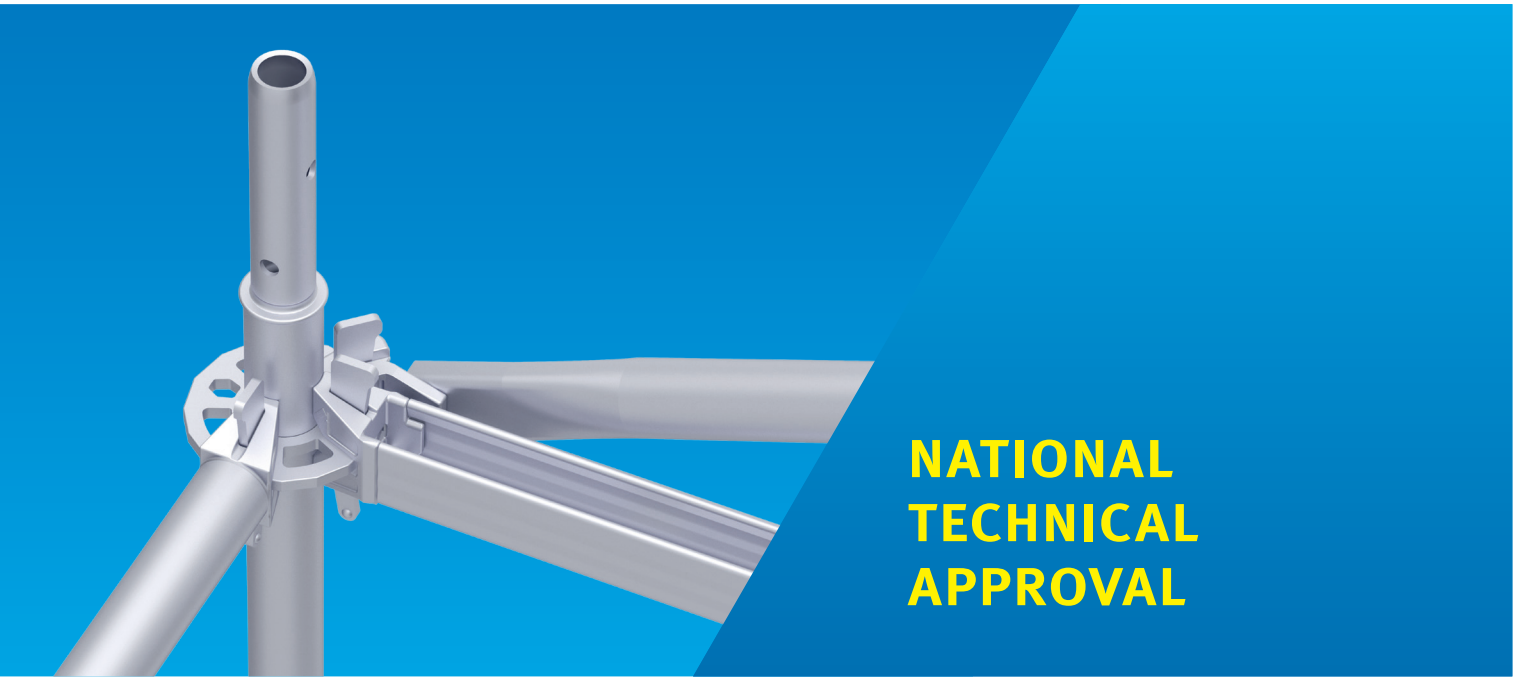
ALFIX
SECURELY SCAFFOLDED



NATIONAL TECHNICAL APPROVAL

ALFIX MODUL MULTI

[Seal: Deutsches Institut für Bautechnik]

Notification

**of supplement the
national technical approval /
general construction technique permit
of 15 October 2021**

An institution under public law jointly funded by the German Federation and the federal states (Länder)

Approval Body for Construction Products & Techniques

Date: 31 January 2023

Reference number: | 37.1-1.8.22-56/22

Approval number:
Z-8.22-906

Period of validity:
from: **31 January 2023**
to: **15 October 2026**

Applicant:
Alfix GmbH
Langhennersdorfer Straße 15
09603 Großschirma (Germany)

Subject of approval:
Scaffolding components of the "ALFIX MODUL MULTI" modular scaffolding system

This notification supplements the national technical approval / general construction technique permit no. Z-8.22-906 of 15 October 2021.
This national technical approval includes two pages and an annex.
It shall only be valid in connection with above mentioned national technical approval / general construction technique permit and shall only be used in conjuction with it.

[Seal: Deutsches Institut für Bautechnik]

II SPECIAL PROVISIONS

The special provisions of the national technical approval / general construction technique permit are supplemented as follows:

a) Table 1 is supplemented as follow:

Table 1: Scaffolding components for the modular scaffolding system “ALFIX MODUL MULTI”

Designation	Annex B, page	Details / components in accordance with Annex B, page
Lift-off preventer 0.37 – 3.07 m, steel	160	---

REGARDING ANNEX B:

b) In Annex B, page 160 will be added.

REGARDING ANNEX C:

c) Table C.1 is supplemented as follow:

Table C.1: Components of the standard assembly configuration SW06 / LC3

Designation	Annex B, page
Lift-off preventer 0.37 – 0.73 m, steel	160

REGARDING ANNEX E:

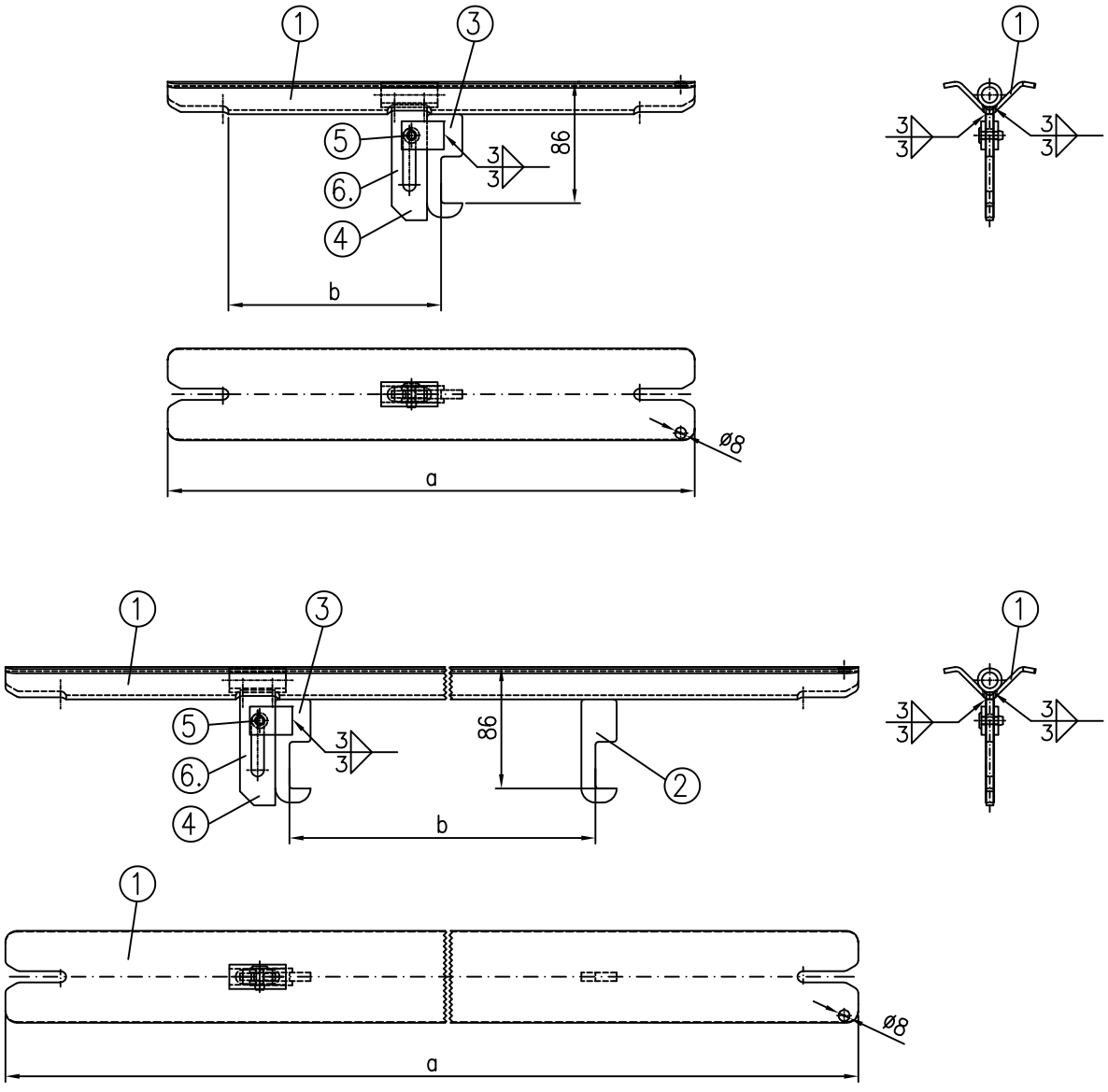
d) Table E.1 is supplemented as follow:

