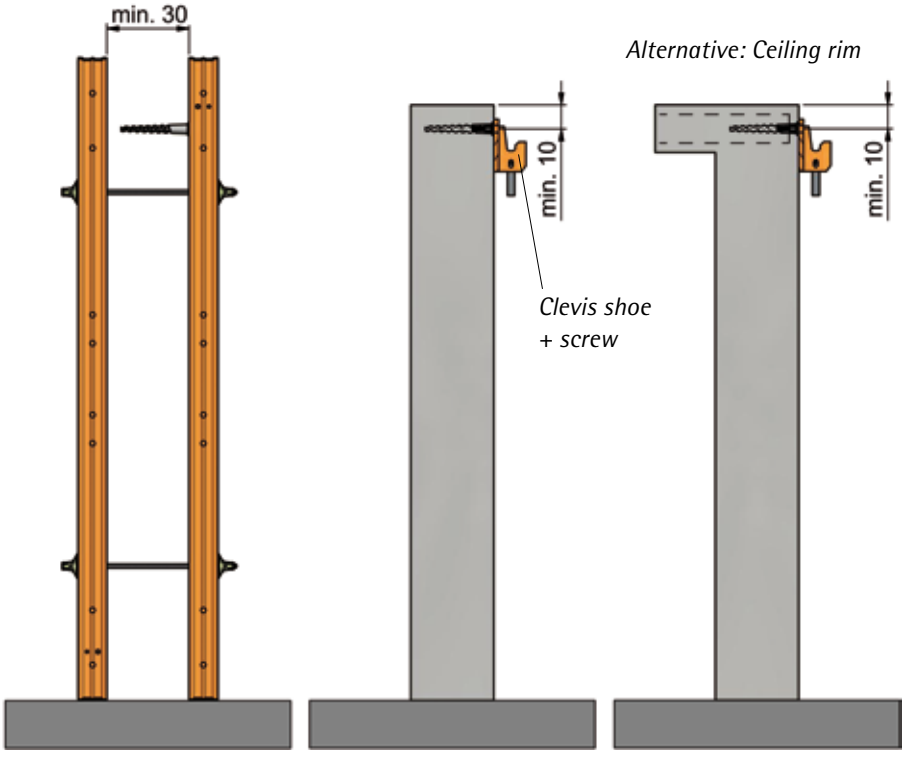


Ill. 27

For thicker walls or for anchoring in a ceiling the clevis shoe can also be secured with a screw anchor M24.

Ill. 28

To attach the screw anchor M24 to the formwork a PVC screw insert M24 is installed, into which the anchor is screwed to the point where the anchor and the screw insert are flush.

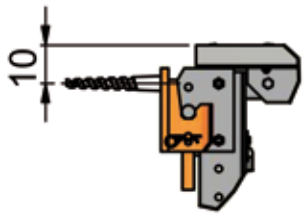


Ill. 29

After concreting the wall or the ceiling [Ill. 29) and after striking the PVC screw insert M24 must be removed first. Then the clevis shoe is screwed into the screw anchor M24.

