

MÜBA

Instruction for Erection and Use of the Fix 120 Frame Scaffold

for the standard version after general build-up-obvious permission No. Z-8.1-21
use depending upon structure version in

Group 4 or 5

May 2001 edition



Plant C, page 1 for general build-up-obvious permission Z-8.1-21 from 27th November 1997
German Institut for civil engineering

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A. General instructions

The  framework scaffolding with the designation Fix 120 is certified from German Institut for civil engineering, Berlin, in the standard version for structure heights of 24 m over vertical frameworks plus spindle excerpt. The scaffolding corresponds to DIN 4420-1 and can be used depending upon structure variant in the group of scaffolds 4 or 5.

A1. Site requirements

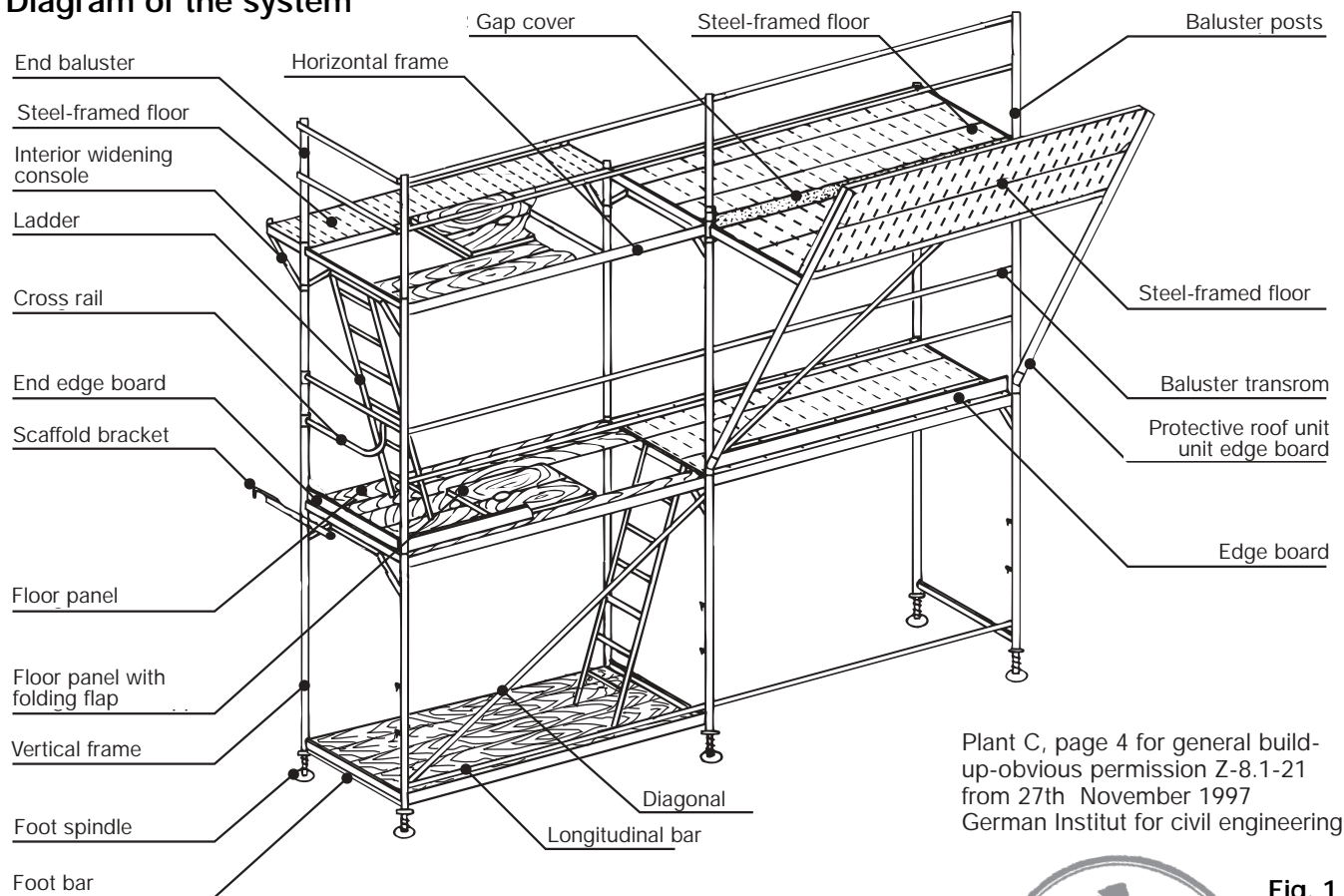
- Prior to assembly, all scaffold components are to be visually inspected for damage.
- Only components in faultless condition and original scaffold parts are to be employed.
- Defective system components are to be removed.

A2. Notes for using the Fix 120 entegrated scaffold system

- The erection and dismantling of the integrated scaffold system is to be carried out only by adequately skilled professionals.
- These instructions describe erection and dismantling of the standard version. Deviations from these instructions are only allowable if they can be assessed and implemented on the basis of professional experience.
- The scaffold may only be erected on a substrate of adequate load-bearing capacity.
- Where a substrate of adequate load-bearing capacity is not available, load-distribution supports are to be inserted (see Fig. 4, page 11)..
- The Accident Prevention Regulations are to be adhered to.
- The scaffold may be employed as a catch scaffold up to a fall height of max. 2.00 m.
- The scaffold may be employed in the specified scaffold group on the basis of the Rules for Safety and Health in Integrated Scaffolding Systems (Frame and Modular Scaffolds) ZH 1 / 534.1.

B. System components

B1. Diagram of the system



B2. Basic components of the Fix 120 frame scaffold

The basic components guarantee an orderly erection of the scaffold system. The individual components are listed later below.

But first some differentiating characteristics:

The upper section of the G5 vertical frame (page 5) is reinforced by a lower boom and differs in this regard from the G4 vertical frame (page 30).

The G5 horizontal frame (page 5) is set higher in the C profile than the G4 horizontal frame (page 30).

This can be clearly identified by the additional sheet steel corner plate welded in place.

For easy allocation of component combinations see Table 1 (page 15).

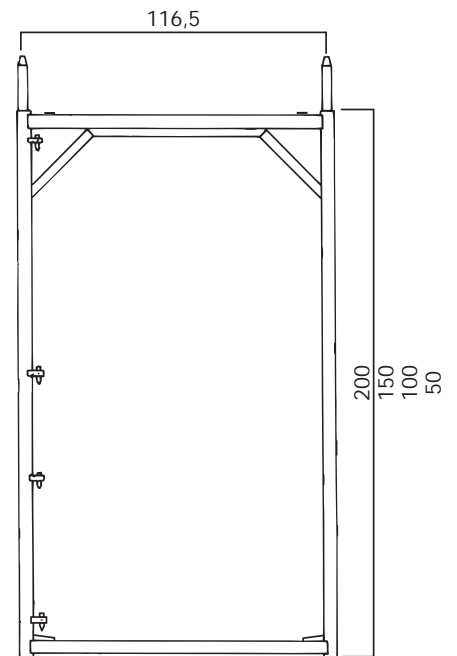


Fig. 1

Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page
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G5 steel-framed floor 200	43000	26,2	1
G5 steel-framed floor 150	43001	22,5	2
G5 steel-framed floor 100	43002	19,3	3
G5 steel-framed floor 50	43003	14,4	4

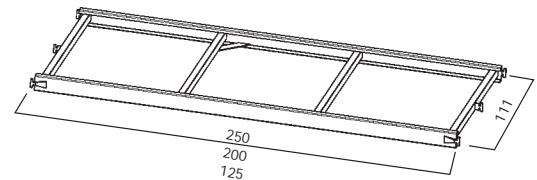
These are inserted into another and carry the horizontal frames



Plant C, page 5 for general build-up-obvious permission Z-8.1-21 from 27th November 1997 German Institut for civil engineering

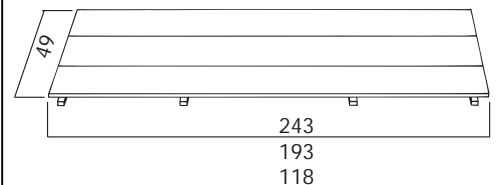
G5 horizontal frame 250	43004	30,0	21
G5 horizontal frame 200	43005	24,8	22
G5 horizontal frame 125	43006	17,5	23

These are suspended from the U profile of the vertical frames and in conjunction with these from the basic frame of the scaffold. For the floor panel with folding flap, the horizontal frame must be installed with the corner plates facing downwards.



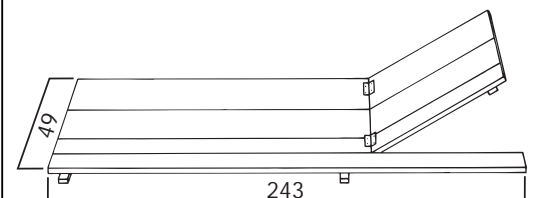
Single-piece floor panel 250	43036	17,5	29
Single-piece floor panel 200	43039	13,9	30
Single-piece floor panel 125	43057	8,5	31

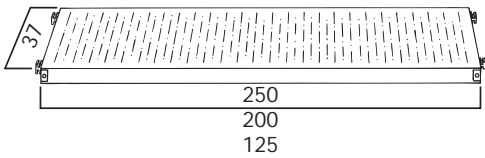
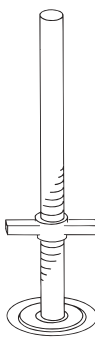

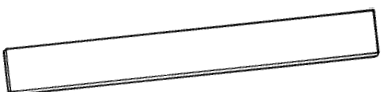
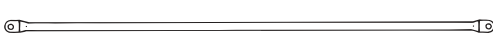
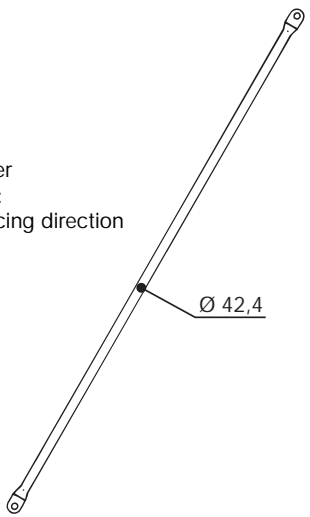
Two floor panels laid on a horizontal frame form the work platform

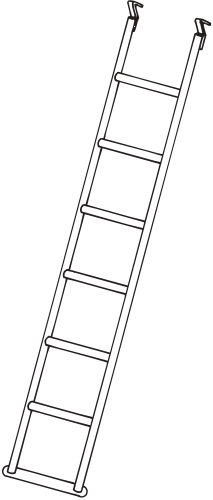
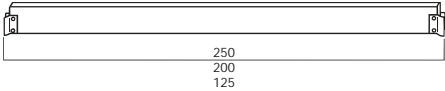
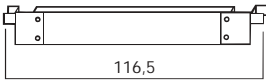
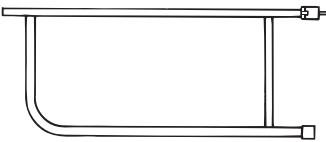
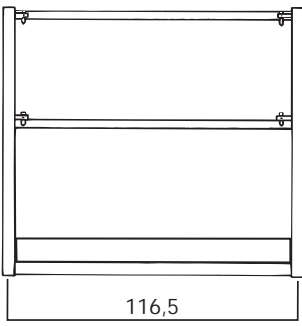


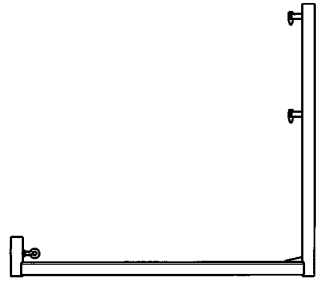

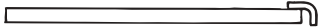
Floor panel with flap 250	43040	22,5	33
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Used in conjunction with a normal floor panel, this is used for forming the transition through a horizontal frame. The horizontal frame must be installed with the corner plates facing downwards



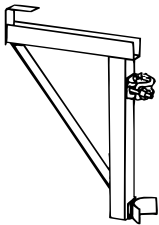
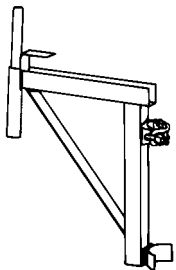
Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
G5 stell-framed floor 250	44067	21,6	17	
G5 stell-framed floor 200	44068	18,0	19	
G5 stell-framed floor 125	44038	11,9	20	
<p>These are employed three per level, suspended in the U profile of the vertical frame thus producing the work platform (also employed in the Fix 70)</p>				
Foot spindle	61010	2,3	38	
<p>20 cm adjustable setting range. One vertical frame is erected onto two foot spindels. The spindles are for equalising the height and aligning the scaffold. (also employed in the Fix 70)</p>				
Timber underlay	61097	4,5		
4,5 x 16 x 140 cm				
Baluster transom 250	61016	4,2	41	
Baluster transom 200	61137	3,5	41	
Baluster transom 125	61136	2,4	41	
<p>This is identical to the longitudinal bar, and is inserted over the tilt fingers of the vertical frame forming a handrail and protection against fall (also employed in the Fix 70)</p>				<p>Plant C, page 6 for general build-up-obvious permission Z-8.1-21 from 27th November 1997 German Institut for civil engineering</p>
Diagonal 200 x 250	43006	6,6	36	
Diagonal 150 x 250	43007	5,5	36	
Diagonal 100 x 250	43008	5,2	36	
Diagonal 50 x 250	43009	4,7	36	
<p>Bracing component for the scaffold, secured by the tilt fingers on the vertical frame</p>				<p>Note! When employing older diagonals (diam 33,7: - install in counter-facing direction - double the number</p>

Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
Ladder 200 Ladder 150 Suspended in the vertical frame for ascending the scaffold (also employed in the Fix 70)	43017 43018	12,2 9,0	59	
Edge board 250 Edge board 200 Edge board 125 These are inserted between the poles of the vertical frame and both prevent parts falling down and provide protection against falling (also employed in the Fix 70)	43037 43058 43054	5,2 4,2 3,5	52 52 52	 <p data-bbox="1075 1115 1461 1223">Plant C, page 7 for general build-up-obvious permission Z-8.1-21 from 27th November 1997 German Institut for civil engineering</p>
End edge board This is installed at the outside end in the vertical frame	43012	3,3	53	
Cross baluster This installed in the vertical frame to secure the outside face of the scaffold	43013	6,1	43	
End baluster Installed onto the vertical frame at the top level to form securing points for the baluster transom and the protective grating, and also to secure flooring	43015	18,3	45	

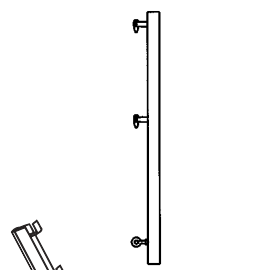
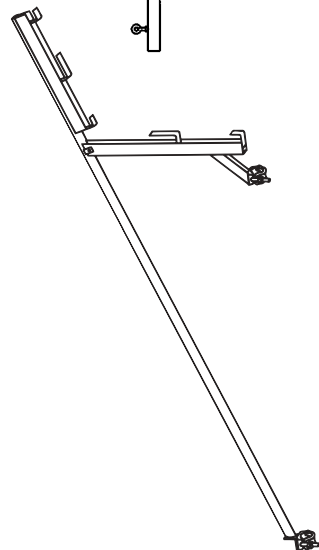
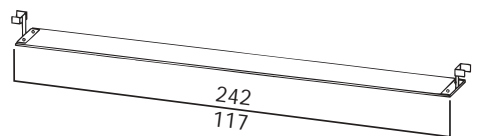
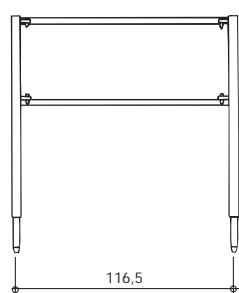
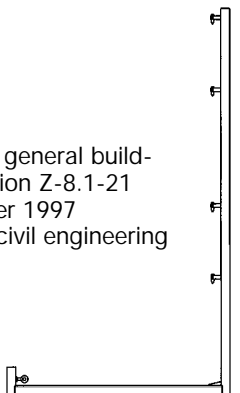

Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
Baluster post 100 Installed onto the vertical frame at the top level to form securing points for the baluster transom and the protective grating, and also to secure flooring	43014	9,4	48	
				
Scaffold bracket 180	61033	6,3	73	
Scaffold bracket 150	61015	5,4	73	
Scaffold bracket 100	61014	3,7	73	
Scaffold bracket 60 For tying the vertical frame at prescribed centres to scaffolded property (also employed in the Fix 70)	61013	2,2	73	

B3. Additional components of the Fix 120 frame scaffold

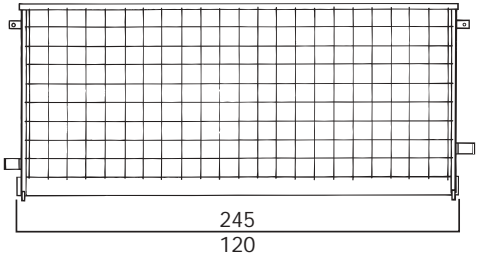
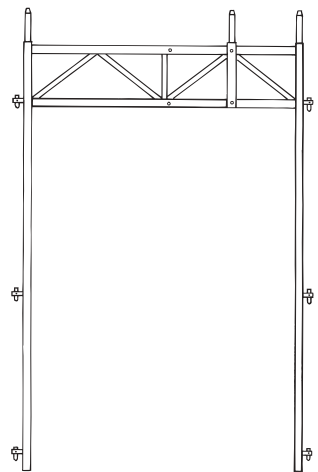

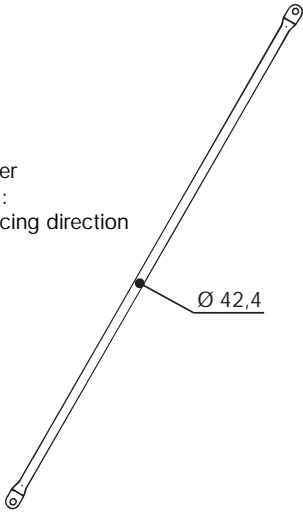
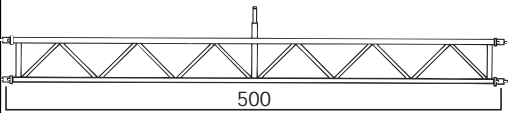

Use of the additional components expand the versatility and flexibility of the scaffold.

Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
Interior widening console 325 This is coupled to the vertical frame and, in conjunction with the steel-framed floor, extends the internal width of the scaffold by approx. 36 cm (also employed in the Fix 70)	43023	5,0	55	
Interior widening console 325 with tube supports This is coupled to the vertical frame and, in conjunction with the steel-framed floor, extends the internal width of the scaffold by approx. 36 cm. (also employed in the Fix 70) The spigot is for supporting a baluster post	44061	6,4	55	

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Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
<p>Single baluster post for holding the outside safety baluster. It is erected by insertion onto the interior widening console. (also employed in the Fix 70)</p>	61036	4,0	49	
<p>Protective roof unit Coupled to the exterior of the vertical frame. In conjunction with the roof cover it forms the protective roof. (also employed in the Fix 70)</p>	44045	18,0	64	
<p>Gap cover 250 Gap cover 200 Gap cover 125 Installed between two vertical frames to cover the gap between the protective roof and cover panels (also employed in the Fix 70)</p>	44042 44043 44044	6,2 5,2 4,0	68 68 68	
<p>Insertion end baluster Erected onto the outside end baluster for 2 m high protective wall (Fig 20, page 18)</p>	43151	12,1	47	
<p>Baluster post 200 This is erected on the vertical frame at the top level to provide the securing point for two safety gratings and side safety net in a roof catch scaffold. Also employed for securing roofing</p>	43050	14,3	51	<p>Plant C, page 9 for general build-up-obvious permission Z-8.1-21 from 27th November 1997 German Institut for civil engineering</p> 
<p>Foot latch plate over 2 foot spindles one puts and takes up floor panels</p>	43059	3,3	16	



Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
Safety grating 250 Safety grating 125 Mounted on the baluster posts, this creates the roof catch scaffold (Fig. 20, page 18) (also employed in the Fix 70)	61019 61120	25,1 13,9	60 61	
Passageway frame This enables the creation of a pedestrian passageway (Fig 13 a. 14, page 16) (also employed in the Fix 70)	43033	36,0	69	
 Diagonal one for passageway frames for the reinforcement of the passageway frames	44010	6,1	72	<p>Note! When employing older diagonals (diam 33,7: - install in counter-facing direction - double the number</p> 
Integrated lattic beam 500 Employed in pairs coupled to the vertical frame to form bridging between two scaffold sections (Fig. 16 - 19, page 17) (also employed in the Fix 70)	61129	55,5	63	
Intermediate bar Mounted on the spigots of two bridging lattice beams to carry the horizontal frame (Fig. 16, page 17)	61129	6,1	62	<p>Plant C, page 10 for general build- up-obvious permission Z-8.1-21 from 27th November 1997 German Institut for civil engineering</p> 

B4. Horizontal frame with individual part designations

Vertical frame G5 200:

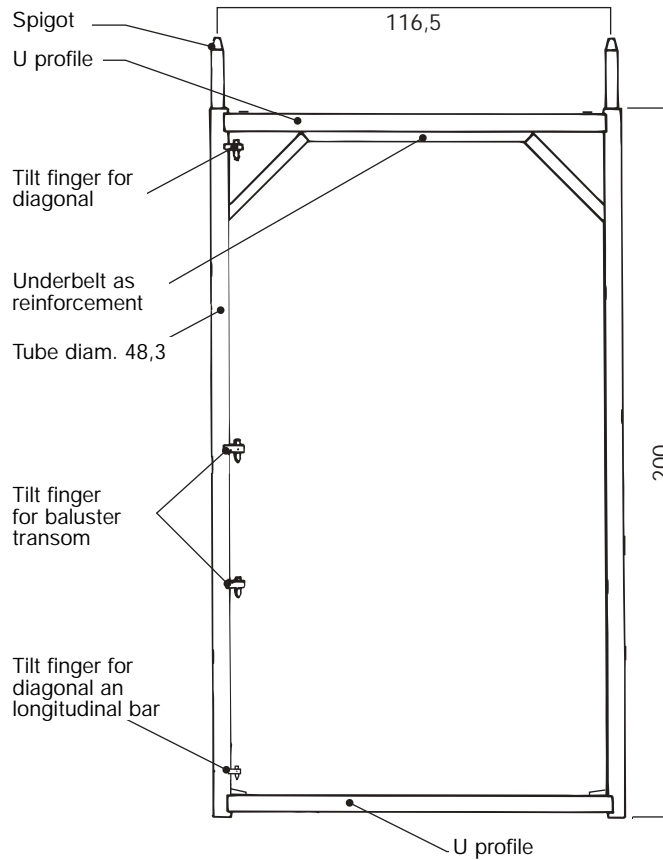


Fig. 2

Vertical frame G5 250:

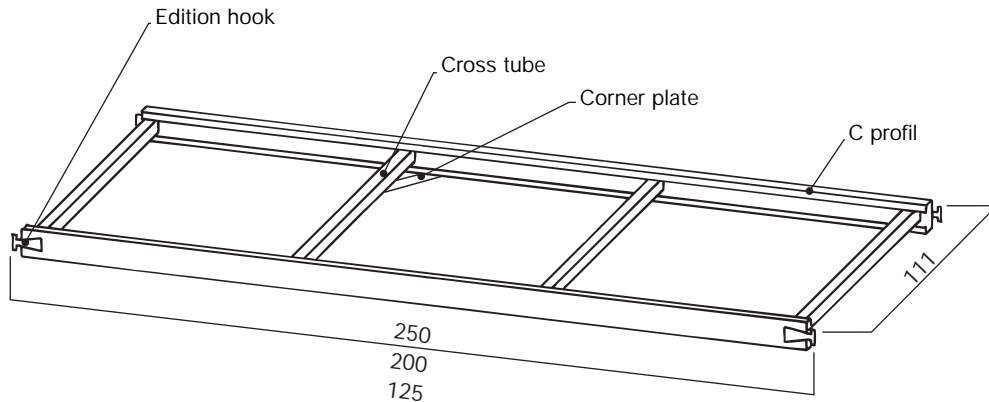


Fig. 3

C. Erection instructions for standard use

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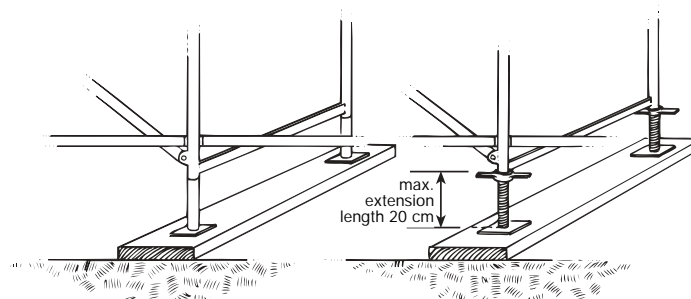


Fig. 4

C1. Starting erection of the scaffold

The scaffold is to be erected from the highest point of the ground. First erect the spindles. The foot spindle may not be extended over 20 cm. If the substrate is not of adequate load-bearing capacity, load-distributing components (e.g. planks) must be inserted. The distance between these is determined by the longitudinal bars.

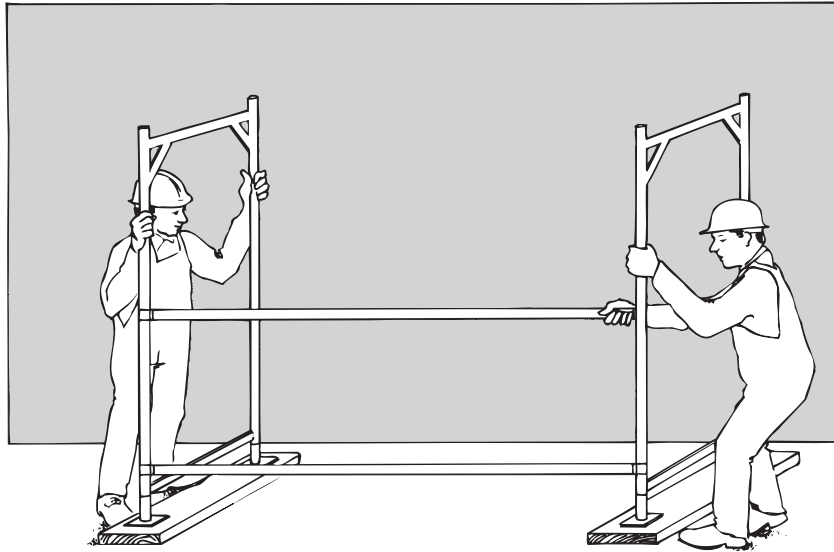
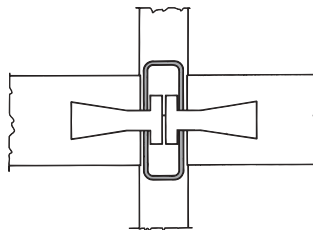


Fig. 5

C2. Erection of the first scaffold section

The vertical frames must be vertically aligned. The horizontal distance between the scaffold flooring and the building may not exceed 30 cm. Floor extension units are treated separately. Erect the vertical frames with the tilt fingers and edge board brackets facing outwards.



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Fig. 6

C3. Installing the flooring

Suspend the hammer heads of the flooring units in the upper U profile of the vertical frame. The lower U profile of the subsequent vertical frame prevents the floor units from lifting.