Table E.1: Components of the standard assembly configuration SW09 / LC4

Designation	Annex B, page
Lift-off preventer 0.37 – 1.09 m, steel	160

Andreas Schult
Head of Division

Certified
Dr.-Ing. Gilow-Schiller



①	Lift-off preventer profile	DIN EN 10025-S235JR
②	Steel metal 6x25x73	DIN EN 10025-S235JR
③	Hook	DIN EN 10025-S235JR
④	Slide	DIN EN 10025-S235JR/S235JRH
⑤	Blind rivet	DIN EN ISO 15977-5x20-aluminium/steel-galvanised
⑥.	Marking	
	galvanised	

Dimens. [m]	a [mm]	b [mm]	Weight [kg]
0.37	289	108.5	0.71
0.39	313	120.5	0.75
0.45	373	150.5	0.87
0.73	655	268	1.46
1.04	959	572	2.04
1.09	1011	624	2.04
1.29	1209	822	2.51
1.40	1323	936	2.73
1.57	1495	1108	3.06
2.07	1995	1608	4.00
2.57	2495	2108	4.95
3.07	2995	2608	5.90

ALFIX MODUL MULTI

Lift-off preventer 0.37 – 3.07 m, steel

Annex B,
page 160

M722-B250 01.2022

[Seal: Deutsches Institut für Bautechnik]

National technical approval / general construction technique permit

An institution under public law jointly funded by the German Federation and the federal states (Länder)

Approval Body for Construction Products & Techniques

Date: 15 October 2021 | Reference number: 37.1-1.8.22-56/22

Approval number:
Z-8.22-906

Period of validity:
from: **15 October 2021**
to: **15 October 2026**

Applicant:
Alfix GmbH
Langhennersdorfer Straße 15
09603 Großschirma (Germany)

Subject of approval:
Scaffolding components of the "ALFIX MODUL MULTI" modular scaffolding system

The above-mentioned subject is hereby granted general construction technique permit.
This decision comprises 33 pages as well as Annex A (pages 1 to 3), Annex B (pages 1 to 159), Annex C (pages 1 to 5), Annex D (pages 1 to 8), Annex E (pages 1 to 5), and Annex F (pages 1 to 8).
The subject was first granted general construction technique permit on 21 January 2006.

[Seal: Deutsches Institut für Bautechnik]

I GENERAL PROVISIONS

1 This general construction technique permit serves to demonstrate the usability or the applicability of the subject matter of the permit as defined by the Building Codes of the federal states.

2 This decision does not replace statutory approvals, authorisations and certifications specified for carrying out construction works.

3 This decision is granted without prejudice to the rights of third parties, especially private property rights.

4 The user of the subject matter of the decision must, without prejudice to further regulations laid out under "Special Provisions", make copies of this decision available to the persons using or applying the subject matter of the decision. The user of the subject matter shall also be informed that the decision must be present at the place of use. Upon request, copies must be provided to the relevant authorities.

5 This decision may only be reproduced in its entirety. Publication of the approval in excerpts requires the prior consent of the Deutsches Institut für Bautechnik (DIBt). Text and drawings of promotional material must be consistent with this decision. Translations must include the following note: "Translation of the original German version not reviewed by Deutsches Institut für Bautechnik".

6 This decision is issued in a revocable manner. The provisions of this decision may be amended or modified at a later time, particularly if new technical knowledge requires this.

7 This decision relates to the information on the subject matter of the permit made available by the applicant during the approval process and the documents submitted. Any change made to these permit bases is not covered by this decision and must be disclosed to the Deutsches Institut für Bautechnik without delay.

II SPECIAL PROVISONS

1 Subject matter of the permit and scope of application

1.1 Subject matter of the approval and scope of application

Subject matter of the approval are prefabricated scaffolding components in accordance with Table 1 as well as scaffolding components using components according to Table 2 for use in the modular scaffolding system "ALFIX MODUL MULTI".

1.2 Subject matter of the permit and scope of application

Subject matter of the permit are the planning, dimensioning and execution of the modular scaffolding system “ALFIX MODUL MULTI”, which consists of

- scaffolding components according to Table 1
- scaffolding components according to Table 4 and
- scaffolding components in accordance with MVV TB (Model Administrative Provisions – Technical Building Rules), Part C 2.16 according to the respective scope of application.

Other scaffolding components, that are constructed in accordance with Section 2.1.3 of this decision using components according to Table 2, may be used in the modular scaffolding system as well.

The modular scaffolding system is erected using standards, ledgers, diagonal braces and decks as basic components as well as scaffolding spindles (base jacks), scaffold retainers / wall ties, system components for the side protection, access components and supplementary components. The standards, ledgers and diagonal braces are connected to each other by means of special scaffolding (module) nodes. Depending on the scaffolding structure, there are multiple scaffolding (module) nodes which can be combined with each other in two different load-bearing groups for the ledger connection according to Table 5.

The scaffolding nodes are constructed using a connector disc (rosette) welded onto a standard tube and connector heads which are welded onto a U- or tube-ledger or which are connected to vertical diagonal braces by means of a simple joint. The connector heads enclose the connector disc and are wedged to the connector disc by driving the wedge into its housing with a hammer blow in a way that the connector heads are pressed against the standard tube. The horizontal diagonal braces are connected to the connector disc by fitting a bolt into one of its openings.

Each connector disc (rosette) has 8 openings, allowing to connect up to 8 members.