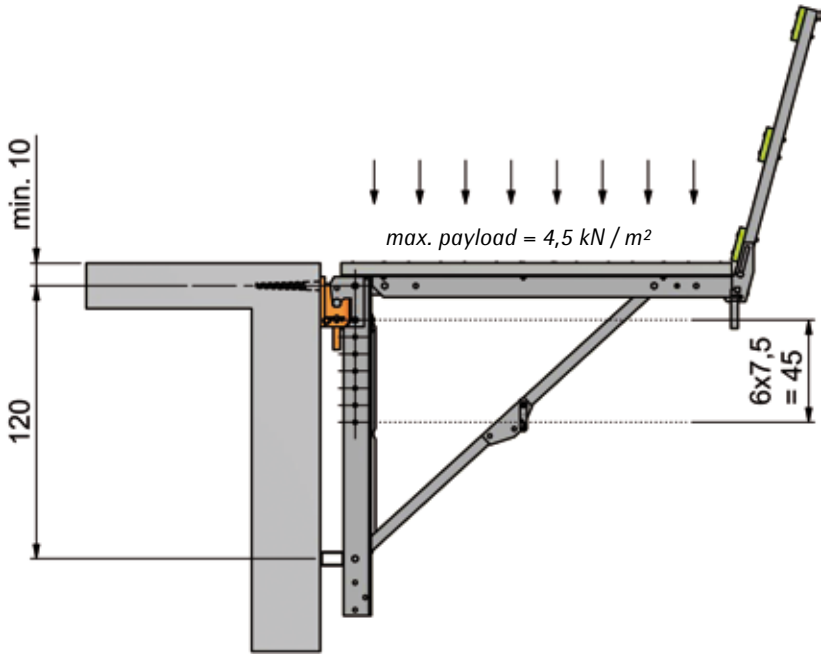
Notes to materials disposition:

The screw anchor M24 is fully salvageable. It is screwed out of the concrete using the special key M24.



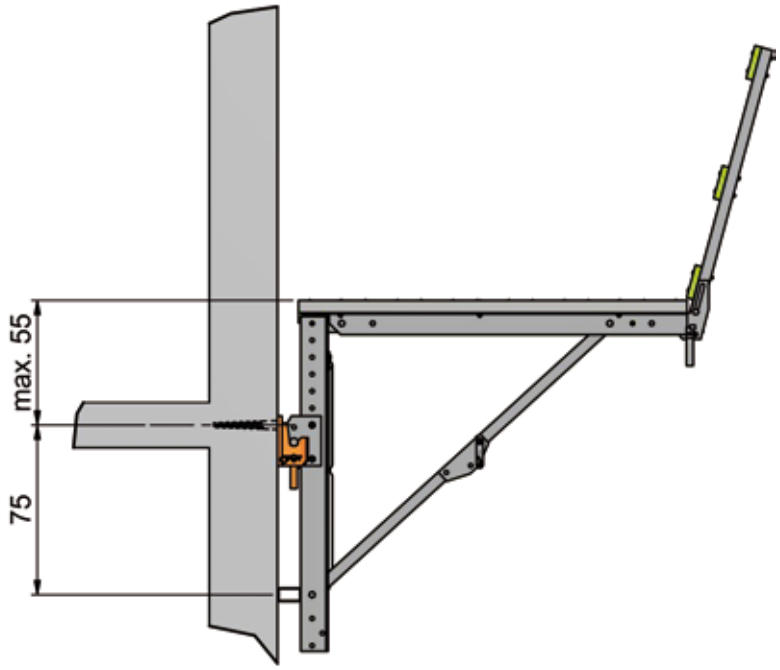
After hanging the climbing platform KBK to the wall or the ceiling, the upper rim of the platform board will be flush with the upper rim of the wall or the ceiling if a distance of 10 cm between the anchor axis and the upper rim of the concrete was maintained (Ill. 30).

If the climbing platform KBK is to hang ower, this measure is to be increased accordingly.