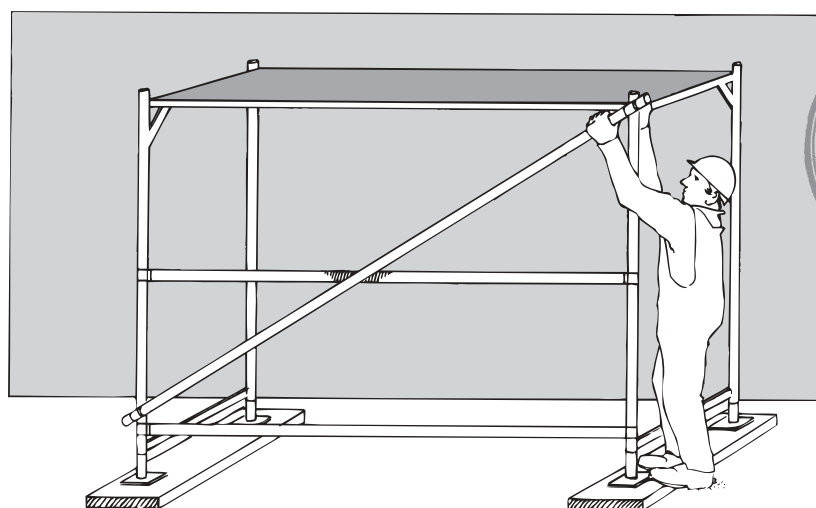


Fig. 7

C4. Completion of the first scaffold section

Finally install the longitudinal bars and the diagonals. When assembly of the first scaffold section is complete, it must be horizontally and vertically aligned.

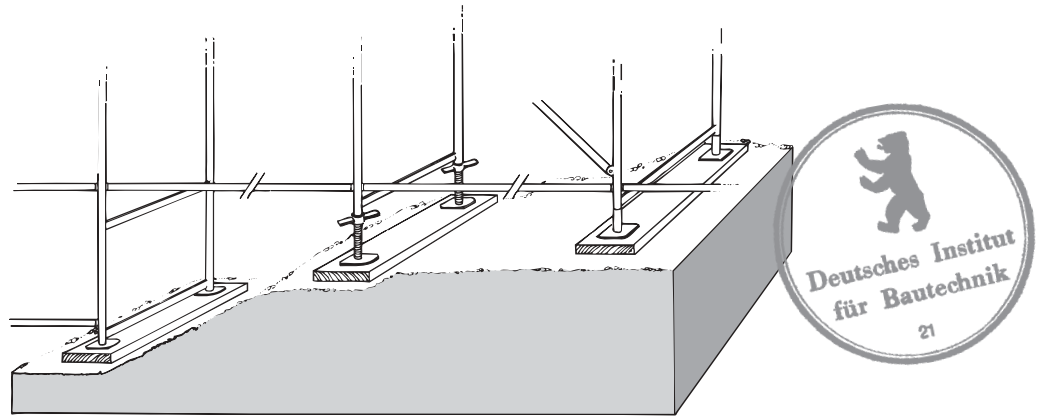
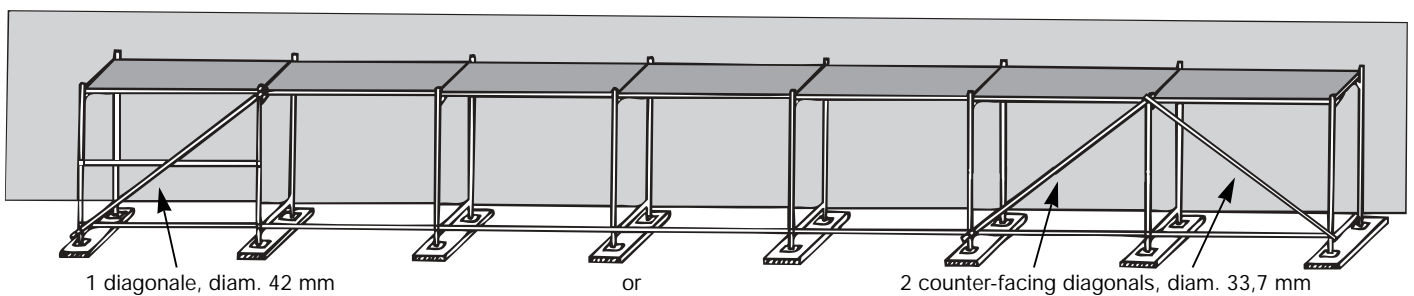


Fig. 8

C5. High equalisation

If the erection ground is sloped or of uneven height, these factors must be equalised by adjusting the spindles or employing 0.50-m, 1.0-m and 1.50-m vertical frames.



1 diagonale, diam. 42 mm

or

2 counter-facing diagonals, diam. 33,7 mm

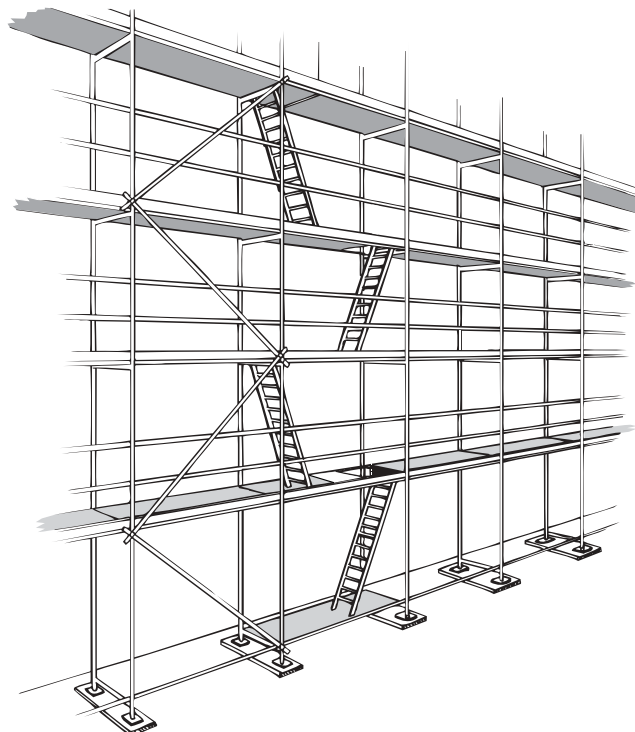
Fig. 9

C6. Erection of the remaining scaffold sections

Repeat Section C4 in erecting all subsequent scaffold sections.

The number of scaffold sections reinforced by a diagonal depends on the erection variant employed – See Section D. A diagonal strut must be installed in at least every fifth scaffold section.

Instead of a 42-mm diam. diagonal, two counter-facing 33.7-mm diagonals (from an earlier version) can be employed.



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C7. Installing the scaffold ladder system

Fig. 10

Before commencing work on the first scaffold level, the ascending gangway system must be installed, of H frames, flooring panels with folding flap and ladders. Erection of the ladders is to proceed in alternate opposite-facing direction on each level.

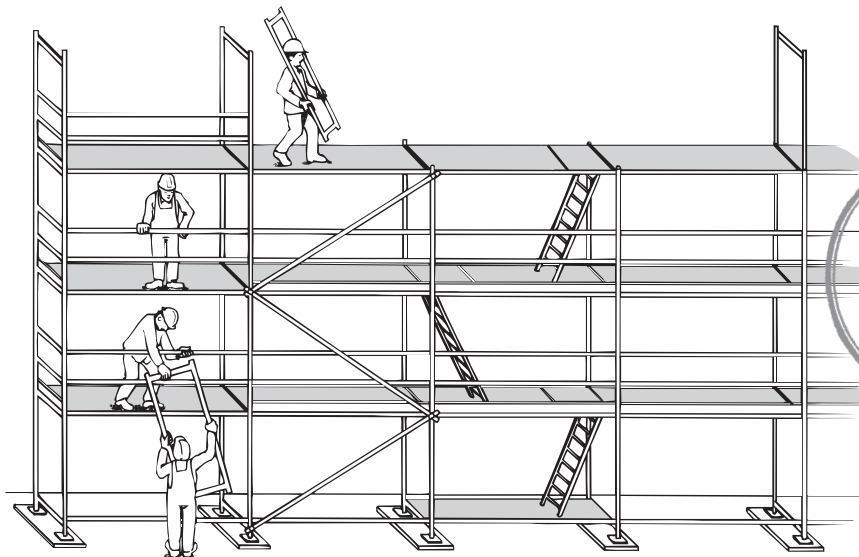


Fig. 11

The scaffold anchoring system is not shown

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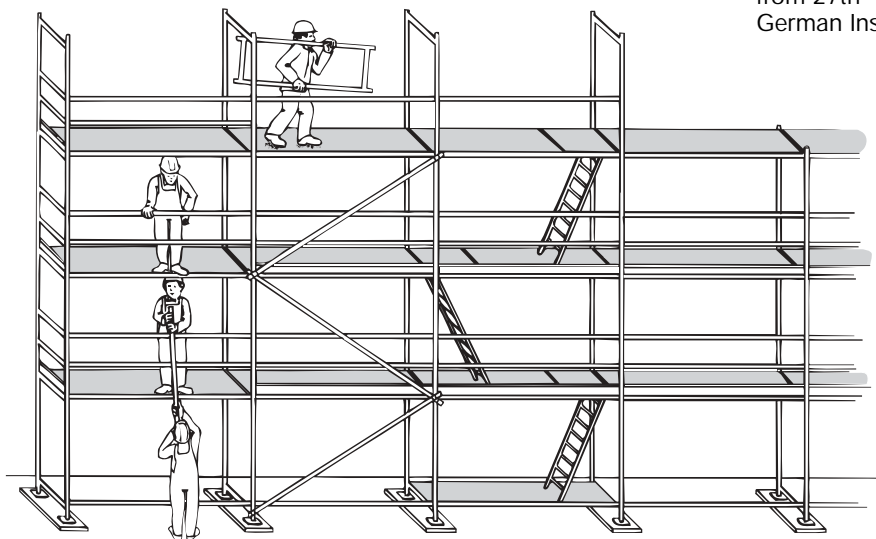


Fig. 12

C8. Erecting the remaining components

Transporting the scaffold components

Site hoists must be used for erecting and dismantling scaffold section systems of over 8 m height (floor above ground level). These site hoists can also include manually-operated rope-and-pulley systems.

Exception: Site hoists can be dispensed with if the height of the scaffold section is less than 14 m and the length of the scaffold is 10 m or less.

In erecting the frame scaffold,

- the vertical frames are to be erected starting from the farthest frame element from the scaffold section in which the vertical transport occurs. The baluster transoms are erected last, starting from the scaffold section in which the vertical transport occurs (see Fig. 11)

or

- the vertical frames are to be erected starting from the scaffold section in which the vertical transport occurs. The baluster transom is to be erected directly after the positioning of the frame required for this (see Fig. 12).

Important!

Scaffold erection must proceed in such a way that the time required for erecting sections involving a danger of falling is kept to a minimum.

D. Method of constructing individual erection variants

The stability of the following erection variants has been verified in accordance with DIN 4420-1 and the „Approval Guidelines for Requirements for Facade Scaffold Systems“.

The following are requirements of all erection variants:

- Max. spindle extension 20 cm
- A longitudinal bar at foot level along the full length of the outside face of the scaffold
- With application of protective roof and protective wall additionally anchorages must be installed
- The edge poles are to be anchored at max. every 4 m
- When employing two 33.7-mm diameter diagonals from an earlier version, the number of diagonals required must be doubled. These diagonals must be installed in counter-facing directions (see Fig. 9, page 13).
- Combinations of vertical frames and steel-framed floors are permissible (see Table 1).

Table 1: Distribution of vertical frames and flooring in scaffold groups

	G4 horizontal frame	G5 horizontal frame	Steel-framed flooring
G4 vertical frame	4	5	4
G 5 vertical frame	4	5	5



D1. Non-clad scaffolds

D1.a Scaffolds without additional components in group 5

- max. height ≤ 24 m
- G5 horizontal frame
- Steel-framed flooring with G 5 vertical frame
- 8 m transferred anchor raster, at least 2 triangle anchors on 5 fields
- For one diagonal can be assigned maximally 5 fields
- Auxiliary diagonal for 1. and 2. Floor
(without additional components: Interior widening console, protective roof and protective wall)

D1.b Scaffolds with additional components in group 4

- max. height ≤ 24 m
- Horizontal frame
- Vertical frame
- additional components: Interior widening console, protective roof and protective wall
- 8 m transferred anchor raster, at least 2 triangle anchors on 5 fields
- For one diagonal can be assigned maximally 5 fields
- Auxiliary diagonal for 1. and 2. Floor

D1.c Scaffolds with additional components in group 5

- max. height ≤ 24 m
- Longitudinal reinforcement starting from height of $H > 16$ m
- G5 vertical frame
- G5 horizontal frame
- Steel-framed flooring
- Additional components: Interior widening console, protective roof and protective wall
- 8 m transferred anchor raster, at least 2 triangle anchors on 5 fields
- For one diagonal can be assigned maximally 5 fields
- In 1. and 2. Floor is each 2. To out-rigid field by diagonals

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D1.d Passageway frame

This is to be employed as described in Sections D1.a and D1.c. The vertical frames above the passageway frame are to be reinforced by means of a diagonal connected by a rotating coupling. Alternatively, a tie can be provided at a height of 2 m.