The modular scaffolding system ALFIX MODUL MULTI may be used as service and working scaffolding according to DIN EN 12811-1:2004-03 in connection with the "Application Guideline for working scaffolds” in accordance with DIN EN 12811-1"[1] and DIN 4420-1:2004-03, as supporting framework in accordance with DIN EN 12812:2008-12 in connection with the "Application Guideline for supporting frameworks” in accordance with DIN EN 12812"[2] or as any other temporary structure.

2 Provisions for scaffolding components

2.1 Properties

2.1.1 General Provisions

The scaffolding components according to Table 1 must comply with the provisions of Annex B, the provisions in the documents filed at the Deutsches Institut für Bautechnik (DIBt) as well as the regulations of the sections below.

[1] see DIBt-Mitteilungen (notifications of the DIBt), issue 2/2006, p. 61 et seq.
[2] see DIBt-Mitteilungen (notifications of the DIBt), issue 6/2009, p. 227 et seq.

Table 1: Scaffolding components for the modular scaffolding system “ALFIX MODUL MULTI”

Designation	Annex B, page	Details / components in accordance with Annxe B, page
Vertical diagonal braces	8	3, 6
Horizontal diagonal braces	9	7
Vertical starter piece	10	2
Standard with tube connector 200	11	2
Standard with screwed-in tube connector 520	12	2
Standard with screwed-in tube connector 500	13	2
Standard with screwed-in tube connector 520, s=4.05 mm	14	2, 12
Vertical starter standard	15	2
Top standard	16	2
U-head jack	21	---
Spindle coupler	22	---
Suspended scaffold connector	23	3, 4, 152
Locking device for base jack	24	3, 4, 152
Tube ledger	25	3, 4
Horizontal diagonal ledger	26	3, 4
Tube ledger, reinforced	27	3, 4
Double tube ledger 1.57 m	28	3, 4
Double tube ledger 2.07 m	29	3, 4, 28
Double tube ledger 2.57 m	30	3, 4, 28
Double tube ledger 3.07 m	31	3, 4, 28
U-ledger 0.37 m; 0.39 m; 0.45 m; 0.73 m	32	3, 5, 153
Support ledger with tube fixture	40	3
Support ledger	43	3, 32
U-transom lattice girder 0.73 m/ 1.09 m V	44	27, 32, 127
Tube-transom lattice girder 0.73 m/ 1.09 m V	45	27, 144
MODUL lattice girder 6.14 m	46	3, 4, 152
MODUL lattice girder 4.14 m/ 5.14 m	47	3, 4, 46, 152
MODUL lattice girder with tube fixture 6.14 m	48	3, 4, 46, 152
MODUL lattice girder with tube fixture 4.14 m/ 5.14 m	49	3, 4, 46, 48, 152
MODUL lift-off preventer	50	---
Aluminium frame platform with tube fixture 1.57 m; 2.07 m	51	53
Aluminium frame platform with tube fixture 2.57 m; 3.07 m	52	53
Aluminium access frame platform with tube fixture 3.07 m	54	53, 56, 60
Aluminium access frame platform with tube fixture 2.57 m	55	53, 56, 60
Aluminium access frame platform with tube fixture 1.57 m – 3.07 m without ladder	57	53, 56
Aluminium access frame platform with tube fixture 2.57 m; 3.07 m with aluminium chequer plate	58	59, 60
Steel deck AF with tube fixture 0.32 m	61	---
Steel deck AF with tube fixture 0.30 m; 0.34 m	62	---

Table 1: (continued)

Designation	Annex B, page	Details / components in accordance with Annxe B, page
Intermediate deck AF with tube fixture 0.16 m; 0.19 m	63	---
Intermediate deck with tube fixture	65	---
MODUL gap cover	94	---
MODUL gap cover with tube fixture	95	---
Stair guardrail 2.57 m, 3.07 m	98	3
MODUL stair guardrail holder	101	3, 4, 152
MODUL swing gate	102	3, 139
Bracket 0.39 with tube fixture	103	3, 4, 152
MODUL bracket 0.39 m	104	3, 5, 32, 153
MODUL bracket 0.73 m	105	3, 5, 32, 153
Bracket 0.50 m with tube fixture	106	3, 4, 152
MODUL toeboard	107	---
MODUL toeboard 4.14 m	108	---
MODUL toeboard, aluminium	109	---
MODUL guard net system	116	3, 4, 25, 152, 156
MODUL double end guardrail	117	3, 4, 152
Wedge head coupler, swivel base	122	3, 139
MODUL U-tube connector	123	---
MODUL tube connector	124	3
Wedge head coupler, rigid	125	3, 4, 152
Support ledger	126	3, 4, 152
MODUL advanced guardrail post	137	---
AB U-head jack	140	---
MODUL U-lattice girder 6.14 m, 7.71 m	141	3, 4, 5, 32, 147, 152, 153
MODUL U-lattice girder 4.14 m; 5.14 m	142	3, 4, 5, 32, 141, 147, 152, 153
Claw coupler	143	---
Tube ledger, reinforced, 1.09 m; 1.29 m; 1.40 m	144	3, 4, 152
Tube ledger, reinforced, 1.57 m; 2.07 m	145	3, 4, 144, 152
Tube ledger, reinforced, 2.57 m, 3.07 m	146	3, 4, 144, 152
U-ledger 1.04 m, 1.09 m, 1.29 m	147	3, 5, 153
U-ledger with integrated main beam, 1.40 m-2.07 m	148	3, 5, 153
U-ledger 1.40 m-2.57 m, reinforced	149	3, 5, 144, 147, 153
U-ledger 3.07 m, reinforced	150	3, 5, 144, 147, 149, 153
Standard 4.0	154	2
Vertical starter piece 4.0	155	2
Tube ledger 4.0	156	3, 152
Horizontal diagonal ledger 4.0	157	3, 152
MODUL gap cover, T-shaped and claw coupler, universal design	158	---
Standard with tube connector 200 45/ 5	159	2

2.1.2 Components of the scaffolding nodes

The components of the scaffolding nodes according to Table 2 used for some of the scaffolding components must comply with the provisions of Annex B, the provisions in the documents filed at the Deutsches Institut für Bautechnik (DIBt) as well as the regulations of the Sections below.

Table 2: Components of the scaffolding nodes

Designation	Annex B, page
Connector disc	2
Wedge	3
Connection of tube ledger	4
Connection of U-ledger	5
Connection of V-diagonal brace	6
Connection of H-diagonal brace	7
U-ledger head PLUS, new connection	139
Connection of tube ledger 4.0	152
Connection of U-ledger 4.0	153

2.1.3 Other scaffolding components that are constructed using components according to Table 2

Other scaffolding components that are constructed using members according to Table 2 in accordance with Section 2.2.1.2 according to this decision must comply with the following sections of this decision. With the exception of the connection between the individual members, these components must fully comply with the Technical Building Regulations (Technische Baubestimmungen) and must meet all other requirements in accordance with the "Approval principles for working and service scaffolds, requirements, calculation, tests and proof of conformity"[3].

2.1.4 Materials

2.1.4.1 Metals

Metal materials must comply with the technical rules according to Table 3. Their properties must be confirmed by means of a material test certificate in accordance with Table 3. Material test certificates for aluminium alloys must contain at least information on the chemical composition, tensile strength R_m, yield point a $R_{p0,2}$ and strain A bzw. A_{50mm}.

