

FOLDING SCAFFOLD

Protective and working scaffold

User guide



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1 Product features

The HÜNNEBECK folding scaffold is collapsible and, ready for use immediately on the building site, 1.80 m wide formwork units, which can be employed as working and protective formwork in accordance with EN 12810/11. The system comprises sections in the lengths of 3.0 m and 4.5 m, as well as the corner folding scaffold for the standard corner formation.

In addition there is an extensive range of accessories, for example KG Lower platforms, strut and railing extensions available. The folding scaffold consists of collapsible sections, their integrated bracings and suspensions, as well as the facing with side protection. The scaffold cover is composed of 5 cm thick, edge-protected planks. Posts and side protection bars are manufactured from square tubing, supplemented by a toe board.

All steel parts are galvanized and the wood is specially treated in accordance with DIN 68800. This guarantees both a long service life and a high standard of safety.

1.1 General information

This user guide contains important information regarding the assembly and use of the folding scaffold made by HÜNNEBECK as well as safety instructions that are important for a safe application on site.

The user guide is created to support effective working processes on site using the folding scaffold. Therefore, please read this user guide carefully before assembly and use of the folding scaffold. Also, keep this user guide at hand and archive it for future reference.

HÜNNEBECK products are exclusively designed for commercial use by technically qualified users.

1.2 Safety instructions

This section contains important information regarding the intended use and safe application of formwork and falsework.

- Risk assessment

The contractor is responsible for the compilation, documentation, implementation and revision of a risk assessment for each construction site. Employees are obliged to implement the measures resulting from this in accordance with all legal requirements.

- Installation instructions

The contractor is responsible for compiling a written set of installation instructions. The user guide is not usually identical to the installation instructions but can be part of the basis for the compilation of the installation instructions.

- User guide

Formwork is technical work equipment that is intended for commercial use only. The product must be used as intended exclusively by properly trained personnel and appropriately qualified supervising personnel. The user guide is an integral component of the formwork construction. It comprises minimum guidelines, details on the standard configuration and intended use, as well as the system description. The functional instructions (standard configuration) contained in the user guide are to be complied with as stated. Enhancements, deviations or changes represent a potential risk and therefore require separate verification (with the help of a risk assessment) or a set of installation instructions that comply with the relevant laws, standards and safety regulations. The same applies in those cases where formwork and/or falsework components are provided by the contractor.

This user guide is intended for commercial users with appropriate technical training. The contents and processes described are in accordance with the legal and occupational safety regulations of Germany and Austria. Hünnebeck assumes no liability for deviations from the contents and processes described or for use outside this area of application.

- Availability of the user guide
The contractor has to ensure that the user guide provided by the manufacturer or formwork supplier is available on site. Before the assembly and use the site personal has to be familiar with the user guide and the user guide must be available at all times.
- Images
The images shown in the user guide are, in part, situations of assembly and not always complete in terms of safety considerations. Nevertheless, the safety installations that may not be shown in these images must be available.
- Storage and transportation
The special requirements of the respective formwork constructions regarding transportation procedures as well as storage must be complied with. For example, the appropriate lifting gear should be indicated.
- Material check
Formwork and falsework material deliveries are to be checked on arrival at the construction site/place of destination as well as before each use to ensure that they are in perfect condition and function correctly. Changes to the formwork materials are not permitted.
- Spare parts and repairs
Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or authorized repair facilities only.
- Use of other products
Combining formwork components from different manufacturers carries certain risks. They are to be individually verified and can result in the compilation of a separate user guide required for the installation of the equipment.
- Safety warnings, Note and visual check
The individual safety messages or notes and the visual check are to be complied with.



DANGER

Danger!

Danger indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Warning!

Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Caution!

Caution used with the safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Note

Note refers to practices not related to personal injury.



VISUAL CHECK

Visual check refers to a visual check and is not related to personal injury.

- Miscellaneous

Technical improvements and modifications are subject to change without note.

For the safety-related application and use of the products, all current country-specific laws, standards and other safety regulations are to be complied with without exception. They form a part of the obligations of employers and employees regarding industrial safety. This results in, among other things, the responsibility of the contractor to ensure the stability of the formwork and falsework constructions as well as the structure during all stages of construction.

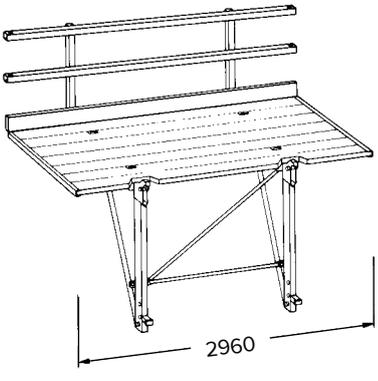
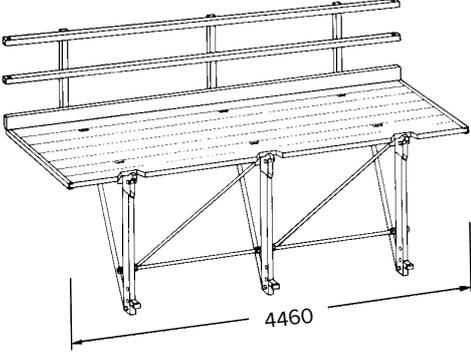
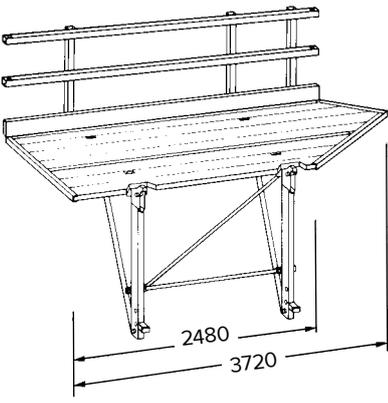
This also includes the basic assembly, stripping and the transport of the formwork and falsework constructions or their components. The complete construction is to be checked during and after assembly.



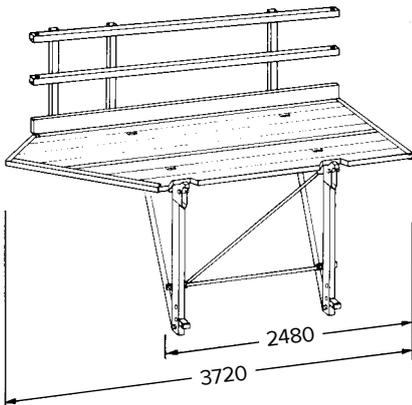
Copyright: Güteschutzverband Betonschalungen e.V.
Postfach 10 44 61
40855 Ratingen
Germany

2 Components

2.1 Basic elements

	Component	Product code	Weight [kg]
	<p>Folding scaffold 300</p> <p>Completely assembled scaffold units consisting of 2 collapsible brackets, their bracings, the impregnated and edge-protected board platform, as well as the guardrails made of square tubing with a wooden toe board.</p> <p>The guardrail is lockable at two points and can be collapsed for transportation purposes. The folding scaffold is equipped with lowable crane stirrups.</p>	<p>490005</p>	<p>283.30</p>
	<p>Folding scaffold 450</p> <p>As described above, but with 3 brackets.</p>	<p>490016</p>	<p>419.10</p>
	<p>Corner folding scaffold R (= Right)</p> <p>Pre-assembled scaffolding unit as described above, equipped with 2 brackets and an extended and reinforced punch guide on one side. The corner folding scaffold R together with the corner folding scaffold L forms the system solution for corners maintaining the entire width of the platform even in corner areas due to the shapes of these projecting parts.</p> <p>At the same time, 5 meters of wall are scaffolded.</p>	<p>533745</p>	<p>346.00</p>

	Component	Product code	Weight [kg]
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Corner folding scaffold L (= Left)

533756

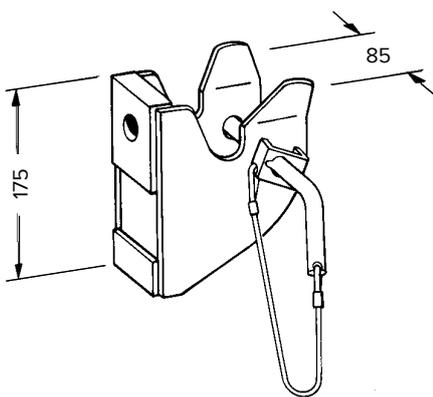
346.00

as described above.

NOTE

Note

Corner folding scaffold R + L for the corner solution provided only in pairs. The corner folding scaffold can also be used on wall areas. (See page 16.)

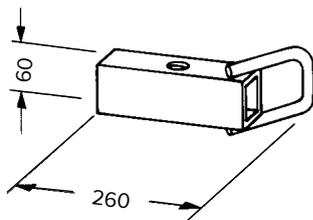


Bracket bearing

463010

3.60

Anchored to the building and serves as a suspension for the brackets of the folding scaffold. Unintentional unhinging is eliminated by securing it with the safety bolt.



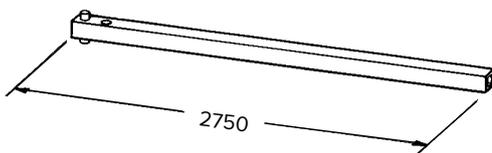
KG corner connection

498229

1.60

In the corner region this part is pushed onto the guardrail tubing of the scaffold and secured with one waler bolt D20 + spring pin.

The KG corner rails of the scaffold are guided through the hooks of the KG corner connections (4 pcs. per corner).

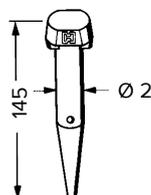


KG corner rail

498230

9.10

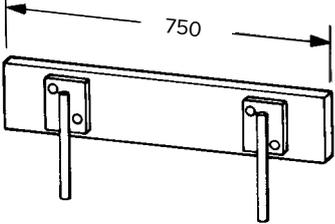
The gap in the corner region is closed with KG corner rails which are pushed into place (2 for each corner, wall and knee rail). The KG corner rail is secured against falling out of place by a waler bolt D20 + spring pin.



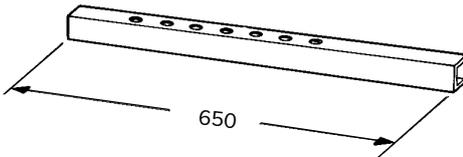
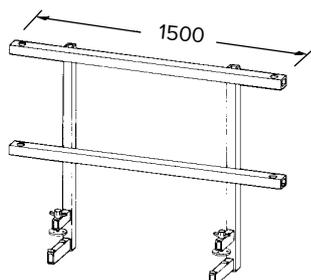
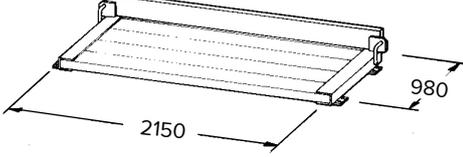
Waler bolt D20

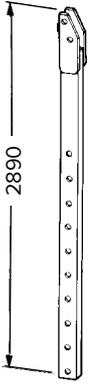
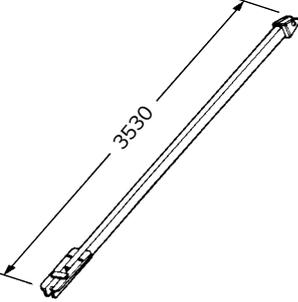
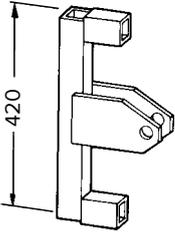
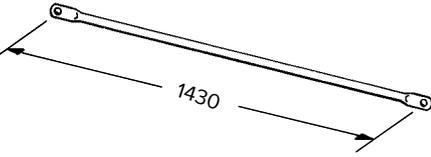
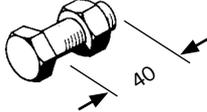
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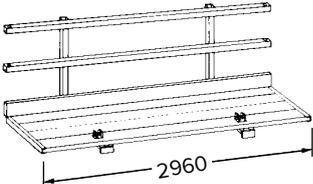
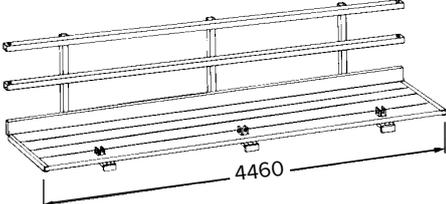
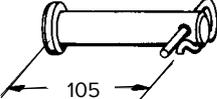
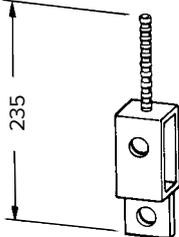
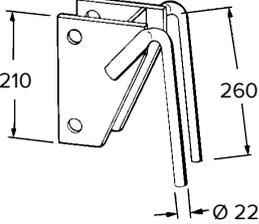
0.30

