



**INSTRUCTIONS
FOR ASSEMBLY
AND USE**

ALFIX 70

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With the publication of these Instructions for Assembly and Use, any previous version becomes invalid.

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1. Overview	p. 3
2. Preface	p. 5
3. General notes	p. 6
4. Assembly sequence	
4.1 Assembling the first scaffolding bay	p. 15
4.2 Assembling further scaffolding bays	p. 17
4.3 Standard bay	p. 22
4.4 Corner formation	p. 22
4.4.1 External Corners	p. 22
4.4.2 Internal corners	p. 23
4.5 Ladder access	p. 24
4.6 Stairway access	p. 24
4.7 Façade scaffolding with widening brackets	p. 26
4.7.1 Bracket 0.36m	p. 26
4.7.2 Bracket 0.73m	p. 27
4.8 Façade scaffolding with protective roof	p. 28
4.9 Weather protection	p. 29
4.10 Roof fall arrest and brick guard scaffold	p. 30
4.11 Passage frame	p. 32
4.12 Bridging	p. 33
4.13 Lattice Girder Cross Brace	p. 36
4.14 Cladding	p. 37
4.15 Dismantling the scaffolding	p. 37
5. Standard assembly configuration	p. 38
6. Overview of the components	p. 77
7. Technical Details	p. 83
8. Checklist	p. 86

Whether in steel or aluminium, each detail of the ALFIX façade scaffolding system has undergone a quality and reliability check. All components are easy to handle, leading to quick and economical erection and dismantling.

The ALFIX Façade scaffolding is a scaffolding system with prefabricated components. It is available in the following bay lengths: 0.73 m - 1.09 m - 1.57 m - 2.07 m - 2.57 m - 3.07 m and 4.14 m. The standard width of the assembly frame is 0.73 m.

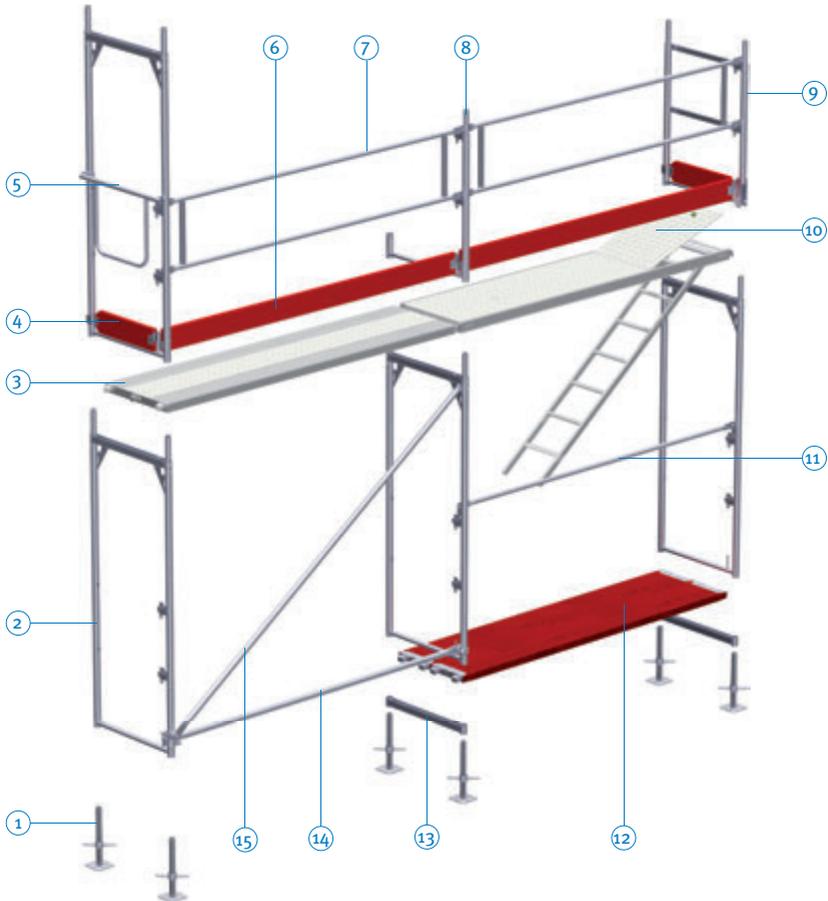
In its standard assembly configuration, the scaffolding may be used as a work scaffolding for load classes 1 to 3 in accordance with DIN EN 12810 and 12811 (working weight per unit area 200 kg/m² in load class 3) and as a roof fall arrest and brick guard scaffold (max. fall height 2.00 m). These instructions for assembly and use only apply to original ALFIX scaffolding components, identified with the mark of conformity “Ü” and the corresponding German approval number (Z-8.1-862).

The present Instructions for Assembly and Use are based on Approval Z-8.1-862 from 2016. They comprise the standard assembly configuration. The approval can be consulted as a separate document.

Proof of the standard assembly configuration was furnished for structural heights of 24.00 m plus the spindle extension length. Designs that deviate from standard configurations shall be evaluated according to the Technical Building Regulations and the stipulations of the relevant National Technical Approval and shall be calculated for each individual case.

Approval number: Z-8.1-862





- | | | | |
|---|--------------------------|----|---|
| 1 | Base jack | 9 | End guardrail frame |
| 2 | Assembly frame | 10 | Access deck with ladder (chequer plate decking) |
| 3 | ALBLITZ lightweight deck | 11 | Guardrail |
| 4 | End toeboard | 12 | Wooden deck |
| 5 | Double end guardrail | 13 | Starter transom |
| 6 | Toeboard wood | 14 | Horizontal strut |
| 7 | Double guardrail | 15 | Diagonal brace |
| 8 | Guardrail post | | |

Dear ALFIX customer,

with the „ALFIX 70“ scaffolding system you have purchased a versatile and robust scaffolding.

Please follow these „Instructions for Assembly and Use“ during assembly, use and dismantling to ensure safe working!

Read this manual carefully and always keep it with you when assembling. It explains in detail all necessary steps and safety measures in the correct order.

The drawing on page 4 provides you with an overview of the components.

If you wish to deviate from these „Instructions for Assembly and Use“, or if you have questions regarding our „ALFIX 70“ Gscaffolding system, please contact us. We are happy to offer advice.

Sincerely ALFIX GmbH

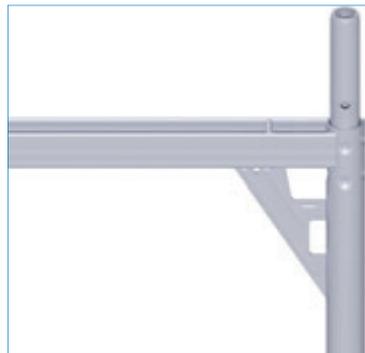
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Guardrail wedge housing

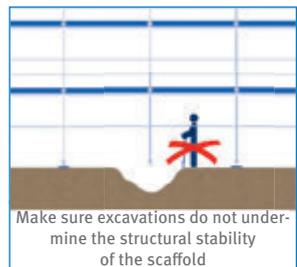
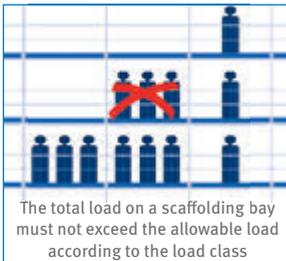
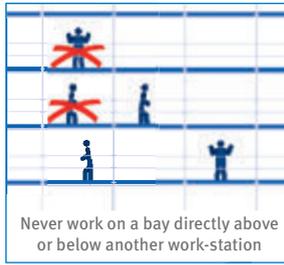


Gusset plate



Follow the instructions for use

General warnings



General Instructions for Assembly / Safety Issues / Safety Measures

Scaffolds shall be assembled, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold assembly, moving, dismantling or alteration.

Scaffolds must be set up and used in accordance with the stipulations of the BGI 663 (employers' liability insurance association, building construction) „Instructions for handling work and safety scaffolds” and the notes and provisions of DIN 4420 or EN 12811. The German Technical Regulations on Health and Safety at the Workplace (TRBS 12121) shall also be observed .

In site-related instructions for assembly and use, the employer shall decide upon the most suitable protection against risk of falling, based on a risk analysis and in accordance with the German Industrial Safety Regulations (BetrSichV). Potential measures include technical protection and safety measures, personal protective equipment (PPE) to prevent falling and special training. ALFIX offers „advanced guardrails” as a technical protection measure which are documented separately.

In case the risk analysis results in the need for protective equipment (PPE) to prevent falling, appropriate attachment points at the façade scaffolding shall be used.

Damaged scaffolding components must not be used and have to be replaced by sound material. Repair work shall only be done by the manufacturer of the façade scaffolding system, i.e. ALFIX GmbH.

In accordance with the relevant German Industrial Safety Regulations, risk analyses shall be performed taking into account the particularities for each individual case in order to assess any required measures. The risk assessment shall include any necessary actions to be taken in the event of a rescue operation.

If the scaffolding deviates from the standard assembly configuration in accordance with these Instructions for Assembly and Use, the structural stability of the scaffolding shall be verified for each individual case and site-related by means of a structural analysis.

The following safety symbols are used in the present Instructions for Assembly and Use:



Falling hazard



Fasten safety harness



Wear safety helmet



Follow the instructions for use



No unauthorised entry



Do not climb on the outer face of the scaffold

for more information, please refer to chapter 3. General notes on pages 12/13

for more information, please refer to chapter 3. General notes on pages 11

The diagrams shown in this manual are intended as representative examples and are not to be considered as mandatory.

CAUTION!

Scaffoldings may only be assembled, altered and dismantled under the supervision of a competent person and by qualified employees.



CAUTION!

The inspection protocol must include at least the following information:

- Type of scaffolding
- Load class
- Width class
- Cladding
- Intended use
- Date
- Scaffolding manufacturer

Inspection and Documentation

The working scaffolding is only to be used upon approval by the scaffolding erector. The scaffolding erector shall indicate assembly, dismantling and alteration works clearly at all entries using the safety sign „No unauthorised entry“. Upon completion of the assembly, the scaffolding erector must provide a written protocol for the structure, and place a copy in the labelled tamper-proof transparent plastic pocket „No access“, documenting the approval of the scaffold. The protocol also documents the configuration of the scaffolding in accordance with the intended use. The user of the scaffolding shall be informed about the hazards arising from unintended use. Prior to using the scaffolding, the user shall inspect it to ensure that there are no apparent defects.

During the use of the scaffolding, any alterations, including those applied only to parts of the scaffolding, must be reported to the scaffolding erector immediately and an exceptional inspection must be carried out by a competent person who has been appointed by the scaffolding erector.

Inspection protocols must be kept throughout the service life of the scaffolding, as a rule at least for a period of 3 months.

Identification and approval <small>for scaffolds according to DIN EN 12811 / DIN 4420</small>		
Customer / Client:	Scaffolding erector: <small>(stamp, if applicable)</small>	Competent person during assembly:
Construction project / Place of erection:		Assembly period:
Scaffold no.:		Competent person for inspection:
Phone:	Phone:	Inspection period:
Scaffold: <input type="checkbox"/> Working scaffold acc. to EN 12811 <input type="checkbox"/> Protective scaffold acc. to DIN 4420	<input type="checkbox"/> Façade scaffold <input type="checkbox"/> Roof fall arrest scaffold	<input type="checkbox"/> Birdcage scaffold <input type="checkbox"/> Brick guard <input type="checkbox"/> Protective roof <input type="checkbox"/> Mobile scaffold tower
Cladding: <input type="checkbox"/> None <input type="checkbox"/> Tarpaulins <input type="checkbox"/> Nets <input type="checkbox"/> _____		<input type="checkbox"/> Stairway tower <input type="checkbox"/> Custom-design scaffold: _____
Load class: <input type="checkbox"/> 2 (150 kg/m ²) <input type="checkbox"/> 3 (200 kg/m ²) <input type="checkbox"/> 4 (300 kg/m ²) <input type="checkbox"/> _____ (____ kg/m ²)		
Width class: <input type="checkbox"/> W06 <input type="checkbox"/> W09 <input type="checkbox"/> W_____	System width: <input type="checkbox"/> SW06 <input type="checkbox"/> SW09 <input type="checkbox"/> SW_____	
Restrictions on use: _____ _____		
<small>Unauthorized scaffold modifications are prohibited unless the scaffolding erector has been consulted beforehand. Please follow the respective instructions for Assembly and Use.</small>		
Inspected and approved Competent person of scaffolding erector: _____		Competent person of user:
Date, Signature _____		Date, Signature _____
		 ALFIX GmbH Langenhennersdorfer Str. 15 D - 09603 Großschirma

please refer to the approval and inspection protocol on page 86 - 87.

Structural stability

The supporting surface must be inspected to ensure that it has the required load-bearing capacity and appropriate load-distributing bases must be used, e.g. wooden planks 50 x 32 cm with a minimum thickness of 4.5 cm.

Protective bases (circular or rectangular) for base jacks ensure safe and non-slip standing but do not have a load-distributing effect (important in case surfaces do not have the required bearing capacity). Made of durable plastic material. Ideally suitable for areas with public traffic: the clearly visible bases and covers help prevent accidents.



Wooden plank



Protective base, circular



Protective base,
rectangular angular



Tube end cap

! CAUTION!

For areas where tube ends pose a risk, the ends must be covered with the appropriate covers.

Transport of scaffolding components

For scaffoldings with a scaffolding height of 8 m or higher (deck height above assembly surface) or in case of a scaffolding length of up to 10 m and a scaffolding height of at least 14 m, suitable mechanical aids like cranes, hoists and hand-operated rope pulley lifts must be used.

Scaffolding bays in which vertical transportation is carried out manually, must have guardrails and intermediate guardrails on the lower scaffolding layers. During assembly a guardrail at 1.00 m above the deck on the topmost level is sufficient. In case of manual transportation, at least one person per scaffolding level is required. When passing scaffolding components by hand (vertically up or down) during assembly, workers must not stand directly above/below each other but must, at all times, stand one bay laterally offset in relation to each other.



Principal Guidelines

Scaffolding assembly work must be performed in such a way that falls are avoided or the risk of falls is minimised to the extent possible. Potential protection measures:

- technical protection and safety measures
- personal protective equipment (PPE) to prevent falling
- special training

Technical measures to prevent the risk of falls have priority over personnel-related safety measures! As a technical measure to prevent the risk of falls, ALFIX offers advanced guardrail posts and telescopic guardrails. If the scaffolding contractor decides that, based on a risk assessment, other suitable protection measures are required, these measures must be documented in special instructions for use (instructions for assembly).

If „personal protective equipment to prevent falling” (PPE) in accordance with BGR 198¹⁾ (German work safety regulations) is to be used, the designated anchorage points on the scaffolding must be used. Risk assessment must include any potential procedures for rescuing the fallen person. Fall arresters in accordance with DIN EN 360 may also be used as part of the PPE. ADo not combine fall arrest systems. PPE is generally only permissible as of the 3rd working level in case of a stand height of > 6.00 m, as of the 2nd working level > 4.00 m only when overhead anchor points are available at > 2.00 m above stand height (e.g. gusset plate of the assembly frame).

¹⁾ DGUV Rule 198 (formerly BGR 198): Use of personal fall protection equipment.

Fall Prevention Measures

During assembly, alteration and dismantling of scaffoldings, personal protective equipment against falling (fall protection PPE), an advanced guardrail or a combination of both may be required. Only use equipment that is in accordance with the EN 354/355/360/361/362/363 standards or with the provisions of the employer's liability insurance association. The protective equipment shall be examined by an expert at least every twelve months.



CAUTION!

Fall protection measures are not required in case the distance of the working areas to other load-bearing and sufficiently large surfaces is 0.30 m or less.

3. General notes

When using PPE against falls, make sure the anchor point of the PPE is at least 6 m above the closest impact surface. Lower anchors do not protect against fall hazards.

In case anchor points above head-height are used, self-retracting life-lines can be used additionally. Depending on the situation, this is also useful in connection with an advanced guardrail. Please observe any additional provisions as instructed by the PPE manufacturer!



Anchor points for „Personal Protective Equipment (PPE) to prevent falling”

In cases when personal protective equipment (PPE) to prevent falling is used, the following anchor points are allowed:

- ① Frame corner (in gusset coupler or at standard in the corner)
- ② Assembly frame above or directly at the guardrail wedge housing
- ③ Guardrail

For further assembly work, the above-mentioned anchor points are also allowed at free-standing assembly frames.

CAUTION!

For further information on PPE, please refer to BGI 5101, BGI 663.

Fall protection PPE in accordance with EN 354/ 355 / 360 / 361 / 362 / 363.

The lanyard between the harness and carabiner must be sharp edge tested.



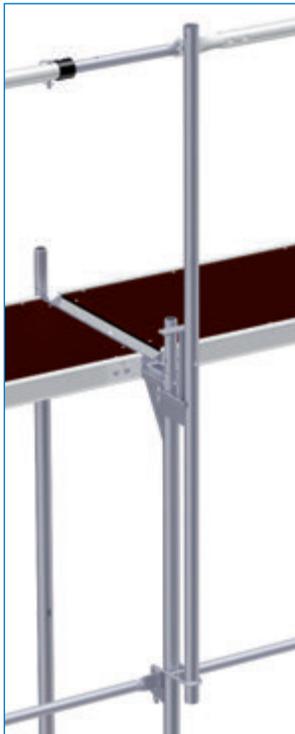


Voreilendes Stirngeländer

Advanced guardrail

Advanced guardrails as a technical protection measure are used as temporary side protection during scaffolding assembly, disassembly and alteration work. The advanced guardrail is to be used on the entire working level that is being installed or, in combination with fall protection PPE, only on the access bay.

On the first working level (standing height 2 m) the advanced side protection is mounted from the ground, on all other levels the advanced guardrail post only needs to be moved vertically with both connected telescopic guardrails.



Application example
Advanced guardrail post with
mounted telescopic guardrail

Advanced guardrail along the entire length

The advanced end guardrail can easily be moved from above or below. First, the guardrail is fitted to the double end guardrail at the lower part, then the hooks are attached to the U profile of the assembly frame. Next, the guardrail is secured with the lift-off preventer. A double end guardrail must be fitted onto the bottom assembly frame for the use on the first level.

Start mounting the advanced guardrail post at one of the ends of the scaffolding. Suspend a telescopic guardrail into the hooks on the post and mount the post onto the corner standard. Put the guardrail post on the outer side of the assembly frame with the lower fork positioned on the guardrail of the lower working level.

The upper fork encompasses the upright tube below the gusset coupler and is secured by means of the swivel mechanism.



3. General notes

Then fit the guardrail along the façade.
The other end of the telescopic guardrail is fitted to the next guardrail post as is a second telescopic guardrail.



Now lift the guardrail post and telescopic guardrail and fit these to the assembly frame as described above. Fit the telescopic guardrails and assemble the next guardrail post with fitted guardrails as described over the entire length of the working level. Do not access this level and assemble the assembly frame and the required three-part side protection before the advanced guardrail has been installed along the entire working level



Provide fall protection on the next working level by vertically repositioning the advanced guardrail post with telescopic guardrails fitted on both sides.

CAUTION!

In cases when the advanced guardrail is used only at the access bay, PPE against falling must be used during assembly on the working level in all areas that do not have an advanced guardrail. For anchor points see page 11.

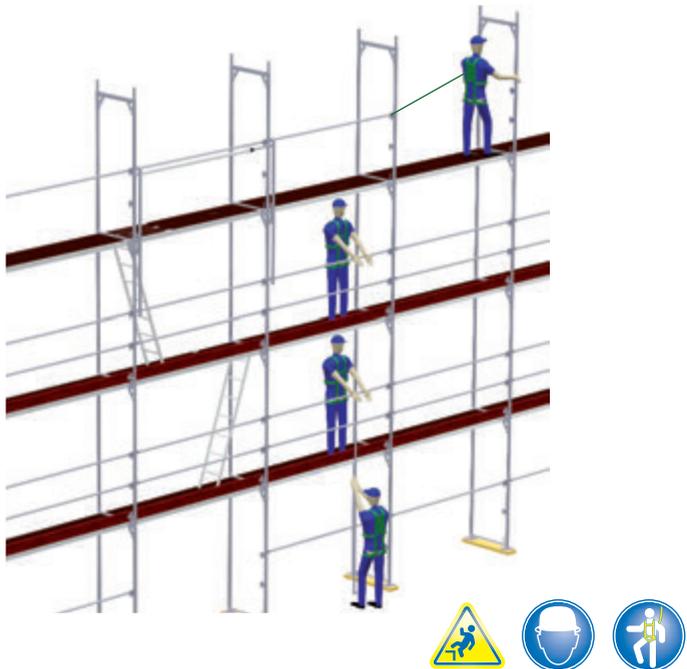
CAUTION!

Do not access the topmost working level before the advanced guardrail is completely installed.

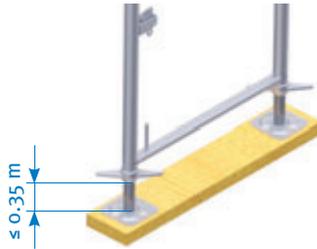
Advanced side protection in access bay only

When the advanced side protection is used in the access bay, the advanced side protection is only installed in the access bay as described above.