Components for which the material specifications are stored at the Deutsches Institut für Bautechnik, the properties shall be confirmed by means of the following material test certificates:

- For structural steel with an increased yield strength and with a defined minimum yield stength of ≤ 275 N/mm² a test report 2.2 issued by the factory is sufficient.
- For all other metal materials, an inspection report 3.1 is mandatory.

Table 3: Technical regulations and material test certificates for the metal materials of the individual and scaffolding components

Material	Material number	Designation	Technical regulation	Material test certificate according to DIN 10204:2005-01
Scaffolding nodes	filed at the Deutsches Institut für Bautechnik (DIBt)			3.1
Structural steel	1.0039	S235JRH *)	DIN EN 10219-1: 2006-07	2.2 *)
	1.0576	S355J2H		3.1
	1.8849	S460MH		

3 To be obtained from the Deutsches Institut für Bautechnik (the German technical authority and service provider for the construction sector).

Table 3: (continued)

Material	Material number	Designation	Technical regulation	Material test certificate according to DIN 10204:2005-01
Structural steel	1.0038	S235JR	DIN EN 10025-2: 2019-10	2.2
	1.0122	S235JRC+C		
	1.0577	S355J2		3.1
Bright steel	1.0122	S235JRC+C	DIN EN 10277-2: 2008-06	
Precision steel tube	1.0308	E235+C	DIN EN 10305-3: 2016-08	
Strip and sheet metal	1.0332	DD11 **)	DIN EN 10111: 2008-06	
	1.0398	DD12 **)		
	1.0917	DX51D	DIN EN 10346: 2015-10	
Malleable cast iron	5.4201 (EN-JM1020)	EN-GJMW-360-12	DIN EN 1562: 2019-06	
	5.4202 (EN-JM1030)	EN-GJMW-400-5		
	5.4205 (EN-JM1140)	EN-GJMB-450-6		
Cast iron	5.3106 (EN-JS1030)	EN-GJS-400-15	DIN EN 1563: 2019-04	
Cast steel	1.6220	G20Mn5	DIN EN 10293: 2015-04	
	1.0446	GE240+N		
Flats	1.0976	S355MC	DIN EN 10149-2: 2013-12	
	1.0982	S460MC		
Aluminium alloy	EN AW-5083 H114 / H224	EN AW-Al Mg4,5Mn0,7	DIN EN 1386: 2008-05	
	EN AW-5754 H111 / H114	EN AW-AlMg3		
	EN AW-6060 T66	EN AW-AlMgSi	DIN EN 755-2: 2016-10	
	EN AW-6063 T66	EN AW-AlMg0,7Si		

*) For some scaffolding components, a higher yield strength ReH ≥ 280N/mm² or ReH ≥ 320 N/mm² has been determined. These components have been marked accordingly in the drawings in Annex A. The proportional strain at fracture A may not be lower than 15 %. For a wall thickness of < 3 mm, the proportional strain at fracture of A80mm shall be determined.The conversion of A80mm to A shall be done in accordance with DIN EN ISO 2566-1. The values of the yield strength, the strain at fracture and the tensile strength shall be confirmed by means of an inspection certificate 3.1 in accordance with DIN EN 10204:2005-01. The purchase requisition regarding the increased yield strength shall be indicated in the inspection certificate 3.1 as a desired value.

**) R_{eH} and R_m in accordance with Annex B

2.1.4.2 Extruded sections

Extruded sections shall meet the requirements of the EN 755 standards.

2.1.4.3 Solid wood

The solid wood of the toeboards shall meet at least the requirements of visual strength grade S10 in accordance with DIN 4074-1:2012-06 or the minimum strength of strength class C24 in accordance with DIN EN 338:2016-07.

2.1.4.4 Constructional veneer plywood

Constructional veneer plywood shall meet at least the requirements of the "Approval Principles for the use of constructional veneer plywood in scaffolding"[4] as well as the provisions in the drawings of Annex B.

2.1.5 Corrosion protection

The technical building regulations shall apply.

2.1.6 Couplers

Class B halfcouplers in accordance with DIN EN 74-2:2009-01 shall are used as halfcouplers that are attached to various components.

2.2 Manufacturing and marking

2.2.1 Manufacturing

2.2.1.1 Manufacturer's qualifications

Companies that manufacture welded scaffolding components in accordance with the present National Technical Approval shall demonstrate that they are qualified for this task.

For steel components, this proof shall be considered to be furnished, if welding procedures and welding personnel are qualified in accordance with DIN EN 1090-2:2018-09 and the company holds a welding certificate of at least exectution class 2 (EXC 2) in accordance with DIN EN 1090-1:2012-02.

For aluminium components, this proof shall be considered to be furnished, if welding procedures and welding personnel are qualified in accordance with DIN EN 1090-2:2019-07 and the company holds a welding certificate of at least execution class 2 (EXC 2) in accordance with DIN EN 1090-1:2012-02.

2.2.1.2 Manufacturing further scaffolding components using components according to Table 2

Any other scaffolding components manufactured using components according to Table 2 shall be manufactured as follows:

- Connector discs (rosettes) according to Annex B, page 2 shall be welded to scaffold tubes *Ø 48.3x3.2 mm* of steel grade S235JRH with *ReH ≥ 320 N/mm²* according to DIN EN 10219-1:2006-07 with a welding seam in accordance with the specifications documented at DIBt.
- Connector heads for tube ledgers according to Annex B, page 4 shall be welded to scaffold tubes *Ø 48.3 x 3.2 mm* of steel grade S235JRH with *ReH ≥ 320 N/mm²* according to DIN EN 10219-1:2006-07 with a welding seam in accordance with the specifications documented at DIBt.
- Connector heads for U-ledgers according to Annex B, page 5 shall be welded to U-profiles *48x52x2.5 mm* of steel grade S235JR according to DIN EN 10025-2:2019-10 with a welding seam in accordance with the specifications documented at DIBt.
- Connector heads for tube ledgers 4.0 according to Annex B, page 152 shall be welded to scaffold tubes *Ø 48.3 x 2.7 mm* of steel grade S460MH according to DIN EN 10219-1:2006-07 with a welding seam in accordance with the specifications documented at DIBt.
- Connector heads for U-ledgers 4.0 according to Annex B, page 153 shall be welded to U-profiles *48x52x2.5 mm* of steel grade S460MC according to DIN EN 10149-2:2013-12 with a welding seam in accordance with the specifications documented at DIBt.

[4] Please also refer to the DIBt notifications "Mitteilungen, Deutsches Institut für Bautechnik", issue 3/1999, p. 122 et seq.

2.2.2 Marking

The delivery notes for scaffolding components according to Section 2.1 shall be marked in accordance with the regulations for the mark of conformity of the federal states (Länder).

In addition, scaffolding components shall be permanently and easily recognisably marked with

- the uppercase letter "Ü",
- at least the abbreviated approval number "906",
- the identifying mark (logo) of the manufacturer concerned,
- and the last two numbers of the year of manufacture.

Alternatively, a coded identifying mark in accordance with Annex B, page 151, may be used.

These identifying marks may only be applied if the requirements under Section 2.3 are fulfilled.