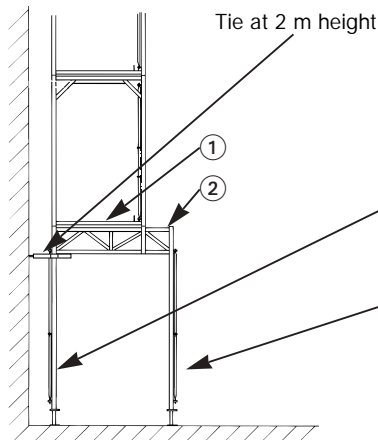


Fig. 13

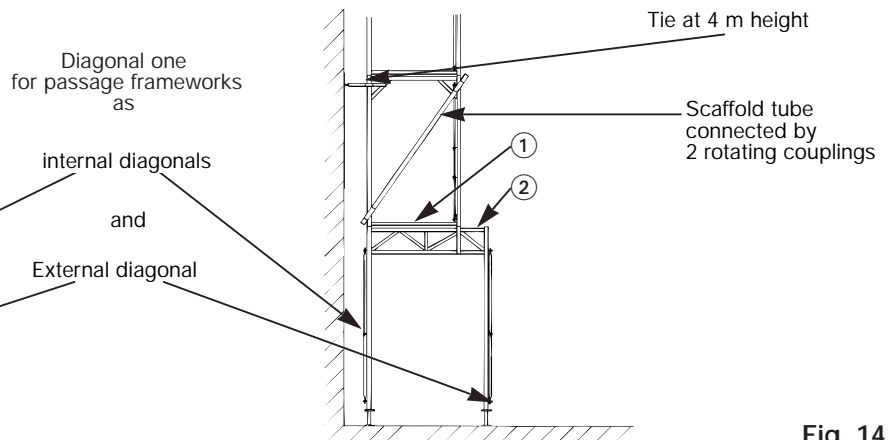


Fig. 14

- ① Work platform consisting of horizontal frames or 3 steel-framed floors
- ② Cover the remaining scaffold section with steel-framed floors or reinforce it with horizontal diagonals (scaffold tube connected with rotating couplings to pole tubes)

The diagonal within the vertical framework can be void, if no further additional components are attached such as interior widening console, protective roof and protective wall and the scaffold in group 4 is used (see also fig. 27, page 23).

The scaffold must be anchored in a 4-meter tie grid.

In the passageway frame, an internal diagonal must be installed in every second scaffold section.

In the range of the passage frameworks no scaffold bridge carriers may be used!

D1.e Erection work

When employing the scaffold with a non-anchored top scaffold level, the top anchor level must be firmly stabilised at every second internal strut by means of triangle ties.

Nets and tarpaulins may only be erected after all prescribed anchors have been fitted.

D1.f Forming corners

At the same height as the anchored scaffold levels, the adjoining vertical frames are to be connected together by scaffold tubes and couplings if the two frame parts are being erected separately on the erection level.

Alternatively, a strut tube of an end vertical frame can be secured by two rotating couplings in the lowest vertical frame. This dispenses with the need for a foot spindle here. The load is transferred by the rotating couplings to the pole tube of the adjoining end vertical frame. At the same height as the anchored scaffold level ($\Delta H \leq 4 \text{ m}$), each frame is to be connected by an additional rotating coupling. The floor gap between the scaffold sections is to be covered, e.g. using a formwork panel.

The end poles on either side of the corner are to be anchored at centres of max. 4 m using triangle ties.

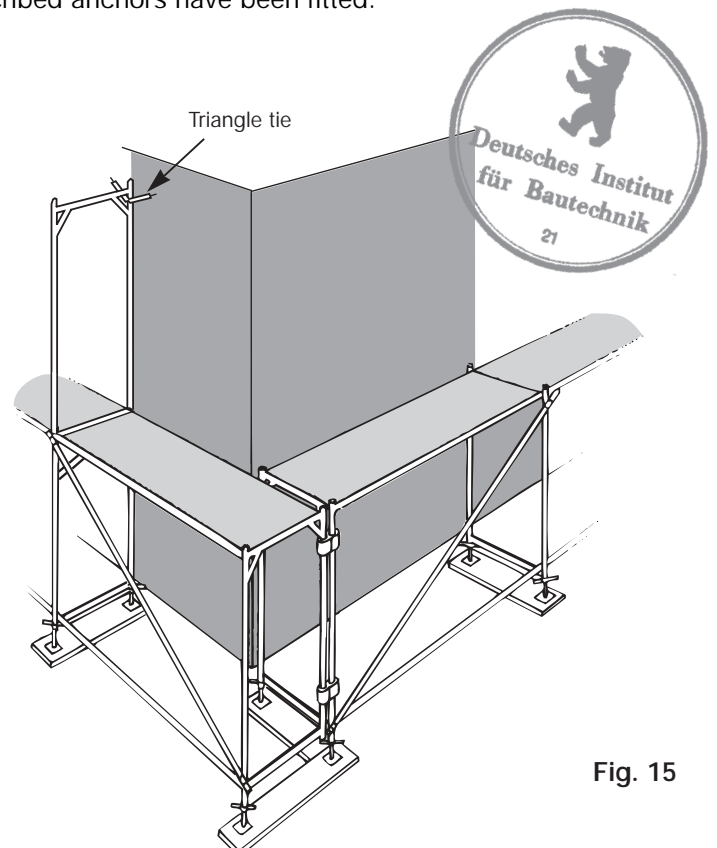


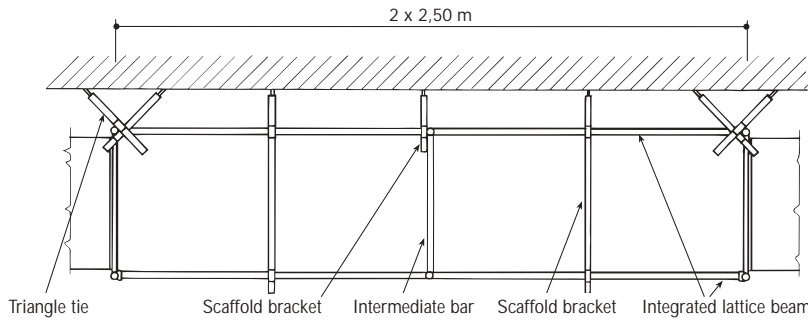
Fig. 15

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D1.g) Scaffold bridge

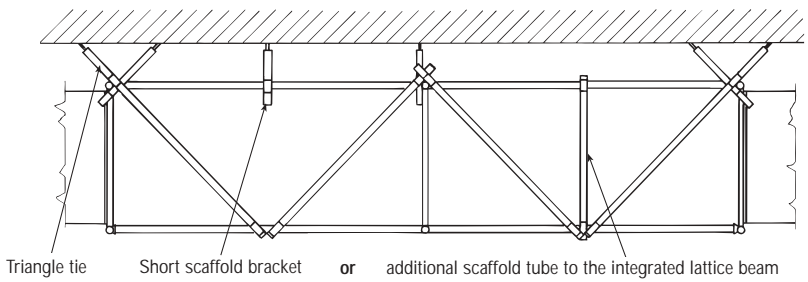
A vertical frame (employed as described in Sections D1.a - D1.c) can be contained using two no. 500 integrated lattice beams. The upper booms are to be firmly secured at the quarter points (every 1.25 m). This can be implemented by scaffold brackets at the façade or a scaffold tube and coupling connection. At least one anchor in the area of the bridging lattice beam must be executed as a triangle tie (see Fig. 16, 17, 18, 19 and page 17).

In the range of the scaffold bridge no passage frameworks may be used!



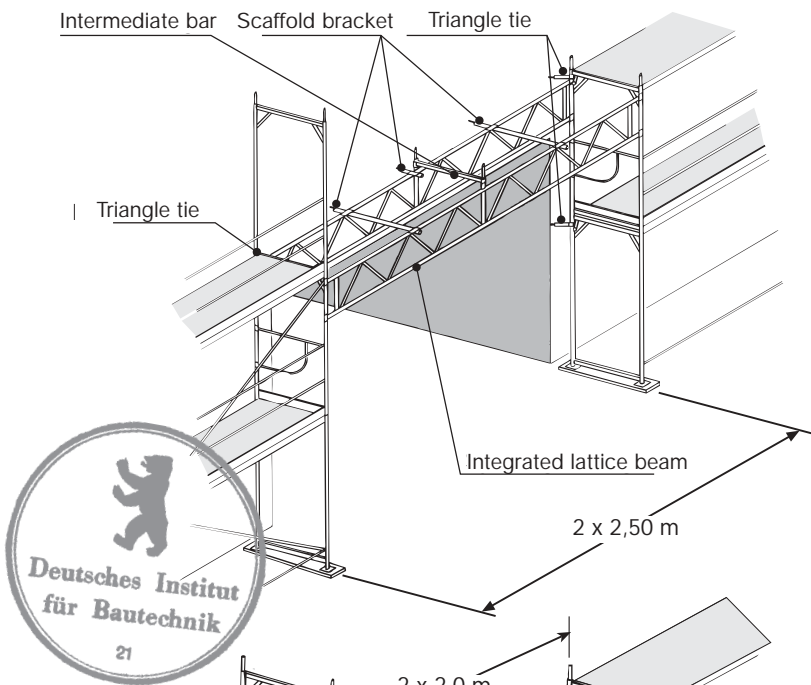
Integrated lattice beam secured by scaffold brackets

Fig. 16



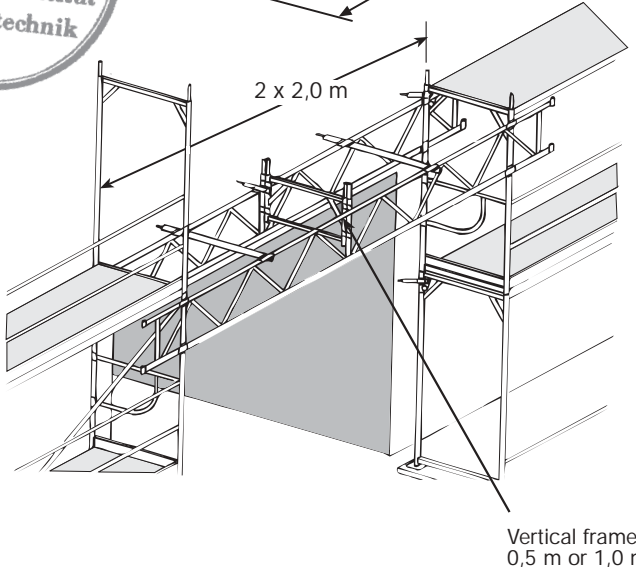
Integrated lattice beam in conjunction with scaffold tubing and coupling.

Fig. 17



The internal strut tubes of the adjoining vertical frames must be secured beneath the bridging by triangle ties in a 2-meter grid (see also Fig. 28 and 29, page 24). Side protection and edge boards are not shown.

Fig. 18



With a framework distance of 2,0 m the system truss booms with normal clutches are coupled from the outside to the vertical frameworks. For the admission of the further vertical frameworks in center of the system truss booms a vertical framework 0,5 m or 1,0 m is attached by means of 4 clutches.

Fig. 19

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D1.h Roof catch scaffold

The roof catch scaffold is to be erected at the top scaffold level.

Each of the top vertical frames must be anchored to the wall of the building (see Fig. 25, page 22).

The measurements shown in the drawing below are to be adhered to.

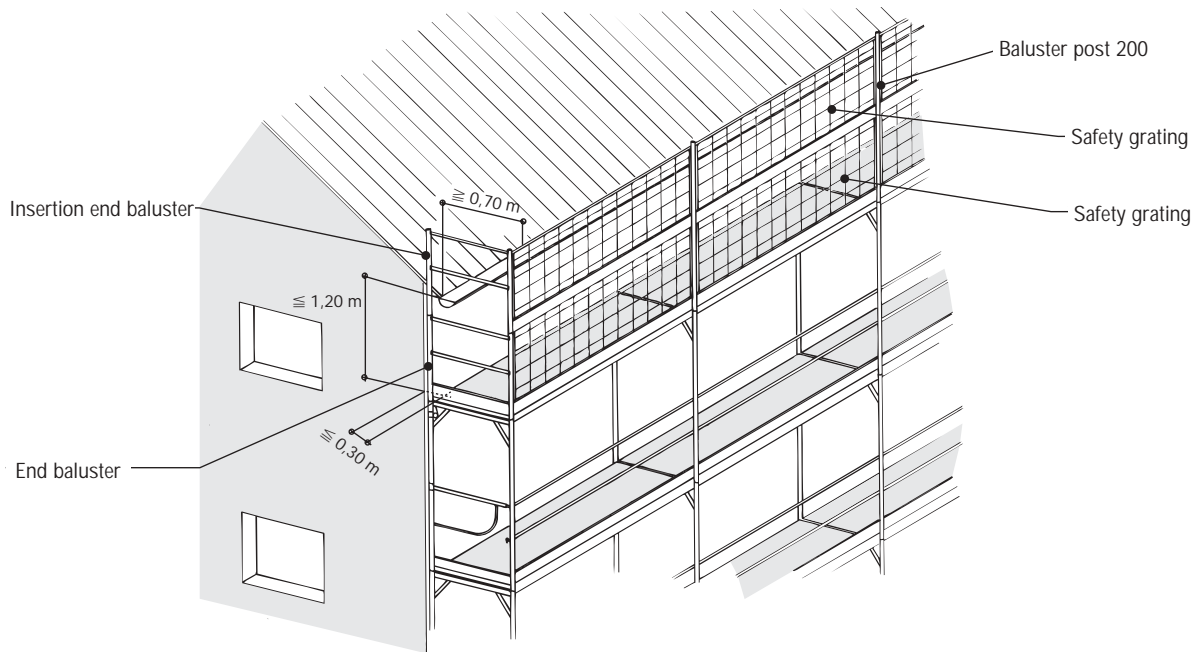


Fig. 20

D1.i Protective roof

Fit the protective roof brackets on the outside of the vertical frame.

Four steel-framed floorings are to be installed per protective roof. Bridge the gap between the protective roof and the cover area using a gap cover.

The cover area of the protective roof is to be laid tight against the building.