	Component	Product code	Weight [kg]
 <p>A technical drawing of a spring pin, which is a long, thin metal rod with a coiled spring end. A dimension line indicates a diameter of $\varnothing 0.4$.</p>	<p>Spring pin Secures the coupling of the KG corner connection, the KG corner rail and the KG rail extension.</p>	<p>173776</p>	<p>0.01</p>
 <p>A technical drawing of a KG corner toe board, a rectangular metal plate with two vertical slots. A dimension line indicates a length of 750.</p>	<p>KG corner toe board closes the toe board gap on the corner folding scaffold R + L. It is simply inserted into the retaining holes of the cover.</p>	<p>534202</p>	<p>3.50</p>

2.2 Supplementary equipment

	Component	Product code	Weight [kg]
 <p>A technical drawing of a KG rail extension, a long, narrow metal strip with a series of holes along its length. A dimension line indicates a length of 650.</p>	<p>KG rail extension The guardrail compensations in the region of the wall are shored up by the KG rail extensions. Unilaterally pushed into place on the guardrail tubing of the adjacent scaffolding units and secured with one waler bolt D20 + spring pin in the perforated strip. Adjustment up to 50 cm = 2 pcs. Adjustment between 50 and 100 cm = 4 pcs.</p>	<p>498218</p>	<p>3.60</p>
 <p>A technical drawing of a KG rail transversal, a metal frame consisting of two horizontal rails supported by two vertical posts. A dimension line indicates a length of 1500.</p>	<p>KG rail transversal An entire guardrail unit that is clamped to the edge of the planking of the scaffolding unit, e.g. as a KG rail transversal at the ends of scaffolds, which are not equipped with surrounding platforms.</p>	<p>498115</p>	<p>23.70</p>
 <p>A technical drawing of a KG corner plank, a rectangular metal plate with a raised edge. Dimensions are shown as 2150 in length and 980 in width.</p>	<p>KG corner plank Bridges the platform planking if scaffold corner units are not employed, but the folding scaffolds 300 + 450 are being used. The planking is equipped with toe board, edge protection, crane hoops and fixing plates for securing purposes.</p>	<p>498446</p>	<p>69.40</p>

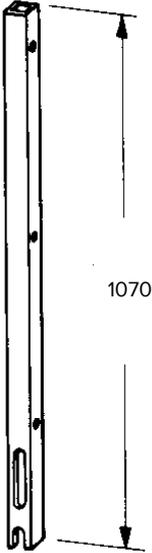
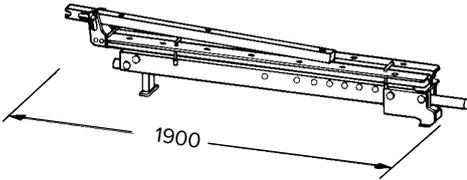
	Component	Product code	Weight [kg]
	<p>KG suspension bar</p> <p>The vertical section of the brackets in the folding scaffold is extended with the KG suspension bar. It is connected with 2 bolts 105 + spring pin and is able to support both the KG bearer bar and KG bearer, as well as the KG lower platform.</p>	526330	26.00
	<p>KG bearer bar</p> <p>With the use of the KG bearer bar in connection with the KG suspension bar a lower supporting point on the building can be located for the folding scaffold (e.g. in the case of open facades). Two must be provided for each KG bearer bar.</p>	530259	23.30
	<p>KG bearer</p> <p>Using one bolt 105 + spring pin the KG bearer can be fixed into the perforated strip of the KG suspension bar at the required height for the supporting point.</p>	530215	5.70
	<p>Folding scaffold horizontal</p> <p>As a horizontal bracing this tube is mounted at the lower connection point of the KG bearer bar with 2 bolts M 20 x 40 + nut 4.6.</p>	490200	2.40
	<p>Bolt M 20 x 40 + nut 4.6</p> <p>Fixes the folding scaffold horizontal to the KG bearer bar.</p>	001300	0.20

	Component	Product code	Weight [kg]
	<p>KG lower platform 300</p> <p>By means of the KG lower platform, the folding scaffold is furnished with a supplementary working level.</p> <p>Reworking on the facade can be performed from this platform. The board platform and railings are executed as per the folding scaffold. The platform bearers located on the axis of the brackets enable coupling to the KG suspension bar with 4 bolts 105 + spring pin in the KG lower platform 300 (6 bolts 105 + spring pin in the KG lower platform 450).</p>	526569	157.60
	<p>KG lower platform 450</p> <p>See above.</p>	526570	238.20
	<p>Bolt 105 + spring pin</p> <p>Connector for KG suspension bar, KG bearer and KG lower platform.</p>	154127	0.29
	<p>KG connector</p> <p>Enables the connection of a formwork diagonal strut as well as a wind tension strip. It is secured to the platform of the folding scaffold with a waler bolt D20 + spring pin.</p>	536109	0.78
	<p>KG hook</p> <p>Replaces the installed suspension when the anchoring of the formwork is to be accomplished through reinforcement loops.</p>	526190	5.60

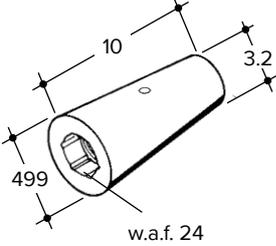
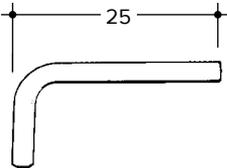
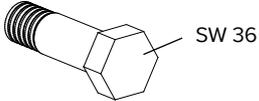
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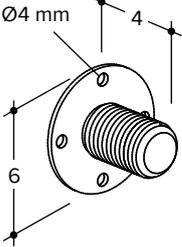
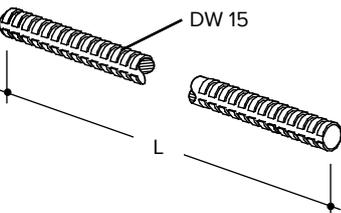
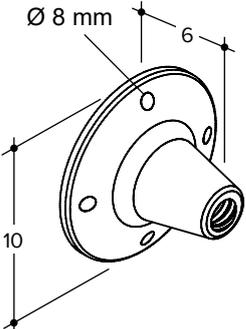
Note

Attention: Not for rental! Sales only!

	Component	Product code	Weight [kg]
	<p>KG single post</p> <p>Whenever special lengths are required in the railing, the KG single post is equipped with board rails on site.</p>	<p>490678</p>	<p>5.10</p>
	<p>KG single bracket</p> <p>Employed for the production of folding scaffolds in special lengths. The planking* and the rail planking* are created and mounted on site.</p> <p>*Dimensioning of the timber parts in compliance with static requirements.</p>	<p>529573</p>	<p>59.60</p>

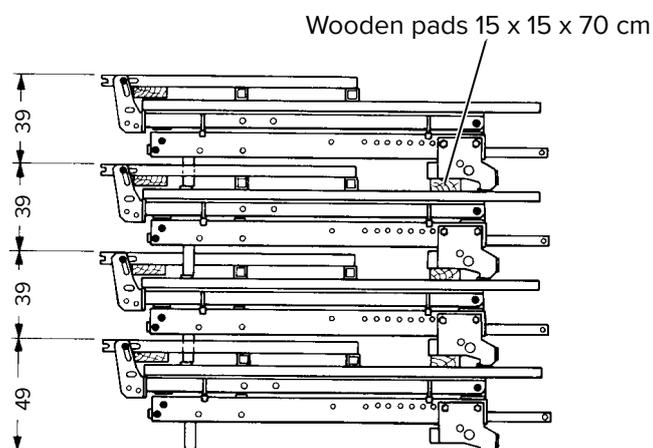
2.3 Anchoring parts

	Component	Product code	Weight [kg]
	<p>Tie cone M24/DW15</p> <p>The anchor cone M24/DW15 is equipped with a M24 thread at the front to mount the bracket bearing. The lost anchoring parts are retained at the other side in the DW15 thread. The cone is removed from the concrete by using a turnscrew w.a.f. 24..</p>	<p>496664</p>	<p>0.65</p>
	<p>Allen key w.a.f. 24</p> <p>To remove the cones from the concrete.</p>	<p>542 471</p>	<p>1.25</p>
	<p>Fit bolt M24 x 70 Z 8.8</p> <p>Fixes the bracket bearing to the anchor cone. A ratchet with extension and a 36 mm socket is required for mounting.</p>	<p>185 635</p>	<p>0.47</p>

	Component	Product code	Weight [kg]
	<p>Nailable disc M24</p> <p>Is nailed to the form sheet to secure the anchor cone. A 12 mm allen key is required for disassembly.</p>	<p>515947</p>	<p>0.16</p>
	<p>1 running meter tie rod (DW15)</p> <p>Lost anchoring part. Is cut to length on site and is embedded into the concrete together with the collar nut DW15 and the anchor cone.</p> <p>Follow the installation instructions!</p>	<p>164811</p>	<p>1.44</p>
<div style="display: flex; align-items: center;">  <div style="background-color: #f4a460; padding: 5px; display: inline-block; font-weight: bold; color: white;">WARNING</div> <div style="margin-left: 10px;"> <p>Warning!</p> <p>Do not weld tie rods! Danger of breakage!</p> </div> </div>			
	<p>Collar nut DW15</p> <p>It is used with the tie rod as anchoring for the anchor cone.</p>	<p>602091</p>	<p>0.90</p>

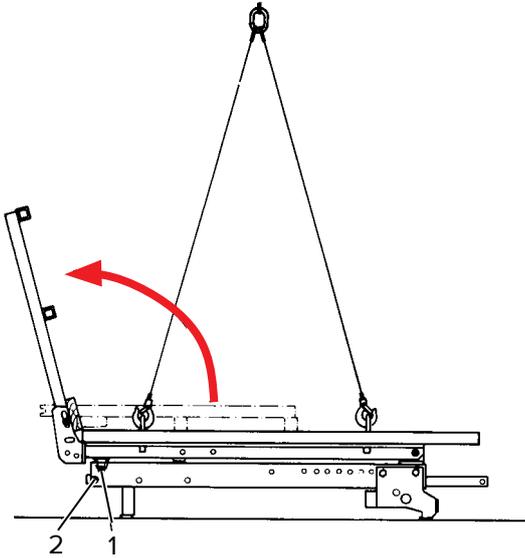
3 Assembly and dismantling

Delivery situation

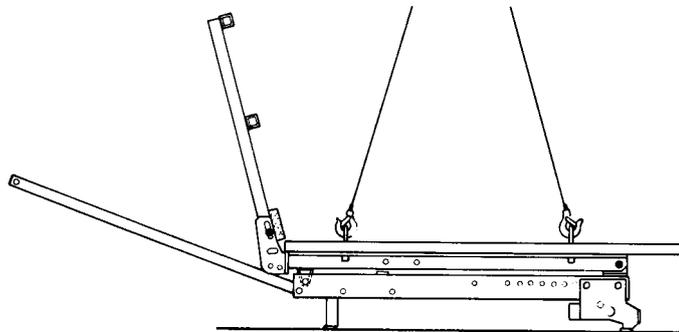


Erection:

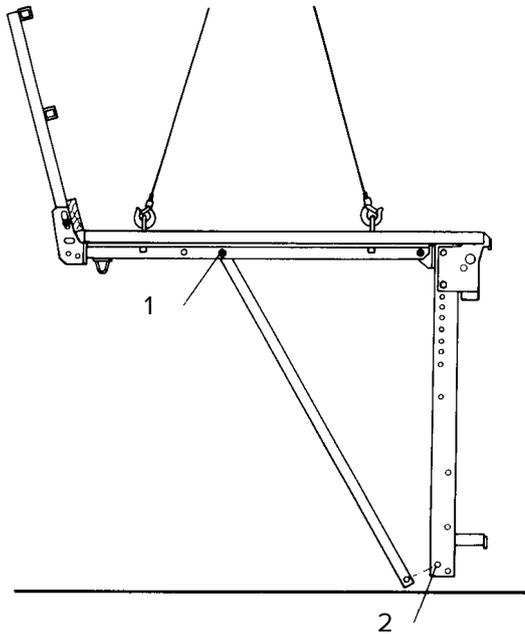
- Step 1** Position the railings, elevate and allow them to lock into place as required (straight or inclined).
Remove the crane loops and connect a four-fold hanger.