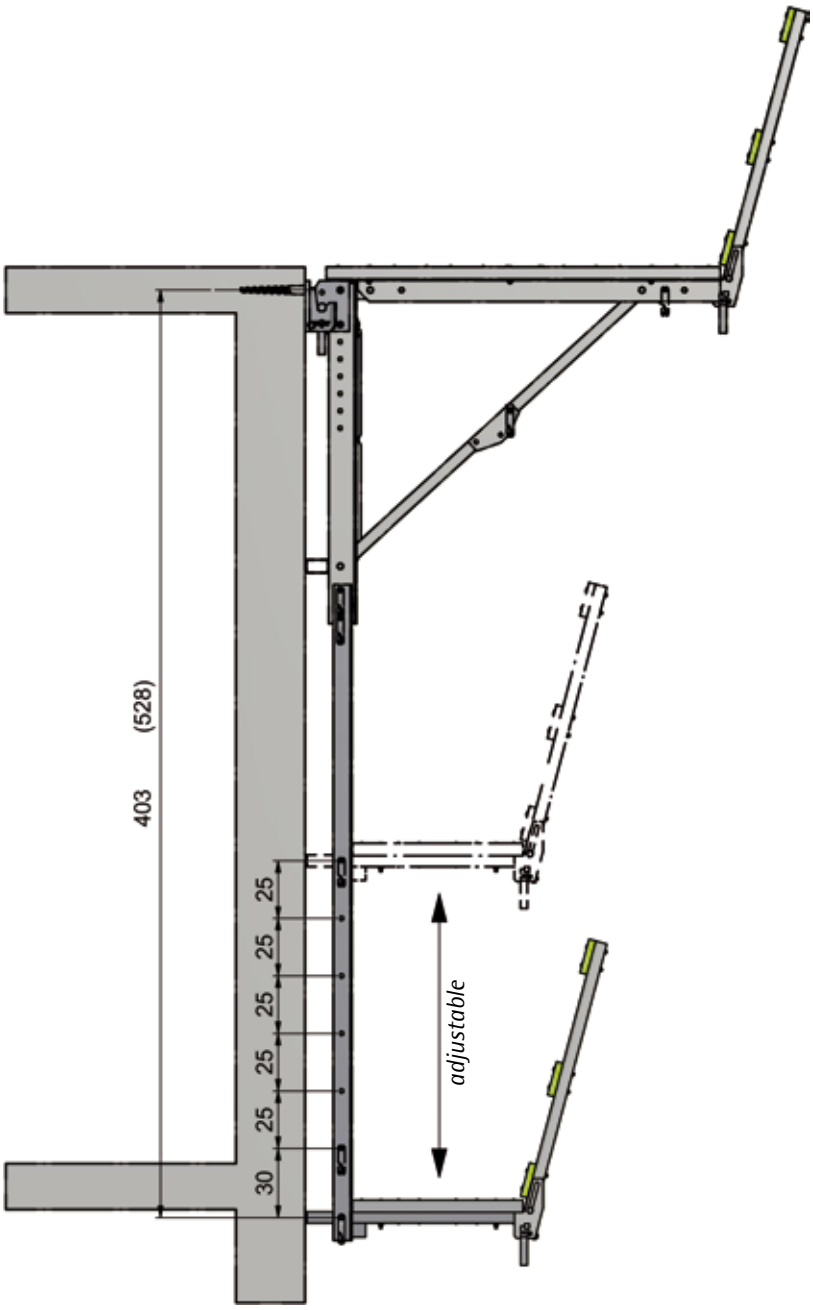


Ill. 30

The climbing platform KBK can be height-adjustable if needed. To accomplish this, the clevis shoe can be moved in a 7.5 cm grid above height (Ill. 31).