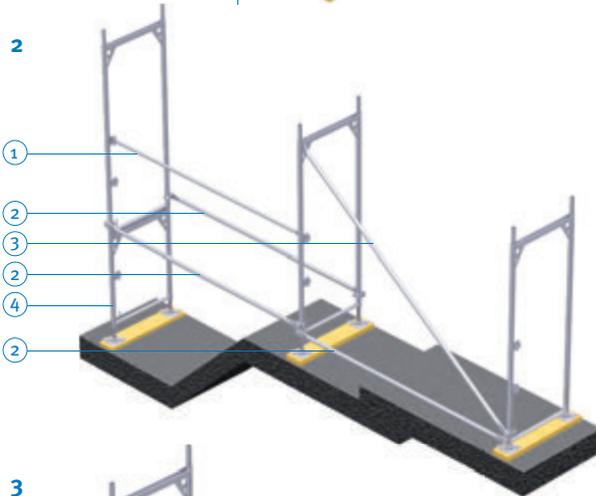
After installation, the topmost level can be accessed. Close the hatch and then install both assembly frames of the access bay and the guardrail on this bay. After this, assembly frames can be fitted one bay further. When doing this, fall protection PPE must be used at the prescribed anchor points of the assembly frame. Fit the guardrails immediately after fitting the assembly frames. Finish off the working level by repeating these working steps bay by bay. Install double end guardrails at the end bays. Any other components such as diagonal braces, toeboards or decks can be assembled after that.



1



2



3



- 1 Guardrail
- 2 Horizontal strut
- 3 Diagonal braces
- 4 Assembly frame 1.00 m

4.1 Assembling the first scaffolding bay

1 Only erect scaffoldings on surfaces that have a sufficient load-bearing capacity. If the surface does not have the required load-bearing capacity, load-distributing bases must be used. Install a base plate or a base jack under each scaffolding standard. In the standard assembly configuration, base jacks may be extended to up to 0.35 m (spindle extension length). Larger extensions are allowed upon verification of the load bearing capacity. Please note the respective instructions for each standard assembly configuration. (see figure 1)

2 In case of inclined erection surfaces, for height differences, and to obtain a specified height of the working level, assembly frames with the heights 0.66 m or 1.00 m can be assembled at the base of the scaffolding (see figure 2). If height adjustment below scaffolding bays by means of vertical diagonal braces is required, the assembly frames used for this should also be braced with diagonal braces (e.g. tube and 2 swivel couplers) and horizontal braces.

3 Position the assembly or passage frames vertically and at the given clearance to the façade onto the base plates or base jacks and protect the same against falling by installing a guardrail. (see figure 3)

4 Fit decks between the upper U-profiles of the assembly frames. Use two narrow decks (width: 0.32 m) or one wide deck (width: 0.60 m) for the 0.73 m wide assembly frames (see figure 4). When using passage frames, fit decks over the entire width, i.e. four narrow or two wide decks. For load class 3, all deck types can be used.



5 Assemble a diagonal brace for longitudinal bracing on the outside of the scaffolding bay. To do this, insert the formed end of the diagonal brace into the hole of the gusset plate and subsequently swivel the diagonal brace downwards until the half-coupler on the opposite frame can be closed. Additionally fit a horizontal strut on this bay on the outer face of the scaffolding above the lower transom (see figure 5).

Some assembly configurations also require diagonal braces and horizontal struts to be fitted on the inside of the scaffolding.



6 Align the scaffolding bay horizontally and make sure the wall clearance (distance to the wall bay edge) is no greater than 0.30 m.

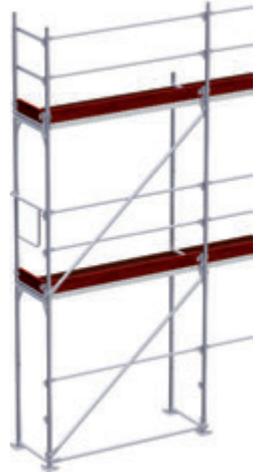
- 1 Deck 0.60 m
- 2 Diagonal brace
- 3 Horizontal strut



4.2 Assembling further scaffolding bays

Decks

The deck surfaces are to be assembled as described on page 16, section 4. Always start assembling decks from the lower secured working level. Decks are protected from unintentional lift-off by means of the base ledgers of the next working level and guardrail posts or the protective net post on the upper working level. Always provide separate lift-off prevention for the decks and secure by means of a locking pin if no lift-off protection is provided by components arranged on the level above. Bracket 0.36 m provides lift-off prevention for the for the bracket deck. As with all other timber scaffold components, wooden decks rot when exposed to humidity. Damaged decks no longer have the required load-bearing capacity and should not be used. Avoid damage to timber decks by keeping the decks dry, off the ground and well ventilated when in storage.



Diagonals

Diagonal braces must be installed continually as scaffolding assembly progresses. They can be fitted one above another, or spaced diagonally along the scaffold. Please refer to the standard assembly configuration for the required number of diagonal braces (see 5. Standard Assembly Configurations, p. 38 ff.).

The following applies for the configuration of the diagonal braces:

- install at least one diagonal brace per working level
- no more than 5 scaffolding bays per diagonal brace
- install horizontal struts on the same level as the lower transoms in each scaffolding bay with diagonal braces



Completing the side protection

Install missing guardrails, toeboards as well as the complete end side protection on every working level that is not exclusively used for scaffolding assembly. Secure the guardrails by driving the guardrail wedge into its housing with a hammer. The side protection on the topmost level can be installed using guardrail posts and end guardrail frames.



Couplers

In many cases, e.g. with brackets, couplers are the only bearing element. Please note the information below to prevent accidents:

- Check couplers for damage, e.g. at the thread
- Maintain the couplers to ensure they are clean and run smoothly when needed
- Tighten couplers with nuts with a tightening torque of $50 \text{ Nm} \pm 10 \%$
- Fix wedge couplers by driving the wedge to the end-stop with a 0.5kg hammer

Wall ties

The following variants are provided for anchoring the scaffolding to the façade:

For absorbing tensile and compression loads at right angles to the façade, wall ties are used which can be connected means of standard couplers to the inner standards in the openings of the gusset couplers or, in case of inner brackets, below the gusset couplers.

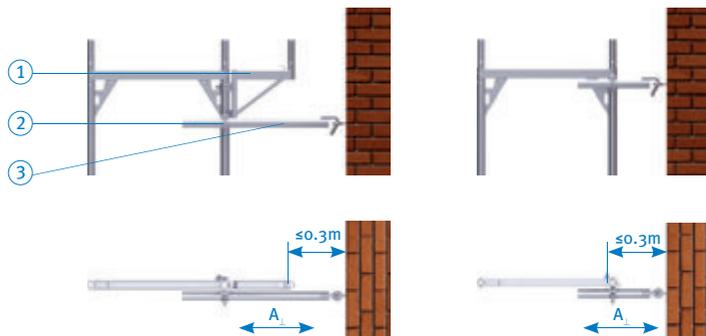
The quick-release anchor has the same function.

With scaffoldings that are covered with tarpaulins, you can also use pressure-resistant wall ties. In this case, the wall ties are to be installed in a way that the ends without hooks are supported onto the façade.

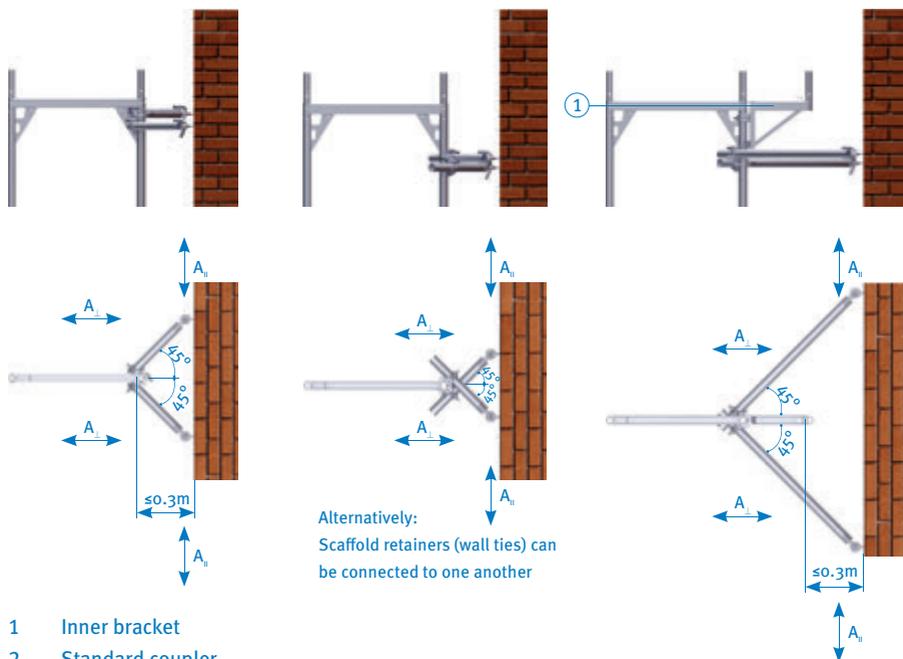
V-anchors allow for the transfer of anchor forces at right angles and parallel to the façade. They are constructed using pairs of wall ties arranged in a V shape, connected at the inner standard at an angle of around 45° to the assembly frame level. In individual cases, connections of up to 0.4 m below the transom are permissible.

4. Assembly sequence

Wall tie

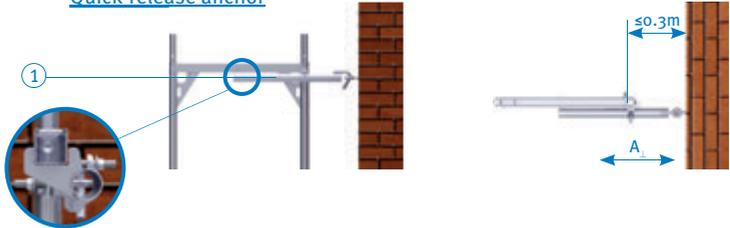


V-anchor

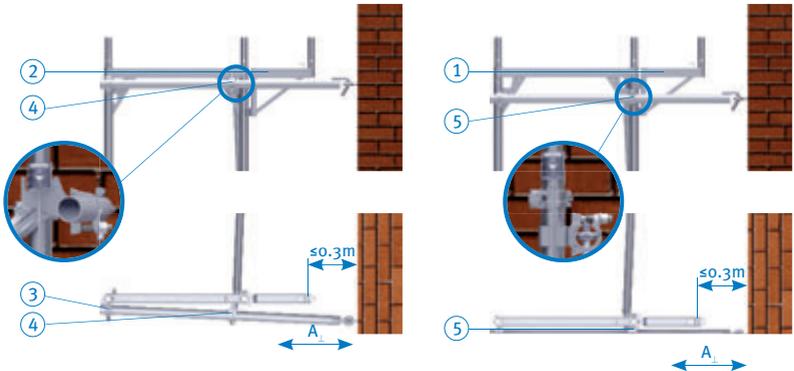


- 1 Inner bracket
- 2 Standard coupler
- 3 Wall tie

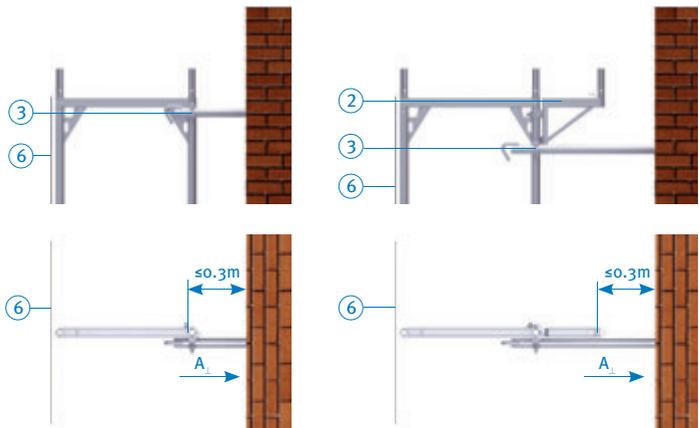
Quick-release anchor



Couplers



Compression-resistant bracing



- 1 Quick-release anchor
- 2 Inner bracket
- 3 Standard coupler
- 4 Anchor coupler
- 5 Gusset coupler
- 6 Tarpaulin

4. Assembly sequence

Scaffold anchors

Scaffolding anchors must be installed continually as scaffolding assembly progresses. Please also refer to section 7.6 „Anchorage” of the German work safety regulations, BGR 1661). Accordingly, anchorage in accordance with the standard assembly configuration must be fully installed before erecting the next level.

Use ring screws for scaffolding with a diameter of no less than 12 mm and plastic expansion anchors or similar structures for fastening in accordance with the required load-bearing capacities.

¹⁾BGR 166: System scaffoldings (frame and modular scaffoldings)

When complying with the rules of BGR 166, the Industrial Safety Regulations (BetrSichV) must also be complied with.

Anchor configuration and anchor forces

Please refer to the standard assembly configuration for the required anchoring arrangements. This covers all assembly variants and add-on components. Any stated forces are service loads.

Excerpt of Approval Z-8.1-862

Anchor forces				Scaffolding in front of					
				a partially open façade ¹⁾			closed façade		
Anchoring configuration	Bay length [m]	Cladding/ Enclosures	Accessories	A _{1,-} [kN]	A _{1,+} [kN]	A ₁ [kN]	A _{2,-} [kN]	A _{2,+} [kN]	A ₂ [kN]
8 m offset	3,07	none	without IB	4,46	4,46	5,87	1,49	1,49	5,87
	2,57			3,96	3,96	5,87	1,32	1,32	5,87
	3,07		with IB	4,50	4,50	3,53	1,50	1,50	3,53
	2,57			3,99	3,99	3,53	1,33	1,33	3,53
8 m offset	3,07	Net	without IB	not permitted			2,98	2,98	4,52
	2,57						2,49	2,49	4,12
	3,07		with IB				2,98	2,98	5,30
	2,57						2,49	2,49	4,89
4 m offset	3,07	Net	without IB	4,57	4,57	4,83	1,52	1,52	2,31
	2,57			3,83	3,83	4,21	1,28	1,28	2,11
	3,07		with IB	4,57	4,57	5,19	1,52	1,52	2,71
	2,57			3,83	3,83	4,57	1,28	1,28	2,50
4 m offset with [PRS] (each node point)	3,07	Tarpaulin	without IB	not permitted			6,61	3,30	4,76
	2,57						5,53	2,77	4,34
	3,07		with IB				6,61	3,30	5,53
	2,57						5,53	2,77	5,12
2 m	3,07	Tarpaulin	without IB	6,61	5,95	4,76	6,46	1,65	4,76
	2,57			5,53	4,98	4,34	5,38	1,38	4,34
	3,07		with IB	6,61	5,95	5,53	6,46	1,65	5,53
	2,57			5,53	4,98	5,12	5,38	1,38	5,12

¹⁾ Scaffolding in front of a partially open façade
An/Ag=0,4
PRS = pressure-resistant support
A_{1,-} = Anchor compressive forces
A_{1,+} = Anchor tensile forces
IB = Inner bracket

4.3 Standard bay

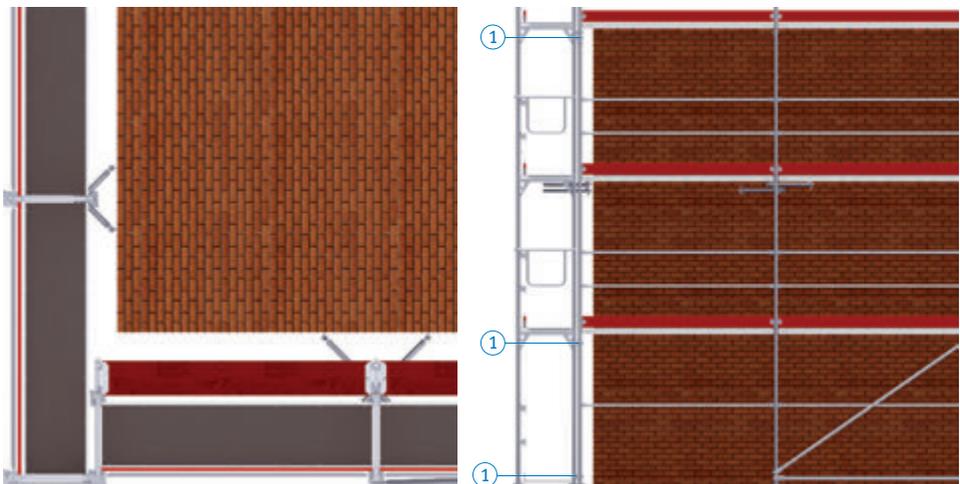
Assemble further scaffolding bays as described above, starting from the first bay. Install longitudinal bracing consisting of vertical diagonal braces and horizontal struts in at least every 5th bay. Please refer to the standard assembly configuration for the required number of diagonal braces and horizontal struts.

Some assembly configurations additionally require the installation of diagonal braces and/or transoms - consisting of scaffold tubes $\varnothing 48,3$ mm with standard couplers to the standards above the base jacks - in the lower vertical frames.

4.4 Corner formation

4.4.1 External Corners

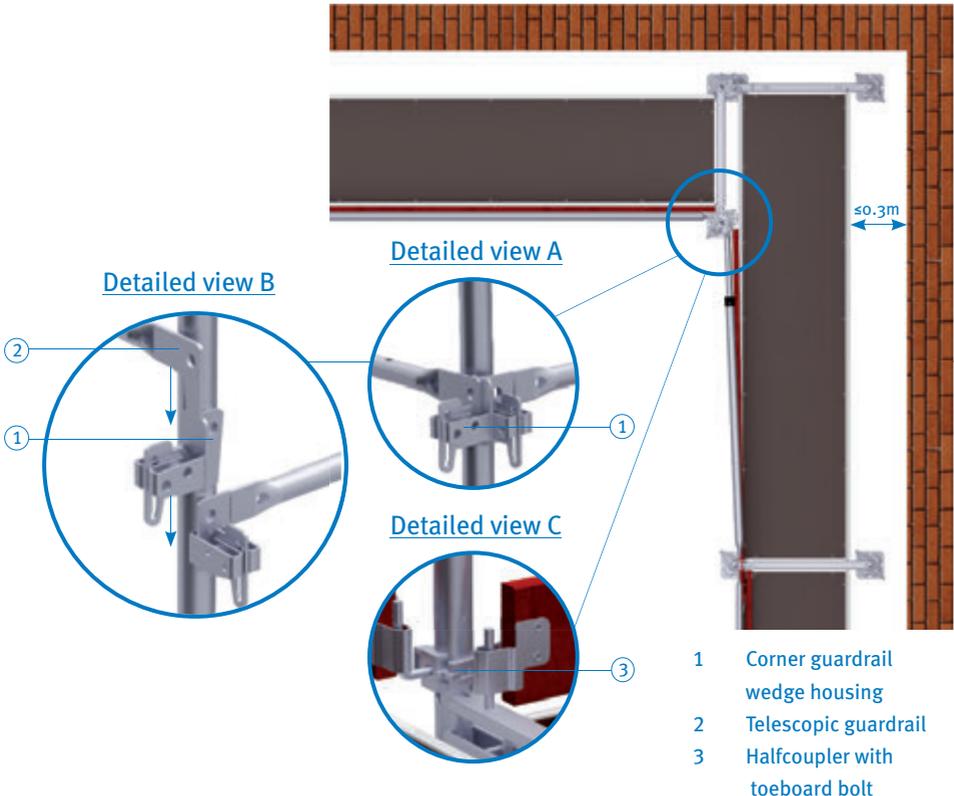
To erect a scaffolding around a corner, proceed as shown in the diagram (see below). Connect two assembly frames at an angle of 90° using two swivel couplers, one of which is inserted in the opening of the gusset. Now install a base jack under these standards. During further assembly, these standards are again connected using a swivel coupler at height intervals of 4 m. Also anchor the neighbouring standards at height intervals of 4 m using triangular anchors.



1 Swivel coupler

4.4.2 Internal corners

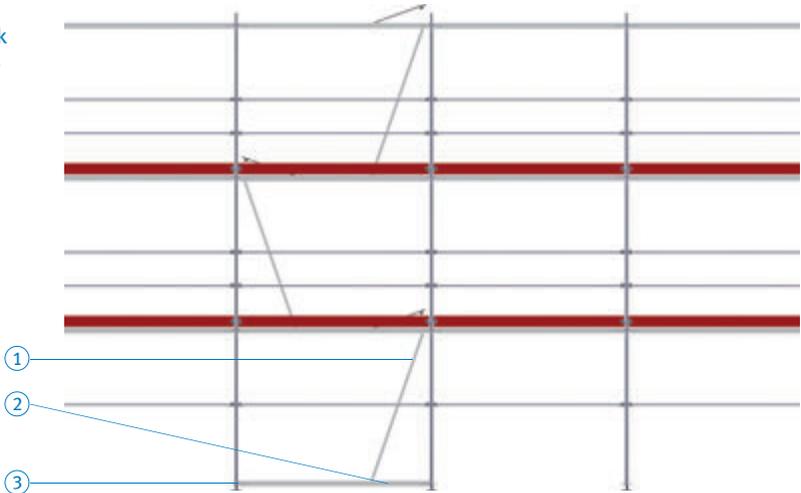
To execute internal corners, we advise you to disposition the assembly frame in such a way that it protrudes. Provide side protection in the protruding scaffolding bay by means of a telescopic rear guardrail and toeboard. Guardrails can easily and quickly be attached by means of the corner guardrail wedge housings. This is placed at an angle of 90° degrees in the guardrail wedge housing at the assembly frame of the internal corner, wedged and as such serves to accommodate the telescopic guardrail (see figure detailed views A and B). Fix the toeboard to the internal corner using a toeboard coupler (see detailed view C). Fit the other side of the toeboard between the standard of the assembly frame and the toeboard pin or another toeboard.



! CAUTION!

In accordance with TRBS 2121 (German technical rule for operational safety 2121), access to the different working levels must be provided by means of stairways for scaffoldings with a height (ascent height) of 10.00 m or more!