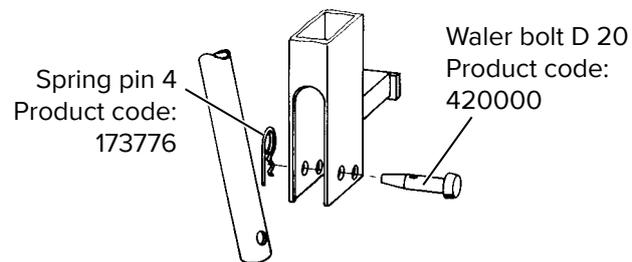
- Step 2** Remove the bolts (1) for the shipping lock and the bolts (2) securing the diagonal tubing. Then remove the diagonal tube from the vertical strut of the platform of the folding scaffold.



Step 3 Lift the folding scaffold ca. 2 m with the crane and secure the diagonals with the bolts (1 + 2). The folding scaffold is now ready for use.



Securing the diagonal tube:

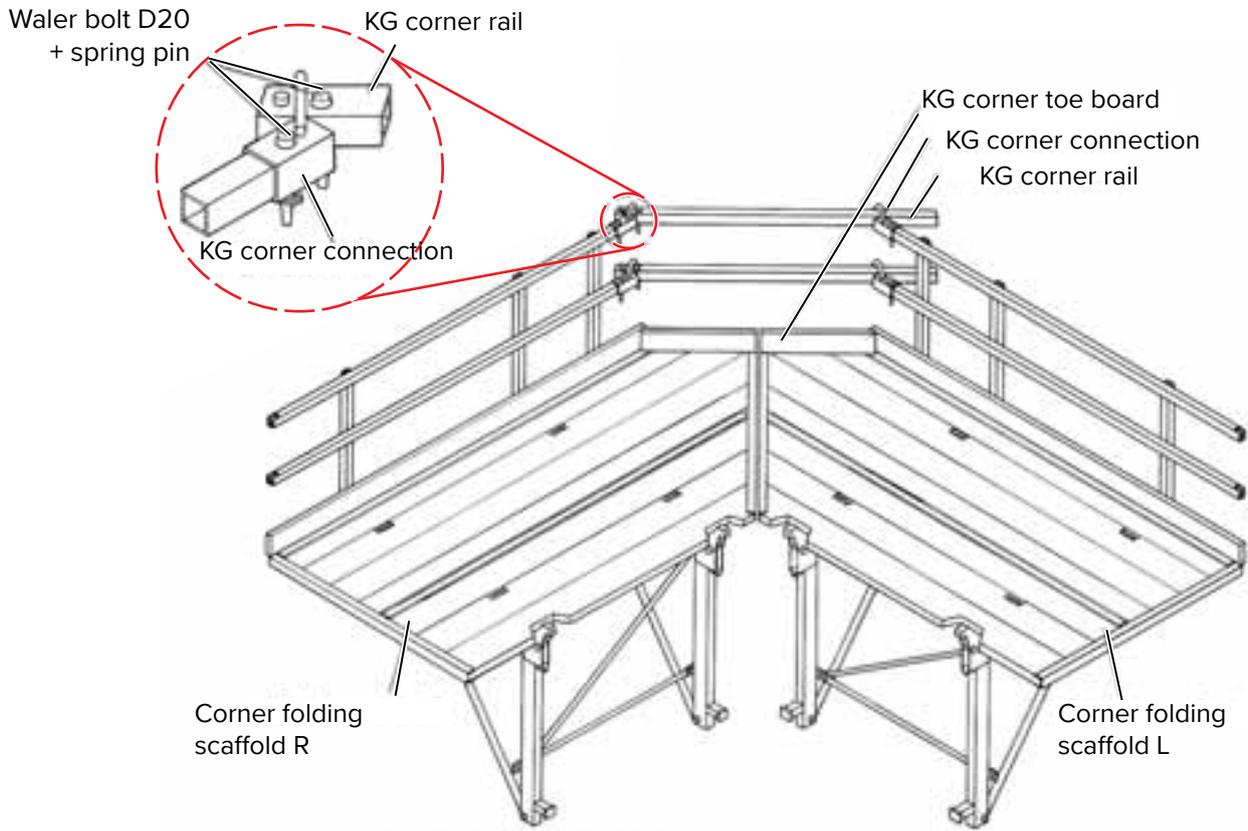


Dismantling:

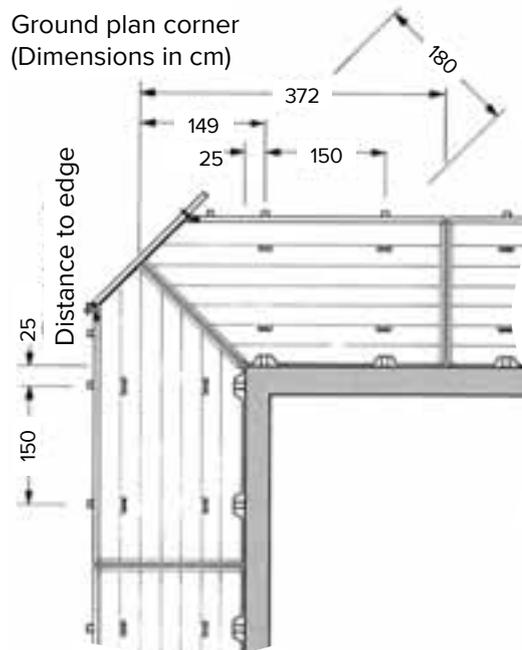
The folding scaffold is folded together once again in reverse sequence.

4 Corner formation

4.1 Corner formation with corner folding scaffolds

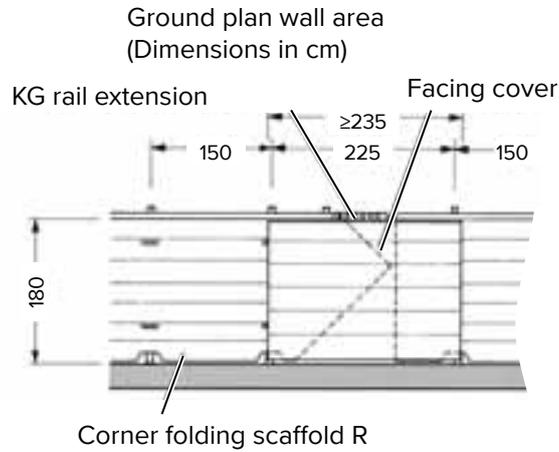


The formation of a corner scaffold is accomplished with the corner folding scaffolds R and L, which are always used pairwise. The entire platform width of 180 cm is maintained by the use of these scaffold units. The railings are locked by means of the insertion and fixation of the KG corner rails into the hooks of the KG corner connection. Location holes are provided in the planking for the KG corner toe board. The positioning of the railings can be freely selected (vertical or externally inclined).

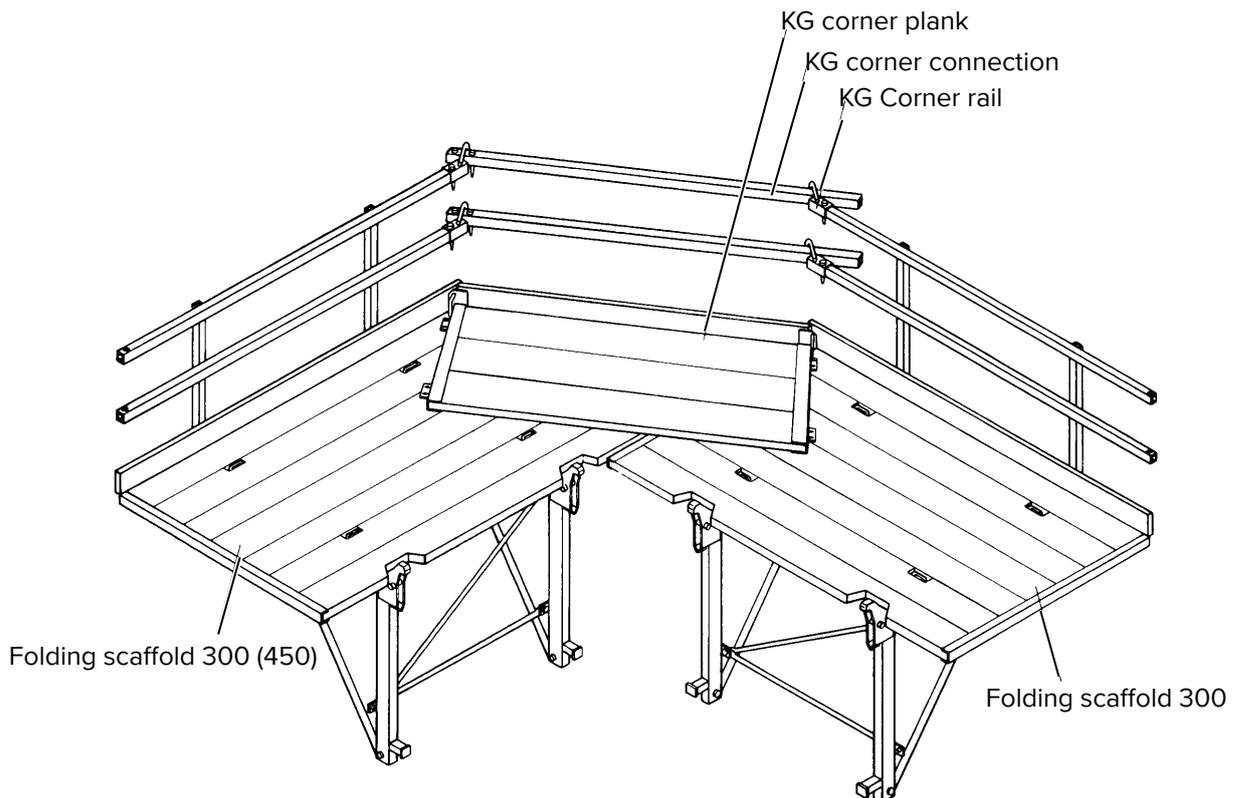


Use in wall areas

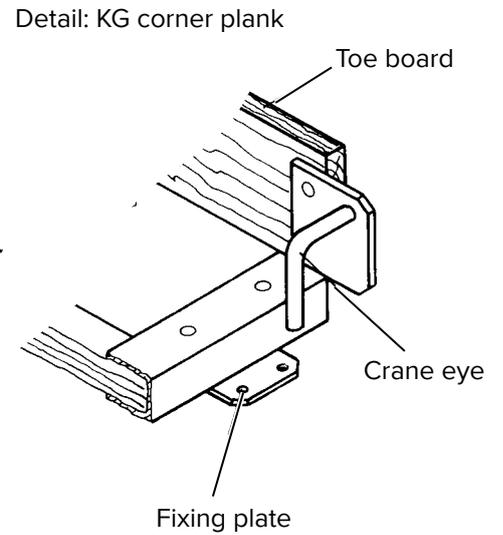
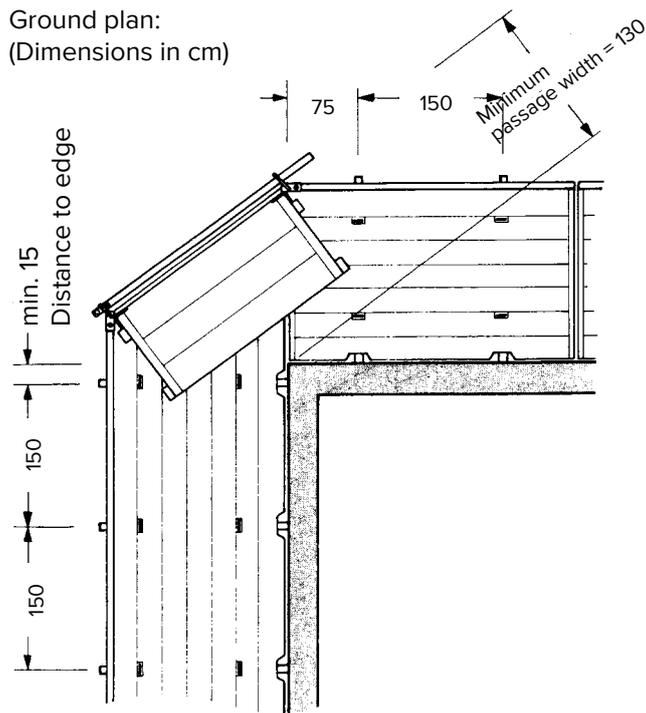
The corner folding scaffolds R and L can be employed in wall areas. The gap arising due to the form of the formwork unit is covered with planks, min. 24/4.5 cm. The railings must be locked by KG rail extensions (see page 18).