Ill. 31



Ill. 32

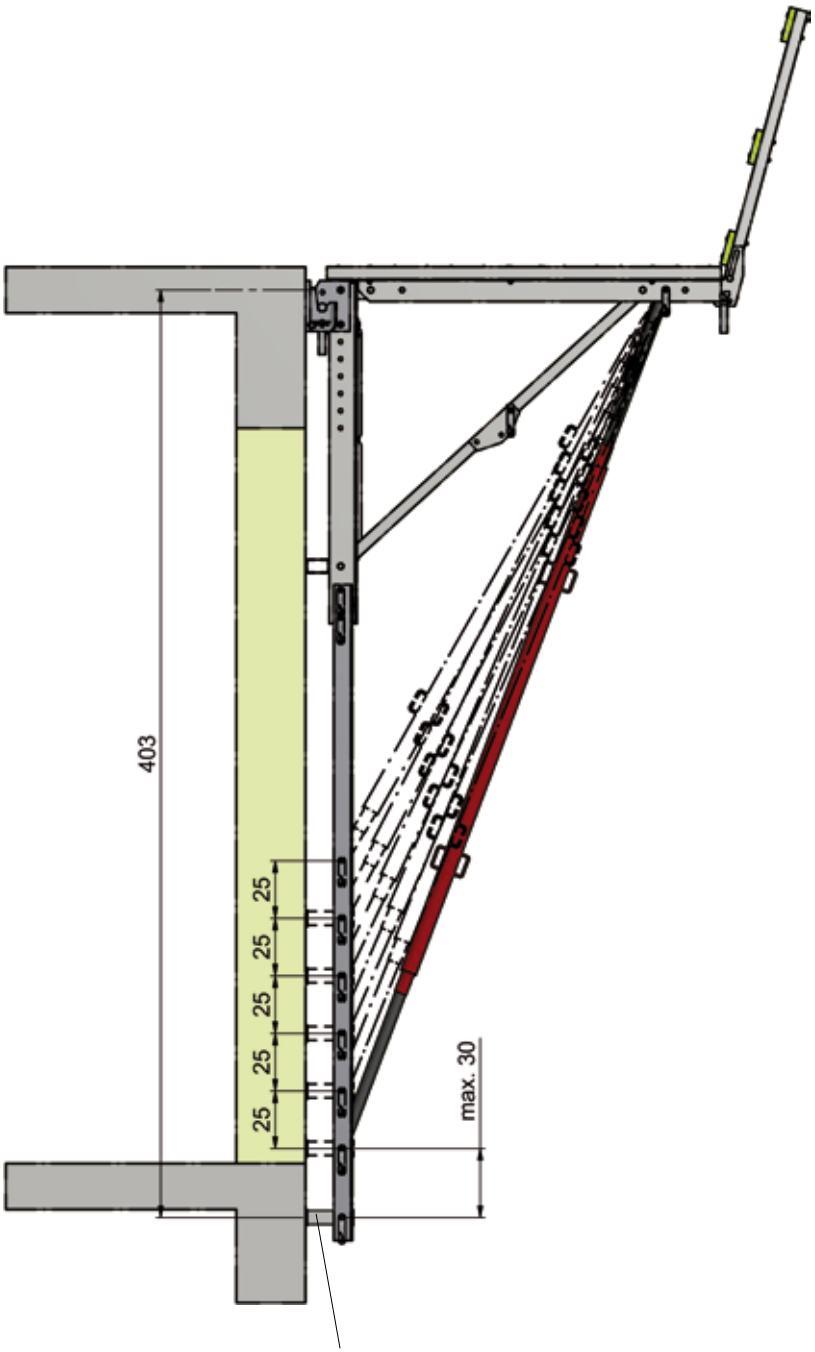
To perform after-work at the concrete surface, closing of anchor holes or removal of anchor parts on the previous concreted section, a suspended scaffold can be mounted to the climbing platform KBK. Hence for the level below the climbing platform KBK this also provides a safety barrier.

The suspended scaffold is available for two different heights (see pages 6 and 7)

To bridge vertical openings of the building the climbing platform KBK can be completed with an extension. An adjustable prop RSK4 belongs too also as stiffening diagonal. That diagonal and the butt extension KBK can be moved according to the level of the opening. The adjustable prop has always to be mounted to the next hole above the butt.