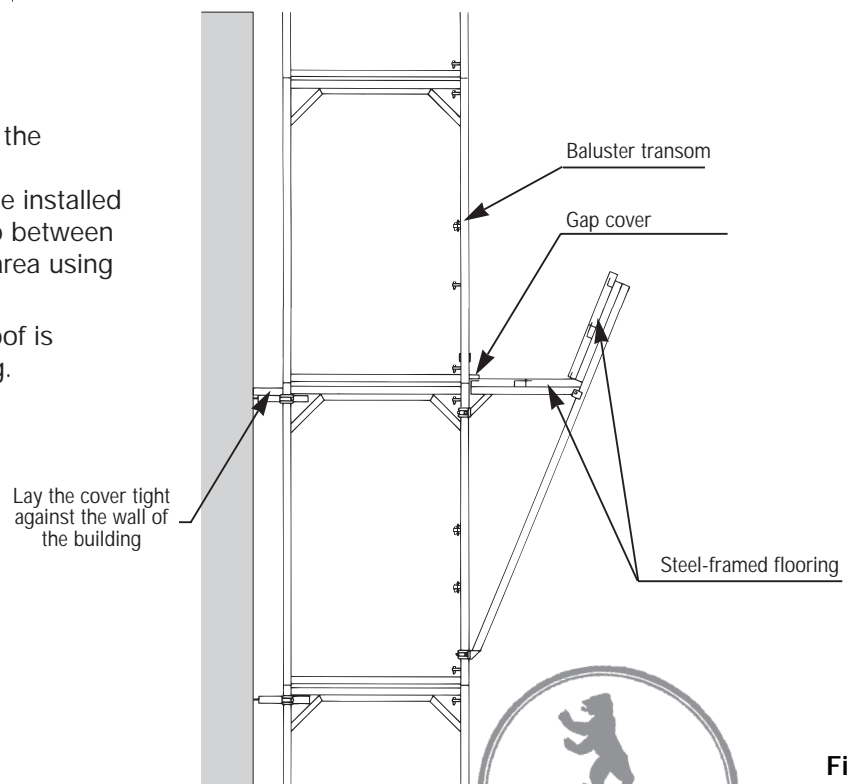


Fig. 21

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D2. Clad scaffolds

The scaffold can be clad with nets or tarpaulins.

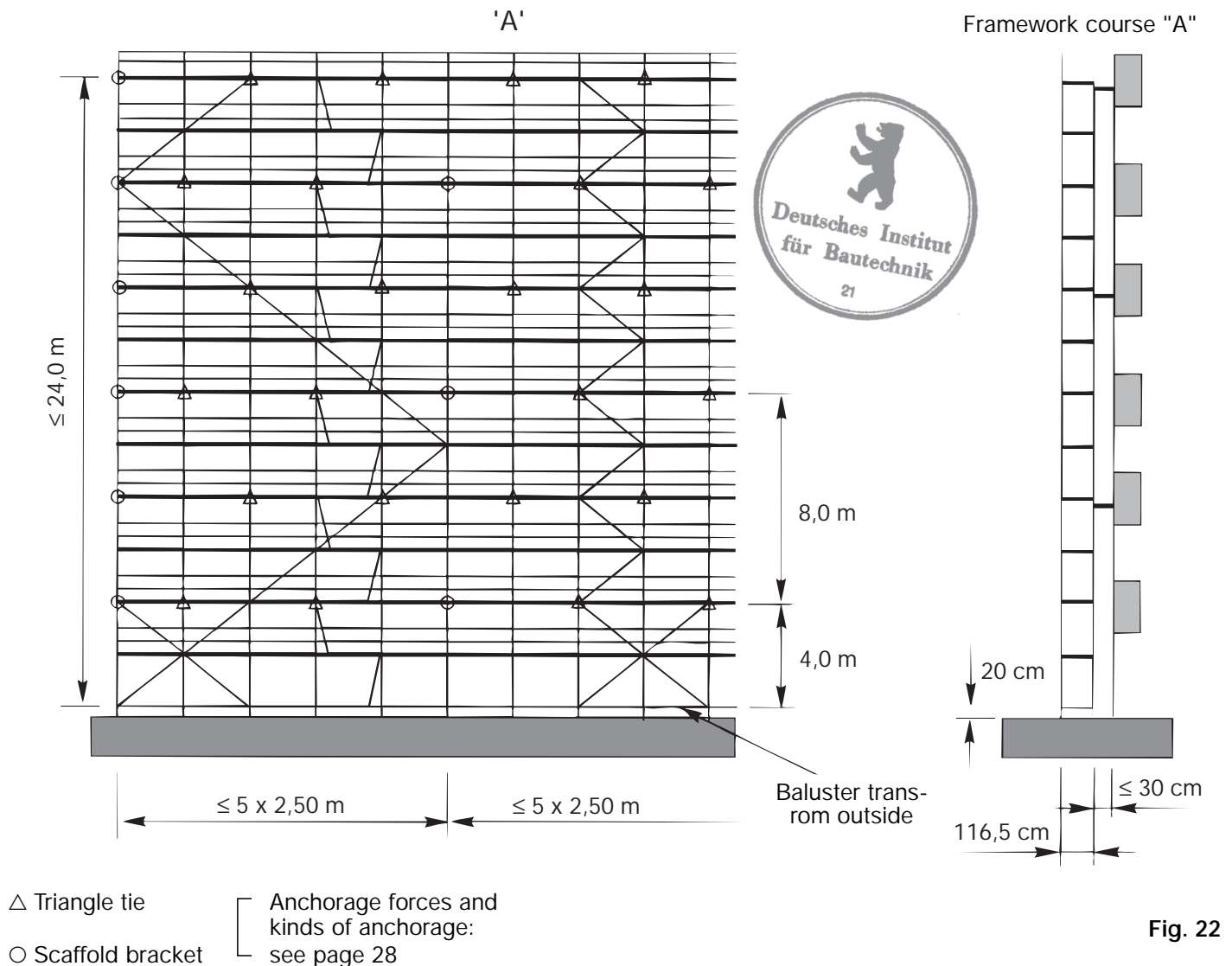
The following additional limitations apply to all erection variants:

- The number of diagonals must be the same as in non-clad scaffolds, depending on fittings.
- Anchor grid of 4 m, offset, in conjunction with net ($C_f \perp \leq 0,6 / C_F \parallel \leq 0,2$) (see Fig. 31, page 26).
- Anchor grid of 2 m in conjunction with tarpaulins (see Fig. 32, page 27).
- When employing a passageway frame, this must be anchored at a height of 2 m
- Every second internal strut tube is to be anchored using triangle ties (see Fig. 31 a. 32, page 26 a. 27).
- During work on buildings under erection and when employing the bricklayer work method, cladding may not be employed above the highest anchored level.



E. Description of scaffold anchoring systems

E1. Standard version without additional components Group 5



Scaffold Group 5
 G5 horizontal-frame
 Steel-framed flooring with G5 vertical frame
 Spindle excerpt 20 cm

8 m offset anchor grid, min. 2 triangle ties to 5 scaffold sections

Max. 5 scaffold fields to be allocated per diagonal.
 Auxiliary diagonals for 1. and 2. Floor.
 Essential when employing two old type 33,7 diameter diagonals
 - double quantity
 - Install the diagonals in counter-facing direction
 (see Fig. 9, page 13)

Side protection is only partly represented.

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E2. Standard version with additional components Group 4

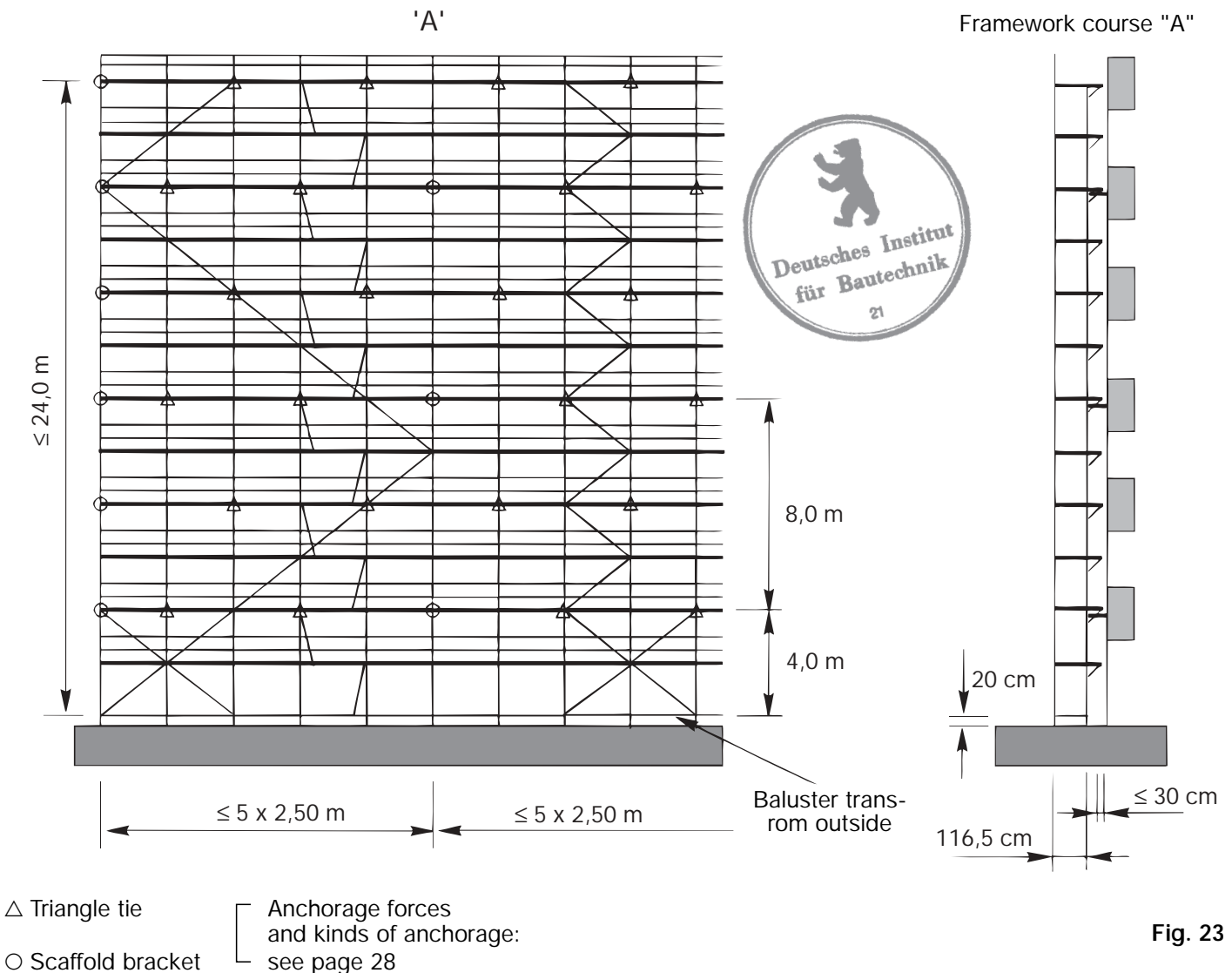


Fig. 23

Scaffold Group 4
 Horizontal-frame
 Steel-framed flooring
 Additional components: Interior widening console, protective roof and protective wall
 Spindle except 20 cm

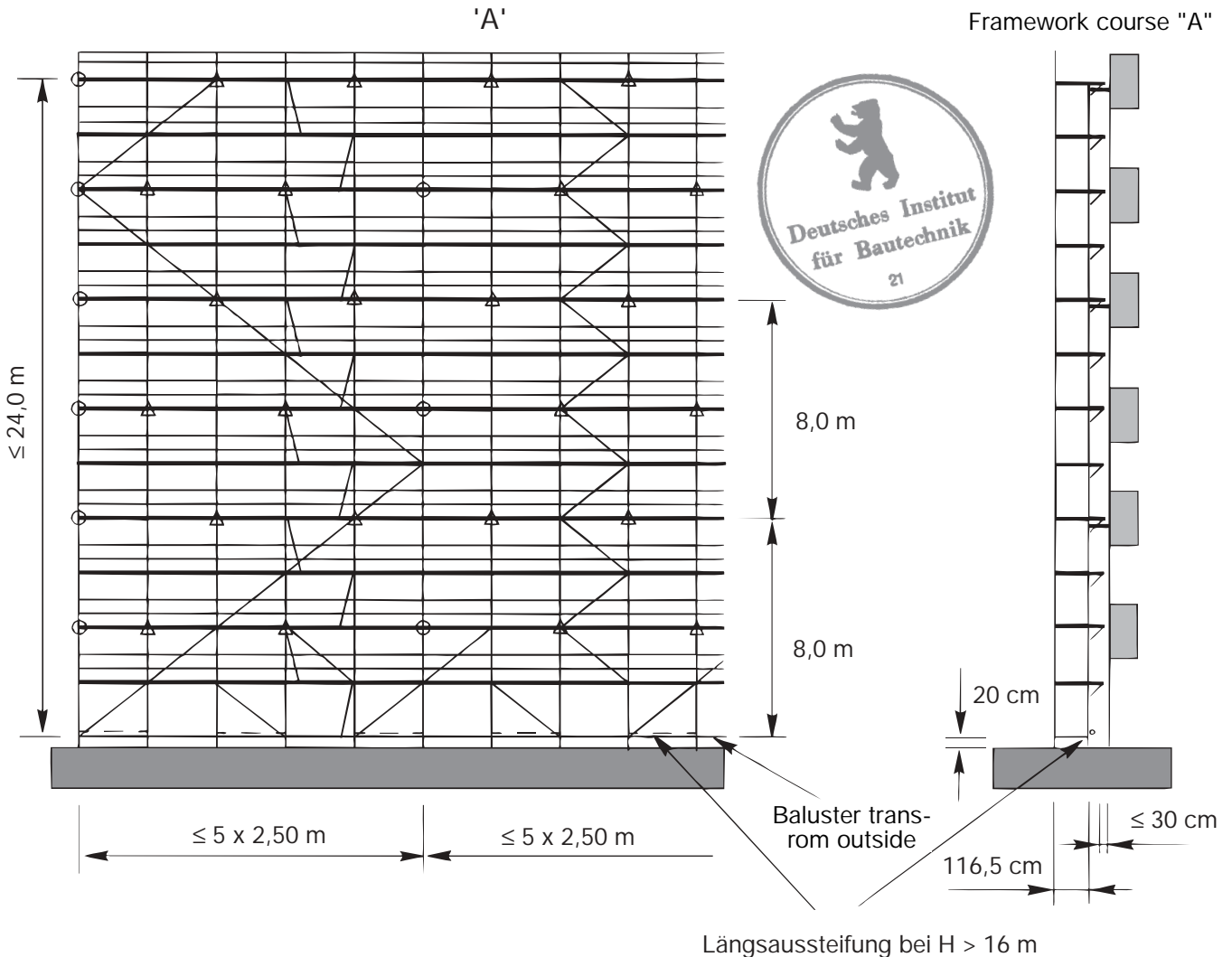
8 m offset anchor grid, min. 2 triangle ties to 5 scaffold sections
 With employment of protective roof and protective wall additionally anchorages must be installed.
 (see Fig. 25 and Fig. 26, page 22)

Max. 5 scaffold fields to be allocated per diagonal.
 Auxiliary diagonals for 1. and 2. Floor.
 Essential when employing two old type 33,7 diameter diagonals
 - double quantity
 - Install the diagonals in counter-facing direction
 (see Fig. 9, page 13)

Side protection is only partly represented.