4.2 Corner formation with facing cover



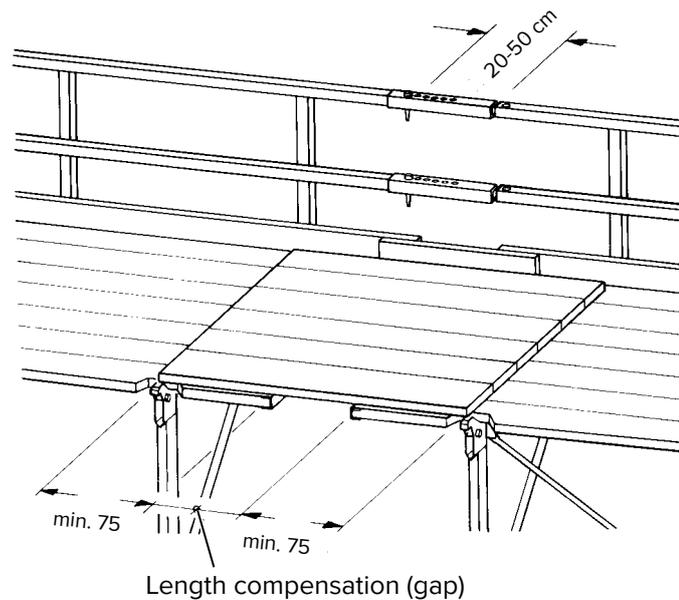
On application within the scaffold groups ranging from 1 to 4 it is possible to execute the corner transition without standard corner folding scaffolding. The gap arising in the corner transition will be covered with the KG corner planks. These are secured against displacement by nails following the positioning on the folding scaffold. In the standard corner design the railing is locked and closed with KG corner connections and KG corner rails. The KG toe board is integrated in the KG corner plank.



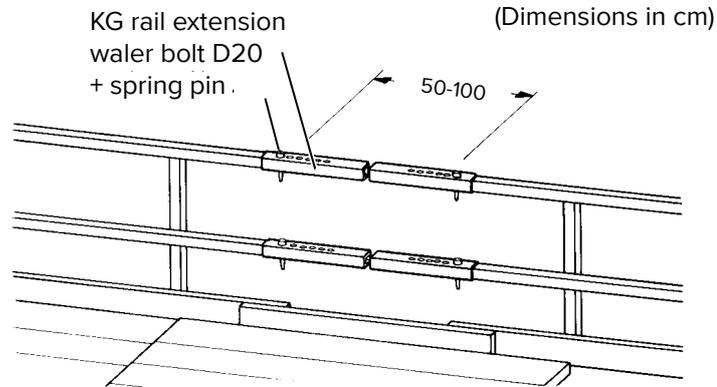
5 Length compensation

5.1 Length compensation with facing cover

On application of the folding scaffolds gaps could occur during the length adjustment, which must be bridged by a plank. Hence planks with dimensions of at least 24/4.5 cm are necessary (toe board 15/3 cm). The length is calculated from the plank gap + 2 x min. 75 cm bearing length. The planks must be secured against displacement by appropriate measures.



The gap in the railing is closed with the KG rail extension. On one side (on two sides in the case of adjustments from 50 to 100 cm) it is pushed onto the railing posts of the adjacent scaffold units and secured with one water bolt D20 + spring pin. Observe the maximum compensation width for the arising load condition!



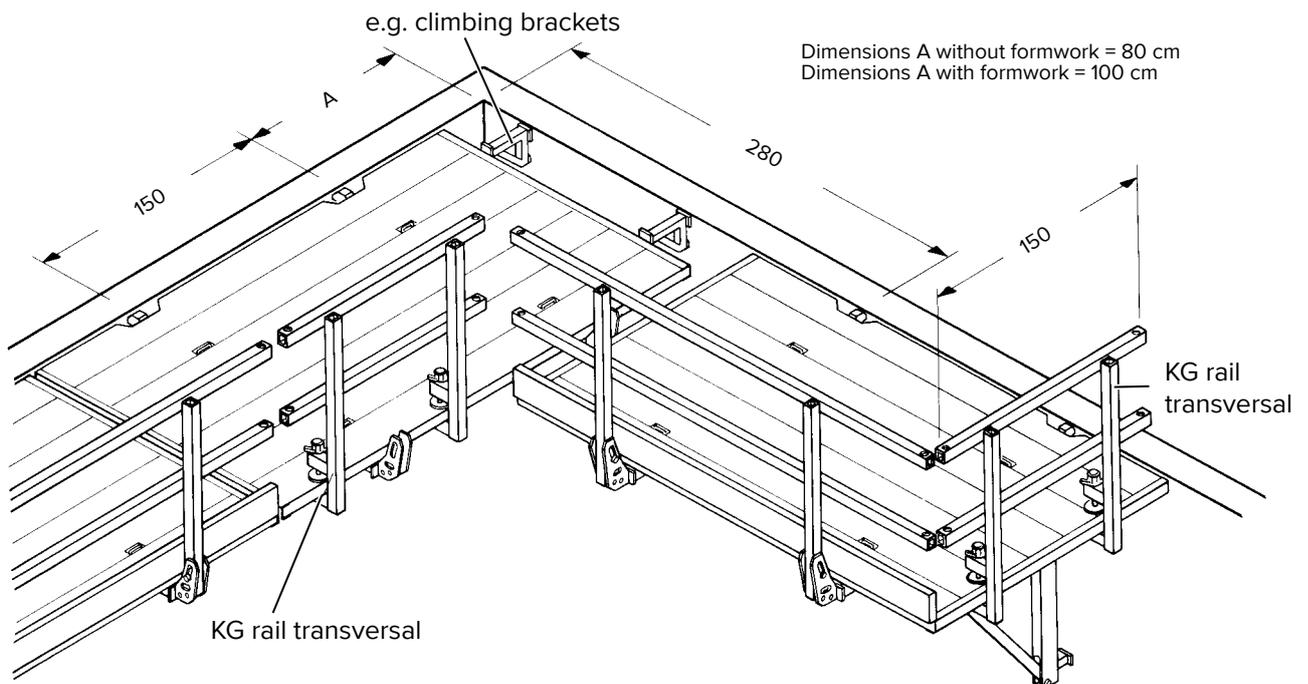
WARNING

Warning!

On application as a safety scaffold the guidelines specified on page 24 must be adhered to!

KG Rail transversals at the end of the scaffold

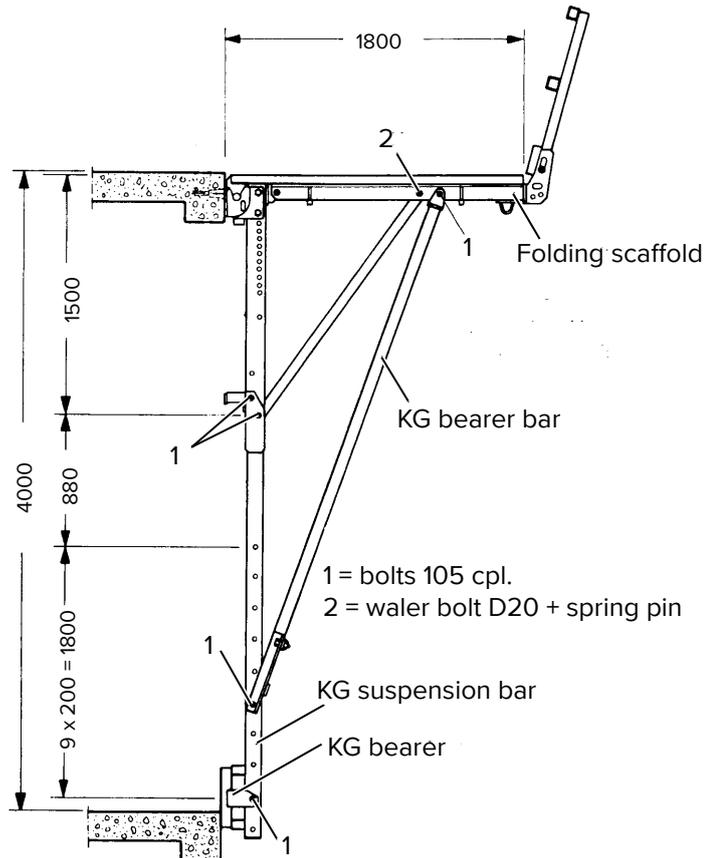
The KG Rail transversal of the folding scaffold is a guardrail unit 150 cm long, which is clamped to the edge of the plank of the folding scaffold. Possible use would be, for example, at the ends of the scaffolding, (when the platform does not surround the building completely) as well as in inside corners of buildings. In this case the standard guardrails are removed and replaced by the KG Rail transversal of the folding scaffold in order to maintain the necessary passageway. It must be ensured that the scaffolding is not loaded diagonally on the longitudinal axis by the weight of the formwork. Hence in application of the formwork, brackets (e.g. climbing brackets 1, product code 021692) must be provided. The length of the KG rail transversal can be extended up to 250 cm.



6 Strut extension

In the case of the application of a strut extension, the folding scaffold can also be employed on buildings with frame construction or in regions with extensive openings in walls. The bearing point of the scaffold is then variable and can be maximum 400 cm below the scaffold level. In this structural design the folding scaffold in scaffold group 3 in accordance with DIN 4420 Part 1 (with or without formwork) can be employed.

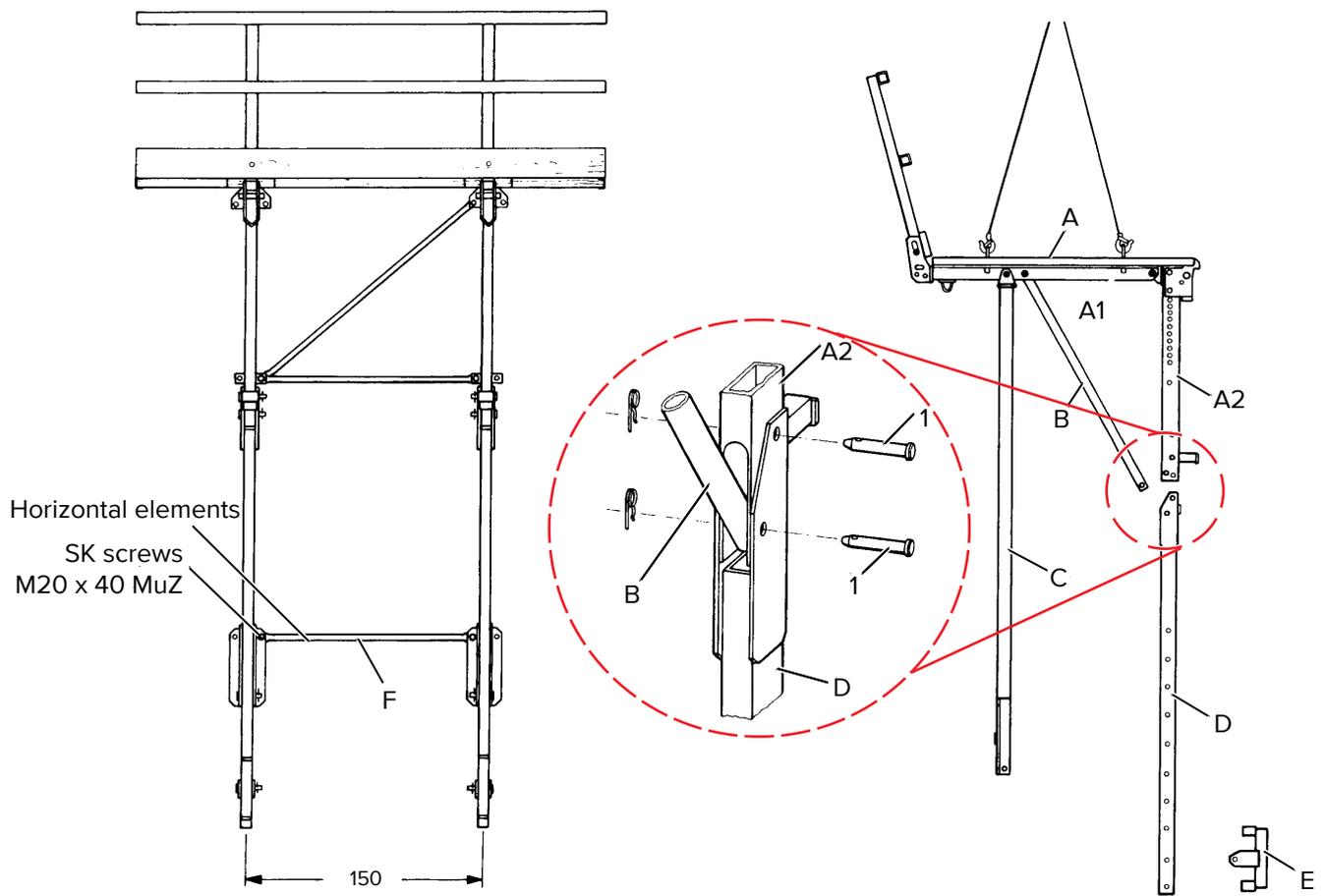
Assembly and mounting sequence:



- Step 1** Lift the folding scaffold unit A with the help of a crane (see page 12).
- Step 2** Mount the diagonal tube B and KG bearer bar C to the horizontal bracket bearer A1 (with respectively one bolt 1 + 2).
- Step 3** Fix the KG suspension bar D to the vertical bracket bearer A2 using two bolts. The diagonal tube B is also held in position by one of these bolts.
- Step 4** Now the KG bearer bar C is connected with the KG suspension bar D with one bolt (1) and the KG bearer E is brought into the required position.
- Step 5** For reinforcement, the horizontal F is mounted using 2 x bolt M20x40 + nut 4.6.