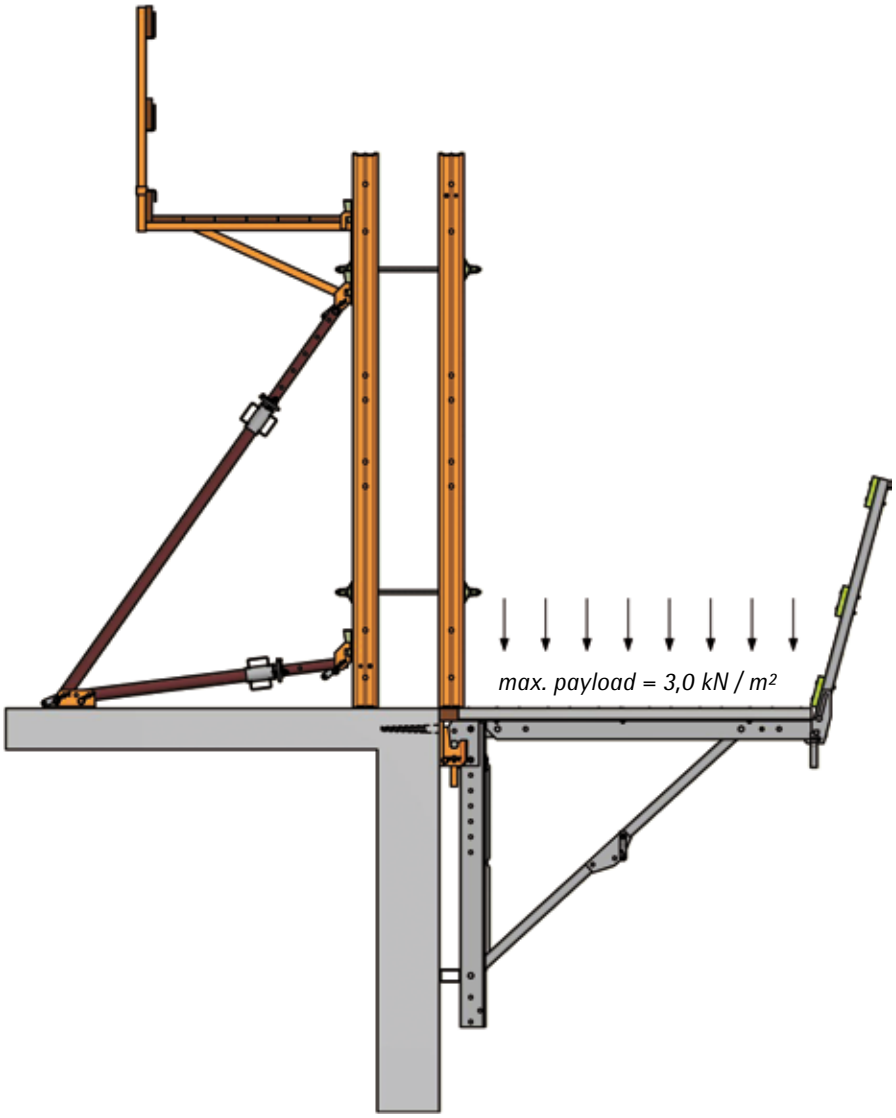
Security bolt 130 cpl.
Art. no.: 189.001.0069

Adjustable prop 400-620cm
Art. No.: 189.005.0016



Ill. 33

Butt extension KBK



Ill. 34

Shoring and bracing into the building structure:

The internal formwork is to be placed on the existing building structure or building element and to be anchored to and aligned with the formwork considering all wind and work operation loads. Thereafter, the platform will only serve the purpose of placing the outer formwork, which will be tensed to the inside with the formwork anchors. The maximum formwork height is 4.50 m.

Shoring and bracing onto the platform:

If the formwork is to be shored and braced to the platform, a respective structural analysis of all anchors and connections for loads from net weight, wind and work operations acting on the platform is required.