- 1 Access deck with ladder
- 2 Decking
- 3 Transom



4.5 Ladder access

Before you start working on the first working level, provide an inner ladder access to higher levels. Access decks are available for this purpose. On the lowermost level of the ladder access section two transoms must be installed above the base ledgers of the assembly frames to accommodate a deck to bear the first ladder.

Always keep the hatches of the access decks closed when not used for access. If possible, always arrange the passageways in an offset way. Provide access to the scaffolding at intervals of 50 m (scaffolding length).

4.6 Stairway access

The stairway access is set up in front of the façade scaffolding. The frames of the façade scaffolding to which the access bay is connected are to be anchored at height intervals in height intervals of $H = 4$ m, independent of any other determined anchor arrangement. Please refer to the standard assembly configuration for detailed information on anchoring and bracing.

Start by installing the base jacks within the spacing grid when erecting a stairway access.

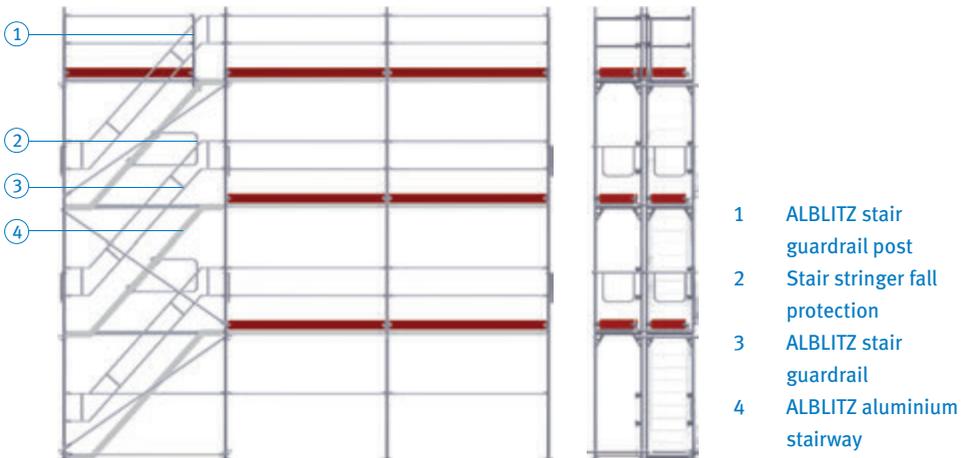
The base jacks may be omitted at the inner standards of the access

4. Assembly sequence

bay. The distance between the inner standard of the access bay and the outer standards of the façade scaffolding is < 0.11 m (axial distance). Then install a starter transom onto the base jack on the side of entry. An assembly frame can be mounted on the opposite side. Now fit the first platform stairway into the assembly frame and starter transom. Then fit an assembly frame onto the starter transom. Now fit another assembly frame on the exit side, install a guardrail and a double end guardrail and brace the bay with a diagonal brace. The access bay is connected to the façade scaffolding by means of a scaffold tube ≥ 1.00 m with standard coupler to both standards of the access bay and to the outer standard of the façade scaffolding below the U ledger at a height interval of 4 m, starting at $H = 2$ m and at the base above the base ledger. Close the gap between the deck and the platform stairway by fitting intermediate decks (width 0.19 m). Now install the next platform stairway with the stair stringer fall protection to the internal stairway stringer above the second step of the respective stairway. The stair stringer fall protection serves as a rail as of the first working level.

Repeat these working steps until the required height is reached.

We advise using a guardrail post at the top level. This allows an opening to be created to ensure access on the top level. Optionally, the last access to the top level can also be provided by means of a bracket bay fitted to the stairway access at the end.



4.7 Façade scaffolding with widening brackets

Two brackets are available for widening the deck surface. Proceed with the assembly of the next brackets and, if possible, decks, from the secured lower level. In all other cases, a separate risk assessment for the assembly shall be conducted and any additional required safety measures shall be issued.

4.7.1. Bracket 0.36 m

The 0.36 m bracket is used with a narrow deck (width 0.32 m) on the inner (IB-S) or outer (OB-S) face of the scaffolding.

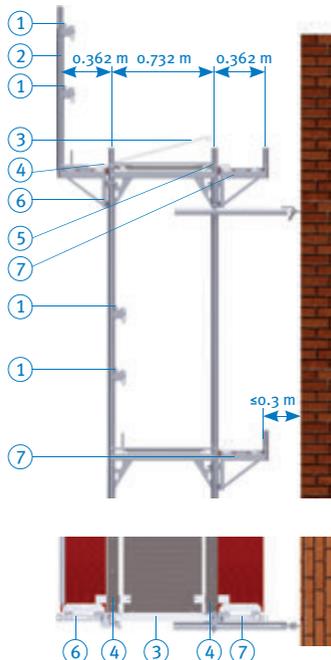
The half-coupler that is welded onto the bracket is connected via the opening in the gusset coupler of the assembly frame.

The decks are secured against unintentional lift-off by means of the integrated lift-off preventer. On the inner face, the bracket can be

fitted at any working level, on the outer face only at the top level (see also page 68 | Standard Assembly Configuration)

Close the gap between the bracket deck and the bay deck with the cap cover.

Mount the deck onto the bracket from the working level below.

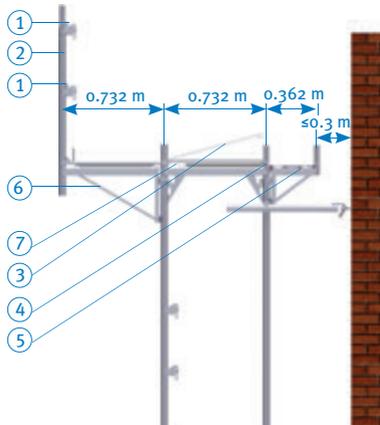


- 1 Guardrail
- 2 Guardrail post, single
- 3 Lift-off preventer
- 4 Gap cover
- 5 Locking pin
- 6 Bracket 0.36 m OB-S
- 7 Bracket 0.36 m IB-S

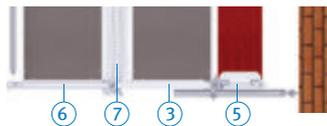


4.7.2 Bracket 0.73 m

The 0.73 m bracket is used with a broad deck (width 0.60 m) or two narrow decks (width 0.32 m each) on the outer face of the scaffolding (OB-L). Fitting to the assembly frame as with the 0.36 bracket. The hole in the gusset plate allows for both the bracket and the vertical diagonal brace to be connected. The gap between the outer bracket deck and the bay deck is to be closed with an intermediate deck. The guardrail posts or protective net post with integrated lift-off preventer and locking pin secure the decks against unintentional lift-off. The 0.73 m bracket may only be mounted on the outer face on the top working level (see p. 68, section 5 | Standard Assembly Configuration) The decks are to be mounted from the working level below. Do not assemble an access deck onto the bracket.



- 1 Guardrail
- 2 Guardrail post
- 3 Lift-off preventer
- 4 Locking pin
- 5 Bracket 0.36 m IB-S
- 6 Bracket 0.73 m OB-L
- 7 Intermediate deck



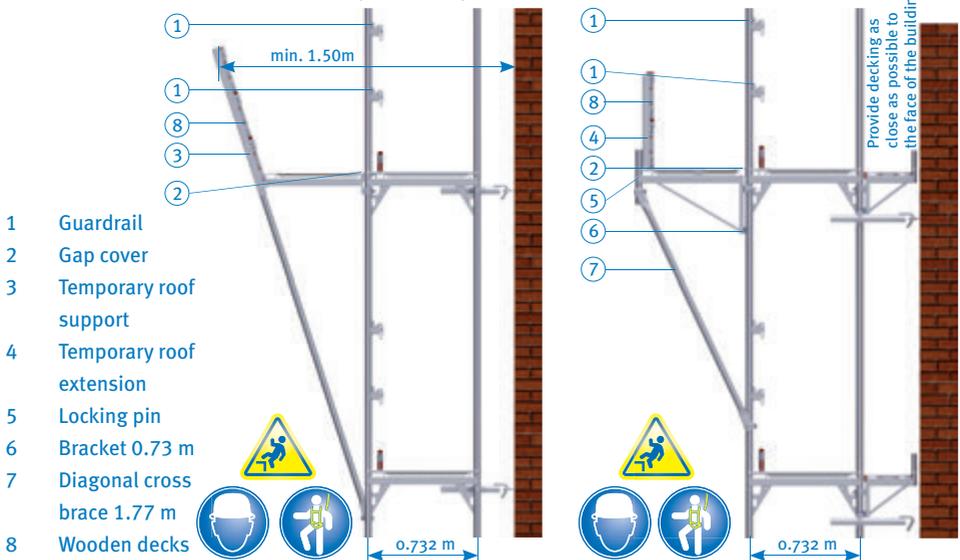
4.8 Façade scaffolding with protective roof

The protective roof is constructed using a 3.00 x 0.60 m protective roof support or a 0.73 m bracket with diagonal brace and protective roof extension with locking pin. The decking is installed as described in section 4, page 16, as close as possible to the face of the building. One wide or two narrow decks are fitted to the post of the protective roof extension. Decking shall be fitted in a way that openings do not exceed 2 cm. The protective roof shall be separated from the working surface by a guardrail.

Storage of materials on the protective roof is not permitted.

The protective roof may be fitted to the scaffolding at any height on one working level only. However, it is advised to fit the protective roof at a height of 4 m or 6 m. Before assembling the the protective roof, the assembly frames are to be anchored on the same level as the protective roof level and on the level below (see page 67, section 5 | Standard configuration).

The protective roof brackets and, if possible, the decks, shall only be fitted from the secured lower level. In all other cases, a separate risk assessment for the assembly shall be conducted and any additional required safety measures shall be issued.



4. Assembly sequence

4.9 Weather protection

Weather protection on the topmost working level can be installed using a weather protection support member or a weather protection extension and tarpaulins.

The weather protection support member is fitted to the guardrail post by means of two swivel couplers as well as to the gusset plate of the assembly frame using a third swivel coupler. After this, the guardrails can be fitted onto the tilting pins in the wedge housings and eaves ledgers. The tarpaulins are fastened to the eaves ledger by means of toggles / disposable ties.

The temporary roof extension shall be fitted only from the topmost level. When doing so, PPE shall always be worn to prevent falls. After having installed the extension, it shall be secured against unintentional lift-off with locking pins. Now install the guardrails and secure them by means of a hammer blow. The tarpaulin can be fitted to the guardrail.

Provide compression and tension resistant anchorage of the topmost level to the building.

! CAUTION!

Aussteifungen sind durch eine objektbezogene Statik zu untersuchen und nachzuweisen.

- 1 Guardrail
- 2 Tarpaulin
- 3 Eaves ledger
- 4 Weather protection post
- 5 Swivel coupler
- 6 Weather protection add-on unit
- 7 Locking pin



4.10 Roof fall arrest and brick guard scaffold

The roof fall arrest and brick guard scaffold is constructed using side-protection meshguards or safety nets and safety net supports. For larger roof overhangs, the roof fall arrest and brick guard scaffold can be constructed using the 0.73 m bracket and a diagonal brace placed underneath. The minimum distance between the eaves and the protective wall must be 0.7 m. For protective walls with a height of 2.0 m the deck must not be positioned lower than 1.2 m below the eaves.

- 1 Safety side meshguard or protective net
- 2 Protective net post
- 3 Locking pin

Roof fall arrest and brick guard scaffolds must be installed for roofs with roof pitches of 20° up to 60°, when the distance between the falling edge and the floor is 3.00 m or more.

- Minimum deck width 0.60 m
- The height difference between the deck and the falling edge must not exceed 1.50 m
- Create a protective wall with stable nets and / or side protection meshguards

Always install side protection meshguards after anchoring the fall arrest and brick guard level (tipping hazard!).

The permissible height of the edge of the eaves above the topmost working level (H-eaves) depends on the horizontal distance b between the protective wall and the eaves.

The height distance between the scaffolding deck and the edge of the eaves is calculated by a formula in accordance with the width of the scaffolding deck (distance eaves - side protection) (see German publication BG Information 5101).

Formula:

$$h_1 \geq h_2 + 1.50 \text{ m} - b_1$$

$$h_1 \geq 1.00 \text{ m}$$

$$h_3 + b_1 \geq 1.50 \text{ m}$$

$$h_3 \geq 1.50 \text{ m} - b_1$$

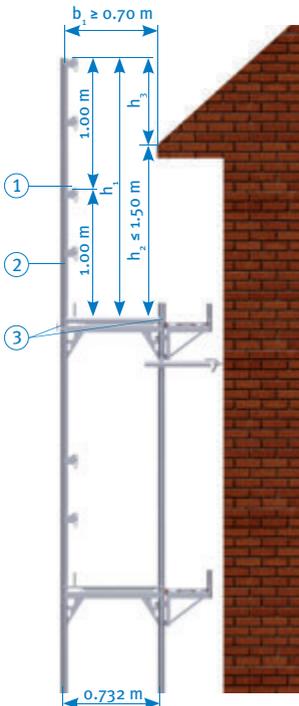
Example:

$$2.00 \text{ m} \geq 1.20 \text{ m} + 1.50 \text{ m} - 0.73 \text{ m}$$

$$2.00 \text{ m} \geq 1.00 \text{ m}$$

$$0.80 \text{ m} + 0.73 \text{ m} \geq 1.50 \text{ m}$$

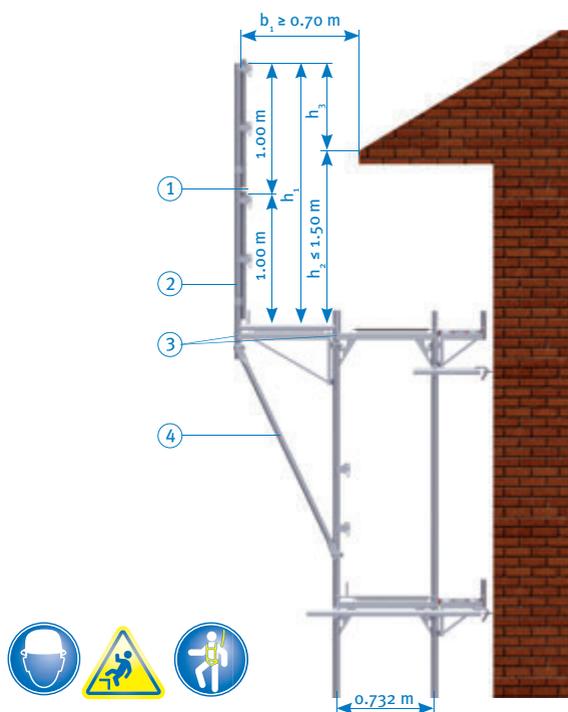
$$0.80 \text{ m} \geq 1.50 \text{ m} - 0.73 \text{ m}$$



4. Assembly sequence

Do not assemble an access deck onto a 0.73 m bracket!

Proceed with the assembly of the next brackets and, if possible, decks from the secured lower level. In all other cases, a separate risk assessment for the assembly shall be conducted and any additional required safety measures shall be issued.



- 1 Safety side meshguard or protective net
- 2 Protective net post
- 3 Locking pin
- 4 Diagonal cross brace 1.77 m

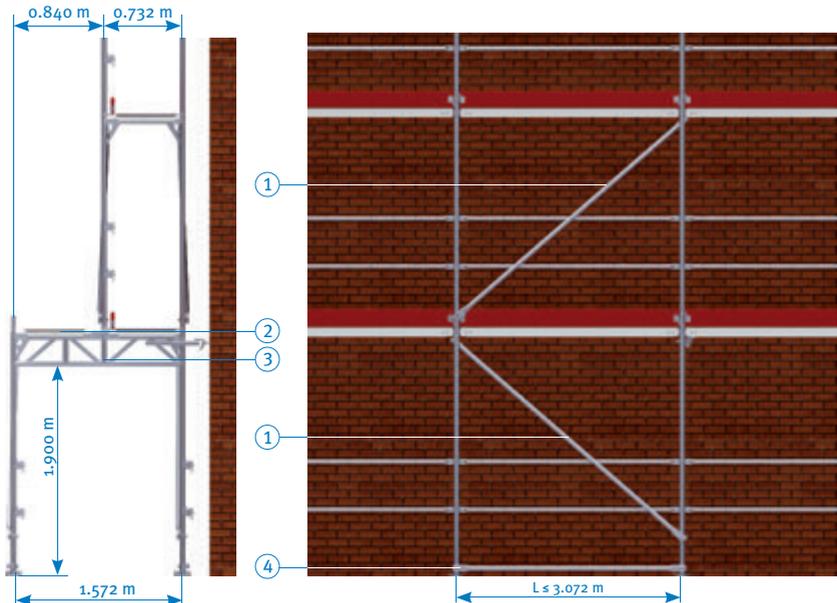
4.11 Passage frame

Passage frames let you erect façade scaffoldings while maintaining unobstructed and safe passage. Passage frames have relocatable connectors, which allow fitting assembly frames with an axial distance of 0.73 m and 1.09 m onto the passage frames.

The passage frames on the inner and outer levels are braced for assembly using horizontal struts and vertical diagonal braces. Decks must be fitted over the entire width of the passage frame.

In case of anchorage at a height of 4 m, the assembly frames above the passage frames shall be braced using diagonal braces. The diagonal braces are not necessary when the first row of anchorage can already be fitted on the passage frame truss level. The vertical diagonal brace shall be installed at least in every 5th bay as inner and outer diagonal braces. Inner diagonal braces shall also be installed on the first two working levels above the passage frames (see also Section 5 of Standard Assembly Configuration on p. 70).

- 1 Inner and outer vertical diagonal brace
- 2 Decks
- 3 Passage frame
- 4 Inner and outer horizontal strut



4. Assembly sequence

4.12 Bridging

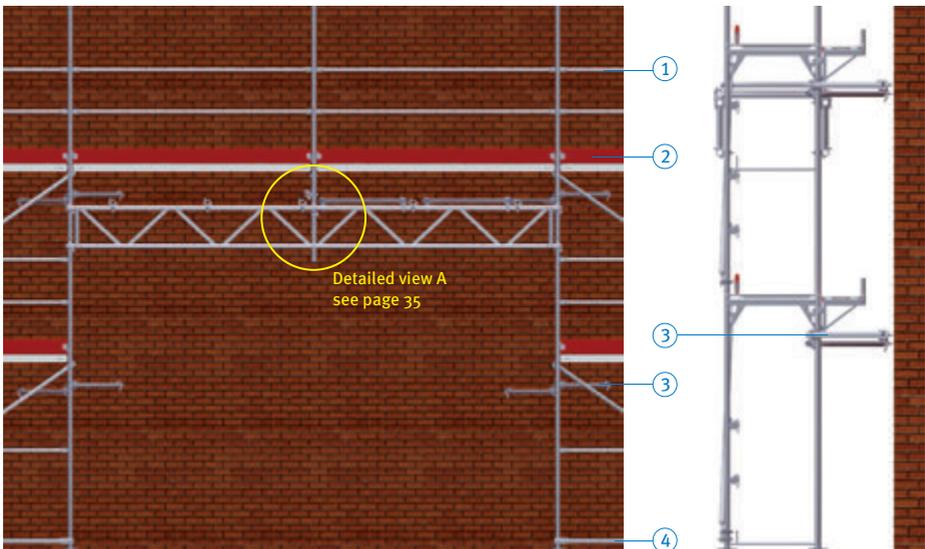
Steel lattice girders of different lengths are used for bridging a section of standards:

Bay length 3.07 m with lattice girder 6.20 m

Bay length 2.57 m with lattice girder 5.20 m

The lattice girders are installed at a height of 4 m. The top chords are secured by means of standard couplers (classes B and BB) to the holes of the gusset plates of the assembly frames, the lowermost chords to the standards, also by means of standard couplers. To accommodate the assembly frame that needs to be supported, it is recommended to connect a 0.67 m or 1.00 m assembly frame in the same way at half the span. If it is not possible to connect the upper coupler in the gusset plate of the supported frame, an additional coupler must be fitted at the middle assembly frame above and the outer assembly frames below the normal coupler in order to increase the slipping force. Select the mounting position of the lattice girder in a way that the assembly frame that needs to be supported is connected within the junction complex between the diagonal braces at the upper chord of the lattice girder.

[Design with inner bracket 0.36 m](#)



! CAUTION!

The risk of fall hazards is high during the construction of bridging structures. Take protection measures against falls accordingly.