Strut extension comprising: Description	Product code	Number of pieces for	
		KG 300	KG 450
KG suspension bar	526330	2	3
KG bearer bar	530259	2	3
KG bearer	530 215	2	3
Folding scaffold horizontal	490200	1	2
Bolt 105 + spring pin	154127	10	15
Bolt M20x40 + nut 4.6	011300	2	4

Strut extension

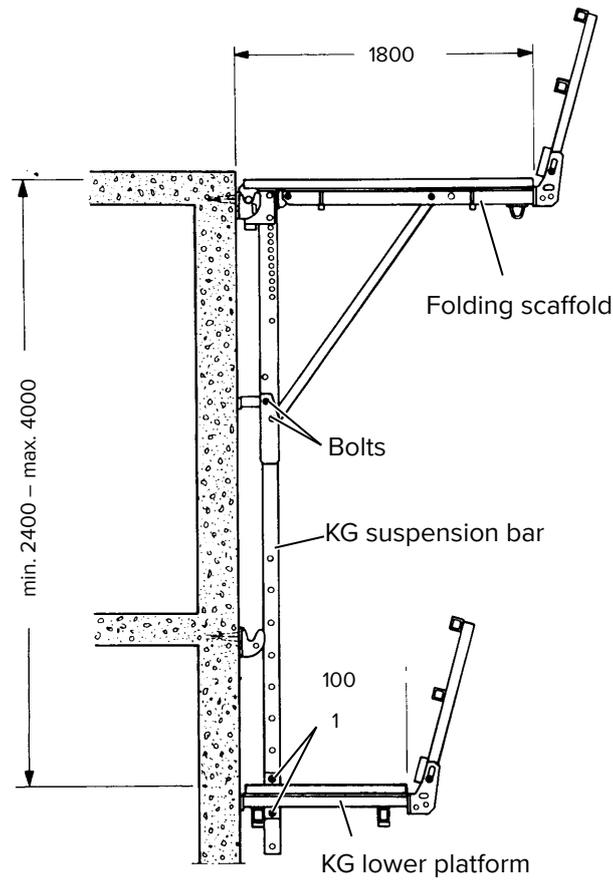


7 KG lower platform

The application of KG lower platforms creates a supplementary lower working level. The clearance to the top scaffold platform is adjustable (20 cm grid) and amounts to max. 400 cm.

From the KG lower platform, predominantly when formwork is used, different work such as the dismantling of suspension parts, the mounting of necessary wind protections as well as reworking on the facade can be performed. The KG lower platform has a load bearing capacity in compliance with the scaffold group 2 defined in DIN 4420 Part 1.

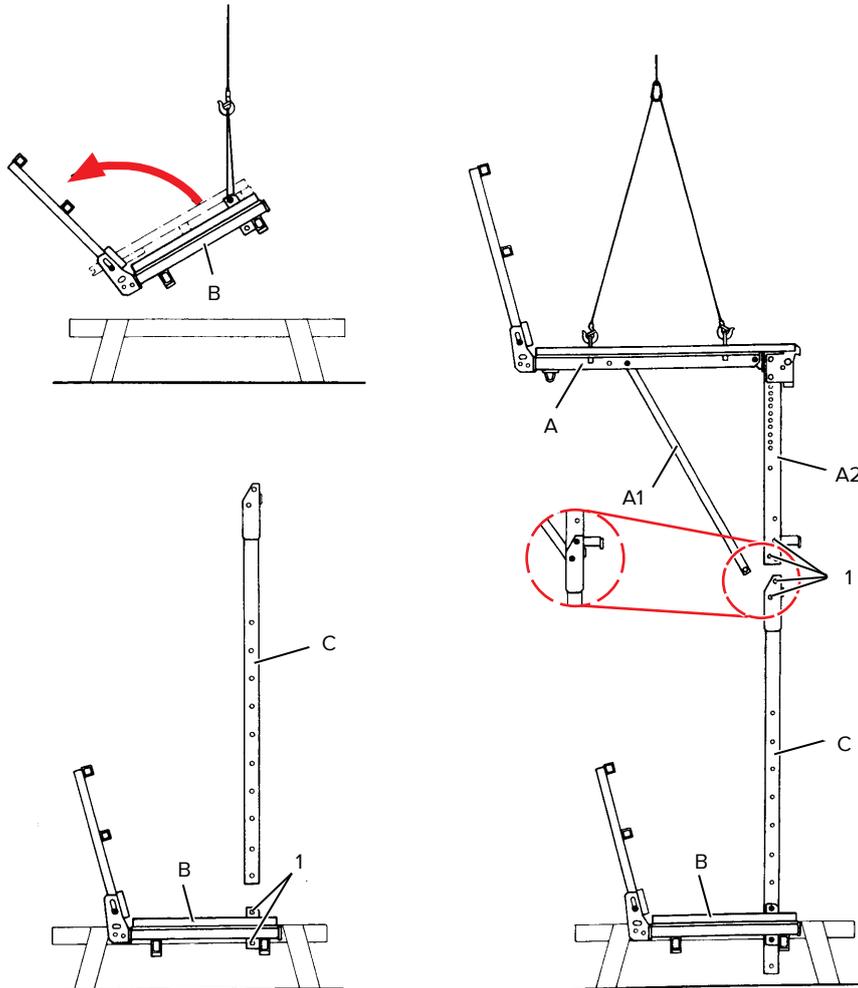
KG lower platform comprising:	Product code	Number of pieces for	
		KG 300	KG 450
KG lower platform 300	526 569	1	-
KG lower platform 450	526 570	-	1
KG suspension bar	526 330	2	3
Bolt 105 + spring pin	154 127	8	12



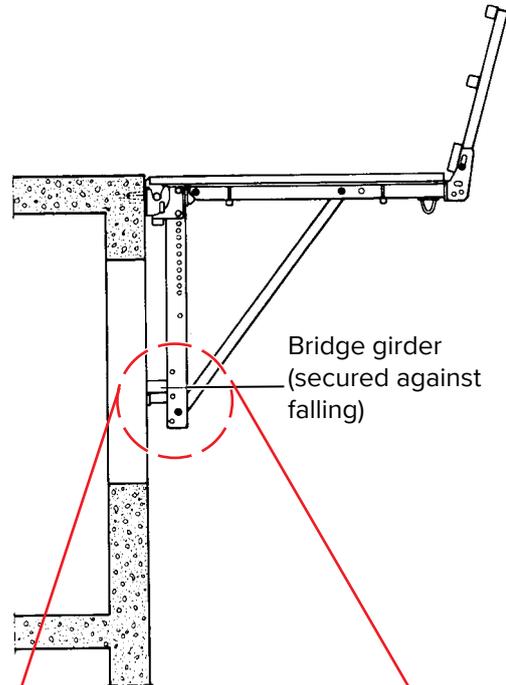
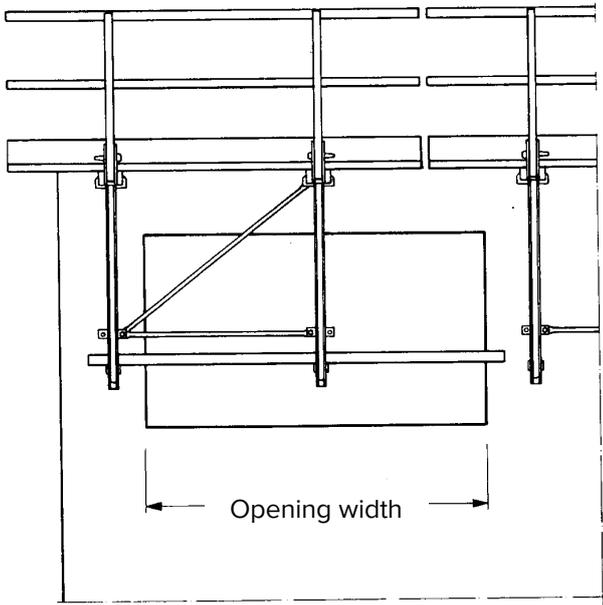
Assembly and mounting sequence:

- Step 1** The KG lower platform B is positioned on trestles using the crane. This auxiliary construction from building site materials is required when the platform clearance should be < 380 cm.
- Step 2** When the railing is unfolded, the KG suspension bar C is guided through the holes located in the bracket axis and fixed at the required height using 2 bolts 1. (Observe the correct position of the KG suspension bar C.)

Step 3 The folding scaffold unit A is erected as described on page 12 and guided over the KG lower platform hanging in the cable of the crane. The diagonal tube A1 is not connected at the bottom during this process. The crane lowers the platform so far that the vertical bracket girder A2 can be connected in the hinge of the KG suspension bar C with 2 bolts 1. At the same time the diagonal tube A1 is mounted.

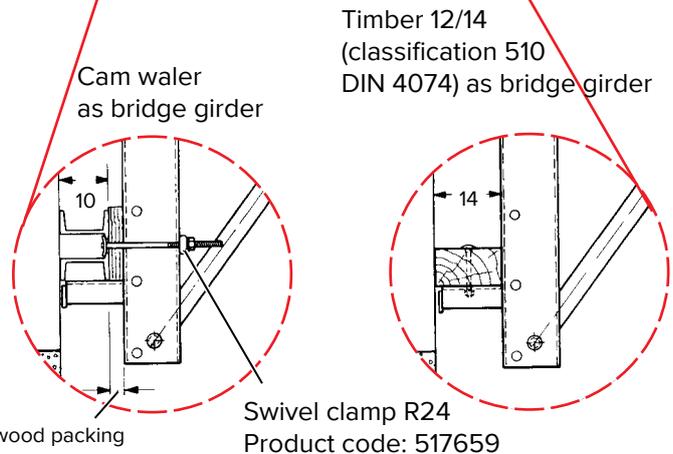


8 Bridging of openings



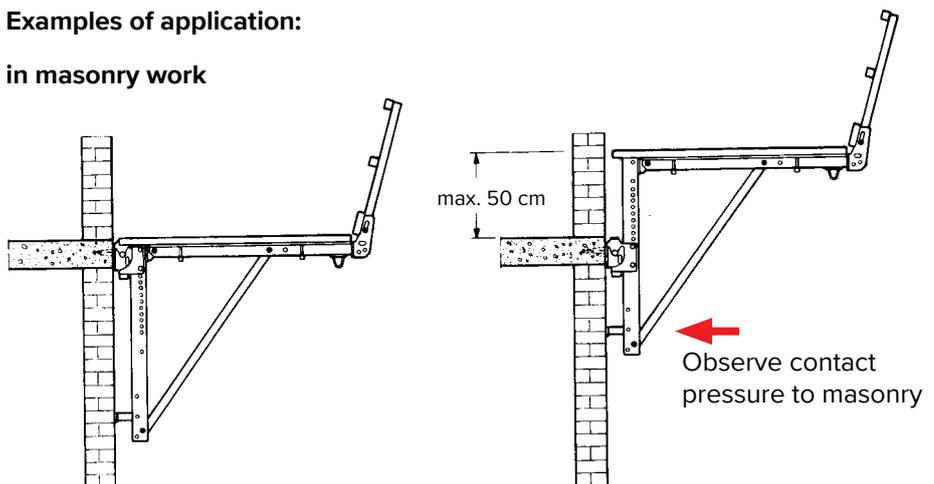
Bridge girder	Possible opening width in application as working scaffold + service scaffold	
Square shaped timber 12/14 cm	1.40 m	1.00 m
Cam waler	4.00 m	3.00 m
Scaffold group	up to SG 3	up to SG 6

SG = scaffold group in accordance with DIN 4420 Part 1



9 Height offset of the suspension

Examples of application:
in masonry work

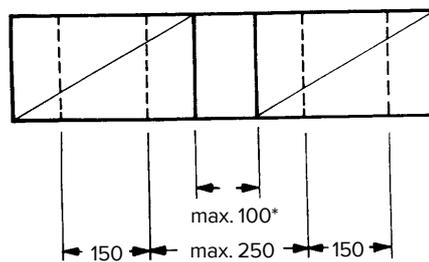


10 Application as protection scaffold

The folding scaffold can be used as a protection scaffold in accordance with DIN 4420 Part 1 classification scaffold group 3 (area related effective weight 200 kg/m²). The standard suspension as well as the loop hook can be employed in this case. The maximum compensation between the scaffold units amounts to 1.0 m. A height offset in the suspension of up to 50 cm is permissible. All particulars with regard to use as a protection or working scaffold are relevant for a height of 100 m above the ground (excluding the region of the German Bight as well as locations that are more than 1200 m above sea level).