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E3. Standard version with additional components Group 5



- △ Triangle tie
- Scaffold bracket

Anchorage forces and kinds of anchorage: see page 28

In each 2. Field are to be connected the handle pipes above the lower channel by scaffold tubes Ø for 48.3 x 3.2 by means of normal clutch.

Scaffold Group 5

G5 vertical-frame

G5 Horizontal-frame

Steel-framed flooring

Additional components: Interior widening console, protective roof and protective wall

Spindle excerpt 20 cm

Fig. 24

8 m offset anchor grid, min. 2 triangle ties to 5 scaffold sections

With employment of protective roof and protective wall additionally anchorages must be installed (see fig. 25 and fig. 26, page 22)

Max. 5 scaffold fields to be allocated per diagonal.

Auxiliary diagonals for 1. and 2. Floor.

Essential when employing two old type 33,7 diameter diagonals

- double quantity

- Install the diagonals in counter-facing direction

(see Fig. 9, page 13)

Side protection is only partly represented.

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E4. Standard version : Additional anchorage with protective roof and protective wall

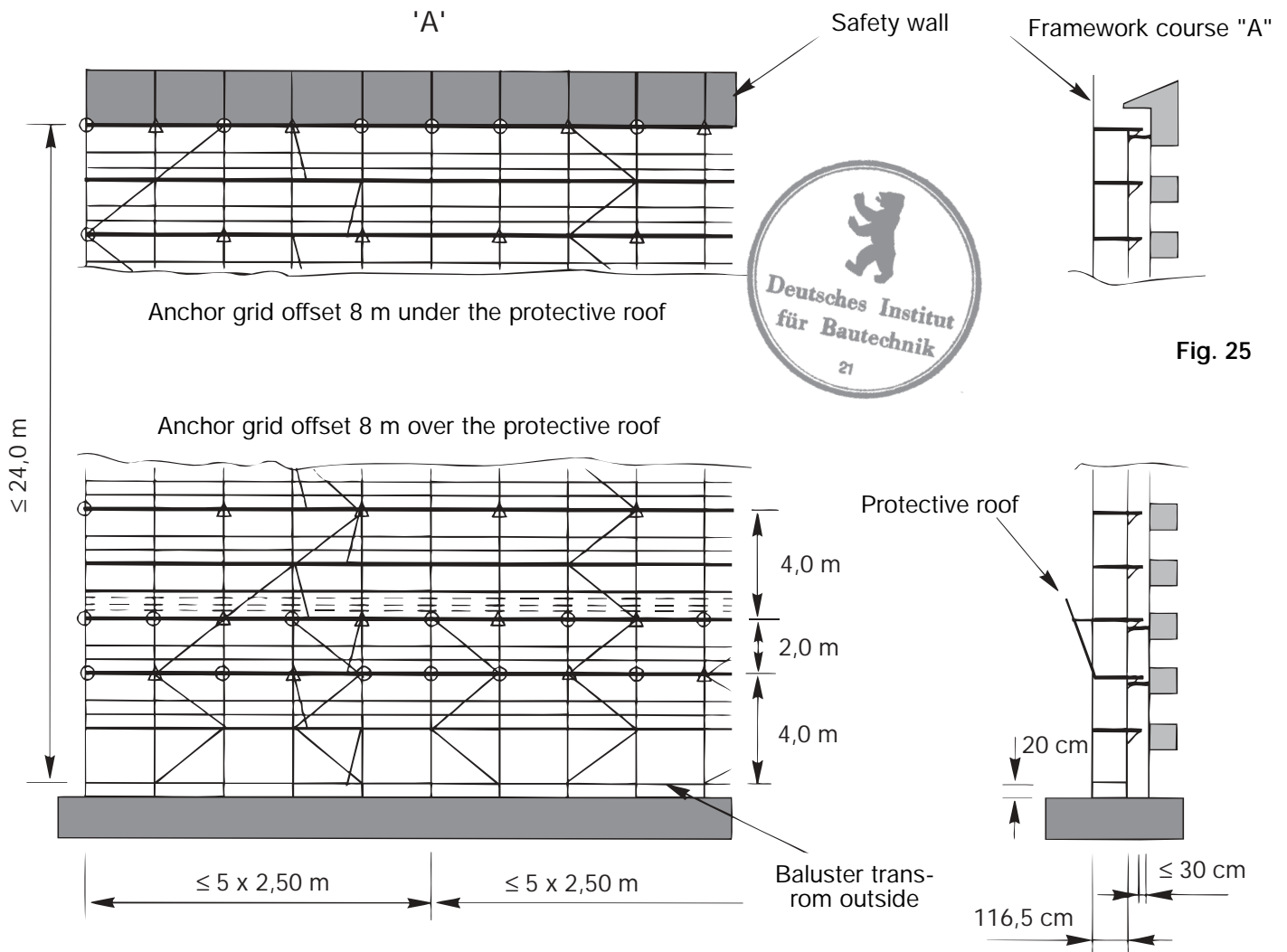


Fig. 25

Fig. 26

- △ Triangle tie
 - Scaffold bracket
- Anchorage forces and kinds of anchorage: see page 28

Internal width expansion units

Safety wall

Protective roof

Spindle excerpt 20 cm

Min. 2 triangle ties to 5 scaffold sections

The protective wall level must be embodied continuous.

The protective roof level and the level beneath it must be thoroughly anchored throughout.

Above the protective roof, max. 5 scaffold fields to be allocated per diagonal and beneath the protective roof every second scaffold section must be braced.

Max. 5 scaffold fields to be allocated per diagonal.

Essential when employing two old type 33,7 diameter diagonals

- double quantity

- Install the diagonals in counter-facing direction

(see Fig. 9, page 13)

Side protection is only partly represented.

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E5. Standard version with passageway frame

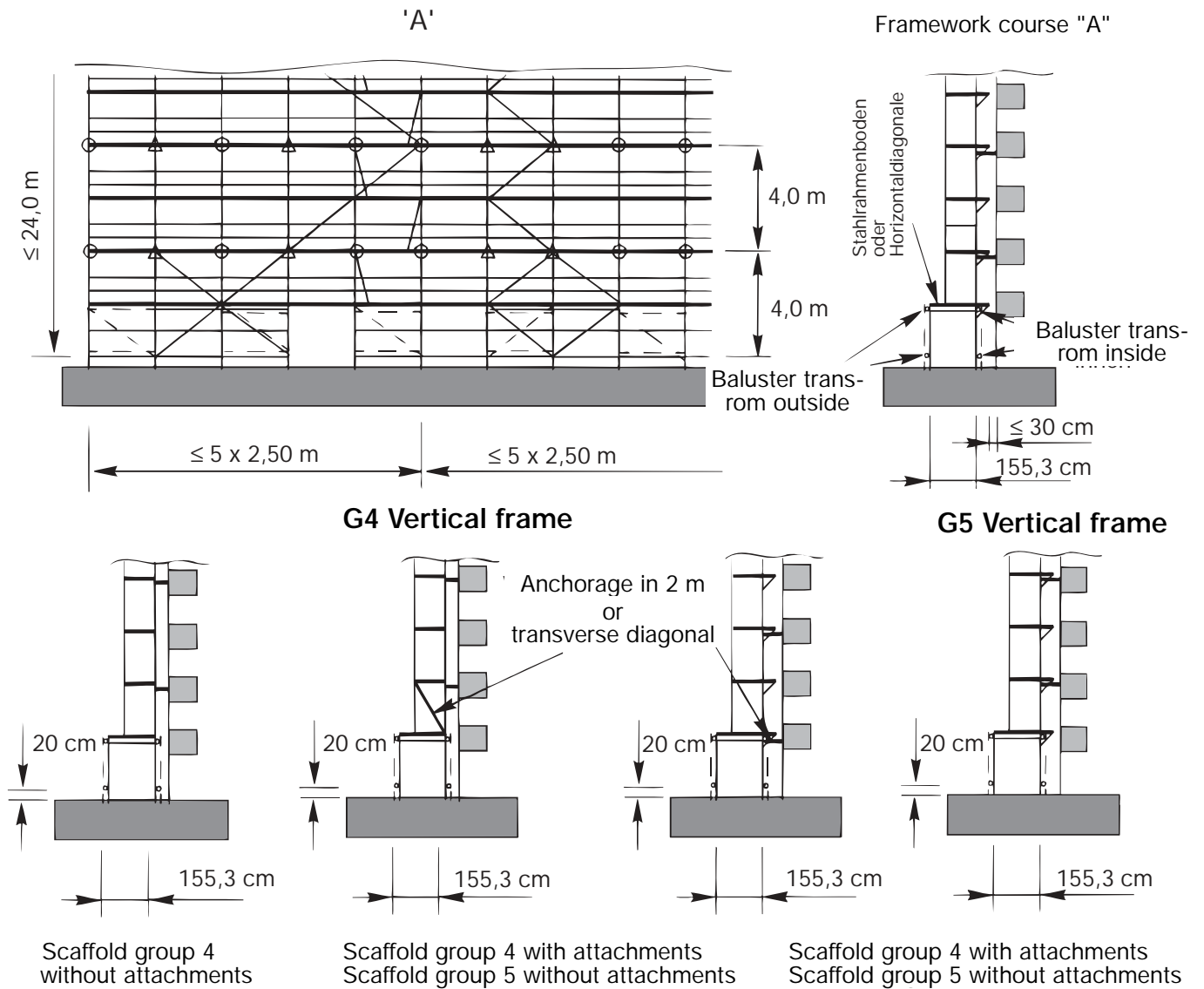


Fig. 27

- △ Triangle tie
 - Scaffold bracket
- Anchorage forces and kinds of anchorage: see page 28



Additional components: Interior widening console, protective roof and protective wall
Spindle excerpt 20 cm

4-m anchor grid, with min. 2 triangle ties to 5 scaffold sections

With employment of protective roof and protective wall additionally anchorages must be installed.
(see Fig. 25 and Fig. 26, page 22)

Max. 5 scaffold fields to be allocated per diagonal.

In 1. and 2. Floor must be attached on the exterior per an auxiliary diagonal.

In the 1. Floor must be attached at the inside in each second field a diagonal.

Essential when employing two old type 33,7 diameter diagonals

- double quantity

- Install the diagonals in counter-facing direction

(see Fig. 9, page 13)

Side protection is only partly represented.