2.3 Attestation of conformity

2.3.1 General Provisions

Attestation of conformity of the scaffolding components according to Section 2.1 with the provisions of the National Technical Approval must be provided for each production site by a declaration of conformity on the basis of factory production controls and a certificate of conformity issued by a recognised certification body as well as regular external supervision, including a product test of scaffolding components and their components in accordance with the provisions below by a recognised inspection body.

The manufacturer of the scaffolding components must involve a recognised certification body as well as a recognised inspection body to obtain a certificate of conformity and to carry out the external supervision, including the product tests.

The declaration that a certificate of conformity has been issued must be indicated by the manufacturer by marking the scaffolding components with the mark of conformity (Ü mark) with reference to the intended use.

The certifying body shall provide Deutsches Institut für Bautechnik (DIBt) with a copy of the certificate of conformity issued by the former, and the supervisory body shall provide it with a copy of the supervision report upon request.

DIBt shall be given a copy of the initial test report upon request of the same.

2.3.2 Factory production control

A factory production control system must be set up and operated at each production site. Factory production control is to be understood as a continuous monitoring of production to be carried out by the manufacturer, by means of which the manufacturer ensures that the components and scaffolding components manufactured are in compliance with the provisions of this National Technical Approval.

The factory production control must include at least the following measures:

Components in accordance with Table 2:

- In the case of template or automatic production of scaffolding components, the respective templates and / or machine settings shall be checked and documented before commissioning.

- Component and material checks and inspections:
  - It shall be checked whether inspection certificates as per Section 2.1.2 are available for the materials and that the attested inspection results meet the requirements.
  - By examining at least 10 individual parts per production batch, comprising at least 1 individual part from every 10,000 parts of the components according to Table 2, conformity of the basic dimensions and angles with the documentation available at DIBt must be checked. The actual dimensions shall be documented.
  - The connecting heads are to be checked for cracks.
  - The scaffold tubes *Ø 48.3 x 2.9 mm* and *Ø 48.3 x 2.7 mm* made of the material S460MH are to be checked for the stricter requirements compared to DIN EN 10219-1:2006-07 in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).
- Checks to be conducted on the scaffolding nodes:
  - Scaffolding connectors shall be checked according to the inspection plan filed at DIBt.

Scaffolding components according to Table 1 and scaffolding components according to Section 2.1.3:

- Checks and inspections on the starting material:
  - It shall be checked whether inspection certificates as per Section 2.1.4 are available for the materials and that the attested inspection results meet the requirements.
  - At least 1‰ of the components shall be checked for conformity with dimensions and tolerances as specified in the design drawings.
- Checks and inspections on scaffolding components:
  - At least 1‰ of the scaffolding components shall be checked for conformity with dimensions and tolerances and, if necessary, welding seams and corrosion protection, as specified in the design drawings.
  - On at least 0,1‰ of the pressed-in tube connectors of the standards according to Annex B, pages 11 and 15, however at least once every production week, a tensile test on non-galvanized members is to be conducted. The breaking load value (BL) must not be lower than 13.75 kN.
  - Inspections are to be carried out on at least 0.1 ‰ of the integrated tube connectors of the standards according to Annex B, pages 154, 155 and 159, however at least once every production week, in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).
  - Inspections are to be carried out on at least 0.1 ‰ of the riveted connector heads of the vertical diagonal braces in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).

Documentation:

The results of the factory production control shall be recorded and evaluated. The records must contain at least the following information:

- Designation of the scaffolding components
- Type of inspection
- Date of manufacturing and inspection of the scaffolding components
- Result of the production controls and inspections and comparison with requirements
- Signature of the person responsible for the factory production controls.

The records shall be kept for at least five years and shall be made available to the external supervisory body in charge of the external supervision. Upon request, these records must be presented to DIBt and to the competent superior building inspection authority.

Measures in case the inspection results are unsatisfactory:

If inspection results are unsatisfactory, the manufacturer must immediately take corrective actions. Scaffolding components or components that do not meet the requirements must be handled in such a way that they cannot become confused with conforming parts. After the corrective actions, the inspection/test concerned must be repeated immediately, provided this is technically possible and necessary to prove that the defect has been rectified.

2.3.3 External supervision

At each manufacturing site, the factory production control shall be inspected by an external supervisory body on a regular basis: at least twice a year for the components in accordance with Table 2, and including the riveting of the connections of the diagonal braces and the integrated tube connectors according to Annex B, pages 154, 155 and 159 as well as once every five years for the scaffolding components in accordance with Table 1. External supervision includes an inspection of the factory and the factory production control system, including a product inspection. Sampling and inspections/tests shall be the responsibility of the recognised body.

The initial inspection of scaffolding components according to section 2.1.3 may be carried out by the manufacturer, when the scaffold components belong to a product group, for which the initial inspection was carried out by a recognized body.

At least the following inspections/tests are to be carried out:

- Inspection of the requirements in terms of personnel and equipment for proper manufacturing of the scaffolding components and components
- Inspection of the factory production control system
- Checks on random samples for conformity of scaffolding components and components with the provisions of the approval in terms of:
- construction type, form and dimensions
- Corrosion protection
- Marking
- Verification of the required welding certificate
- For each inspection, the scaffold tubes *Ø 48.3 x 2.9 mm* and *Ø 48.3 x 2.7 mm* made of the material S460MH are to be checked for the stricter requirements compared to DIN EN 10219-1:2006-07 in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).
- Conformity with the dimensions and angles of at least five individual parts each of the scaffolding connector filed in the documents with DIBt are to be inspected and compared with the allowed tolerances.
- The scaffolding connectors shall be checked according to the inspection plan filed at DIBt.
- Per inspection,at least 5 pressed-in tube connector tests are to be carried out accordance with the provisions of Section 2.3.2.
- External supervision shall comprise inspections of at least 5 integrated tube connectors of the standards according to Annex B, pages 154, 155 and 159 in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).
- The riveted connector heads of the vertical diagonal braces according to Annex B, page 8 are to be inspected by the external supervisory body in accordance with the documents filed with the Deutsches Institut für Bautechnik (DIBt).

The scaffolding components and components shall be drawn from current production.

The results of the certification and external supervision shall be kept for at least five years. Upon request, they must be presented to DIBt and to the competent superior building inspection authority by the certification body and/or supervisory body.

3 Provisions for planning, dimensioning and execution

3.1 Planning

3.1.1 General Provisions

The Technical Building Rules [Technische Baubestimmungen], in particular DIN EN 12812:2008-12 as well as the provisions stated hereinafter shall apply for the planning of scaffoldings using components of the modular scaffolding system “ALFIX MODUL MULTI”. The scaffolds shall be planned in accordance with engineering standards. Verifiable calculations shall be made in accordance with the technical regulations and the construction drawings.

The modular scaffolding system “ALFIX MODUL MULTI” consists of scaffolding components in accordance with section 1. Scaffolding components in accordance with Table 4, which refer to provisions for manufacturing, marking and mark of conformity set out in this decision, are no longer manufactured and are therefore only approved for continued use.

Any differences in the design of the individual ledger connection variants can be taken

- from Annex B, pages 3 to 5 for the former design and
- Annex B, pages 152 and 153 for design 4.0

The modular disc (rosette) according to Annex B, page 2 and the diagonal brace connections according to Annex B, pages 6 and 7 are only available as shown in the respective pages of the Annex.