Detail: Length compensation

Ground plan: (Dimensions in cm)



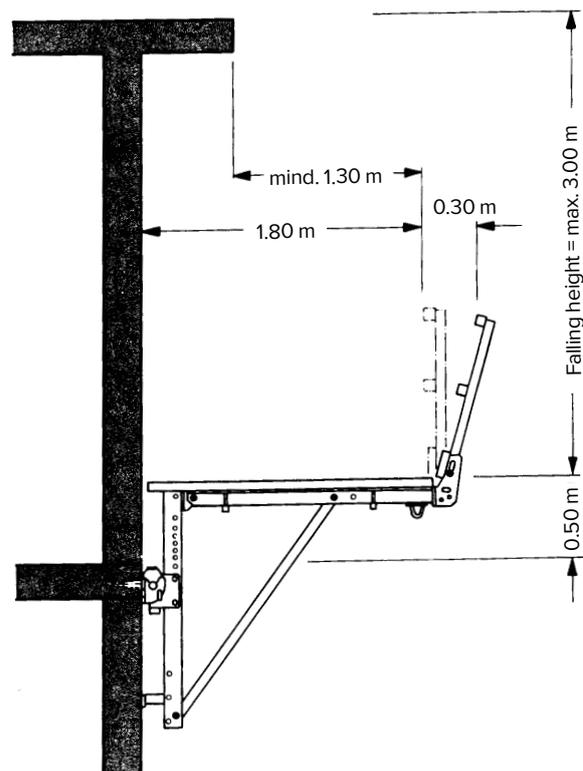
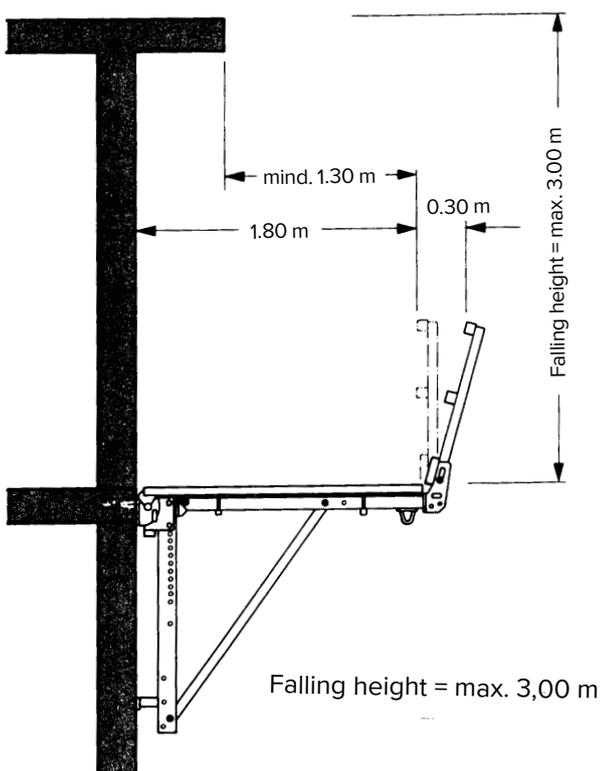
*= The actual dimensions of the offset are always 4 cm larger than the specified system dimensions.

Planking bridge for application of safety scaffold: up to a gap of 50 cm in the facing; 1 bearing plank 24 x 5 cm.

1. Folding scaffold as safety scaffold in accordance with DIN 4420 Part 1

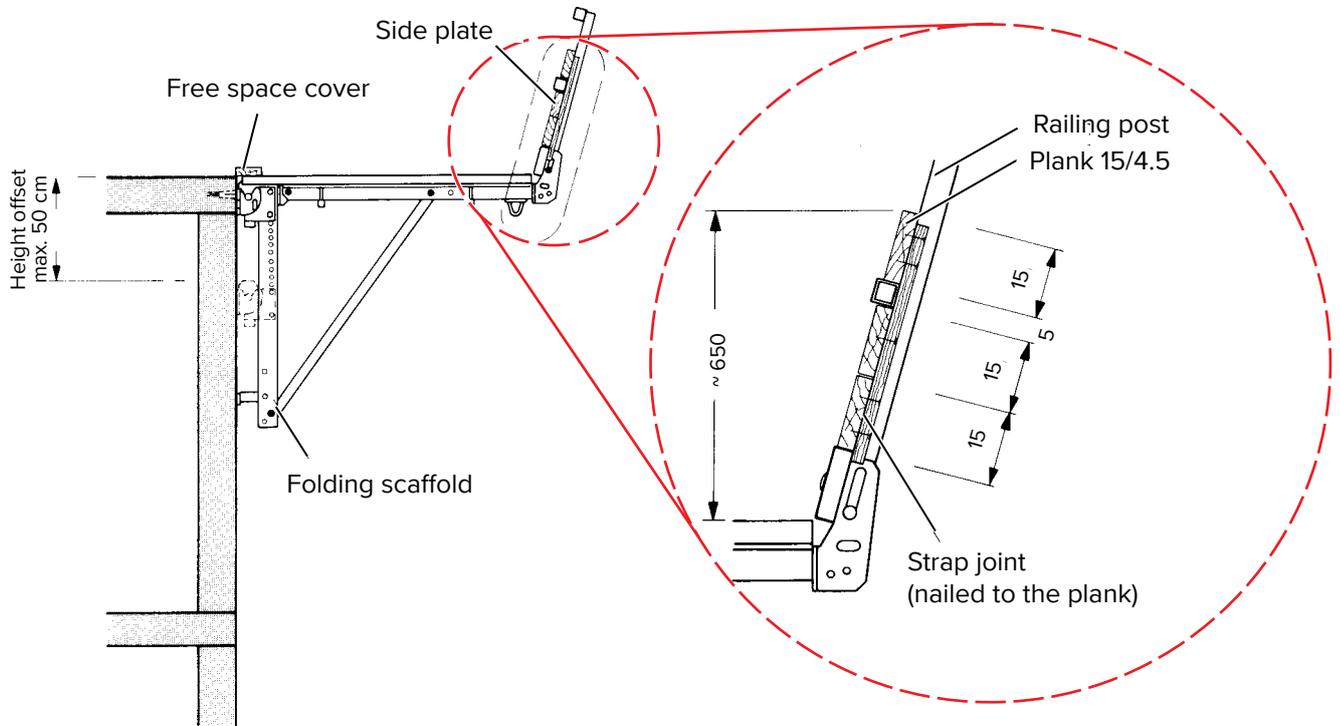
Use in normal position (without height offset)

Application with height offset of 50 cm



2. Folding scaffold as protective canopy in accordance with DIN 4420 Part 1

If the folding scaffold is used as a protective canopy, a board panel at least 60 cm high must be created by the insertion of planks measuring 15/4.5 cm into the guardrails. The planks are secured by means of strap joints arranged next to each post. The free space between the scaffold and the masonry must be covered with planks.



3. Folding scaffold as safety roof scaffold in accordance with DIN 4420 Part 1

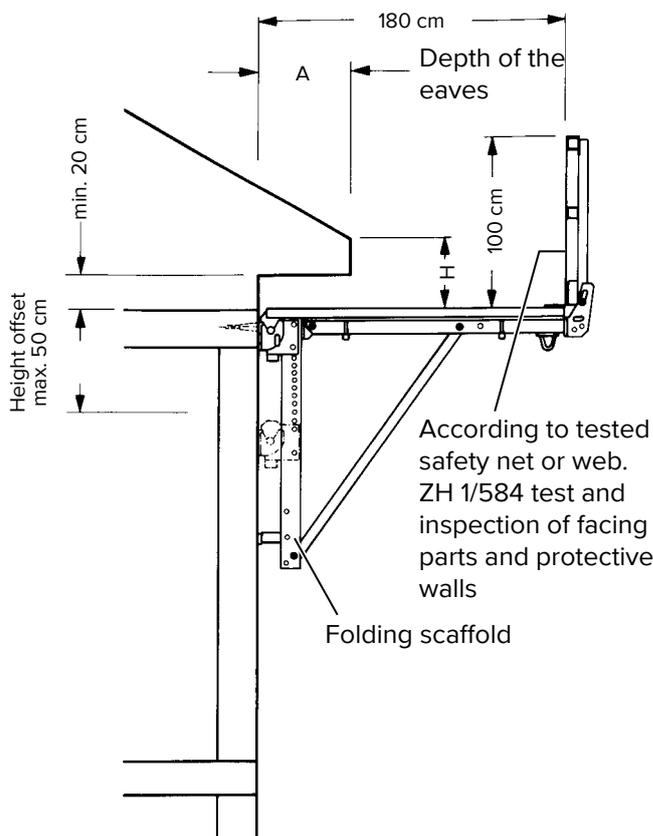
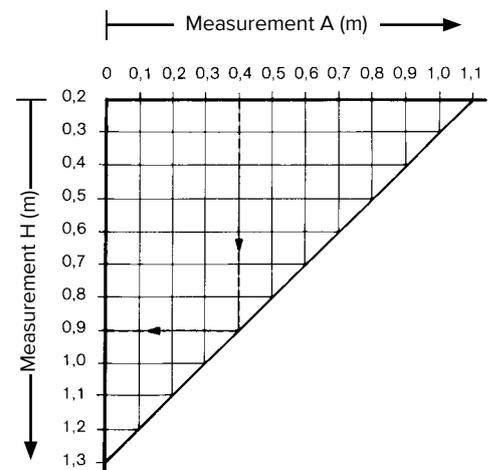


Diagram for the determination of the maximum height position of the facing dependent on the depth of the eaves.



Example of determination of the maximum dimension "H".
(Clearance eave depth - facing).

Eave depth dimension "A" = 0.4 m
Resulting dimension "H" = 0.9 m

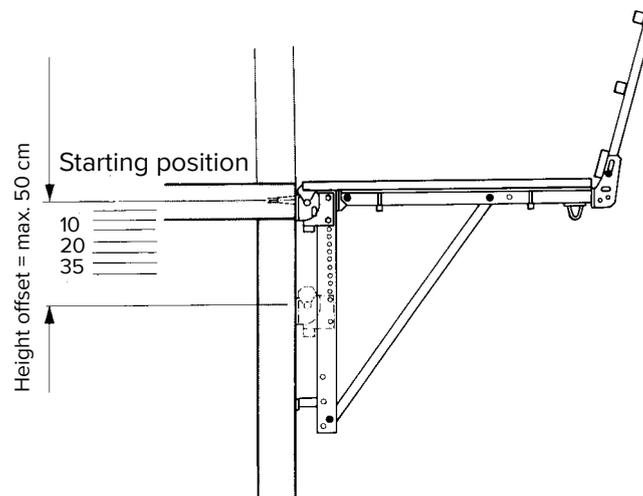
11 Application as working scaffold

The folding scaffold can be employed both as working scaffolds without formwork with high live loads (e.g. due to reinforcement) as well as with formwork with a reduced live load (without material lining).