- 1 Guardrail
- 2 Toeboard
- 3 V-type anchor
- 4 Horizontal strut



Stabilise the upper chords of the lattice girders to prevent lateral shifting. This can be done in two ways:

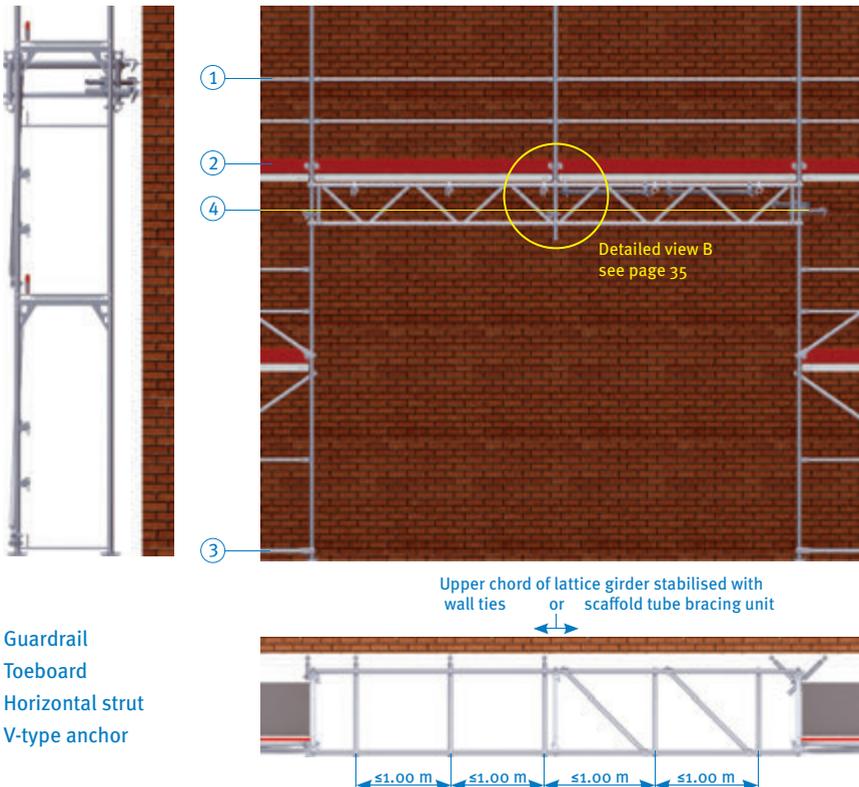
- Anchor both upper chords of the lattice girders to the façade; anchorage intervals of at most 1.00 m
- Horizontal bracing between the upper chords of the lattice girders
 - Upper chords; only anchor the assembly frames to the façade



For the anchoring of the assembly frames, refer to the standard assembly configuration.

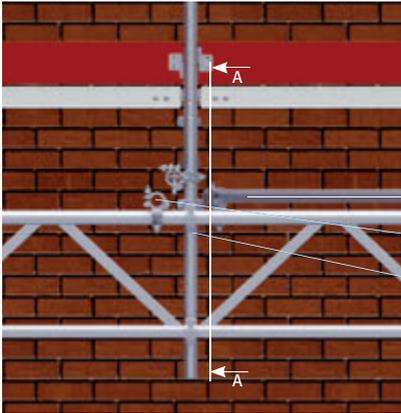
A separate risk assessment for the assembly of the lattice girders, decks and side protection components shall be conducted and any additional required safety measures shall be issued. Design: use without inner bracket 0.36 m.

Design without inner bracket 0.36 m

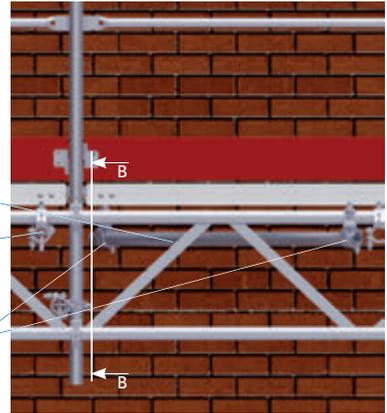


Detailed view of the connections in case of bridging

Detailed view A - when using the inner bracket 0.36 m



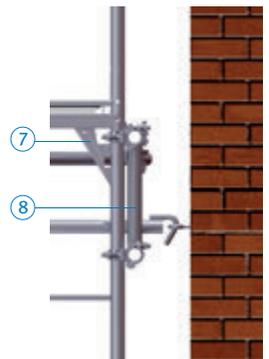
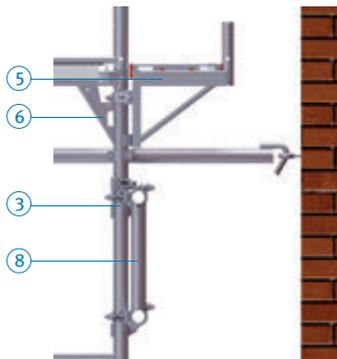
Detailed view B - without using the inner bracket



Sectional view A - A

Sectional view B - B

- 1 Wall tie
- 2 Scaffold tube bracing unit
- 3 Standard coupler class BB with coupler placed above
- 4 Swivel coupler
- 5 Inner bracket
- 6 Assembly frame 1.00 m
- 7 Assembly frame 0.67 m
- 8 Lattice girder



4.13 Lattice Girder Cross Brace

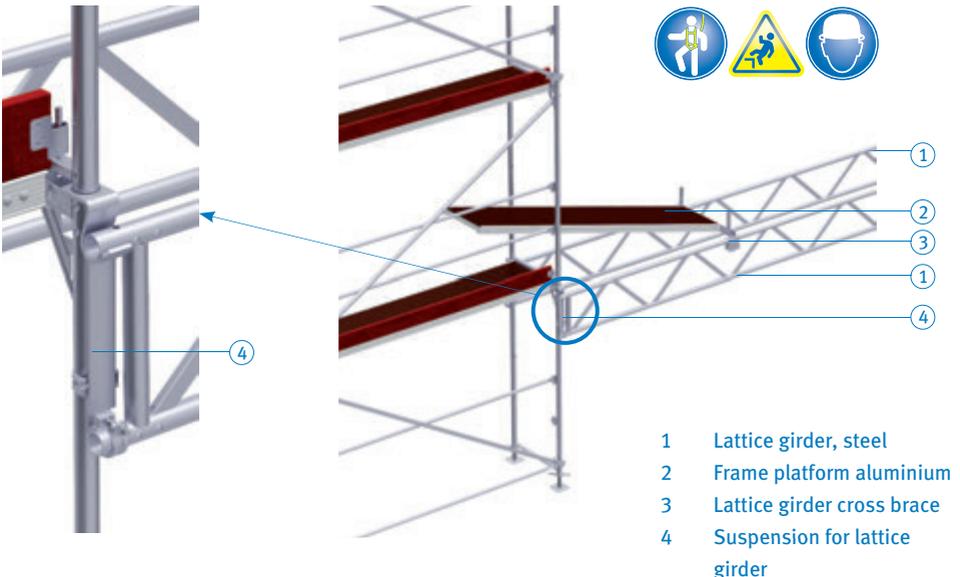
Assembly frames in conjunction with lattice girders can also be supported by using the ALFIX lattice girder cross braces.

CAUTION!

The risk of fall hazards is high during the construction of bridging structures. Take protection measures against falls accordingly.

Its design allows for easy sliding of the lattice girder cross brace onto the top chord of the lattice girder without the need for elaborate adjustment. Lattice girder cross braces may only be used for scaffoldings of load class 3 with 200 kg/m² and a maximum of 10 levels above the level with the cross brace.

First fit the lattice girder suspension to the respective assembly frame (on both sides, i.e. at the inner and outer standard) above the tube connector. Then fit and secure the assembly frame. The lattice girder suspensions are fitted to the assembly frame from the lower level. We advise you to open the coupler of the lattice girder suspension as it makes fitting the lattice girder easier. The lattice girder (5.20/6.20 m) in accordance with the bay length can now be fitted and coupled.



4. Assembly sequence

Now insert the lattice girder cross brace onto the lattice girder and position it. In order to do this, it is advised to insert a deck into the designated U-profile and to move the cross brace with the deck over the lattice girder. Remove the linchpin of the lattice girder cross brace before positioning the cross brace and install it again afterwards. Now, the assembly frame, guardrails and the decks can be assembled. Anchor and brace the top chords (horizontal bracing) in accordance with the standard assembly configuration.



- 1 Lattice girder cross brace
- 2 Lattice girder, steel
- 3 Suspension for lattice girder

4.14 Cladding

Tarpaulins are attached to the outer standard of the scaffolding frame with disposable ties at intervals of maximum 20 cm. The eyelet spacing of the tarpaulin must correspond to the system dimension of the scaffolding.

4.15 Dismantling the scaffolding

Scaffolding structures are dismantled in the reverse order of erection. Loose components must be fully broken down and lowered to ground level immediately. Do not throw or drop any parts.

At each stage, advanced side protection guardrails must be refitted to the next highest level.

The anchor points of the scaffolding should not be dismantled until the next level above is completely dismantled.



B.1 General Instructions

In its standard assembly configuration, the scaffolding system may be used as working scaffolding of service class ≤ 3 with bay widths $l \leq 3.07$ m in accordance with DIN EN 12811-1:2004-03 and, taking into account the regulations of Section B.2, as a roof fall arrest and brick guard scaffold. The use of a temporary roof [PR] in accordance with Section B.7 is verified for the standard assembly version.

The topmost horizontal level (scaffolding level) must not exceed 24 m above ground level, not including the spindle extension length (lower edge of base plate to upper edge of spindle nut). The standard assembly version of the scaffolding system is designed for use on a scaffold level in accordance with DIN EN 12811-1:2004-03, Section 6.2.9.2 in front of a "partially open" façades with an open proportion of 60%, and in front of closed façades. The standard assembly version for covered scaffolds applies to cladding with nets with an aerodynamic force coefficients no greater than $c_{1L} = 0.6$ and $c_{01} = 0.2$, as well as to cladding with tarpaulins. When the scaffolds are covered, the end faces of the scaffolding must always be closed, i.e. the tarpaulin or net must be led up to the façade. When determining the wind load, a service life factor of $\chi = 0.7$, assuming a maximum service life of 2 years, has been taken into account.

Without any further structural proof, the standard assembly version shall only be used if the loads the bays will carry do not exceed the respective live loads in accordance with DIN EN 12811-1:2004-03, Table 3.

For the standard assembly version of the "Frame Scaffolding ALFIX 70" scaffolding system, the following designation in accordance with DIN EN 12810-1:2004-03 shall be used, subject to the type of anchorage used:

- Short scaffold retainers (wall ties) and V-type wall ties (wall ties with a 90° spread angle)

Scaffold EN 12810 – 3D – SW06/307 – H2 – B – LS

- Long scaffold retainers, compression-resistant bracing and half V-type anchors (wall ties with a 45° spread angle)

Scaffold EN 12810 – 3D – SW06/307 – H1 – B – LS

The following assembly configurations (cf. Table B.4) are distinguished within the standard assembly version:

- Basic configuration 0:
This configuration includes façade scaffolding consisting only of basic components and side protection components.
- Basic configuration 1:
This configuration comprises a façade scaffolding consisting of basic components, side protection components and 0.36 m brackets on the inner face of the scaffold on each scaffold level.
- Basic configuration 2:
Comprises a façade scaffolding consisting of basic components, side protection components and 0.36 m brackets on the inside of the scaffold on each scaffold level, as well as 0.73 m brackets on the outer face of the scaffold on the top scaffold level.

Frame Scaffold ALFIX 70	Annex B, page 1
Standard assembly version – General Instructions	

To secure the scaffold against uplift wind forces, the top scaffold levels of buildings with roof pitches $\leq 20^\circ$ must be connected in a tension-resistant manner to the next anchored level below the topmost anchored level, e.g. using locking pins as shown in Fig. 1a; on buildings with internal corners, the tension-resistant connection must be carried out as shown in Fig. 1b.

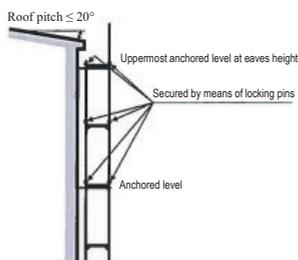


Figure 1a: Example of a tension-resistant connection of scaffolding levels with uplift wind forces.



Figure 1b: Example of a tension-resistant connection of scaffolding levels with uplift wind forces on buildings with internal corners.

B.2 Roof Fall Arrest and Brick Guard Scaffold

In its standard assembly configuration and when using appropriate decks in accordance with Table 3 of this National Technical Approval, the scaffolding system may be used as a roof fall arrest and brick guard scaffold with a top fall arresting layer of class FL 1 and as a roof fall arrest with protective walls of class SWD 1. Access decks must not be fitted into brackets.

The design of the roof fall arrest scaffolds must be implemented in accordance with Annex C, page 17. The protection net must be designed in accordance with DIN EN 1263-1:2015-03 with a mesh size of 100 mm and a rope thickness of 5 mm.

B.3 Components

Please refer to Table B.1 for information on the components intended for use. In addition, steel tubes and couplers in accordance with DIN EN 12811-1:2004-03 may also be used in the exceptional cases below:

- connection of the external access stairway to the façade scaffolding in accordance with Annex C, pages 15 and 16 (tubes and couplers);
- bracing of the bridging girder in accordance with e.g. Annex C, page 20 (tubes and couplers);
- bracing of the passage frames in accordance with e.g. Annex C, page 21 (tubes and couplers);
- connection of the scaffold retainers/wall ties to the standards in accordance with Annex C, pages 23 to 26 (couplers);
- corner formation in accordance with Annex B, page 28 (tubes and couplers); and
- protection at the end sides above the inner brackets [IB] and on the topmost scaffold level (tubes and couplers).

Frame Scaffold ALFIX 70

Standard assembly version – General Instructions

Annex B,
page 2

In addition to the base jacks specified in Section 3.2.2.11, other lightweight scaffolding spindles of base jack group B in accordance with DIN 4425:1990-11 with an outside diameter of $d = 38$ mm may also be used.

Table B.1: Components of the standard assembly version

Designation	Annex A, page
Vertical frame 18/70, steel	1
Vertical frame 18/70 1.0 m and 0.66 m, steel	2
Vertical frame 70, 2.0 m, steel	4
Vertical frame 70, 1.0 m and 0.66 m, steel	5
Steel deck AF 0.32 m	7
Steel deck	8
Intermediate decking unit AF 0.16 m; 0.19 m	10
Intermediate decking unit	11
Aluminium deck with plywood 2.57 m; 3.07 m	12
Aluminium deck with plywood 1.57 m; 2.07 m	13
Access deck with ladder 3.07 m, aluminium	15
Access deck with ladder 2.57 m, aluminium	16
Internal ladder	18
Aluminium deck with plywood 3.07 m	19
Aluminium deck with plywood 1.57 m; 2.07 m; 2.57 m	20
Access deck with ladder 3.07 m, aluminium	22
Access deck with ladder 2.57 m, aluminium	23
Solid wood deck 45	26
Solid wood deck 48	27
Wooden plank	28
Diagonal brace 3.07m	29
Diagonal brace 2.57 m	30
Diagonal brace 2.07 m	31
Horizontal strut	32
Scaffold retainer/wall tie	33
Quick-release retainer/wall tie	34
Base jack	35
Guardrail AF	36
Handrail	37
Double guardrail AF	38
Double guardrail	39
Double guardrail AF, aluminium	40
Double guardrail, aluminium	41
Advanced guardrail post	42
Advanced guardrail post 2.00 m	43
Advanced end guardrail / telescopic guardrail, aluminium	44

Frame Scaffold ALFIX 70

Standard assembly version – General Instructions

Annex B,
page 3

5. Standard assembly configuration

National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Table B.1: (continued)

Designation	Annex A, page
Telescopic guardrail 2.0 m – 3.07 m	45
Toeboard; end toeboard	46
Double end guardrail AF	47
Double end guardrail	48
Guardrail post AF, single	49
Guardrail post, single	50
Guardrail post AF, single	51
Guardrail post	52
End guardrail frame	53
End guardrail post AF	54
End guardrail post	55
Protective wall post AF	56
Protective wall post	57
Bracket AF 0.36	58
Bracket 0.36	59
Bracket AF 0.73	60
Bracket 0.73	61
Temporary roof extension AF	62
Temporary roof extension	63
Lift-off preventer	64
Transom 0.73 m; 1.09 m	65
Safety meshguard	66
Protection net	67
Lattice girder, steel	68
Passage frame AF	69
Passage frame	70
Passage frame, in sections, truss	71
Passage frame, in sections, post	72
Gap cover	73
Aluminium toeboard; aluminium end toeboard	77
Aluminium stairway AF-0.62 m 2.57m; 3.07 m	78
Stair guardrail AF 2.57 m; 3.07 m	79
Internal guardrail for aluminium stairway	80
Stair stringer fall protection	81
Roof guard extension frame	84
Starter transom 0.73m; 1.09 m	87

Frame Scaffold ALFIX 70

Standard assembly version – General Instructions

Annex B,
page 4

Table B.1: (continued)

Designation	Annex A, page
Lattice girder cross brace 0.73 m; 1.09 m	93
Lattice girder connector	94
Guardrail coupler AF	95
Toeboard coupler; brace coupler with hook	96
Toeboard support	99
Locking pin	100
Protective wall post, telescopic 0.36 m - 1.73 m	102
Diagonal brace	103
Protective wall post, telescopic 0.73 m - 1.09 m	104
Scaffold retainer/wall tie EIFS	105
EIFS deck AF190; linchpin splint	106
Aluminium frame platform with plywood 1.57m; 2.07 m	110
Aluminium frame platform with plywood 2.57 m; 3.07 m	111
Aluminium frame platform with internal access 2.57 m; 3.07 m	113
Aluminium frame platform with internal access 1.57 m; 2.07 m	114
Aluminium lightweight deck, 0.60m	116
Aluminium access frame platform with aluminium chequer plate 2.57 m	117
Aluminium access frame platform with aluminium chequer plate 3.07 m	118
Aluminium access frame platform with aluminium chequer plate 1.57 m; 2.07 m	120
Base jack AB	121
Anchor coupler	123
Toeboard; end toeboard AF	124
Aluminium toeboard; aluminium end toeboard AF	126
Toeboard, steel; end toeboard, steel AF	127
Protection net post AF	128
Vertical frame AF 2.0 m, steel	129
Vertical frame AF 1.0 m; 0.66 m, steel	130
Aluminium double guardrail AF 1.57 m; 2.07 m; 2.57 m, 3.07 m	131
Protection net AF	132
Gusset coupler	133

Frame Scaffold ALFIX 70

Standard assembly version – General Instructions

Annex B,
page 5

B.4 Bracing

On all horizontal levels (scaffolding areas), the scaffold decks listed in Table B.2 must be installed continuously end-to-end in each scaffold bay. All other decks may only be used as non-bracing components in combination with brackets.

Table B.2: Scaffolding decks

Scaffolding deck	Bay width [m]	Number of decks per scaffold bay	According to Annex A, page
Steel deck AF	32	2	7
Steel deck	32	2	8
Aluminium deck with plywood	61	1	12, 13, 19, 20
Wooden plank *)	32	2	28
Aluminium frame platform with plywood	32	2	26
Lightweight deck 0.60 m, aluminium	32	2	27
Solid wood deck	61	1	110, 111
Lightweight deck 0.60 m, aluminium	61	1	116

*) Use only with anchoring configuration ≤ 4 m, according to Annex C, page 5

The EIFS deck AF190 according to Annex A, page 106, may not be used as a bracing component. This decking is to be provided exclusively for use as internal bracket flooring. Use the access decks listed in Table B.3 in ladder access bays instead of the scaffolding decks mentioned above.

Table B.3: Access decks

Access decks	Bay width [m]	Number of decks per scaffold bay	According to Annex A, page
Access deck with ladder, aluminium	61	1	15, 16, 22, 23
Frame platform with internal access, aluminium	61	1	113, 114
Aluminium access frame platform with aluminium chequer plate	61	1	117, 118, 120

Scaffolding and access decks must be secured against accidental lift-off using guardrail posts, safety meshguard posts or deck retainers/lift-off preventers.

Use vertical diagonal braces in accordance with Annex A, pages 19 and 20 to brace the outer vertical plane. Do not use more than 5 scaffold bays with one single diagonal brace.

Depending on the configuration, additional vertical diagonal braces (e.g. Annex C, page 1) may have to be installed. In each lowest scaffold bay, to which a diagonal brace is connected, a longitudinal ledger (horizontal strut according to Annex A, page 32) is to be installed on the level of the lower transoms (see Annex C).

Depending on the configuration, additional cross diagonal braces in accordance with Annex A, page 103, may have to be installed within the lowest vertical frame.

Frame Scaffold ALFIX 70	Annex B, page 6
Standard assembly version – General Instructions	

B.5 Anchorage

Depending on the configuration and the structural requirements, anchorage must be provided by means of scaffold retainers (wall ties) in accordance with Annex A, page 33 or with quick-release scaffold retainers in accordance with Annex A, page 34. Please note that the quick-release retainers must additionally be locked to the transom of the vertical frame. Depending on the scaffold configuration, the scaffold retainers are to be used as follows:

- A) Scaffold without inner bracket [IB] (cf. Annex C, page 23)
 - a) Short wall tie, connected with standard coupler to the inner standard near the node.
 - b) Quick-release retainer, connected with standard coupler to the inner standard near the node and to the upper transom of vertical frame.
 - c) V-type wall tie: wall tie 1, angularly connected with standard coupler to the inner standard near the node; wall tie 2, connected with standard coupler or swivel coupler of class B to wall tie 1; spread angle ~ 90°.
- B) Scaffold with inner bracket, without outer bracket [OB] (cf. Annex C, page 24)
 - d) Long wall tie, connected with standard coupler to the outer standard near the node and additionally equipped with an anchor coupler acc. to Annex A, page 123, to the upper transom of vertical frame near the node of the inner standard.
 - e) Half V-type wall tie: wall tie as with d; wall tie 2, connected with swivel coupler of class B to wall tie 1; spread angle ~ 45°.
 - f) Pressure-resistant support: long wall tie without anchorage to the building structure; free tube end in pressure contact with the structure, connected with standard coupler to the outer standard near the node and additionally with anchor coupler in accordance with Annex A, page 123, to the upper transom of the vertical frame near the node of the inner standard.
 - g) Long wall tie, connected with standard coupler to the outer standard and additionally with gusset coupler in accordance with Annex A, page 134, in the gusset cut-out on the inner standard.
- C) Scaffold with inner bracket and outer bracket (cf. Annex C, pages 25 1nd 26)
 - h) V-type wall tie: wall tie 1, angularly connected with standard coupler to the inner standard directly under the gusset plate; wall tie 2, connected with standard coupler or swivel coupler of class B to the wall tie 1; spread angle ~ 90°.
 - i) Short wall tie, connected with standard coupler to the inner standard directly under the gusset plate.
 - j) Half V-type wall tie: wall tie 1, connected with standard coupler in the gusset plate cut-out on the inner standard; wall tie 2, connected with swivel coupler of class B to wall tie 1; spread angle ~ 45°.