Depending on the configuration used, different load-bearing groups for the ledger connection according to Table 5 apply.

Table 4: Further scaffolding components for use in the modular scaffolding system "ALFIX MODUL MULTI“

Designation	Annex B, page	Details / components in accordance with Annex B, page	Regulations for manufacturing, marking and certificate of conformity
Base jack	17	---	according to Z-8.1-862
AB Base jack	18	---	
Base jack, with swivel base	19	---	
Base jack with swivel base	20	---	according to Z-8.22-906 No longer manufactured.
U-ledger 1.09 m, 1.40 m, reinforced	33	3, 5, 27, 32	
U-2-deck bearer 1.57 m	34	3, 5, 32	
U-2-deck bearer 2.07 m	35	3, 5, 32, 34	
U-2-deck bearer 2.57 m	36	3, 5, 32, 34	
U-2-deck bearer 3.07 m	37	3, 5, 32, 34	
Internal ladder	60	---	according to Z-8.1-862
Steel deck with tube fixture	64	---	according to Z-8.22-906 No longer manufactured.
Aluminium frame platform with plywood 0.50 m - 2.07 m	66	68	
Aluminium frame platform with plywood 2.57 m; 3.07m	67	68	
Aluminium frame platform with internal hatch 2.57m; 3.07m	69	60, 68, 71	
Aluminium frame platform with internal hatch 1.09 m – 3.07 m without ladder	70	68, 71	

Table 4: (continued)

Designation	Annex B, page	Details / components in accordance with Annex B, page	Regulations for manufacturing, marking and certificate of conformity
Aluminium deck with plywood 2.57 m, 3.07 m	72	74	according to Z-8.1-862
Aluminium deck with plywood 1.57 m; 2.07 m	73	74	
Aluminium access deck with ladder 3.07 m	75	60, 74, 77	
Aluminium access deck with ladder 2.57 m	76	60, 74, 77	
Aluminium deck with plywood 3.07 m	78	80	
Aluminium deck with plywood 1.57 m; 2.07 m; 2.57 m	79	80	
Aluminium access deck with ladder 3.07 m	81	60, 80, 83	
Aluminium access deck with ladder 2.57 m	82	60, 80, 83	
Steel deck AF 0.32 m	84	---	
Steel deck	85	---	
Steel deck AF 0.30 m, 0.34 m	86	---	
Steel plank 0.30 m	87	---	
Intermediate deck AF 0.16 m, 0.19 m	88	---	
Intermediate deck	89	---	
Lightweight aluminium deck 0.60 m	90	---	
Solid wood deck 48	91	---	
Solid wood deck 45	92	---	
Wooden deck	93	---	
Gap cover	96	---	
Aluminium stairway AF-0.62 m, 2.57 m, 3.07 m	97	---	
Inner guardrail for aluminium stairway 2.00 m	99	---	
Stair stringer fall protection 1.00 x 0.5 m	100	---	
Toeboard; End toeboard AF	110	---	
Toeboard AF 4.14 m	111	---	
Toeboard; End toeboard	112	---	
Toeboard 4.14 m	113	---	
Aluminium toeboard; Aluminium end toeboard AF	114	---	
Aluminium toeboard; Aluminium end toeboard	115	---	
Storey ladder 2.00 x 0.40 m, steel	118	---	according to Z-8.1-847
Storey ladder 2.00 x 0.40 m, aluminium	119	---	
Scaffold retainer / wall tie	120	---	according to Z-8.1-862
Quick-release wall tie	121	---	
Transom 0.73 m, 1.09 m	127	32	
Guardrail coupler AF	128	---	
Toeboard coupler; Halfcoupler with hook	129	---	

Table 4: (continued)

Designation	Annex B, page	Details / components in accordance with Annex B, page	Regulations for manufacturing, marking and certificate of conformity
Squared timber coupler	130	---	according to Z-8.1-862
Toeboard support	131	3	
Putlog coupler	133	---	
Diagonal cross brace	134	---	
Advanced guardrail post 2.00 m	135	---	
Telescopic guardrail 2.00 - 3.07 m	136	---	
Advanced end guardrail / Aluminium telescopic guardrail	138	---	

3.1.2 Standard Assembly Configuration

The use of the scaffold components in facade scaffolding is described in the provisions of the standard assembly configuration. Proof of structural stability for said fully erected scaffolds in their standard assembly configuration has been furnished. Assembly configurations of facade scaffolds are considered to be standard assembly variations when they comply with the provisions of Annex C and D or Annex E and F. Any assembly configurations that deviate from the standard assembly configuration shall be assessable and verified in each individual case.

The standard assembly configuration applies to facade scaffolds with a structural height that does not exceed 24 m, not including the spindle extension length above the ground. In its standard assembly configuration, the scaffolding system may be used

- with system width $b = 0.73$ *m*, with bay widths $\ell = \leq 3.07$ *m* and load classes ≤ 3 in accordance with Annex C and D or
- with system width $b = 1.09$ *m*, with bay widths $\ell = \leq 2.57$ *m* and load classes ≤ 4 in accordance with Annex E and F.

for working scaffolds in accordance with DIN EN 12811-1:2004-03, as protection scaffold and roof edge protection scaffold with a class FL1 fall arrest level and as a protection scaffold and roof edge protection scaffold with protective walls of class SWD 1 in accordance with DIN 4420-1:2004-03.

3.1.3 Deviations from the Standard Assembly Configurations

If assembly configurations deviate from the standard assembly configurations in accordance with Annex C and D or Annex E and F, proof of structural stability of the scaffoldings shall be provided for each individual configuration or by means of a structural design calculation in accordance with the Technical Building Rules [Technische Baubestimmungen] and the provisions of this decision. The characteristic properties to be used for the stability verification are specified in this decision.

Other anchoring configurations are possible and other nettings may be used as scaffold covering. In a scaffolding, any increased stresses / loads (e.g. from higher dead weights and wind loads or from increased live loads) must be verified up to the anchors and the supporting surface (ground). The impact of building hoists or other lifting equipment must also be taken into account if they are not operated independently of the scaffold.

3.2 Dimensioning

3.2.1 General provisions and system assumptions

For the design and calculation of scaffoldings erected using the modular scaffolding system, unless otherwise specified in this decision, particular attention shall be paid to the Technical Building Rules [Technische Baubestimmungen], especially those for working and service scaffolds according to DIN EN 12811-1:2004-03 in conjunction with the "Application Guideline for Working Scaffolds according to DIN EN12811-1"1, DIN 4420-1:2004-03, the "Approval Principles for Working and Service Scaffolds - Requirements, Calculation Assumptions, Tests, Certificate of Conformity"[5], and for falsework DIN EN 12812:2008-12 in consideration of the "Application Guideline for Falsework Scaffolding in accordance with DIN EN 12812"[2]. [6]

In case alternative component designs are offered, any proof of structural stability of the scaffolding shall assume the least favourable variant.

Depending on the scaffolding structure used, the different load-bearing groups “A” and “B” for the ledger connection according to Table 5 apply, see Table 5.

If it is not possible to ensure that only components of load-bearing group “A” shall be used, the load-bearing capacities and stiffness values of load-bearing group “B” shall be assumed for the proof of structural stability of the scaffolding for the ledger connections.

The provisions of the following sections apply to the node connection and the connection of the connecting heads to the standard, ledger and diagonal brace tubes listed in the Annexes.