Overview:

1. Working scaffold without formwork.
2. Working scaffold with formwork supported on floor structure (inside building).
3. Working scaffold with formwork supported on folding scaffold.

1. Working scaffold without formwork.



Opportunities for application in the classified scaffold groups 3 to 6					
Scaffold group:	3		4	5	6
Area related effective load	200 kg/m ²		300 kg/m ²	450 kg/m ²	600 kg/m ²
Load due to formwork:	with		without		
Max. height offset to starting position:		50 cm*	50 cm*	35 cm	20 cm
Corner formation with corner folding scaffolds R + L:	applicable				
Corner formation with covering according to page 15	applicable	applicable	applicable	applicable	
Length compensation:	100 cm:	100 cm:	100 cm:	100 cm:	50 cm:
KG lower platform	applicable	applicable			
Strut extension:	applicable	applicable			
Loop hooks:		applicable			

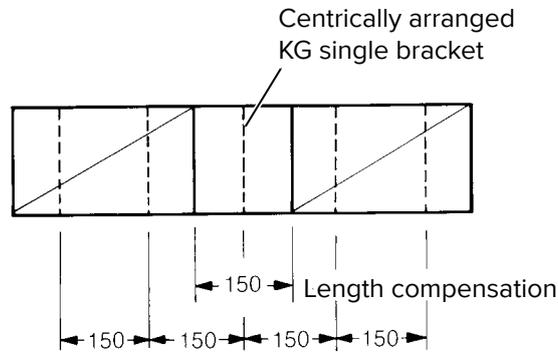
*If loop hooks are employed a maximum height offset of ≤ 25 cm is admissible. A height offset of up to maximum 50 cm is enabled by restricting the length compensation to ≤ 40 cm.

In the case of concentric support by means of a KG single bracket, length compensations of 1.50 cm are possible.

Detail: Length compensation

Ground plan:

(Dimensions in cm)



2. Working scaffold with formwork supported on floor structure.

Folding scaffold: scaffold group 3 in accordance with DIN 4420 (area-related effective load: 200 kg/m²).

Wall formwork up to a maximum height of 5.40 m.

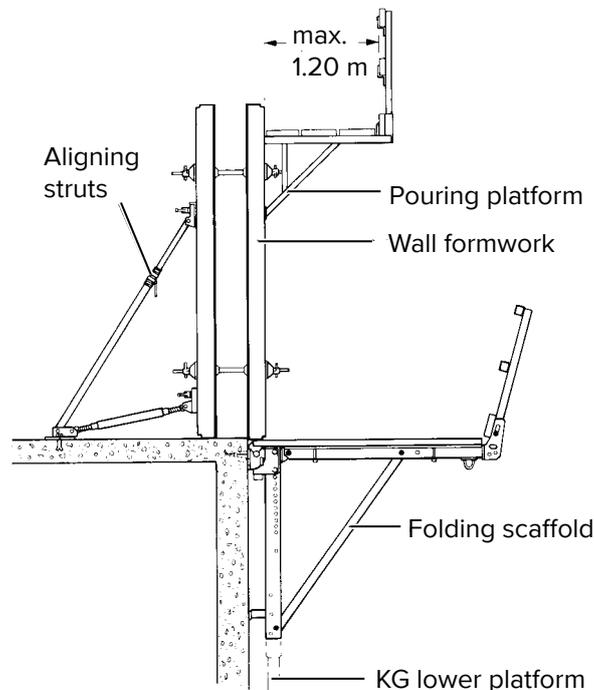
Pouring platform: scaffold group 1 (75 kg/m²).

KG lower platform may be employed.

Scaffold group 2 (150 kg/m²).

Facing bridging maximum 1.00 m.

No height offset in the suspension permitted.



WARNING

Warning!

When the height of the formwork exceeds 3.00 m, protection against falling is necessary (2 pouring platforms)!

3. Working scaffold with formwork supported by folding scaffold.

Folding scaffold: Scaffold group 3 in accordance with DIN 4420 (area-related effective load: 200 kg/m²).

Wall formwork up to a max. height of 5.40 m.

Concrete casting platform: scaffold group 1 (75 kg/m²).

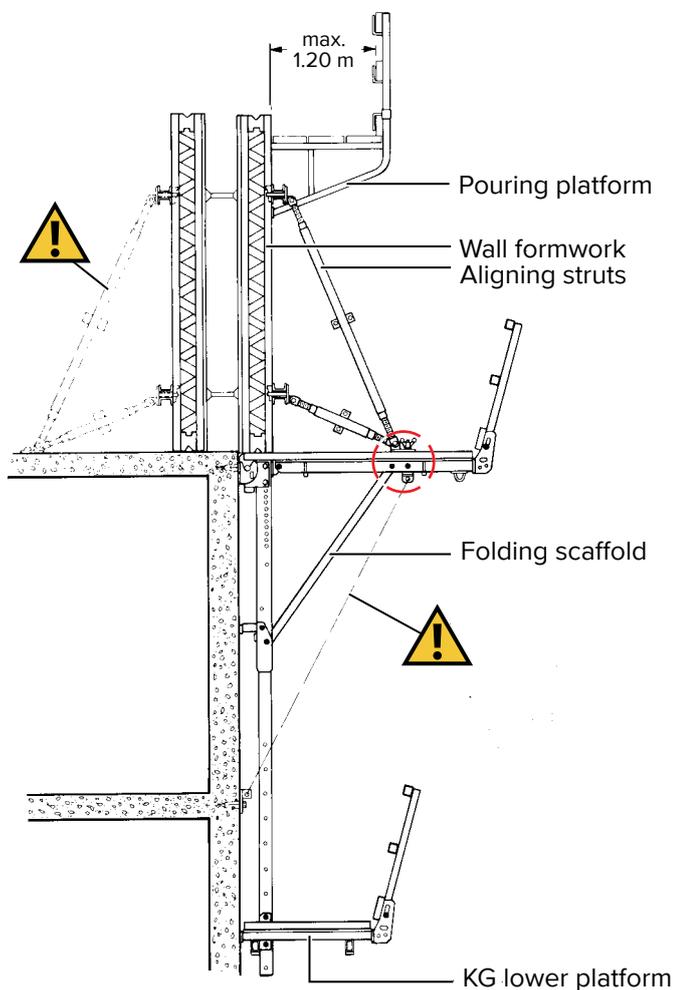
KG lower platform may be employed.

Scaffold group 2 (150 kg/m²).

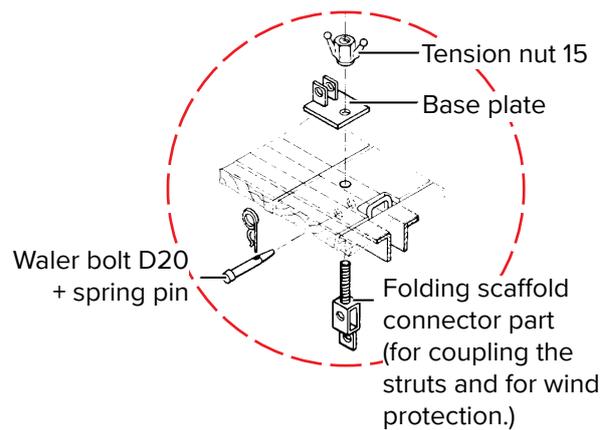
Facing bridging maximum 1.00 m.

No height offset in the suspension permitted.

Suitable for of wind velocity up to 15 m/s (crane operation must be ceased in the case of higher wind speed).



Detail: Mounting of the aligning struts (only possible in bracket axis)



WARNING

Warning!

Wind protection must be installed when the height of the formwork exceeds 2.70 m. (tension chain),



WARNING

Warning!

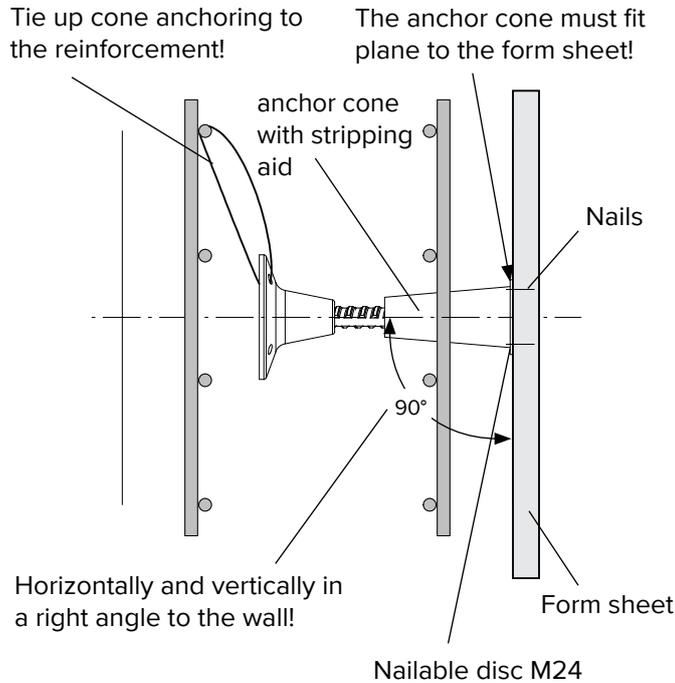
The formwork must be tightly connected to the floor ceiling and pressure resistant in the case of wind velocity exceeding 15 m/s after each shut-down time and during prolonged interruptions in work.

12 Anchoring

1 a. – Installation with nailable disc

To ensure a safe bearing for the folding scaffold the cone anchoring must be installed carefully. The cone anchoring consists of anchor cone, tie rod and collar nut.

The anchor cone can be fixed with the nailable disc M24 to the form sheet.



1 b. – Installation with fit bolt

It is also permitted to fix the anchor cone with the fit bolt M24x70 Z 8.8¹ to the form sheet.

Therefore the form sheet must be supported with an additional piece of wood at the correct position.

The thickness of the additional piece of wood can be determined as follows:

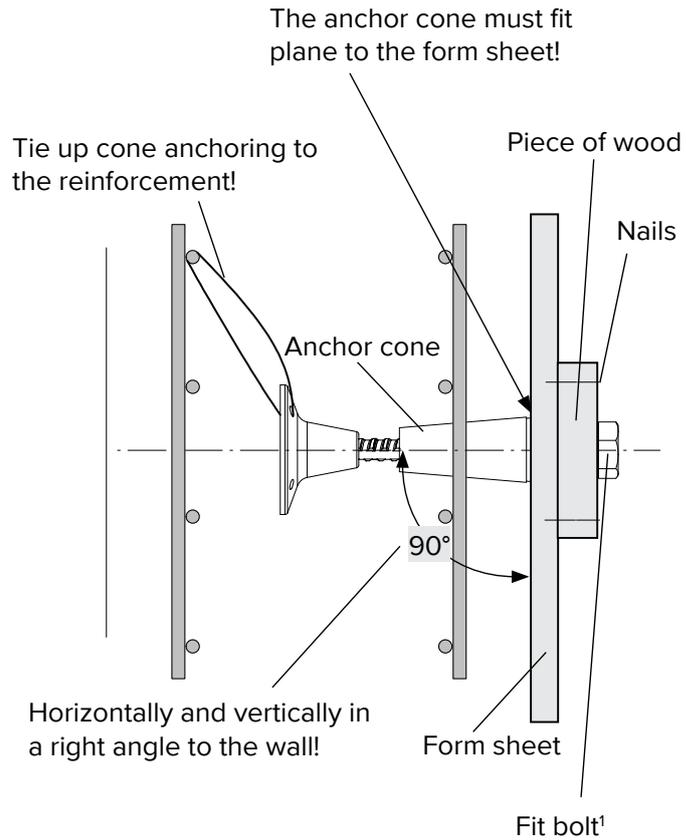
A: Shaft of M24 x 70 = 40.5 mm

B: Thickness of form sheet

C: Thickness of additional piece of wood

$C = A - B + 1.5 \text{ mm}$

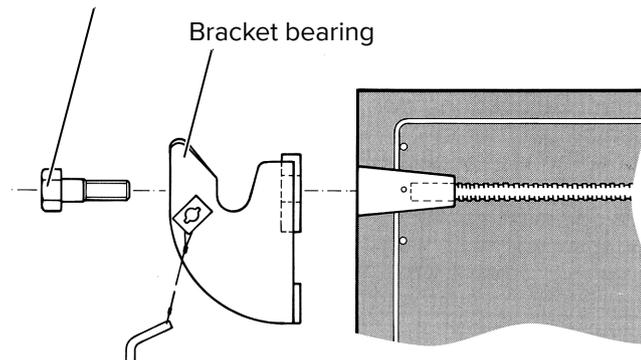
Then drill a hole of $\text{Ø}25 \text{ mm}$ into the form sheet and the additional piece of wood and fix the cone with the fit bolt.