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E6. Standard version with scaffold bridge

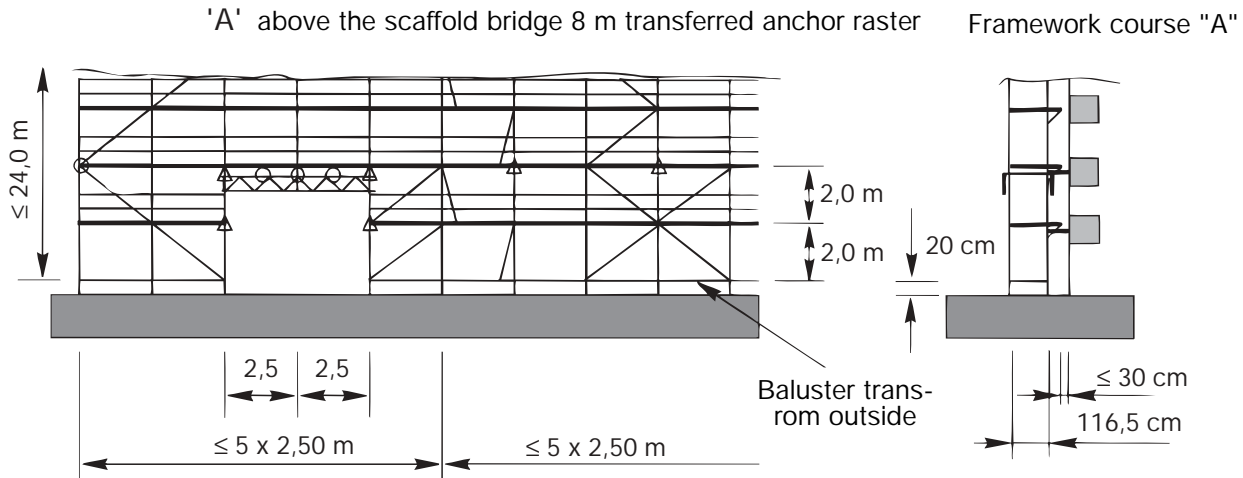


Fig. 28

- Scaffold group 5** without additional components (interior widening console, protective roof and protective wall), however below the scaffold bridge vertical framework G5
- Scaffold group 4** with additional components (interior widening console, protective roof and protective wall)

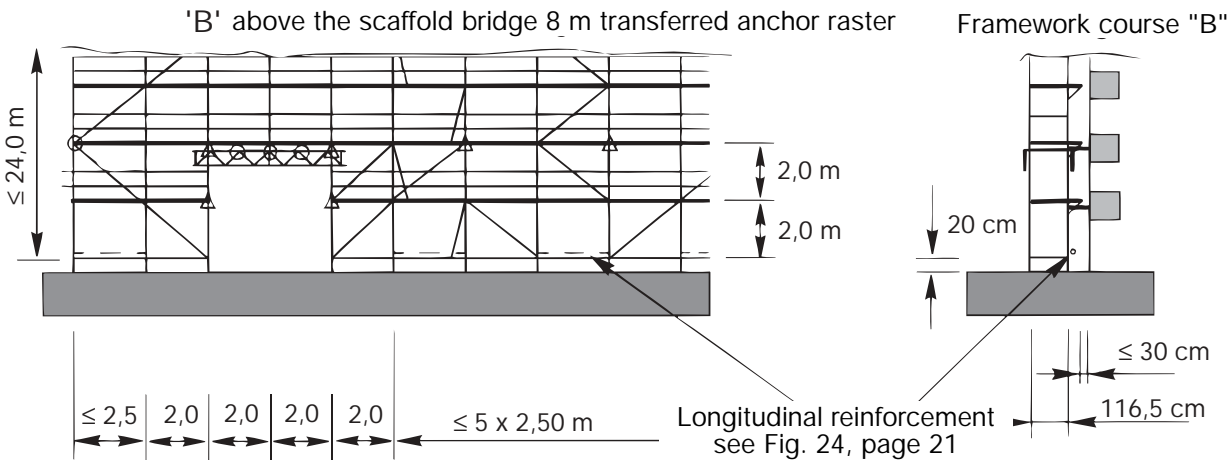


Fig. 29

- Scaffold group 5** without additional components (interior widening console, protective roof and protective wall), however below the scaffold bridge vertical framework G5

- △ Triangle tie
- Scaffold bracket
- Anchorage forces and kinds of anchorage: see page 28

Spindle excerpt 20 cm

With employment of protective roof and protective wall additionally anchorages must be installed. (see fig. 25 and Fig. 26, page 22)

Beneath the integrated lattice beam the adjoining strut tubes must be secured to the facade at 2-m centres by triangle ties.

The upper booms of the integrated lattice beam must be firmly secured at the quarter point either by a connector or a scaffold bracket (see Fig- 16 - 19, page 17)

Number of diagonals and anchors depending on fittings employed

Essential when employing two old type 33,7 diameter diagonals

- double quantity

- Install the diagonals in counter-facing direction

(see Fig. 9, page 13)

Side protection is only partly represented.

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E7. Standard version: without anchor in highest scaffold level

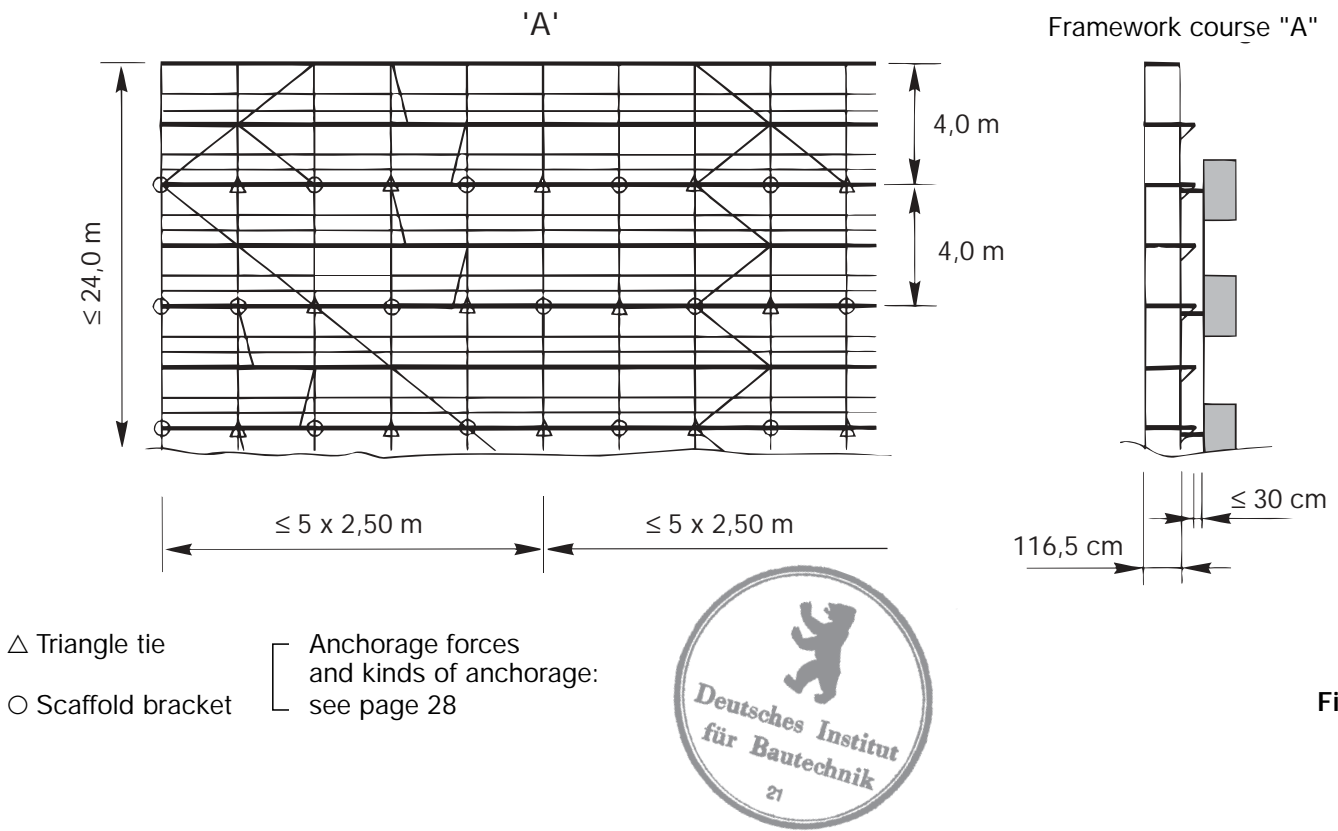


Fig. 30

Scaffold group 4
 Horizontal frame
 Steel-frame flooring
 Additional components: Interior widening console and protective roof
 Spindle excerpt 20 cm

Scaffold group 5
 G5 vertical-frame
 G5 horizontal frame
 Steel-frame flooring
 Additional components: Interior widening console and protective roof
 Spindle excerpt 20 cm

4 m anchor rasters, each 2. Anchor is a triangle anchor.
 With application of a protective roof additionally anchorages must be installed.
 (see Fig. 25, page 22)

Max. 5 scaffold fields to be allocated per diagonal.
 An addition diagonal in the secondary upper floor.
 Essential when employing two old type 33,7 diameter diagonals
 - double quantity
 - Install the diagonals in counter-facing direction
 (see Fig. 9, page 13)

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Netze und Planen dürfen erst nach der Anbringung aller vorgeschriebenen Anker montiert werden.

Side protection is only partly represented.

E8. Standard version with nets

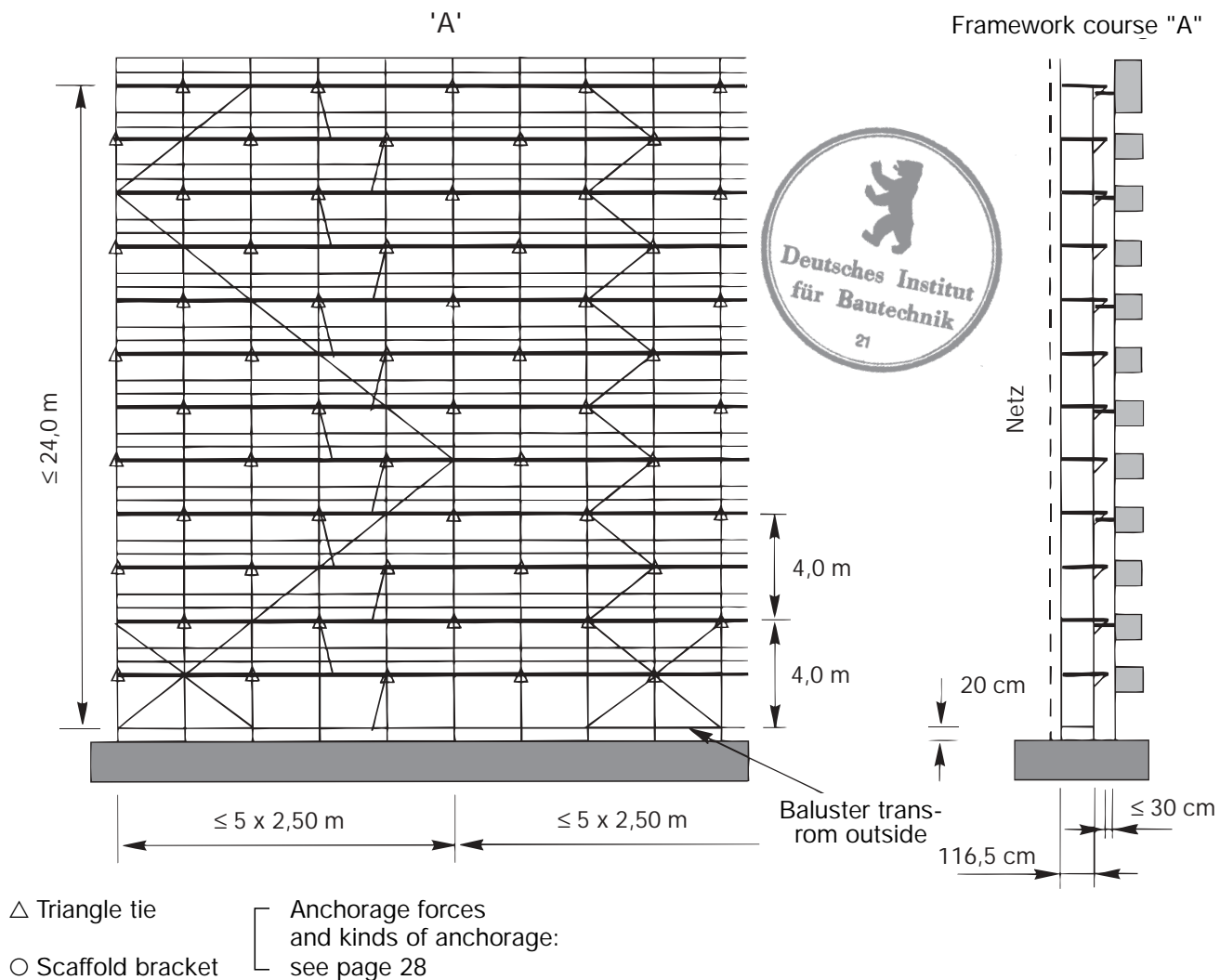


Fig. 31

In networks clad Scaffolds

Scaffold Group 4

Horizontal-frame

Steel-framed flooring

Additional components: Interior widening console and protective roof

Spindle excerpt 20 cm

Scaffold Group 5

G5 Vertikal frame

G5 Horizontal frame

Steel-framed flooring

Additional components: Interior widening console and protective roof

Spindle excerpt 20 cm

4 m transferred anchor raster

Every anchor is to be a triangle tie.

With application of a protective roof and a protective wall additionally anchorages must be installed.

(see Fig. 25 und Fig. 26, page 22)

Where a passageway frame is employed, this to be anchored at a height of 2 m.