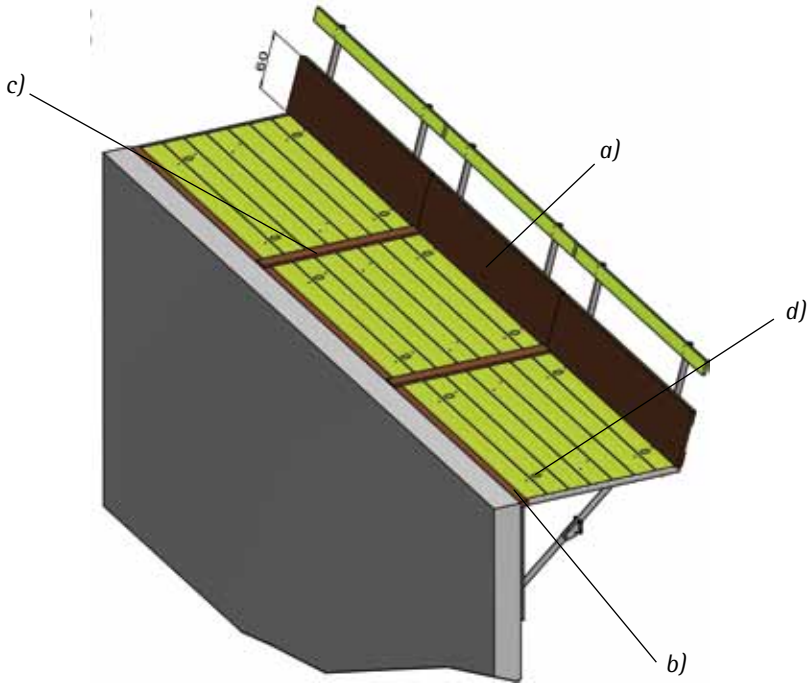
If the climbing platform KBK 180 is to be used as safety roof the following additional measures are necessary:

a) Continuous board wall with a height of at least 60 cm

b) Covering of all gaps between the platforms and the building element

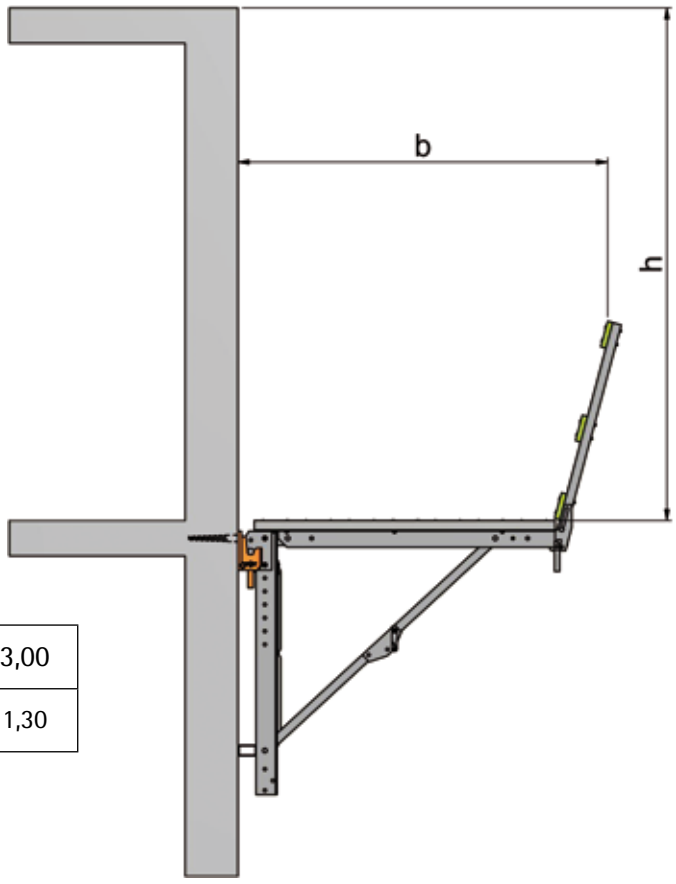
c) Covering of all gaps between the platforms

d) Covering of all openings above the crane loops



Ill. 35

If the climbing platform KBK 180 is to be used as safety scaffold, values in tab. 1 are to be adhered to. The vertical distance h between building edge and the board surface of the platform can be varied by height adjustment so that heights between floors of more than 3.00m will be possible.



vertical distance h in m	up to	2,00	3,00
minimum distance b in m	min.	0,90	1,30

Tab. 1

Ill. 36

Keyword list

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