Table 5: Load-bearing groups for the ledger connection

Design of the standards	Ledger design			
	Ledger 4.0		Ledger	
	with ledger head according to Annex B,		with ledger head according to Annex B,	
	page 152 (Tube ledger)	page 153 (U-ledger)	page 4 (Tube ledger)	page 5 (U-ledger)
Connector disc (rosette) attached to standard 4.0 circular hollow section $\emptyset\ 48.3x2.9\ mm - S460MH$	Load-bearing group “A” = BG “A”		Load-bearing group “B” = BG “B”	
Connector disc (rosette) attached to standard circular hollow section $\emptyset\ 48.3x3.2\ mm - 235JRH$ with $R_{eH} \geq 320\ N/mm^2$	Load-bearing group “B” = BG “B”		Load-bearing group “B” = BG “B”	

The structural systems for the calculation are to be modelled in accordance with Annex A, page 3. The short members specified there from the standard tube axis to the connectors may be assumed to be rigid. The indices specified in the following sections refer to a local coordinate system, in which the x-axis represents the ledger axis, and the z-axis the axis of the standards (cf. Annex A, page 3).

In the connection of a ledger, transmission of axial forces as well as bending moments and shear forces in the plane between the standard and the ledger and in the plane at a right angle thereto – for which load-bearing capacities are specified in Table 6 – is allowed. In load-bearing group “A”, tube ledgers 4.0 in accordance with Annex B, page 156 may additionally also transfer torsional moments when connected to the standard 4.0.

4 To be obtained from the Deutsches Institut für Bautechnik (the German technical authority and service provider for the construction sector).

6 Please also take into consideration the advisory results of the "Scaffold Expert Committee", the so-called "SVA Gerüste", available on the DIBt homepage.

When using short ledgers with $L < 0.60\ m$, connections shall be assumed as articulated; the only allowable transmission is that of axial forces and shear forces.

When providing proof of stability of the scaffolding system, it is to be borne in mind that the bending moment at the joint between the ledger and the standard is taken with reference to the outer edge of the standard, and that the vertical components of the vertical diagonal connection must take into account an eccentricity in the connection corresponding to the data given in Annex A, page 3. The torsional moment resulting from the horizontal component at the vertical diagonal connection around the axis of the standard is transmitted by the connector and must be verified in the ledgers.

Only the transmission of normal forces at the connections of the diagonals is allowed.

The data for the stiffness and load bearing capacity of the connections applies to connections made in the "small" and the "large" openings of the connector disc (rosette).

In all equations in the following sections, the internal forces N and V must be given in [kN], while bending moments M must be quoted in [kNcm].

3.2.2 Ledger connection

3.2.2.1 Load-deformation behaviour

3.2.2.1.1 Bending in the standard/ledger plane (vertical plane)

For proof of stability of a scaffolding, ledger connections in the plane formed by the standard and the ledger (vertical plane) with torsion spring fixation according to the moment/rotation angle relationship M_y/ϕ

- in accordance with Annex A, Figure 1 for load-bearing group “A”, and
- in accordance with Annex A, Figure 2 for load-bearing group “B”

shall be taken into account, when an articulated connection is not assumed.

3.2.2.1.2 Bending in the plane at a right angle to the standard tube / ledger plane (horizontal plane)

When no articulated connection is assumed, proof of stability of the ledger under bending stresses in the plane at a right angle to the plane of the standard tube/ledger (horizontal plane) in the ledger connection for both load-bearing group “A” and “B”, shall be calculated assuming a torsion spring fixation that corresponds to the moment/rotation angle relationship Mz/φ according to Annex A, Figure 3.

3.2.2.1.3 Torsion at the tube ledger of load-bearing group “A”

When no articulated connection is assumed, proof of stability of the O-ledger of load-bearing group “A” under torsion stresses in the ledger connection shall be calculated assuming a spring fixation that corresponds to the moment/rotation angle relationship (MT/ϕ) in accordance with Annex A, Figure 4. As specified, torsion may not be transmitted in the connection of the U-ledgers.

3.2.2.1.4 Vertical load at right angles to the axis of the ledger

For ledger lengths > *0.7 m* in conjunction with vertical shear forces *Vd ≤ 10 kN*, additional floating bearing forces applied in the direction of the shearing load may be disregarded. Otherwise, an additional floating bearing force in the direction of the shear force of

f0 = 0.175 cm must be applied.

3.2.2.2 Proof of structural stability

3.2.2.2.1 General Proofs

For the connection of a ledger, proof shall be provided that the loads shall not exceed the load-bearing capacities given in Table 6. With the exception of the torsion in load-bearing group "A", the load-bearing capacities may be assumed for both the tube ledgers and U-ledgers.

The values for load-bearing group “A” may only be used for the calculation in case standards 4.0 and ledgers 4.0 are used.

Table 6: Load-bearing capacities of a ledger connection

Internal forces and moments of connection			Load-bearing capacity	
			Load-bearing group "A"	Load-bearing group "B"
Bending moment $M_{y,Rd}$	[kNcm]		± 120.0	± 104.0
Vertical shear force $V_{z,Rd}$	[kN]		± 39.9	± 35.0
Bending moment $M_{z,Rd}$	[kNcm]		± 50.0	
Horizontal shear force $V_{y,Rd}$	[kN]		± 16.0	
Torsional moment $M_{T,Rd}$	[kNcm]	Tube ledger 4.0	± 64.0	---
		U-ledger	---	
Normal force N_{Rd} [kN]		Connection using the large opening in the connector disc	± 39.6	± 36.0
		Connection using the small opening in the connector disc	± 46.6	

3.2.2.2.2 Interaction standard / ledger connection

For connector discs on which stresses act, the interaction relationship below has to be fulfilled depending on the assembly configuration:

Load-bearing group "A":

$$I_S + 0.324 \cdot I_A \leq 1.0 \quad \text{(equation 1)}$$

Load-bearing group "B":

$$I_S + 0.326 \cdot I_A \leq 1.0 \quad \text{(equation 2)}$$

Where:

$$I_A = \frac{M_{y,Ed}}{M_{y,Rd}} \quad \text{(equation 3)}$$

$M_{y,Ed}$ Bending stresses in the ledger connection

$M_{y,Rd}$ Load-bearing capacity with regard to bending in the ledger connection according to Table 6 depending on the assembly configuration

I_S Vectorial coefficient of utilization in standard at loaded connector discs

– For $v_{act} \leq 1/3$ the following applies:

$$I_S = \frac{a}{b} \quad \text{(equation 4)}$$

a, b see Figure 1

– For $1/3 < v_{act} \leq 0.9$ the vectorial coefficient of utilization must be determined under consideration of the interaction relationship as shown in the left side of the equation, column 4 of Table 7, DIN 4420-1:1990–12.