The wall ties must be attached in the immediate vicinity of the node points provided by vertical frames and decks. Deviating from this, the wall ties may be mounted on an anchor level up to 0.30 m below the node points (cf. Annex C, pages 23 to 25). V-type wall ties and half V-type wall ties must not be attached to the end sides of the scaffold.

The fastening means to be arranged at building fronts to take up the anchor forces must be designed at least in accordance with the parameters specified in Table B.5.

Depending on the configuration according to Section B.1 and Table B.4, the following anchor configurations are possible:

- a) 8 m anchor configuration

Anchor each vertical frame section at vertical intervals of 8 m; Arrange the anchorage of adjacent vertical frame sections vertically offset by half the spacing. Anchor the vertical frame sections at the edge of the scaffolding at vertical intervals of 4 m.

Frame Scaffold ALFIX 70	Annex B, page 7
Standard assembly version – General Instructions	

b) 4 m anchor configuration, continuous:

Anchor each vertical frame section at vertical intervals of 4 m. On the topmost scaffold level, each standard must be anchored; every second anchorage is not mandatory if the standard is anchored on the anchor level below the topmost level.

c) 4m anchor configuration, offset:

Anchor each vertical frame section at vertical intervals of 4 m; Arrange the anchorage of adjacent vertical frame sections vertically offset by half the spacing. The vertical frame sections on the edge of scaffolding must be anchored at a vertical intervals of 2 m. On the topmost scaffold level, each standard must be anchored.

d) 2 m anchor configuration:

Anchor each vertical frame section at vertical intervals of 2 m (each node).

Additional anchorage may be required when using e.g. outer brackets, protective walls or bridging girders, as well as for certain design versions. Depending on the configuration, ladderways are to be anchored at maximum vertical intervals of 2.0 m or 4.0 m.

The use of wooden decks according to Annex A, page 28, is only possible with an anchor configuration of ≤ 4.0 m according to Annex C, page 5.

For the intermediate state "topmost scaffolding level not anchored", the notes in Section B.13 must be observed.

B.6 Foundation loads

The bearing forces specified in Table B.6 and in Annex C, page 22, must be absorbed and transmitted in the ground area. The bearing forces are stated as characteristic values.

Additional loads due to supplementary components and equipment must be taken into account in accordance with Table B.6.

Frame Scaffold ALFIX 70	Annex B, page 8
Standard assembly version – General Instructions	

Table B.4: Assembly variants of the standard design

Design according to: Annex C, pages 19, 22, 23, 24, 25, 26, 27 as well as Annex C, page ...		without brackets		with brackets on every scaffolding level		with outer brackets on the scaffolding level		with internal brackets on every scaffolding level and outer bracket on the topmost scaffolding level		Details acc. to Annex C, page ...		
		partially open	closed	partially open	closed	partially open	closed	partially open	closed			
Cladding	Supplementary components	Façade in front of which the scaffolding is located										
		partially open	closed	partially open	closed	partially open	closed	partially open	closed	partially open	closed	
uncovered	w/o supplementary components	2, 5		3, 5		1, 5		5, 6		4, 5, 6		
	with bridging girder	7		8		7		8		20		
	with passage frame	9		9		9		9		21		
	with temporary roof	2, 5, 6, 7		3, 5, 6, 8, 10		1, 5, 3, 6, 8, 10		2, 5, 6, 7		4, 5, 6, 8		18
	Roof fall arrest and brick guard scaffold	2, 5, 6, 7, 9		3, 5, 6, 8, 9		1, 5, 3, 6, 8, 9		2, 5, 6, 7, 9		4, 5, 6, 8, 9		17
	Top scaffolding level not anchored	---		10		---		---		--		
with net	w/o supplementary components	--	2, 5, 6	---	6, 6, 11		2, 5, 6	12	4, 5, 6, 12	--		
	with bridging girder	--	7	---	8	---	7	---	8	20		
	with passage frame	--	9	---	9	---	9	---	9	21		
	with temporary roof	--	2, 5, 6, 7	---	3, 5, 6, 8, 10, 11	---	2, 5, 6, 7	12	4, 5, 6, 8, 12	18		
	Roof fall arrest and brick guard scaffold	--	2, 5, 6, 7, 9	---	3, 5, 6, 8, 9, 11	---	2, 5, 6, 7, 9	12	4, 5, 6, 8, 9, 12	17		
	Top scaffolding level not anchored	---		---		10		---		--		
with tarpaulin	w/o supplementary components	---		14		13		---		14 13		--
	with temporary roof	---		14		13		---		14 13		18
	Roof fall arrest and brick guard scaffold	---		14		13		---		14 13		17
External ladder / stairway access		15, 16										--
Frame Scaffold ALFIX 70										Annex B, page 9		
Standard assembly version – General Instructions												

5. Standard assembly configuration

Table B.5: Anchor forces

Anchor forces				Scaffolding in front of					
				a partially open façade ¹⁾			closed façade		
Anchor configuration	Bay length [m]	Cladding	Equipped	A ₁₋ [kN]	A ₁₊ [kN]	A _I [kN]	A ₁₋ [kN]	A ₁₊ [kN]	A _I [kN]
8 m offset	3.07	none	without IB	4.46	4.46	5.87	1.49	1.49	5.87
	2.57			3.96	3.96	5.87	1.32	1.32	5.87
	3.07		with IB	4.50	4.50	3.53	1.50	1.50	3.53
	2.57			3.99	3.99	3.53	1.33	1.33	3.53
8 m offset	3.07	net	without IB	not permitted			2.98	2.98	4.52
	2.57						2.49	2.49	4.12
	3.07		with IB				2.98	2.98	5.30
	2.57						2.49	2.49	4.89
4 m offset	3.07	net	without IB	4.57	4.57	4.83	1.52	1.52	2.31
	2.57			3.83	3.83	4.21	1.28	1.28	2.11
	3.07		with IB	4.57	4.57	5.19	1.52	1.52	2.71
	2.57			3.83	3.83	4.57	1.28	1.28	2.50
4 m offset with [PRS] (each node point)	3.07	tarpaulin	without IB	not permitted			6.61	3.30	4.76
	2.57						5.53	2.77	4.34
	3.07		with IB				6.61	3.30	5.53
	2.57						5.53	2.77	5.12
2 m	3.07	tarpaulin	without IB	6.61	5.95	4.76	6.46	1.65	4.76
	2.57			5.53	4.98	4.34	5.38	1.38	4.34
	3.07		with IB	6.61	5.95	4.76	6.46	1.65	5.53
	2.57			5.53	4.98	4.34	5.38	1.38	5.12

¹⁾ Scaffolding in front of a partially open façade $A_n/A_g = 0.4$

IB = inner bracket

PRS = pressure-resistant support [PRS]

A₁₋ = anchor compressive forces

A₁₊ = anchor tensile forces

Conversion of anchor forces according to Annex C, pp. 23 to 26

Frame Scaffold ALFIX 70	Annex B, page 10
Standard assembly version – General Instructions	

Table B.6: Bearing reaction

Standard force [kN] for	Equipment	Bay length [m]	Structural height		
			24 m	16 m	8 m
Inner standard F_{IS}	without	3.07	9.1	7.3	5.5
		2.57	7.7	6.2	4.7
	with short internal bracket [IB-S] (bracket 36)	3.07	17.3	14.1	10.8
		2.57	14.5	11.8	9.1
Outer standard Access stairway $F_{AS,T}$	without	3.07	10.6	9.3	8.1
		2.57	8.9	7.8	6.8
Outer standard F_{AS}	without	3.07	12.7	9.5	6.3
		2.57	11.2	8.3	5.5
	in addition				
	Protective wall [PW]	3.07	0.5		
		2.57	0.4		
	Outer bracket [OB]	3.07	5.7		
		2.57	4.9		
	Temporary roof [PR]	3.07	1.2		
		2.57	1.1		
	External access stairway	3.07	4.2	2.9	1.6
2.57		3.5	2.4	1.3	

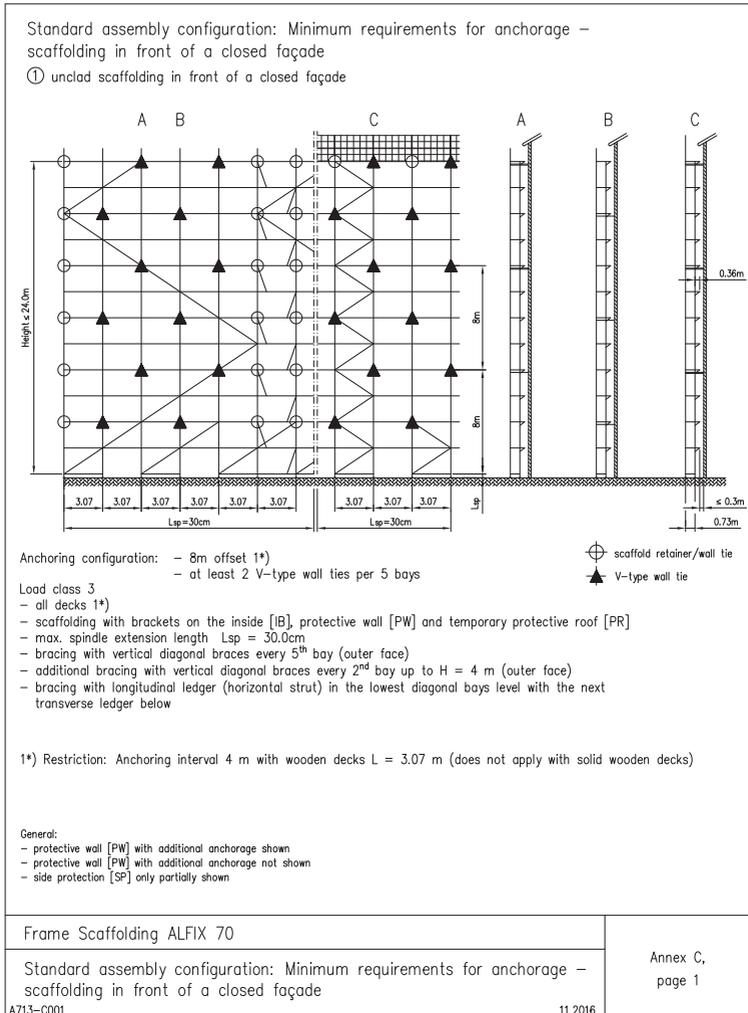
Special configuration 1	Bridging girder F_B	Inner standard $1.5 \cdot F_{IS}$	Outer standard $1.5 \cdot F_{AS}$
Special configuration 2	Passage frame F_P	Inner standard $F_{IS} + 0.54 \cdot F_{AS}$	Outer standard $0.46 \cdot F_{AS}$

Frame Scaffold ALFIX 70

Standard assembly version – General Instructions

Annex B,
page 11

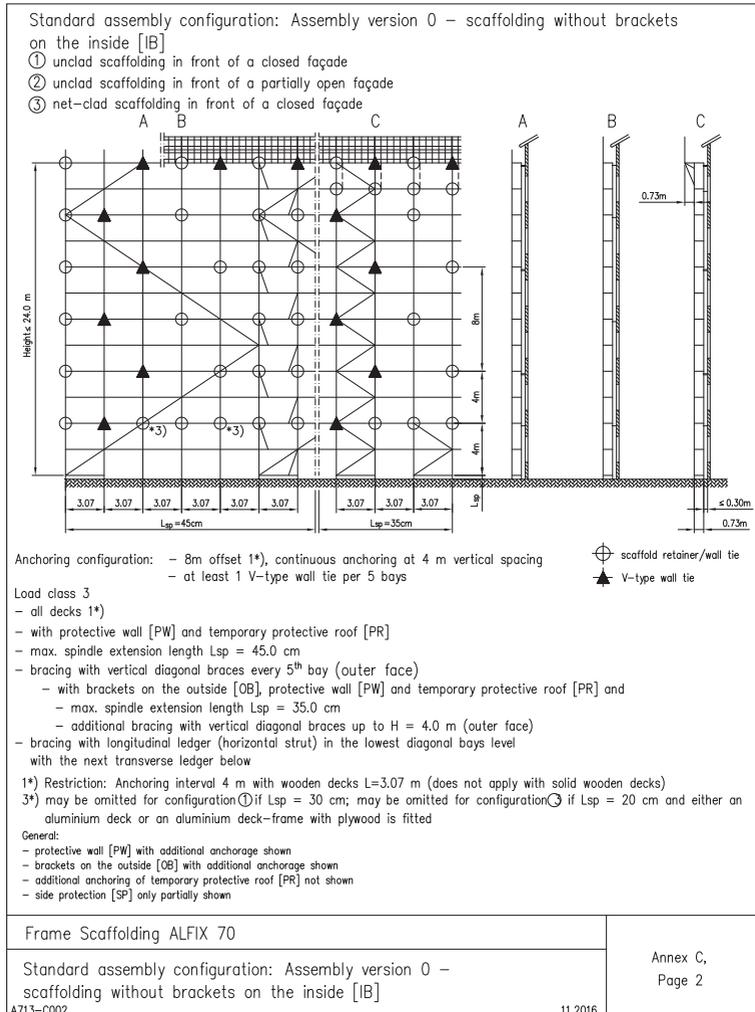
<p>B.7 Temporary roof</p> <p>The temporary roof [PR] may only be used on the outer face of the scaffolding up to a scaffold level height of ≤ 8 m. The design of the temporary roof must comply with Annex C, pages 6 and 18. Additional scaffold anchorage and bracing measures must be observed. Install decks up to the face of the building.</p> <p>B.8 Passage frame</p> <p>When using passage frames, additional bracing must be installed in accordance with Annex C, page 9, depending on the design of the scaffold.</p> <p>The structural design of passage frame must comply with Annex C, page 9.</p> <p>When establishing pedestrian passageways/underpasses, the clearance gauge must be designed in accordance with DIN EN 12810-1:2004-03, paragraph 7.3.6.3.</p> <p>B.9 Bridging</p> <p>The bridging girders may be used to bridge bridging gate entrances or similar openings when the scaffolding levels underneath the bridging part are omitted.</p> <p>The structural design of the bridging structure and the assembly variants have to comply with Annex C, pages 7, 8 and 20. Depending on the configuration, additional bracing is required. Additional scaffold anchorage and bracing measures must be observed.</p> <p>B.10 External access stairway</p> <p>As an alternative to the internal access with storey ladders, external access stairways may be used as single flight stairway in accordance with Annex C, pages 15 and 16.</p> <p>Additional scaffold anchorage and bracing measures the must be observed.</p> <p>B.11 Corner formation</p> <p>External corners are to be designed according to Annex C, page 27.</p> <p>For internal corners, the regulations for securing against uplift wind forces in Section B.1 must be observed.</p> <p>B.12 Extension bracket</p> <p>The structural design using brackets 0.36 m according to Annex A, pages 58 and 59, as well as brackets 0.73 m according to Annex A, pages 60 and 61, must be carried out according to Annex C, page 19.</p> <p>On the inner face of the scaffolding, 0.36 m brackets may be used on all scaffolding levels; on the outer face of the scaffolding, 0.36 m or 0.73 m brackets may only be installed on the topmost level (cf. Annex C, page 19). The 0.73 m bracket must be supported by means of diagonal cross braces in accordance with Annex A, page 103.</p> <p>B.13 Topmost scaffolding level not anchored</p> <p>When constructing buildings, the height of the topmost scaffolding level may exceed the height of the topmost anchored level by 2 m (topmost scaffolding level not anchored), in accordance with Annex C, page 10.</p> <p>In this intermediate state, the topmost scaffolding level must not be higher than $H = 22$ m (plus spindle extension length) within the scope of the verified standard design. Furthermore, all joints of the standards on the three topmost levels must be secured by locking pins. Additional scaffold anchorage and bracing measures must be observed.</p> <p>Claddings must not extend beyond the topmost anchoring level.</p>	<table border="1"> <tr> <td>Frame Scaffold ALFIX 70</td> <td rowspan="2" style="text-align: center; vertical-align: middle;">Annex B, page 12</td> </tr> <tr> <td>Standard assembly version – General Instructions</td> </tr> </table>	Frame Scaffold ALFIX 70	Annex B, page 12	Standard assembly version – General Instructions
Frame Scaffold ALFIX 70	Annex B, page 12			
Standard assembly version – General Instructions				



5. Standard assembly configuration

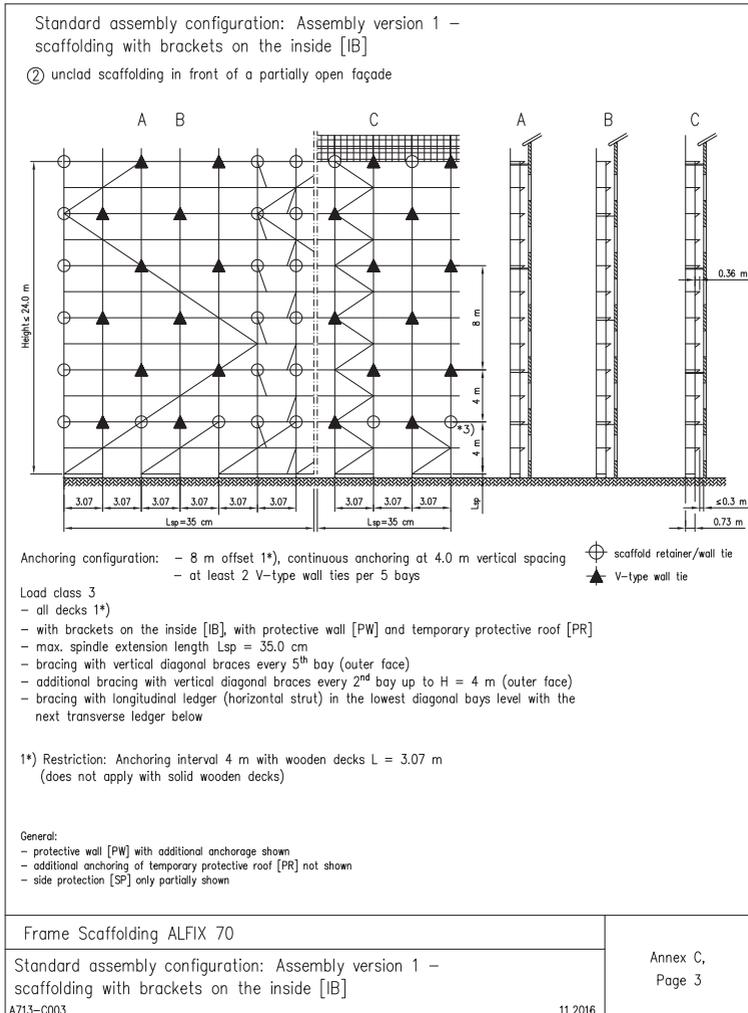
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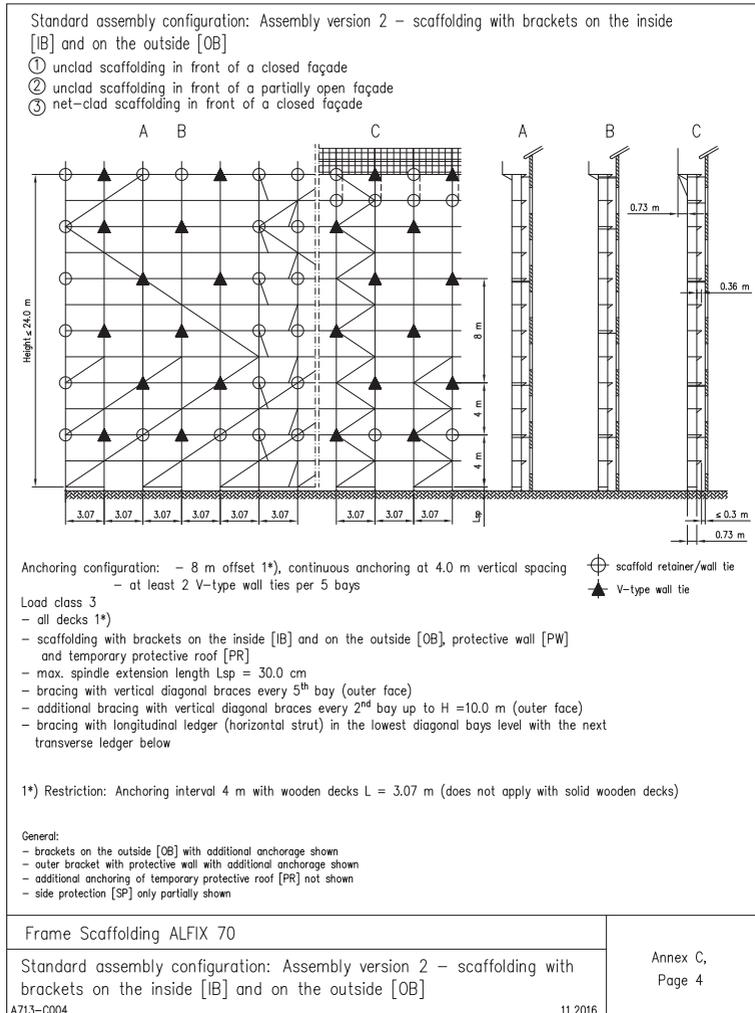
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5. Standard assembly configuration