Number of diagonals depends on a fittings employd, as in the case og non-clad scaffold

Essential when employing two old type 33,7 diameter diagonals

- double quantity

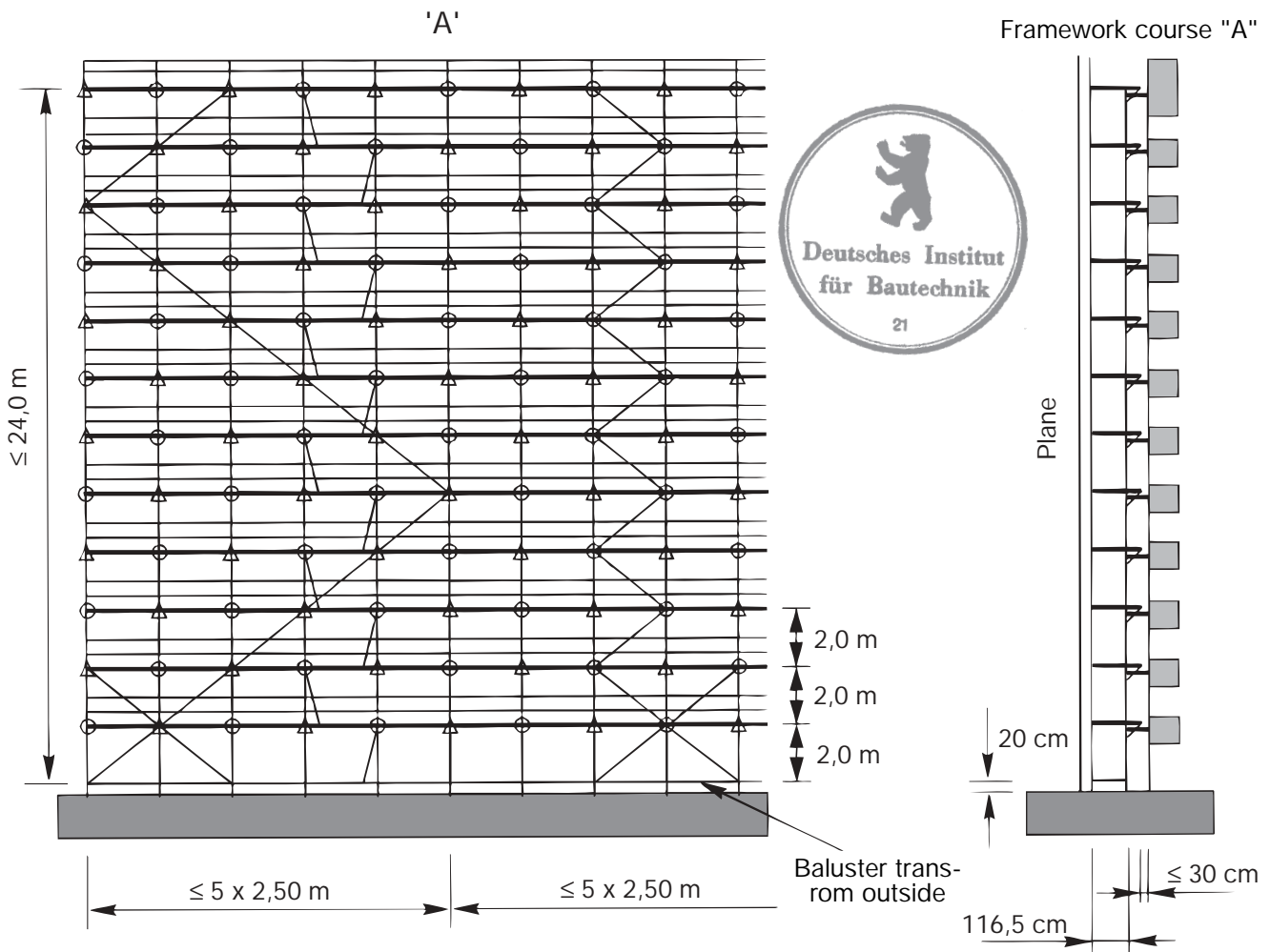
- Install the diagonals in counter-facing direction

(see Fig. 9, page 13)

Side protection is only partly represented.

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E9. Standard version with tarpaulin



- △ Triangle tie
 ○ Scaffold bracket
- [Anchorage forces
 and kinds of anchorage:
 see page 28

Fig. 32

In tarpaulins clad Scaffolds

Scaffold Group 4
 Horizontal-frame
 Steel-framed flooring
 Additional components: Interior widening console and protective roof
 Spindle excerpt 20 cm

Scaffold Group 5
 G5 Vertikal frame
 G5 Horizontal frame
 Steel-framed flooring
 Additional components: Interior widening console and protective roof
 Spindle excerpt 20 cm

Every corner is to be anchored to the facade and every second anchors is to be a triangle tie.
 Number of diagonals depends on a fittings employd, as in the case og non-clad scaffold

Essential when employing two old type 33,7 diameter diagonals
 - double quantity
 - Install the diagonals in counter-facing direction
 (see Fig. 9, page 13)

Side protection is only partly represented.

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E10. Scaffold anchors

Scaffold anchorages are according to the "Safety rules for work and protective scaffoldings - system Scaffolds (Framing and modular scaffoldings)" (ZH 1/5341) to execute.

E10a. Anchorage forces

Anchor raster	cladding	field length	standard version open front			standard version closed front		
			type of anchor			type of anchor		
			○	△		○	△	
anchor forces (kN)			A_{\perp}	A_{\perp}'	A_{\parallel}'	A_{\perp}	A_{\perp}'	A_{\parallel}'
8,0 m shifts	without	2,50 m	5,1	2,6	2,6	1,7	1,6	1,6
4,0 m	without	2,50 m	2,6	1,6	1,6	0,9	1,6	1,6
4,0 m shifts-	with nets	2,50 m	3,5	1,8	1,8	1,2	0,6	0,6
2,0 m	with tarpaulin	2,50 m	5,0	2,5	2,5	5,0	2,5	2,5

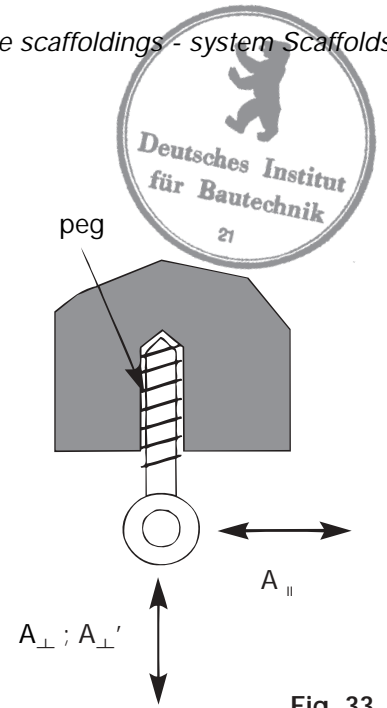


Fig. 33

- Scaffold bracket
- △ Triangle tie

A_{\perp} anchorage forces right-angled to the front
 A_{\parallel} anchorage forces parallel to the front

E10b. Erection of the scaffold anchorage

Scaffold owners are fastened to the interior handle of the vertical framework.

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Scaffold owners ○
 transfer the anchorage forces right-angled to the front.

Triangle anchors △
 transfer the anchorage forces right-angled and parallel to the front
 2 Scaffold owners at the interior handle
 alternative: 1 scaffold owner at the interior handle

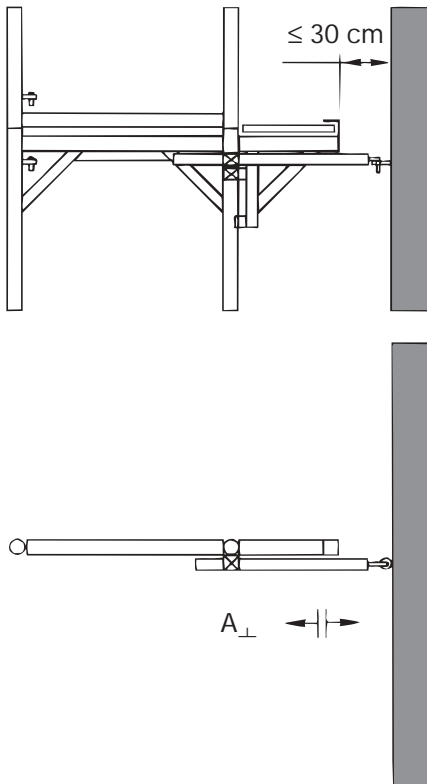


Fig. 34

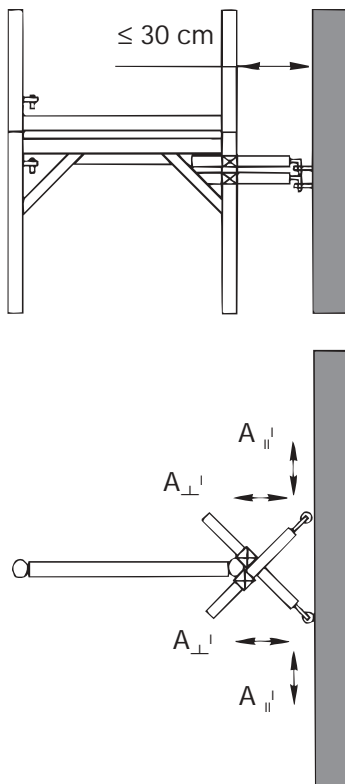


Fig. 35

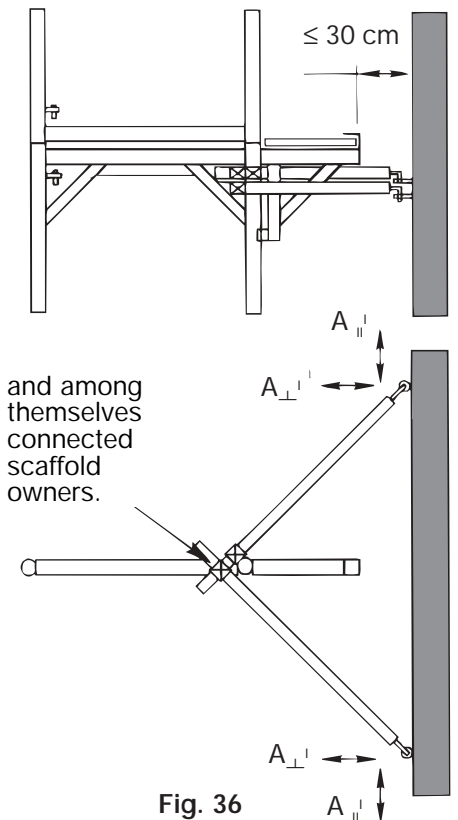


Fig. 36

E11. Specification concerning the max forces within the vertical frames

Scaffold strength in (kN) for	configuration	Scaffold Group	structure height		
	→	→	8 m	16 m	24 m
interior handle F_{IS}	without	4	8,1	10,2	12,2
		5	11,2	13,2	15,2
	with IK 325 (Interior widening console 325)	4	13,2	16,3	19,4
		5	18,3	21,4	24,4
external handle F_{AS}	without	4	8,9	11,8	14,7
		5	12,0	14,8	17,7
	with safety wall	additionally	0,6 kN		
	with protective roof	additionally	1,2 kN		
special case 1	Überbrückung F_U	interior handle $1,5 \times F_{IS}$	external handle $1,5 \times F_{AS}$		
special case 2	Passageway frame F_D	interior handle $F_{IS} + 0,3 \times F_{AS}$	external handle $0,8 \times F_{AS}$		

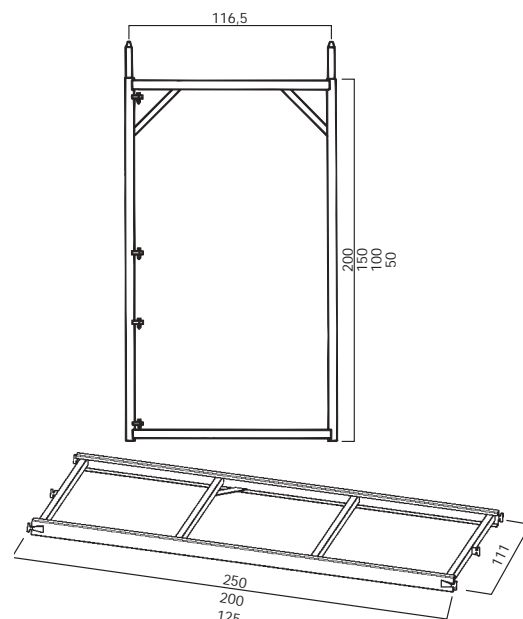


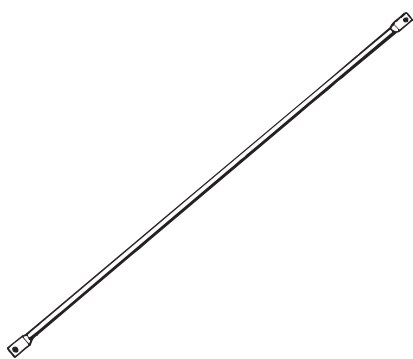
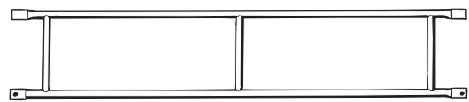
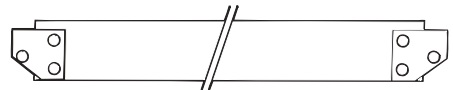

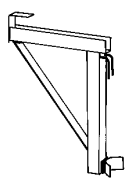
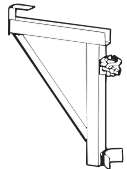
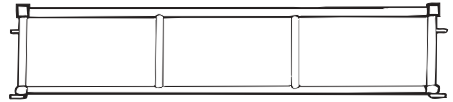

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F. individual parts from the previous Fix 120 series (to 1994)

These involve scaffold components from an earlier version. They are to be employed in accordance with the following instructions

Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page
G4 vertical frame 200	43000	27,3	10
G4 vertical frame 150	43001	23,2	11
G4 vertical frame 100	43002	20,2	12
G4 vertical frame 50	43003	15,5	12
with flooring unit uptake bracket. The Interior widening console can be installed at the clips using claws			
G4 horizontal frame 250	43004	26,0	26
G4 horizontal frame 200	43005	22,2	
G4 horizontal frame 125	43005	13,9	26
These are suspended in the U profile, in conjunction with wich they form the basic frame of the scaffold			



Designation (dimensions in cm)	Article-No.	Weight (in kg)	Permission Plant A Page	
Diagonal 200 x 250	43006	5,8	37	
Diagonal 150 x 250	43007	5,7	37	
Diagonal 100 x 250	43008	5,5	37	
33,7 mm diameter. Diagonals must be installed in counter-facing direction and the number doubled!				
Baluster with intermediate transom 250	43011	12,0	42	
For use as alternative to two rear baluster				
Edge board 250	43037	4,1		
Edge board 200	43058	3,2		
Edge board 125	43054	2,3		
Secured to two vertical frames by means of the lower tilt finger				
End edge board	430381	2,9		
Secured to two vertical frames by means of the lower tilt finger				
Interior widening console with claw	43112	5,6	57	
Secured to two vertical frames by means of an extension unit bracket				
Interior widening console 425 with threaded coupling	43020	5,6		
Interior widening console 425 with wedge coupling	43021	5,8		
For extending the scaffold to 1,60 m				
Horizontal frame for floor extension unit 425	43022	20,8	58	
Use in Scaffold Group 4 !				
Timber flooring for horizontal frame for interior widening console	43055	16,0		
Use in Scaffold Group 4 !				



Plant C, page 30 for general build-up-obvious permission Z-8.1-21 from 27th November 1997
German Institut for civil engineering

Notes:

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