2. Mounting the bracket bearing

After the removal of the formwork, the bracket bearing is mounted to the anchor point with the fit bolt M 24 x 70. A ratchet with an extension and a 24 socket are suitable for this purpose.

Fit bolt M 24x70 5.6



3. Hook in of the folding scaffold

When the strength of the concrete at the anchor point corresponds to B 15, the folding scaffold is suspended into the bracket bearing with the crane. The scaffold must then be protected against lifting by the use of safety bolts (mounted to brackets).

The following loads could arise at the anchor point due to the cases in operation defined in this assembly manual:

max. horizontal load: 16 kN

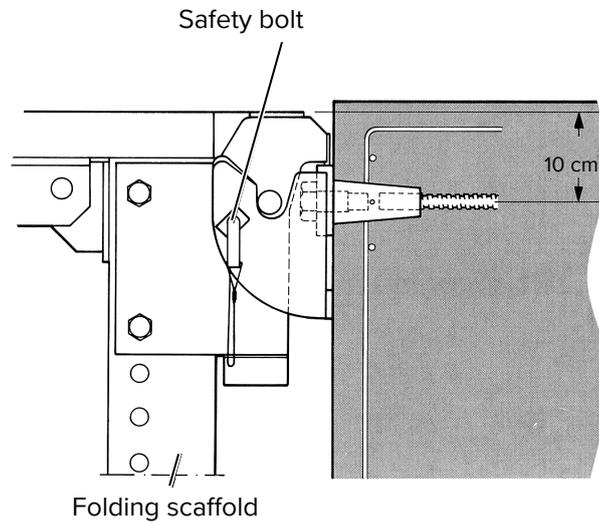
max. vertical load: 21 kN

With corner folding scaffold R/L

H = 22 kN V = 24 kN

Remarks:

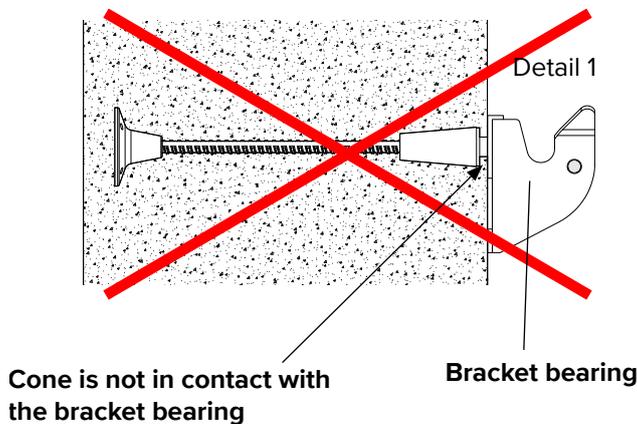
Evidence must be provided of the bearing capacity of the building and building parts in relation to the specified loads.



During shuttering make sure that:

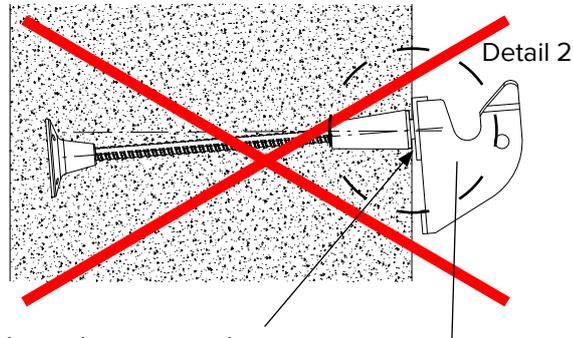
1. the anchor cone fits flat to the form sheet to make sure that the bracket bearing is in plane contact to the cone later

Bracket bearing is not in contact with the cone



- the anchor cone with the anchoring is mounted horizontally and vertically in a right angle to the form sheet

Cone anchoring is not in right angle



Cone is not in contact with the bracket bearing

- the cone anchoring is fixed to the reinforcement of the wall

NOTE

Note

Fix the cone anchoring in such a way that it cannot tilt during pouring.

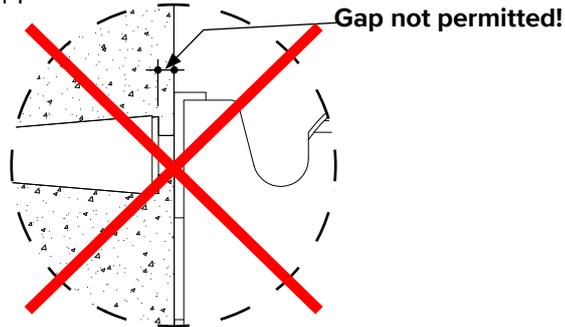
If the cone anchoring is not mounted flush and rectangular, the fit bolt is overloaded due to shear forces and bending!



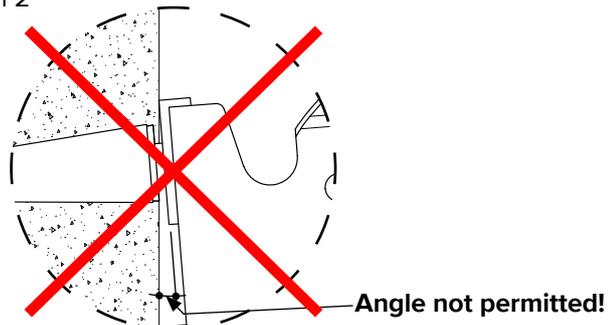
DANGER

By not following these instructions as a result the fit bolt can be overloaded and break! **This can lead to a crash of the platform!**

Detail 1

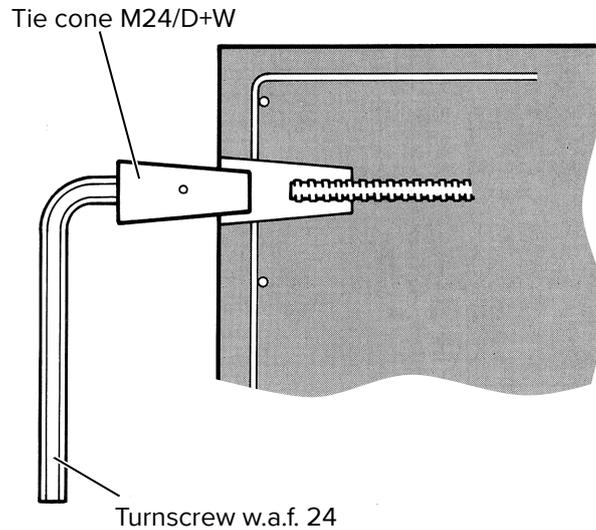


Detail 2



4. Elimination of the anchor point

The bracket bearing is unscrewed and the tie cone is removed from the concrete using a turnscrew w.a.f. 24.

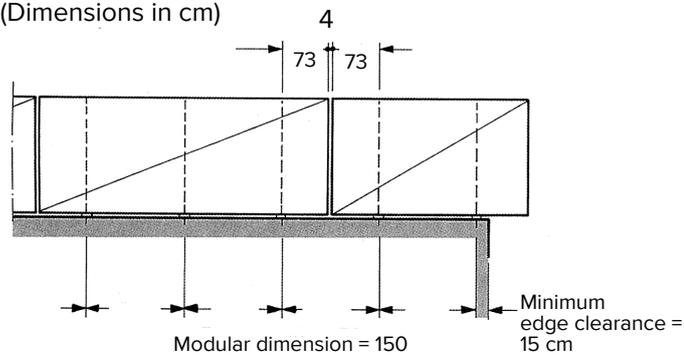


Horizontal intervals of the anchoring points

(Arrangement of the anchoring points on the corner of the building, see pages 15 & 16.)

Ground plan:

(Dimensions in cm)

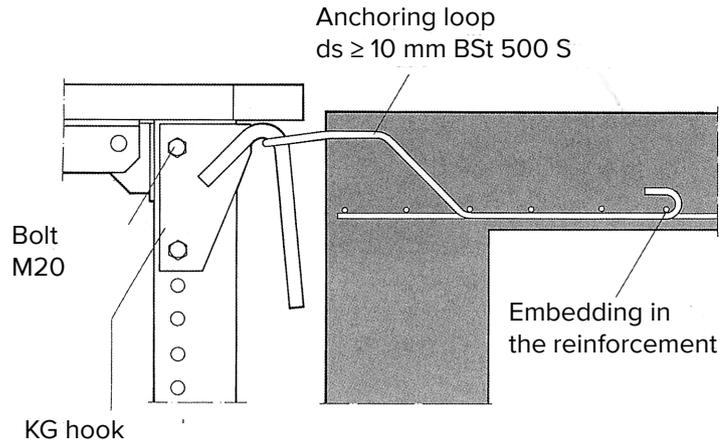


Use with loop hooks

The folding scaffold can be anchored to the building using reinforcement loops. For this purpose the standard suspension part must be unscrewed and replaced by a KG hook.

See table on page 26 for areas of application. The following loads could arise at the anchor point:

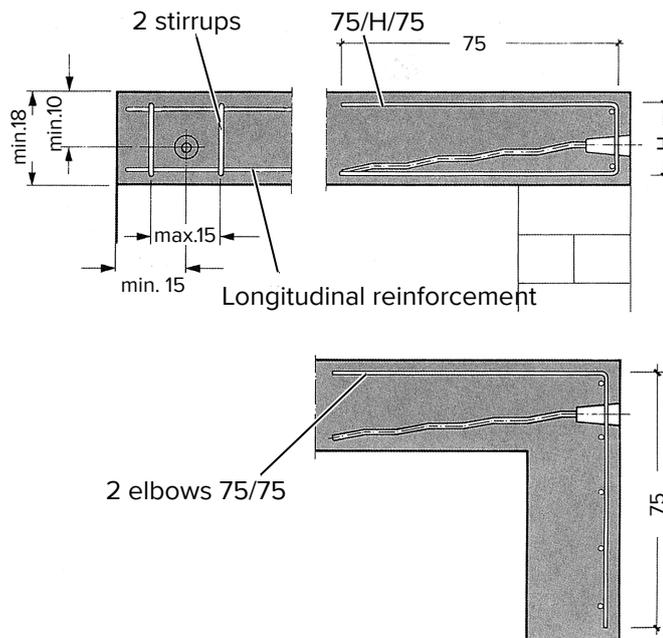
- max. horizontal load: 11.5 kN
- max. vertical load: 13.0 kN



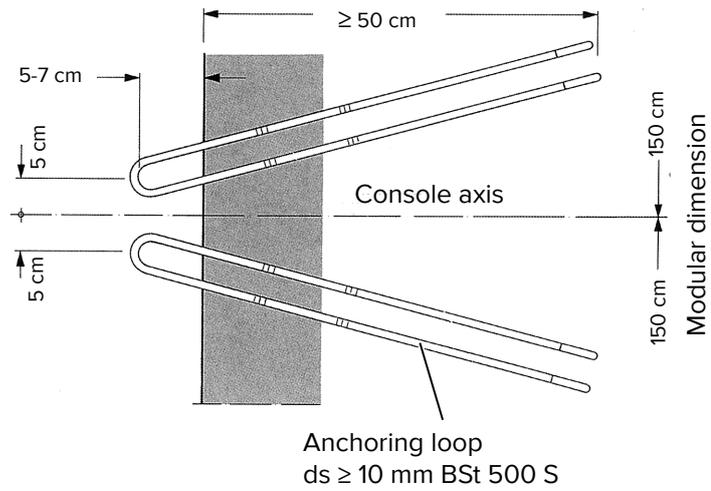
Supplementary reinforcement on adherence to the minimum clearance

Supplementary reinforcement made of structural steel 500 S \varnothing 10 mm.

(Dimensions in cm)



Installation dimension for the anchoring loop (top view):



13 Chronology

Changes compared to issue 2008-07		
Changes	Page	Date
Layout updated	div	2019-01
Tying updated	div	2019-01

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Last updated: February 2019
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