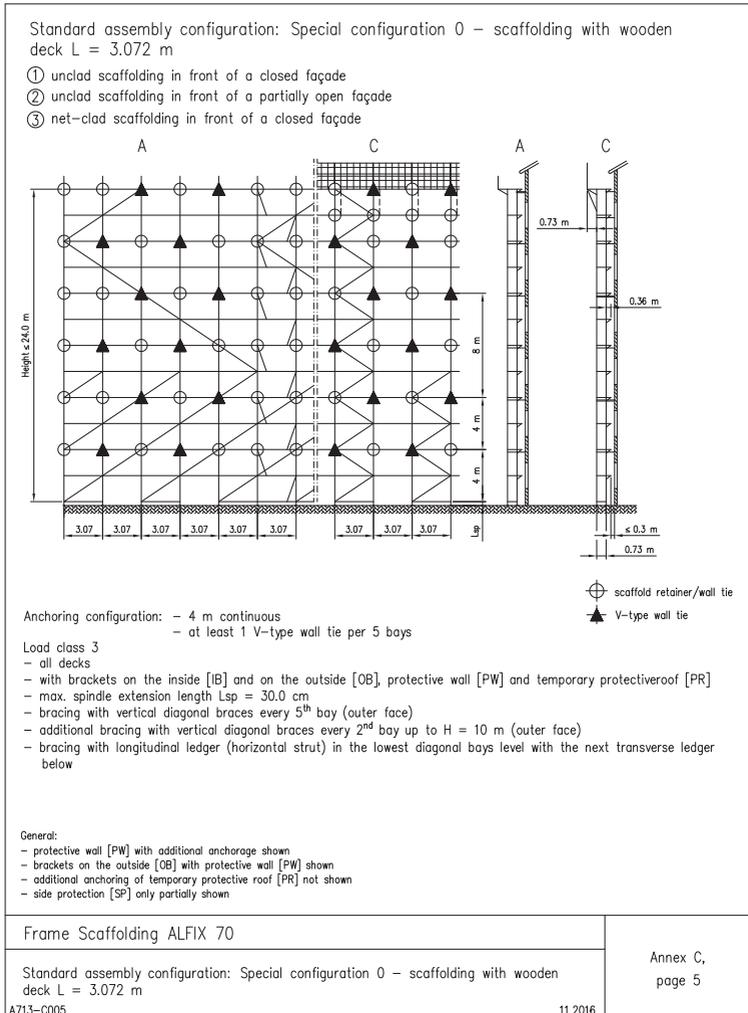
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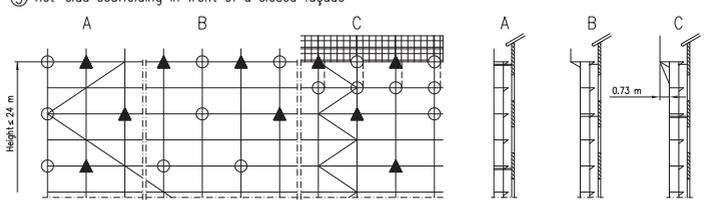
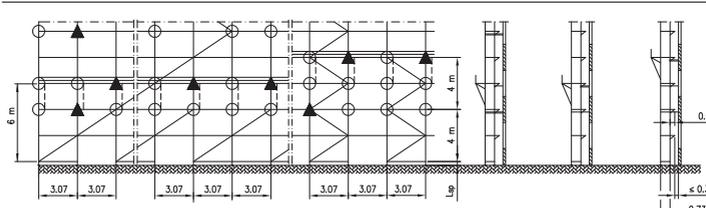
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5. Standard assembly configuration

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<p>Standard assembly configuration: Special configuration 1 – with additional anchorage of scaffolding add-on units</p> <ol style="list-style-type: none"> ① unclad scaffolding in front of a closed façade ② unclad scaffolding in front of a partially open façade ③ net-clad scaffolding in front of a closed façade 	
	
<ul style="list-style-type: none"> - Protective wall [PW]: max. Lsp = 45.0 cm (without IB); max. Lsp = 35.0 cm [with IB] - each section of the protective wall [PW] must be anchored, at least 2 V-type wall ties per 5 bays - Brackets on the outside [OB]: max. Lsp = 35.0 cm (without IB); max. Lsp = 30.0 cm [with IB] - each section of the outer frame must be anchored at the level of the outer brackets [OB], using a V-type wall tie at every 2nd frame section - Brackets on the outside [OB] and protective wall [PW]: max. Lsp = 35.0 cm (without IB); max. Lsp = 30.0 cm (with IB) - each section of the outer frame must be anchored at the level of the outer brackets [OB], using a V-type wall tie at every 2nd frame section - each bracket must be supported by a diagonal cross brace - each frame section of the level below must be anchored 	
	
<ul style="list-style-type: none"> - Temporary protective roof [PR] on outer brackets [OB]: max. Lsp = 45.0 cm (without IB); max. Lsp = 35.0 cm (with IB) - each section of the protective wall [PW] must be anchored, at least 2 V-type wall ties per 5 bays - each temporary protective roof bracket [OB] must be supported by means of a diagonal cross brace - each frame section of the level below must be anchored 	
<p>General:</p> <ul style="list-style-type: none"> - side protection [SP] only partially shown <p style="text-align: right;">see Annex C, page 18 for further details</p>	
<p>Frame Scaffolding ALFIX 70</p>	
<p>Standard assembly configuration: Special configuration 1 – with additional anchorage of scaffolding add-on units</p>	
<p>A713-C006</p>	<p>11.2016</p>
<p>Annex C, page 6</p>	

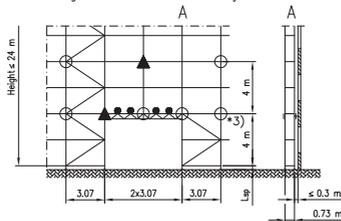
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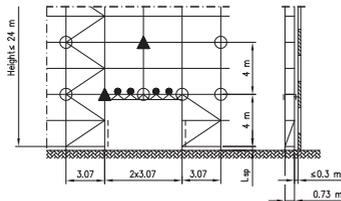
Standard assembly configuration: Special configuration 2 – bridging without brackets on the inside [IB]

- ① unclad scaffolding in front of a closed façade
- ② unclad scaffolding in front of a partially open façade
- ③ net-clad scaffolding in front of a closed façade



- with protective wall [PW] and temporary protective roof [PR]
- max. spindle extension length $L_{sp} = 35.0$ cm
- every 3rd bridging frame section must be anchored at 4 m vertical spacing, bracing of the lattice girder top chord
- bracing with vertical diagonal braces every 5th bay (outer face)
- additional bracing in the adjacent bay by means of vertical diagonal brace, up to $H = 4.0$ m (outer face)
- bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below

3*) may be omitted for configuration ① if $L_{sp} = 30$ cm; may be omitted for configuration ③ if $L_{sp} = 20$ cm AND either an aluminium deck or an aluminium deck-frame with plywood is fitted



- ⊕ scaffold retainer / wall tie
- ▲ V-type wall tie
- bracing of the lattice girder top chord

- with brackets on the outside [OB], protective wall [PW] and temporary protective roof [PR]
- max. spindle extension length $L_{sp} = 35.0$ cm
- every 3rd bridging frame section must be anchored at 4 m vertical spacing, bracing of the lattice girder top chord
- diagonal cross brace in lowermost frame section on either side of the opening
- bracing with vertical diagonal braces in every 5th bay (outer face)
- additional bracing with vertical diagonal braces up to $H = 4.0$ m (outer face)
- bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below

General:
- side protection [SP] only partially shown

see Annex C, page 20 for further details

Frame Scaffolding ALFIX 70

Standard assembly configuration: Special configuration 2 – bridging without brackets on the inside [IB]

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Annex C,
page 7

5. Standard assembly configuration

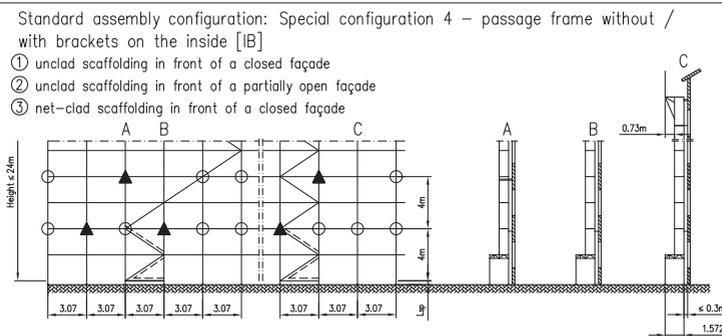
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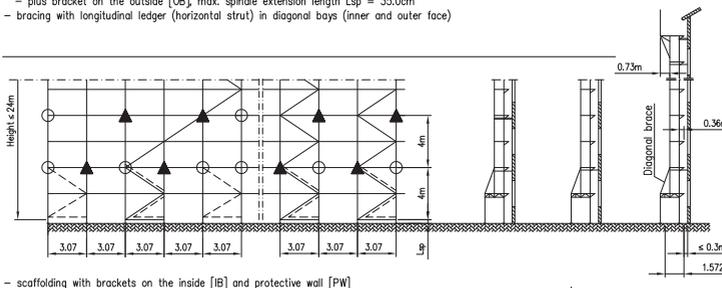
<p>Standard assembly configuration: Special configuration 3 – bridging with brackets on the inside [IB]</p> <p>① unclad scaffolding in front of a closed façade ② unclad scaffolding in front of a partially open façade ③ net-clad scaffolding in front of a closed façade</p> <p>– with protective wall [PW] and temporary protective roof [PR] – max. spindle extension length $L_{sp} = 35.0$ cm – every 3rd vertical frame section must be anchored at 4 m vertical spacing, bracing of the lattice girder top chord – bracing with vertical diagonal braces every 5th bay (outer face) – additional bracing with vertical diagonal braces every 2nd bay up to $H = 4$ m (outer face) – bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below</p> <p>3*) may be omitted for configuration ① if $L_{sp} = 30$ cm; may be omitted for configuration ③ if $L_{sp} = 20$ cm and either an aluminium deck or an aluminium deck–frame with plywood is fitted</p>	
<p>– with brackets on the outside [OB], protective wall [PW] and temporary protective roof [PR] and – max. spindle extension length $L_{sp} = 30.0$ cm – anchorage of bridging frame sections with V-type wall ties at $H = 2.30$m – bracing with vertical diagonal braces in every 5th bay (outer face) – additional brackets on the outside [OB]; bracing by means of vertical diagonal braces in every 2nd bay up to $H = 10.0$ m (outer face) – additional bracing with vertical diagonal braces up to $H = 4.0$ m (outer face) – bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below</p> <p>General: – side protection [SP] only partially shown</p> <p style="text-align: right;">see Annex C, page 20 for further details</p>	
<p>Frame Scaffolding ALFIX 70</p>	<p>Annex C, page 8</p>
<p>Standard assembly configuration: Special configuration 3 – bridging with brackets on the inside [IB]</p> <p>A713–C008</p>	<p>11.2016</p>

Standard assembly configuration: Special configuration 4 – passage frame without / with brackets on the inside [IB]

- ① unclad scaffolding in front of a closed façade
- ② unclad scaffolding in front of a partially open façade
- ③ net-clad scaffolding in front of a closed façade



- scaffolding without brackets on the inside [IB] and without protective wall [PW]
- max. spindle extension length $L_{sp} = 45.0cm$
- each frame section must be anchored at 4 m vertical spacing by 2 V-type wall ties per 5 bays
- bracing with vertical diagonal braces in every 5th bay (outer face)
- additional bracing with a vertical diagonal brace in every 5th bay (inner face)
- plus bracket on the outside [OB], max. spindle extension length $L_{sp} = 35.0cm$
- bracing with longitudinal ledger (horizontal strut) in diagonal bays (inner and outer face)



- scaffolding with brackets on the inside [IB] and protective wall [PW]
- max. spindle extension length $L_{sp} = 35.0cm$
- each frame section must be anchored at 4 m vertical spacing by 2 V-type wall ties per 5 bays
- diagonal cross brace in the lowermost frame section
- bracing with vertical diagonal braces in every 5th bay (outer face)
- additional bracing with vertical diagonal braces in every 2nd bay up to $H = 4.0 m$ (outer face)
- plus brackets on the outside [OB]; bracing by means of vertical diagonal braces in every 2nd bay up to $H = 10.0 m$ (outer face)
- bracing with longitudinal ledger (horizontal strut) in diagonal bays (inner and outer face)

scaffold retainer/wall tie
 V-type wall tie

General:
- side protection [SP] only partially shown

see Annex C, page 21 for further details

Frame Scaffolding ALFIX 70	
Standard assembly configuration: Special configuration 4 – passage frame without / with brackets on the inside [IB]	Annex C, page 9
A713-C009	11.2016

5. Standard assembly configuration

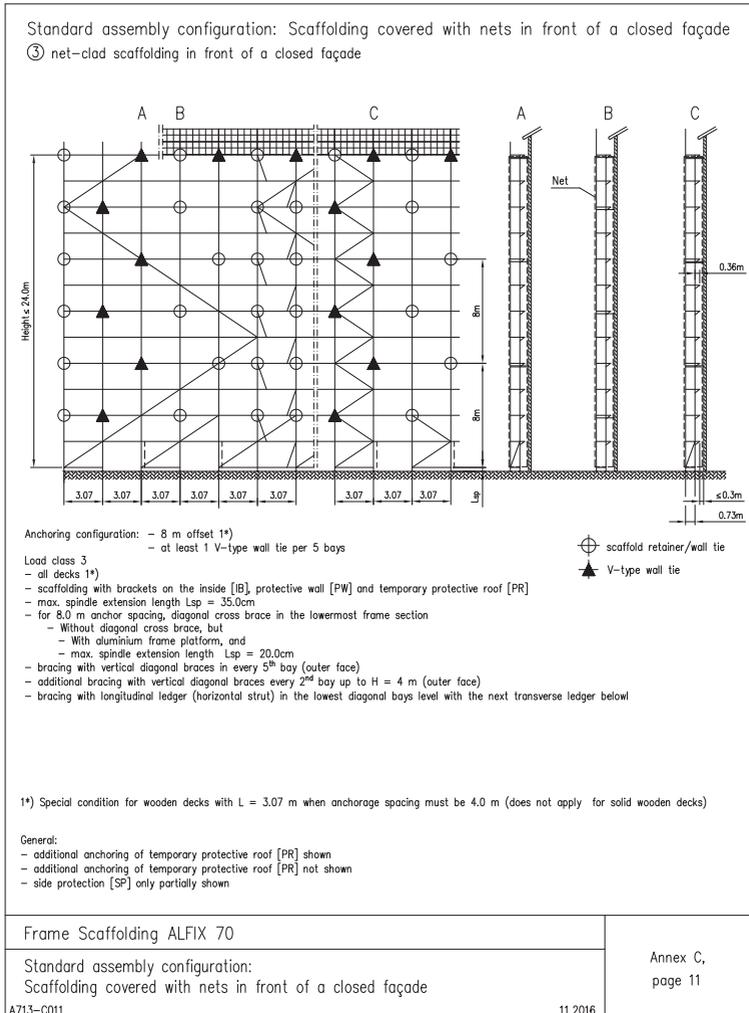
National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

<p>Standard assembly configuration: Special configuration 5 – topmost working level not anchored</p> <p>① unclad scaffolding in front of a closed façade ② unclad scaffolding in front of a partially open façade ③ net-clad scaffolding in front of a closed façade</p> <p>Anchoring configuration: – 8 m offset 1*) – continuous anchoring at 4 m vertical spacing – at least 2 V-type wall ties per 5 bays</p> <p>Load class 3 – all decks 1*) – with brackets on the inside [B] – max. spindle extension length $L_{sp} = 35.0\text{cm}$ – bracing with vertical diagonal braces in every 5th bay (outer face) – additional bracing with vertical diagonal braces every 2nd bay up to $H = 4\text{ m}$ (outer face) – bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below</p> <p>1*) Special condition for wooden decks with $L = 3.07\text{ m}$ when anchorage spacing must be 4.0 m (does not apply for solid wooden decks) 3*) may be omitted for configuration ① if $L_{sp} = 30\text{cm}$; may be omitted for configuration ③ if $L_{sp} = 20\text{cm}$ AND either an aluminium deck or an aluminium deck-frame with plywood is fitted</p> <p>General: – additional anchoring of temporary protective roof [PR] not shown – side protection [SP] only partially shown</p>	
<p>Frame Scaffolding ALFIX 70: scaffolding EN 12810 3D-SW06/307-H2-B-LS</p>	<p>Annex C, page 10</p>
<p>Standard assembly configuration: Special configuration 5 – topmost working level not anchored</p> <p>A713-C010</p>	<p>11.2016</p>

National Technical Approval
No. Z-8.1-862 | 9 December 2016

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5. Standard assembly configuration

National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration:
Scaffolding covered with nets in front of a partially open façade

④ Scaffolding covered with nets in front of a partially open façade

Anchoring configuration: – 4 m offset 1*)
– at least 1 V-type wall tie per 5 bays

Load class 3
– all decks 1*)

- scaffolding with brackets on the inside [IB], brackets on the outside [OB], protective wall [PW] and temporary protective roof [PR]
- max. spindle extension length $L_{sp} = 45.0\text{cm}$
- for 4.0 m anchor spacing, diagonal cross brace in the lowermost frame section
 - Without diagonal cross brace, but
 - Without brackets on the outside [OB], and
 - With aluminium frame platform and
- max. spindle extension length $L_{sp} = 30.0\text{cm}$
- bracing with vertical diagonal braces in every 5th bay (outer face)
- bracing with longitudinal ledger (horizontal strut) in the lowest diagonal bays level with the next transverse ledger below

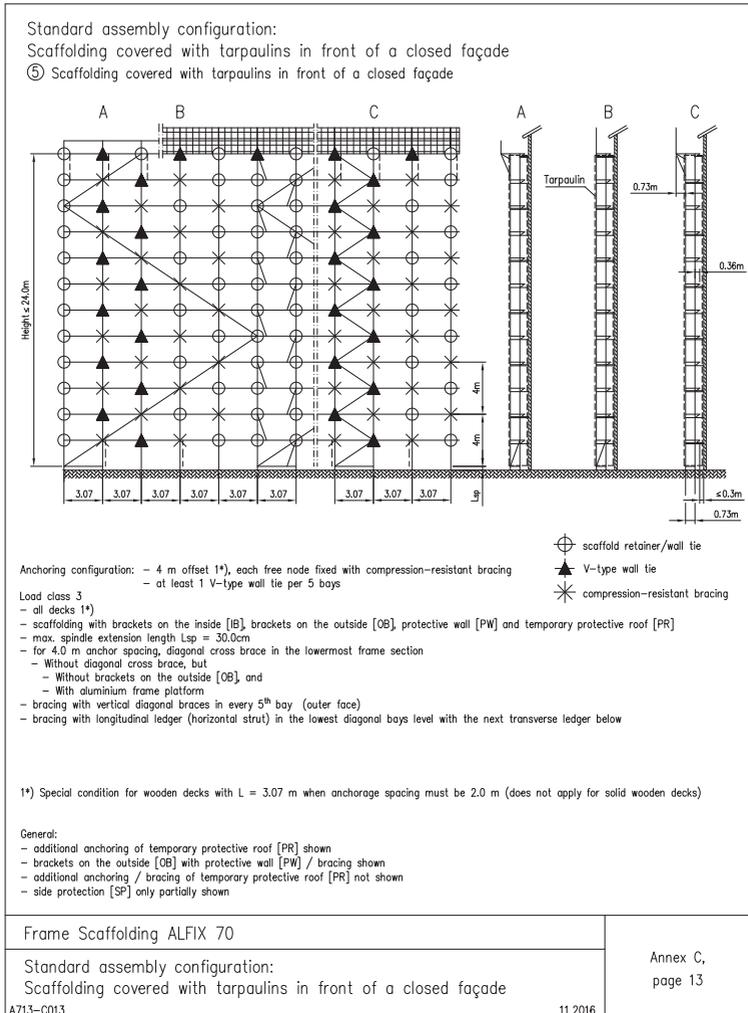
1*) Special condition for wooden decks with $L = 3.07\text{ m}$ when anchorage spacing must be 2.0 m (does not apply for solid wooden decks)

General:
– additional anchoring of temporary protective roof [PR] shown
– brackets on the outside [OB] with protective wall [PW] / bracing shown
– additional anchoring / bracing of temporary protective roof [PR] not shown
– side protection [SP] only partially shown

Frame Scaffolding ALFIX 70	Annex C, page 12
Standard assembly configuration: Scaffolding covered with nets in front of a partially open façade	
A713–C012	11.2016

National Technical Approval
No. Z-8-1-862 | 9 December 2016

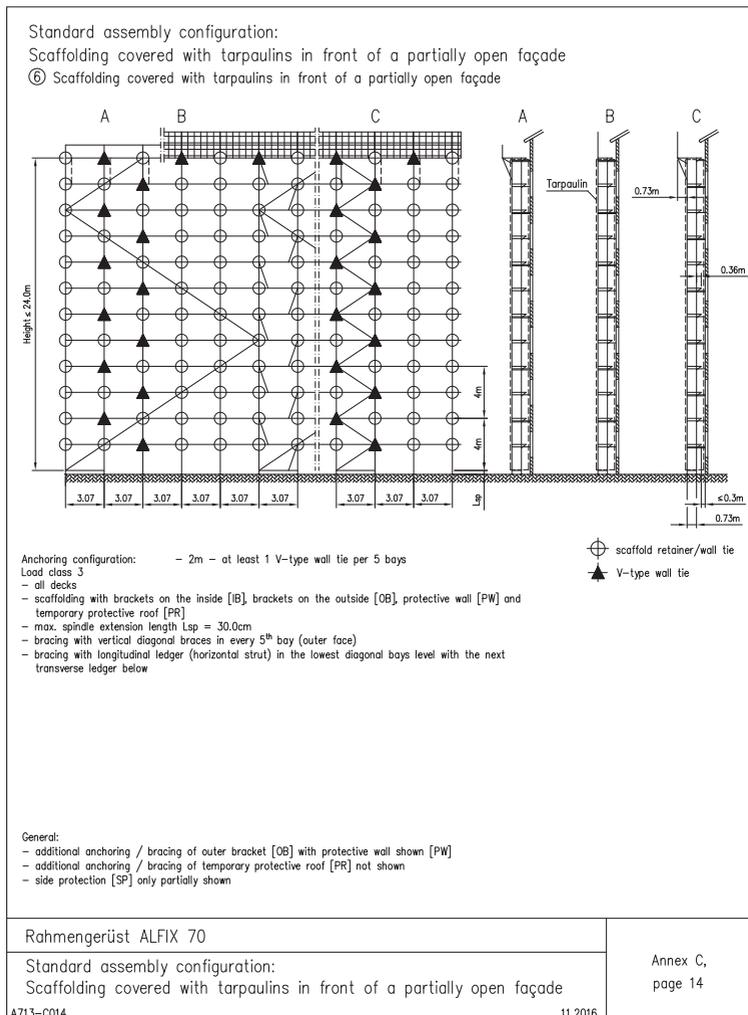
[Seal Deutsches Institut für Bautechnik]



5. Standard assembly configuration

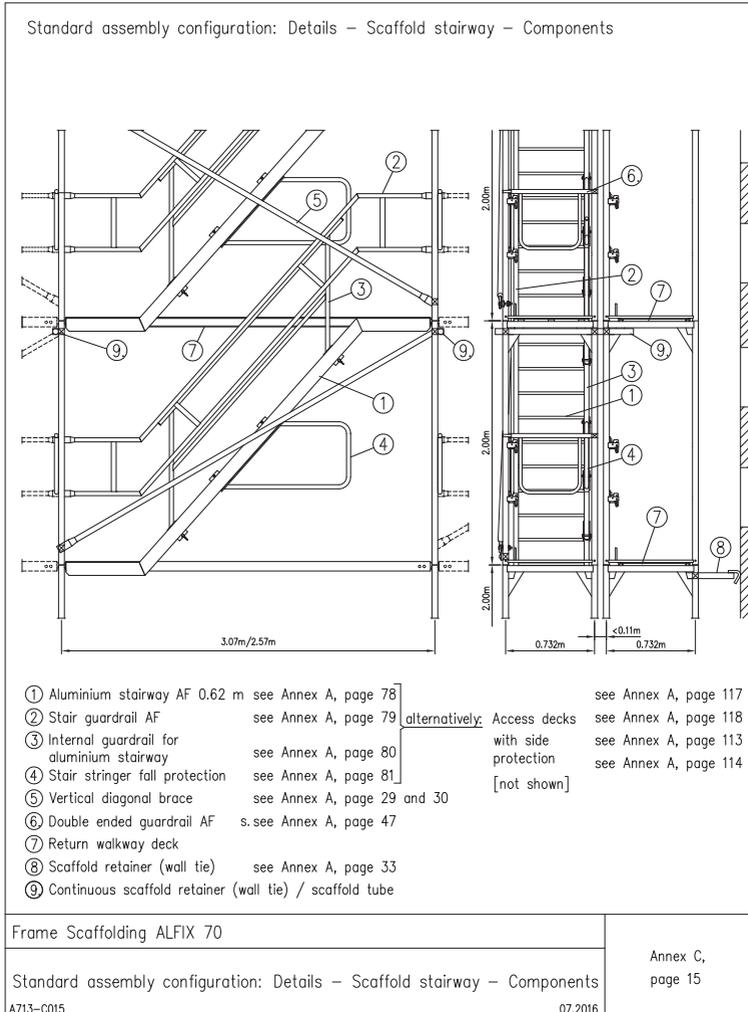
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No. Z-8.1-862 | 9 December 2016

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National Technical Approval
No. Z-8.1-862 | 9 December 2016

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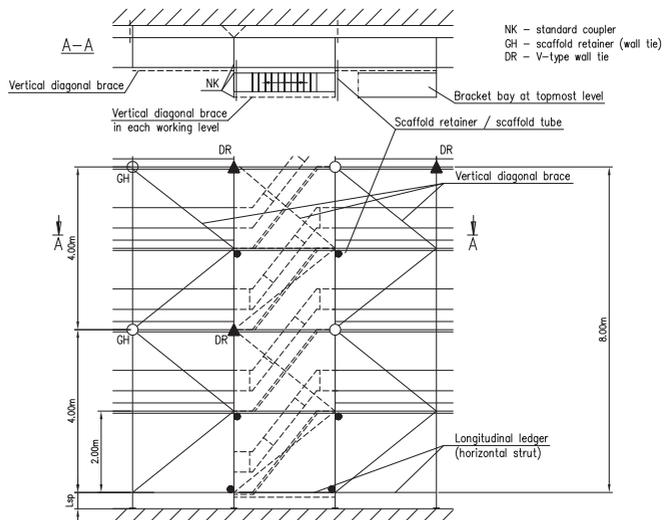


Standard assembly configuration: Details – Anchoring – add-on access bay

Stairway access (parallel stair arrangement) or ladder access must be assembled in front of the façade scaffolding ALFIX 70 (add-on access bay). The frames of the façade scaffolding to which the access bay is connected are to be anchored at height intervals of $H = 4\text{ m}$, independent of any other determined anchor configuration (see Annex C, pp. 11 – 14). In façade scaffolding an additional V-type wall tie must be installed on every anchor level.

Access bay:

- Distance between inner standard and the outer standards of the façade scaffolding is $< 0.11\text{ m}$ (axial distance/between centres).
- Base jacks are not mandatory at the inner standards of the access bay.
- The access bay is connected to the façade scaffolding by means of wall ties / scaffolding tubes $48,3 \times 3,2 \text{ l } 1,0\text{ m}$ with standard couplers to both the standards of the access bay frame and to the outer standard of the façade scaffolding frame below the U-ledge at height intervals of 4 m , starting at $H = 2\text{ m}$ as well as at the base above the base ledger.
- max. spindle extension length $L_{sp} \leq 35\text{ cm}$
- Brace the outer plane of the access bay with vertical diagonal braces; install a longitudinal ledger at the base.
- Topmost level: exit on bracket bay



*1) Shown: main levels with a 8 m offset anchoring configuration

Frame Scaffolding ALFIX 70

Standard assembly configuration:
Details – Anchoring – add-on access bay

A713-C016

07.2016

Annex C,
page 16

National Technical Approval
No. Z-8.1-862 | 9 December 2016

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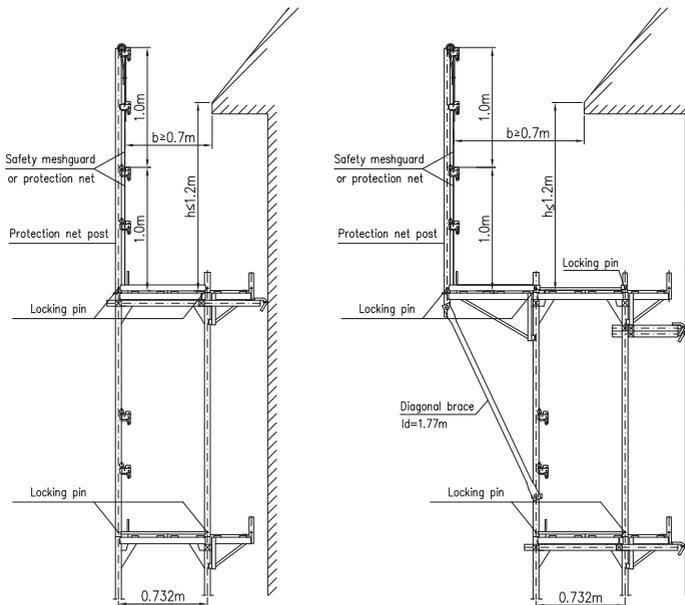
Standard assembly configuration: Details – Protective wall [PW]

Install the protective wall for the roof fall arrest and brickguard scaffold at the topmost level. Observe the dimensions in the figure below. Each frame section must be anchored at the topmost level. Use V-type wall ties for every 2nd frame section. Always provide lift-off prevention for the main deck to prevent unintentional lift-off.

Protective wall posts (secured against unintentional lift-off by means of locking pins) must be assembled with safety meshguards or protection nets. It is also possible to assemble the protective wall with a bracket 0.73 m. In this case, the bracket 0.73 m must be braced by means of a diagonal brace $l_d = 1.77$ m in every frame section.

Always assemble a gap cover or an intermediate deck between main deck and decks on the outer bracket.

Additional bracing frames and anchoring are to be observed.



Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Protective wall [PW]

A713-C017

07.2016

Annex C,
page 17

5. Standard assembly configuration

National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration: Details – Temporary protective roof [PR]

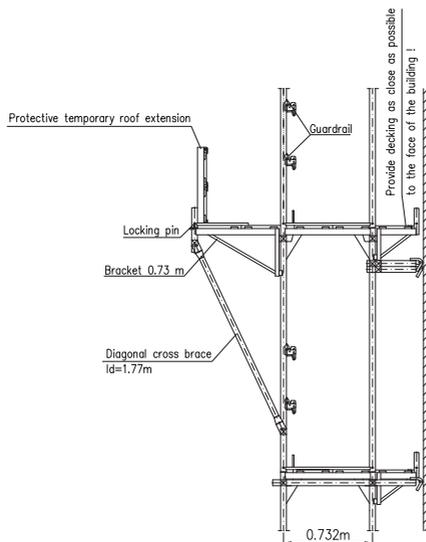
The temporary protective roof consists of a bracket 0.73 m supported by means of a diagonal brace, temporary protective roof extension, and decks. The bracket 0.73 m must be assembled on the outer face of the vertical frame.

The temporary protective roof extension is assembled on the bracket 0.73 m with 2 decks (width: 0.32 m).

Cover the gap between the scaffolding deck and the platform of the temporary protective roof with a gap cover. Provide decking as close as possible to the face of the building.

Separate the main scaffolding decking from the platform of the temporary protective roof by means of guardrails. Anchor all frame sections on the protective temporary roof level and the level below.

Anchor every second frame section on the protective temporary roof level with V-type wall ties.



Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Temporary protective roof [PR]

A713-C018

07.2016

Annex C,
page 18

National Technical Approval
No. Z-8-1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration: Details – Extension brackets

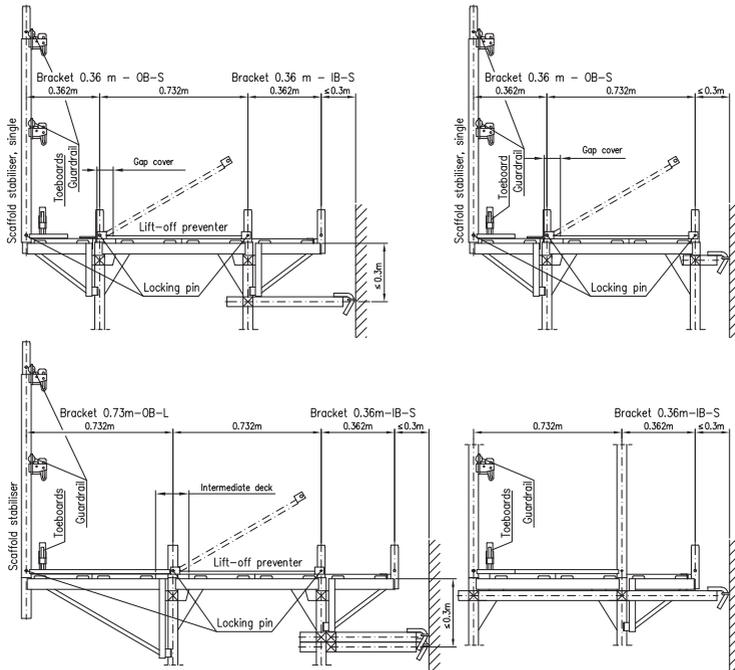
At the inner face of the scaffolding (facing the façade), inner brackets IB-S (bracket 0.36 m) can be mounted on all working levels.

At the outer face of the scaffolding, an outer bracket OB-S or OB-L (bracket 0.36 m or bracket 0.73 m) may only be installed on one working level. On the outer bracket full 3-part side protection must be installed next to the decks. Anchor this working level at each frame section.

When a 0.73 m bracket [OB-L] is used, additional bracing and anchorage must be observed. Always install a gap cover or intermediate deck between the main deck and the deck of the outer bracket.

Do not assemble an access deck onto the 0.73 m bracket [OB-L].

Always secure the main deck against unintentional lift-off using a deck lift-off preventer.



Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Extension brackets

A713-C019

07.2016

Annex C,
page 19

National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration: Details – Bridging

Upper chord of lattice girder stabilised with wall tie or scaffold tube bracing unit

Guardrail post

Intermediate rail

Toeboard

V-type wall tie

Horizontal strut

Standard coupler class BB with coupler placed beneath

Scaffold tube bracing unit

wall tie

Vertical frame 1.00 m

Standard coupler class BB with coupler placed beneath

Upper chord of lattice girder

Detail X: Scaffolding with brackets on the inside:
Vertical frame 1.00 m mounted between the lattice girders with 4 standard couplers and anchored with wall ties.

Two bridging girders (steel lattice girders 620) can be used for accommodating a vertical frame. Fix the upper chords of the lattice girders at intervals of $a=1.0$ m either by anchoring them to the façade using wall ties or by means of tube connections and couplers between both lattice girders. All three frame sections must be anchored at a height of approx. 4.0 m. Use at least one V-type anchor within the the bridging girder structure.

This allows the steel lattice girder 620 to transfer a central single load $F_F=18.6$ kN (service load) in the case of 2×3.07 m bridging or $F_E=22.6$ kN in the case of 2×2.57 m bridging (this also applies to steel lattice girder 520). Other system-independent lattice girders – also aluminium lattice girders – may be used as bridging girders, as soon as the load bearing capacity of the bridging girders is achieved. Please refer to the tables that list the bearing reactions for the load bearing capacities of the lattice girders in the different assembly configurations. When using outer brackets, the frame must be connected to the outer lattice girder using standard couplers of class BB with a coupler placed underneath.

For scaffolding with inner brackets (shown here), the upper chords of the lattice girders are connected to the vertical frames approx. 30 cm below the frame joints using standard couplers of class BB with a coupler placed underneath. Use vertical frames 1.0 m below the frame section that needs to be accommodated. The inner standards of the lateral frame section must be anchored using V-type wall ties below the bridging at $H=2.0$ m.

For scaffolding without inner brackets, the upper chords of the lattice girders are connected to the vertical frame at the gusset plate using standard couplers of class B (coupler underneath not required in this case). Below the frame section that needs to be accommodated, the vertical frames 1.00 m and 0.66 m can be used. In this case, V-type wall ties at the lateral frame section below the bridging at $H=2.0$ m are not mandatory. When outer brackets are used, however, both frame sections on the first working level must be braced with diagonal braces.

Do not use passage frames at the bridging section!

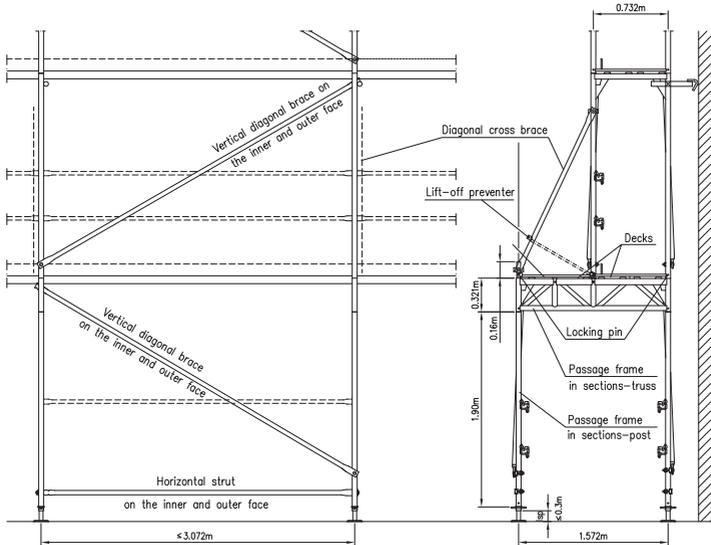
Frame Scaffolding ALFIX 70	
Standard assembly configuration: Details – Bridging	Annex C, page 20
A713-C020	11.2016

National Technical Approval
No. Z-8-1-862 | 9 December 2016

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Standard assembly configuration: Details – Passage frame

Provide anchorage at intervals of 4.0 m.
Brace the vertical frames above the passage frame using a diagonal brace that is connected by means of a swivel coupler.
Alternatively, anchorage can be provided at 2.0 m intervals.
The diagonal brace above the passage frame is not mandatory for scaffoldings without inner widening brackets.
The outer diagonal brace (vertical diagonal brace) must be assembled along with a longitudinal ledger (horizontal strut) in at least every 5th bay. Additionally, on the lowest two working levels, the inner diagonal brace (vertical diagonal brace) must be assembled along with a longitudinal ledger (horizontal strut) in at least every 5th bay.



Work platform, consisting of 2 decks ($w = 0.32\text{ m}$) or one deck ($w = 0.60\text{ m}$)
Cover the remaining bay width with decks and deck lift-off preventers or brace using horizontal diagonal braces (scaffolding tube connected to framework standard with swivel couplers).

Do not use bridging girders at the passage frames.

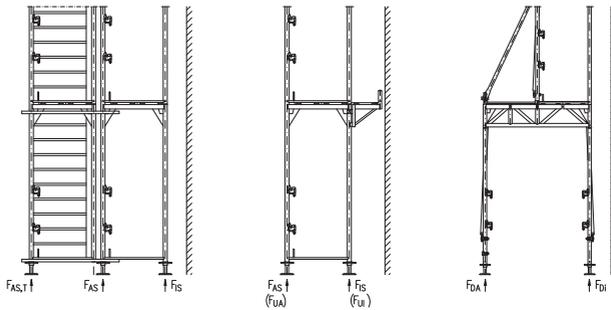
Frame Scaffolding ALFIX 70	Annex C, page 21
Standard assembly configuration: Details – Passage frame	
A713-C021	07.2016

5. Standard assembly configuration

National Technical Approval
No. Z-8.1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration: Details – Bearing reaction



Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Bearing reaction

A713-C022

07.2016

Annex C,
page 22

National Technical Approval
No. Z-8-1-862 | 9 December 2016

[Seal Deutsches Institut für Bautechnik]

Standard assembly configuration: Details – Anchoring variant 1 – Scaffolding without brackets on the inside

Bearing reactions A_L and A_R at the inner standard see Annex B

Anchoring forces (to the building)

- Scaffold retainer $A_R = A_L$
- V-type wall tie $A_R = \max. (A_L/2 ; A_R/2)$
- $A_P = \max. (A_L/2 ; A_R/2)$

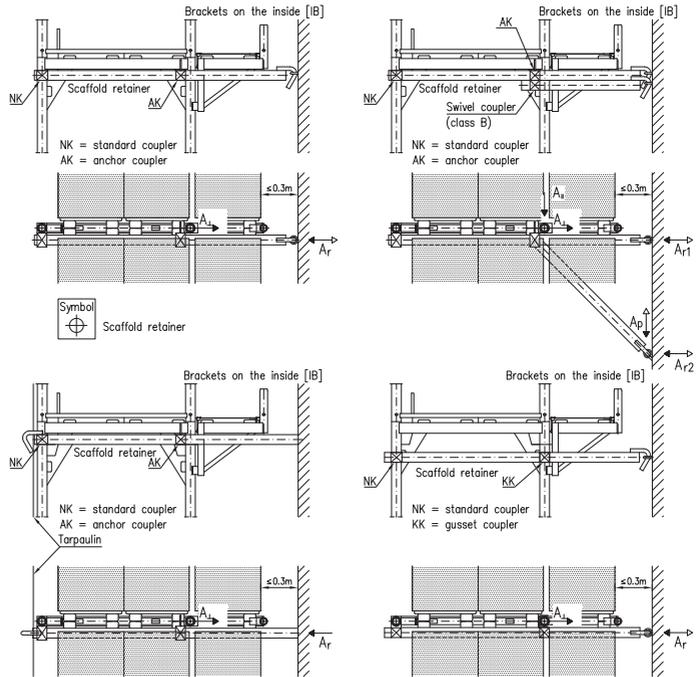
Frame Scaffolding ALFIX 70 Scaffolding EN 12810 3D-SW06/307-H2-B-LS	Annex C, page 23
Standard assembly configuration: Details – Anchoring variant 1 – Scaffolding without brackets on the inside	
A713-C023	11.2016

5. Standard assembly configuration

National Technical Approval
No. Z-8.1-862 | 9 December 2016

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Standard assembly configuration: Details – Anchoring variant 2 – Scaffolding with brackets on the inside, without brackets on the outside



Bearing reactions A_L and A_{II} at the inner standard see Annex B

Anchoring forces (to the building)

- Scaffold retainer $A_r = A_{\perp}$
- HV-type wall tie $A_{r1} = \max. (A_L ; A_{II})$ $A_{r2} = A_{II}$
- $A_p = A_{II}$

Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Anchoring variant 2 – Scaffolding with brackets on the inside, without brackets on the outside

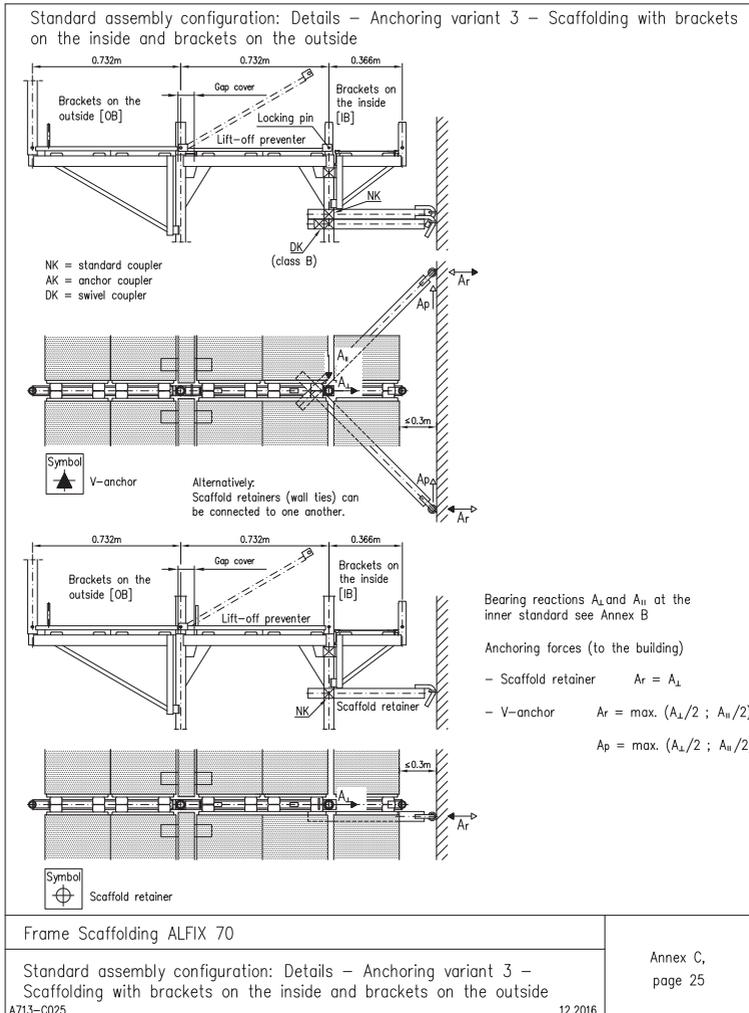
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Annex C,
page 24

National Technical Approval
No. Z-8-1-862 | 9 December 2016

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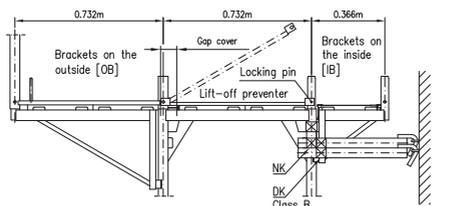


5. Standard assembly configuration

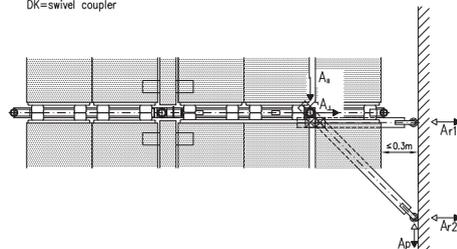
National Technical Approval
No. Z-8.1-862 | 9 December 2016

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Standard assembly configuration: Details – Anchoring variant 4 – Scaffolding with brackets on the inside and brackets on the outside



NK=standard coupler
DK=swivel coupler



Bearing reactions A_n and A_u at the inner standard see Annex B

Anchoring forces (to the building)

- HV-type wall tie: $Ar1 = \max. (A_n ; A_u)$

$Ar2 = A_u$

$Ap = A_u$

Frame Scaffolding ALFIX 70

Standard assembly configuration: Details – Anchoring variant 4 – Scaffolding with brackets on the inside and brackets on the outside

A713-C026

11.2016

Annex C,
page 26

National Technical Approval
No. Z-8.1-862 | 9 December 2016

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Standard assembly configuration: Details – Corner formation

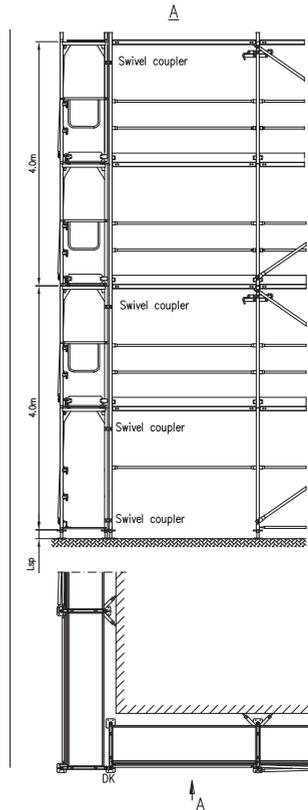
Vertical frames next to anchored working levels are connected by means of tubes and couplers if both frame sections are assembled separately.

Alternatively, an outer standard tube of a vertical frame on the edge can be supported using two swivel couplers in the bottom vertical frame, in which case the base jack is not required here. The swivel couplers transfer the load into the outer standard tube of the adjacent vertical frame on the edge.

Connect the adjacent outer standard tubes using another swivel coupler on the same level as the other anchored working levels ($H \leq 4.0\text{m}$).

Cover the gap between the scaffolding bays, e.g. by a steel deck.

Anchor the frame section on each side of the corner section in 4 m intervals using a V-type wall tie.



Frame Scaffolding ALFIX 70

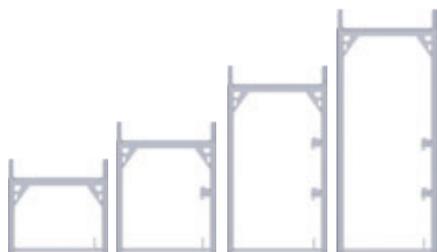
Standard assembly configuration: Details – Corner formation

A713-C027

07.2016

Annex C,
page 27

6. Overview of the components



Assembly frame, steel

Art.-No. 10 11 067L; 0.67 x 0.73 m
Art.-No. 10 11 100L; 1.00 x 0.73 m
Art.-No. 10 11 150L; 1.50 x 0.73 m
Art.-No. 10 11 200L; 2.00 x 0.73 m



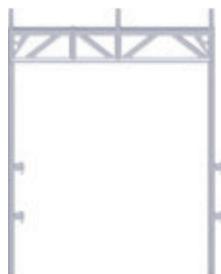
Guardrail post, steel

Art.-No. 10 64 073L



Guardrail post, single, steel

Art.-No. 10 65 100L



Passage frame, steel, 3-part

Art.-No. 10 19 006; 2.20 x 1.57 m



End guardrail frame, steel

Art.-No. 10 63 073L



Double end guardrail, steel

Art.-No. 10 62 073



Transom

Art.-No. 14 02 719



Liff-off preventer

Art.-No. 10 48 ***; 0.36 m - 0.73 m



Locking pin

Art.-No. 14 50 000



Base jack

Art.-No. 11 51 ***; 0.40 m - 0.80 m



Guardrail

Art.-No. 10 60 ***; 0,73 m - 3,07 m



Telescopic guardrail

Art.-No. 10 99 000; 1,57 - 2,57 m
Art.-No. 10 99 001; 2,07 - 3,07 m



Diagonal brace

Art.-No. 11 00 150; for bay length 1,57 m
Art.-No. 11 00 28*; for bay length 2,07 m
Art.-No. 11 00 32*; for bay length 2,57 m
Art.-No. 11 00 36*; for bay length 3,07 m
Art.-No. 11 00 414; for bay length 4,14 m



Double guardrail, steel

Art.-No. 10 61 ***; 1,57 m - 4,14 m



Diagonal cross brace

Art.-No. 11 28 719; 1,77 m



Horizontal strut

Art.-No. 11 02 **7; 2,07 m - 3,07 m
Art.-No. 11 02 **8; 2,07 m - 3,07 m



Advanced telescopic guardrail

Art.-No. 14 43 200



Bracket

Art.-No. 10 30 036; 0,36 m



Bracket

Art.-No. 10 30 073; 0,73 m



Starter transom

Art.-No. 14 01 073

6. Overview of the components



Lattice girder, steel

Art.-No. 13 75 ***; 3.20 m - 7.77 m



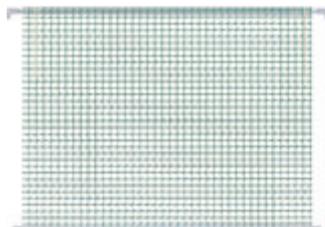
Lattice girder cross brace

Art.-No. 13 81 073



Lattice girder suspension

Art.-No. 13 85 000



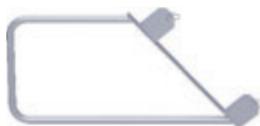
Guard net system

Art.-No. 14 22 ***; 2.07 m - 3.07 m



ALBLITZ stair guardrail post

Art.-No. 11 31 110



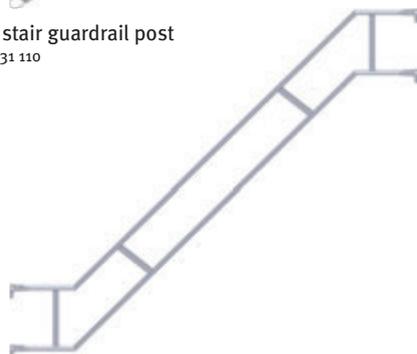
Stair stringer fall protection

Art.-No. 11 31 001



Safety side meshguard

Art.-No. 14 27 ***; 2.07 m - 2.57 m



ALBLITZ stair guardrail, double

Art.-No. 12 98 ***; 2.07 m - 3.07 m



ALBLITZ stairway, aluminium

Art.-No. 12 98 ***; 2.07 m - 3.07 m



Temporary roof support
Art.-No. 10 71 010



Quick-release anchor
Art.-No. 13 62 065



Distance tube
Art.-No. 13 61 ***; 0.40 - 1.50 m



Protective net post
Art.-No. 10 71 073



Temporary roof extension
Art.-No. 10 71 000



Weather protection
add-on unit
Art.-No. 10 71 201



Weather protection support
Art.-No. 10 71 200



Advanced guardrail post
Art.-No. 14 43 100



Advanced end guardrail
Art.-No. 14 43 301

6. Overview of the components



Steel plank; 0.32 m wide
Art.-No. 12 21 ***; 0.73 m - 4.14 m



Wooden deck; 0.32 m wide
Art.-No. 12 31 ***; 0.73 m - 3.07 m



Frame platform; 0.60 m wide, aluminium
Art.-No. 12 01 ***; 0.50 m - 3.07 m



Frame platform; 0.32 m wide, aluminium
Art.-No. 12 11 414; 4.14 m



Intermediate deck; 0.19 m wide, steel
Art.-No. 12 25 ***; 1.57 m - 3.07 m



Gap cover; 0.10 m wide
Art.-No. 12 26 ***; 1.57 m - 3.07 m



ALBLITZ lightweight deck; 0.60 m wide
Art.-No. 12 13 ***; 1.57 m - 3.07 m



Solid aluminium deck; 0.32 m wide
Art.-No. 12 11 ***; 1.09 m - 3.07 m



Access deck with ladder; 0.60 m,
film-coated plywood decking
Art.-No. 12 04 ***; 2.57 m - 3.07 m



Access deck with ladder; 0.60 m,
chequer plate decking
Art.-No. 12 07 ***; 2.57 m - 3.07 m



Toeboard, wood
Art.-No. 12 50 ***; 0.73 m - 4.14 m



End toeboard, wood
Art.-No. 12 51 073



Standard coupler
Art.-No. 13 01 019



Swivel coupler
Art.-No. 13 03 019



Corner guardrail
wedge housing
Art.-No. 13 09 001



Anchor coupler
Art.-No. 13 06 119



Gusset coupler
Art.-No. 13 06 319



Halfcoupler with
toeboard bolt
Art.-No. 13 13 019

Load classes of scaffolding decks				
DESIGNATION	BAY WIDTH L (m)	BRICK GUARD AND ROOF BRICK GUARD APPLICATIONS	ASSIGNMENT OF DECKING TO LOAD CLASSES	
Steel deck 0.32 m	≤ 2.07	permissible	6	
	2.57	permissible	5	
	3.07	permissible	4	
	4.14	permissible	3	
Wooden deck 0.32 m	≤ 1.57	permissible	6	
	2.07	permissible	5	
	2.57	permissible	4	
	3.07	permissible	3	
Solid aluminium deck 0.32 m	≤ 2.07	permissible	6	
	2.57	permissible	5	
	3.07	permissible	4	
	4.14	-	3	
ALBLITZ lightweight deck 0.60 m	1.57	permissible	4	
	2.07	permissible	4	
	2.57	permissible	4	
	3.07	permissible	3	
Frame platform 0.60 m film-coated plywood decking	≤ 3.07	permissible	3	
Access deck with ladder 0.60 m film-coated plywood decking	≤ 3.07	permissible	3	
Access deck with ladder 0.60 m chequer plate decking	2.57	permissible	3	
	3.07	permissible	3	
Access deck without ladder 0.60 m film-coated plywood decking	≤ 3.07	permissible	3	

Parameters of vertical diagonal braces

VERTICAL DIAGONAL BRACES	Extract of approval no. Z-8.22-932		
	Bay length (m)	$\beta = A_D / A_{eff}$	$D_{r,d}$ (kN)
	2.07	44	7.65
	2.57	42	6.51
	3.07	40	5.37
			

Cross-sectional values of base jacks

The substitute cross-sectional values of base jacks for stress and deformation analyses according to DIN 4425 are to be assumed as follows:		
$A = A_s$	= 3.52 cm ²	
I	= 4.00 cm ⁴	
W_{el}	= 2.68 cm ³	
W_{pl}	= 1.25 x 2.68 = 3.35 cm ³	

Service loads on working areas

WORKING AREAS	LOAD CLASS	UNIFORMLY DISTRIBUTED LOAD q_1 in kN/m ²	CONCENTRATED LOAD ON AREA 500 mm x 500 mm F_1 in kN	CONCENTRATED LOAD ON AREA 200 mm x 200 mm F_2 in kN	PARTIAL AREA LOAD	
					q_p in kN/m ²	Partial area factor a_p
	1	0.75	1.50	1.00	-	-
	2	1.50	1.50	1.00	-	-
	3	2.00	1.50	1.00	-	-
	4	3.00	3.00	1.00	5.00	0.4
	5	4.50	3.00	1.00	7.50	0.4
	6	6.00	3.00	1.00	10.00	0.5

Headroom classes

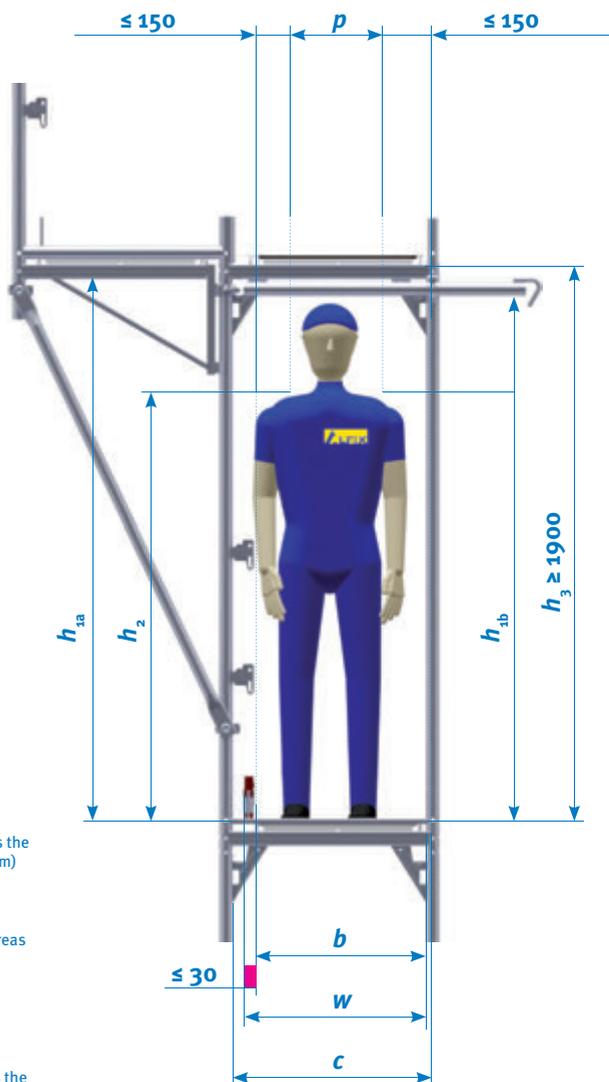
WORKING AREAS	CLASS	CLEAR HEADROOM		
		between working areas h_s	between working areas and transoms or tie members h_{1a} and h_{1b}	clear shoulder height h_2
	H ₁	$h_s \geq 1.90$ m	$1.75 \text{ m} \leq h_{1a} \leq 1.90 \text{ m}$ $1.75 \text{ m} \leq h_{1b} \leq 1.90 \text{ m}$	$h_2 \geq 1.60$ m
	H ₂	$h_s \geq 1.90$ m	$h_{1a} \geq 1.90$ m $h_{1b} \geq 1.90$ m	$h_2 \geq 1.75$ m

Width classes

WORKING AREAS	WIDTH CLASS	w in m
		W06
	W09	$0.9 \leq w \leq 1.2$
	W12	$1.2 \leq w \leq 1.5$
	W15	$1.5 \leq w \leq 1.8$
	W18	$1.8 \leq w \leq 2.1$
	W21	$2.1 \leq w \leq 2.4$
	W24	$2.4 \leq w$

Designation of scaffolds according to the standard EN 12810-1 (Example)

Scaffold EN 12810 - 3 D - SW06/257 - H1 - B - LA	
Scaffold EN 12810	Frame scaffold (system scaffold) according to DIN EN 12810-1
3	Load class 3 (see Table 3 DIN EN 12811-1)
D	Drop tests on platforms (D = with drop test, N = without drop test)
SW06/257	System width class (see Table 1 DIN EN 12811-1) here: between 0.60 m and 0.90 m / bay length 2.57 m
H1	Headroom class (see Table 2 DIN EN 12811-1)
B	without cladding (A = without cladding, B = with cladding)
LA	with ladder (LA = ladder, ST = stairway, LS = both)



Headroom and width classes of working areas

- b* width of passage clearance, 500 mm is the minimum requirement, and (*c* - 250 mm)
- c* width of clearance between standards
- h_{1a}*, *h_{1b}* width of clearance between working areas and transoms or tie members
- h₂* clear shoulder height
- h₃* clear height between working areas
- p* clear width in the head area; 300 mm is the minimum requirement, and (*c* - 450 mm)
- w* width of working areas

Identification and approval for scaffolds according to DIN EN 12811 / DIN 4420

Customer / Client:	Scaffolding erector: (stamp, if applicable)	Competent person during assembly:	
Construction project / Place of erection:		Assembly period:	
Scaffold no.:		Competent person for inspection:	
Phone:	Phone:	Inspection period:	
Scaffold :	<input type="checkbox"/> Working scaffold acc. to EN 12811 <input type="checkbox"/> Protective scaffold acc. to DIN 4420	<input type="checkbox"/> Birdcage scaffold <input type="checkbox"/> Brick guard scaffold	<input type="checkbox"/> Protective roof <input type="checkbox"/> Mobile scaffold tower <input type="checkbox"/> Stairway tower <input type="checkbox"/> Custom-design scaffold: _____
Cladding:	<input type="checkbox"/> None <input type="checkbox"/> Tarpsaulins	<input type="checkbox"/> Nets	
Load class:	<input type="checkbox"/> 2 (150 kg/m ²) <input type="checkbox"/> 3 (200 kg/m ²)	<input type="checkbox"/> 4 (300 kg/m ²)	<input type="checkbox"/> _____ (____ kg/m ²)
Width class:	<input type="checkbox"/> W06 <input type="checkbox"/> W09	<input type="checkbox"/> W____	System width: <input type="checkbox"/> SW06 <input type="checkbox"/> SW09 <input type="checkbox"/> SW____
Restrictions on use:			

Unauthorized scaffold modifications are prohibited unless the scaffolding erector has been consulted beforehand.

Please follow the respective Instructions for Assembly and Use.

Inspected and approved	Competent person of user:	
Competent person of scaffolding erector:	_____	Date, Signature
Date, Signature	_____	Date, Signature

8. Checklist

Inspection protocol

according to Section 10 and 11 of the German Industrial Safety Regulations (BetrSichV)

Scaffold no.: _____		In order?		
		Yes	No	Not applicable
Scaffolding components	No visible damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dimensions - decks/planks, tube wall thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Identification - tubes, couplers, components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structural stability	Load-bearing capacity of assembly surface/ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Base jacks - extension length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Struts / diagonals (at least 1 per 5 bays in every axis), longitudinal ledger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lattice girders - bracing of compression chord, mounting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Anchoring - number, anchoring surface, anchoring configuration, spacing, testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decks	Scaffold levels - fully decked or with horizontal bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Scaffolding planks - cross-section, mounting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lift-off preventer - in case of lift-off forces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Corner design - in full width, side protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working and operating safety	Three-part side protection - end protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Openings - gaps closed, full width class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Accesses and ascents - number, suitability, height (ladders <5 m)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Traffic safety - lighting, barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Brackets, projections - bracing, anchoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Free-standing towers - width to height, ballasting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Distance between structure and deck - inward side protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile scaffold tower	Castors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ballasting/widening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identification	Parts of the scaffold not usable are identified with a prohibition sign indicating "No entry" and marked off by barriers preventing access.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design: Standard version Type testing Instructions for Assembly and Use Individual verification/assembly plan

Notes/comments:

Inspected and approved

Competent person of scaffolding erector: _____ Competent person of user: _____

Date, Signature _____ Signature _____

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- Temporary roofs
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