Where:

v_{act} coefficient of utilization with respect to the shear force in the standard

$$v_{act} = \frac{V_{St,Ed}}{V_{St,Rd}} \quad \text{(equation 5)}$$

$V_{St,Ed}$ shear force in the standard

$V_{St,Rd}$ load-bearing capacity with respect to shear force in the standard

Load-bearing group “A": $V_{St,Rd} = V_{pl,Rd} = 63.6\ kN$
Load-bearing group “B": $V_{St,Rd} = V_{pl,Rd} = 48.5\ kN$

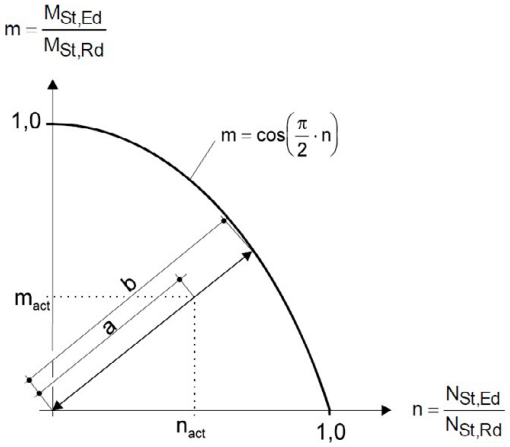


Figure 1: Vectorial coefficient of utilization in the standard

Where:

m_{act} is the coefficient of utilization with respect to bending moments in the standard

$M_{St,Ed}$ is the bending stress in the standard

$M_{St,Rd}$ is the load-bearing capacity with respect to bending in the standard

Load-bearing group "A": $M_{St,Rd} = f_{y,d} \cdot \alpha_{pl} \cdot W_{el} = 232\ kNcm$

Load-bearing group "B": $M_{St,Rd} = f_{y,d} \cdot \alpha_{pl} \cdot W_{el} = 175\ kNcm$

n_{act} is the coefficient of utilization with respect to the normal force in the standard

$N_{St,Ed}$ is the normal force load in the standard

$N_{St,Rd}$ is the load-bearing capacity with respect to the normal force in the standard

Load-bearing group "A": $N_{St,Rd} = f_{y,d} \cdot A = 173\ kN$

Load-bearing group "B": $N_{St,Rd} = f_{y,d} \cdot A = 132\ kN$

3.2.2.2.3 Combinations of internal forces and moments

For combined internal forces and moments in a ledger connection, the following requirements are to be met, whereby the torsion term with Mx in load-bearing group “B” and for all U-ledger connections is not taken into account:

$$\frac{N_{Ed}^{(+)}}{N_{Rd}} + max\left(\frac{|M_{y,Ed}|}{M_{y,Rd}}\ ;\ \frac{|V_{z,Ed}|}{V_{z,Rd}}\right) + \frac{|V_{y,Ed}|}{V_{y,Rd}} + \frac{|M_{x,Ed}|}{M_{x,Rd}} + \frac{|M_{z,Ed}|}{M_{z,Rd}} \leq 1 \qquad \text{(equation 6)}$$

Where:

$\boldsymbol{N_E^{(+)}}$ is the tensile normal force load acting in the ledger connection

$M_{y,Ed}$, $V_{z,Ed}$, $M_{z,Ed}$, $V_{y,Ed}$ are forces acting in the ledger connection

$\boldsymbol{N_{Rd}}$ is the load-bearing capacity with resp. to the tensile normal force according to Table 6

$M_{y,Rd}$, $V_{z,Rd}$, $M_{z,Rd}$, $V_{y,Rd}$ Load-bearing capacities in accordance with Table 6

Additional proof of stability of the welding connections between U-ledgers and ledger head is not required.
In case $V_{z,W,Ed} \leq 30.5\ kN$, additional proof of stability of the welding connections between tube ledger 4.0 and the corresponding ledger head 4.0 is not required. In all other cases, the following proof of stability shall be provided:

$$\left(\frac{|N_{w,Ed}|}{117\ kN} + \frac{\sqrt{M_{w,y,Ed}^2 + M_{w,z,Ed}^2}}{170\ kNcm}\right)^2 + \left(\frac{\sqrt{V_{w,y,Ed}^2 + V_{w,z,Ed}^2}}{43{,}1\ kN} + \frac{|M_{w,x,Ed}|}{154\ kNcm}\right)^2 \leq 1 \qquad \text{(equation 7)}$$

Where:

$N_{w.Ed}$, $M_{w,x,Ed}$, $M_{w,y,Ed}$, $M_{w,z,Ed}$, $V_{w,y,Ed}$, $V_{w,z,Ed}$ Load-bearing capacities of the weld

3.2.3 Connections of the diagonal braces

3.2.3.1 Connection to vertical diagonal brace

3.2.3.1.1 Load-deformation behaviour

In the entire system vertical diagonal braces including their connections for load-bearing group “A” and load-bearing group “B” must be taken into account subject to the load direction (compressive or tensile force) and the diagonal brace length with the equivalent stiffness

($E_d \cdot A_{eff}$) according to Table 7 as well as the looseness in diagonal direction of
$f_0 = 0.7\ cm$ (cf. Annex A, p. 3).

The deformation components of the standard and ledger due to the eccentricity ey (cf. Annex A, page 3) are included in the data. Consequently, only ex shall be taken into account on a level structural model. Proof is to be provided that the node moments Mk are absorbed by the longitudinal ledgers and transoms fitted to the nodes in accordance with Annex A, page 3.

3.2.3.1.2 Proof of structural stability

Depending on the load direction, the following proof of structural stability is to be provided for the vertical diagonal braces:

$$\frac{N_{V,Ed}}{N_{V,Rd}} \leq 1 \qquad \text{(equation 8)}$$

Where:

$N_{V,Ed}$ tensile or compressive forces acting in the vertical diagonal braces

$N_{V,Rd}$ Load-bearing capacity of the vertical diagonal braces with wedge-head in relation to tensile and/or compressive force in accordance with Table 7

Table 7: Load-bearing capacities of the vertical diagonal braces according to Annex B, page 8

Bay length L [m]	Bay height H [m]	Compression load		Tensile load	
		$E_d \cdot A_{eff}$ [kN]	$N_{V,Rd}^{(-)}$ [kN]	$E_d \cdot A_{eff}$ [kN]	$N_{V,Rd}^{(+)}$ [kN]
3.07	2.0	2800	10.5	9940	22.9
2.57		2610	12.8	8040	23.5
2.07		2380	15.5	6390	24.3
1.57		2820	18.5	5270	23.7
1.40		3390	18.6	4920	23.4
1.29		4000	18.4	4700	23.2
1.09		4920	18.1	4340	22.9
0.73		4850	17.1	3890	21.6
3.07	1.5	1940	11.9	11120	22.0
2.57		1680	14.9	8790	22.6
2.07		1540	18.3	6640	23.3
1.57		1660	19.5	4880	24.3
1.40		2020	19.2	4470	24.0
1.29		2330	19.0	4200	23.8
1.09		3170	18.6	3780	23.4
0.73		4400	17.6	3150	22.2
3.07	1.0	1540	13.1	10050	20.7
2.57		1250	16.2	8920	21.2
2.07		1160	16.9	7840	22.1
1.57		1160	17.9	5240	23.0
1.40		1160	18.4	4490	23.4
1.29		1160	18.8	4030	23.7
1.09		1210	19.4	3340	24.2
0.73		2580	18.5	2500	23.3
3.07	0.5	1330	14.0	9390	19.9
2.57		1170	15.3	8090	20.0
2.07		1010	15.4	6760	20.2
1.57		800	15.8	5430	20.8
1.40		730	16.1	4990	21.1
1.29		680	16.3	4700	21.4
1.09		610	16.9	4130	22.1
0.73		600	18.7	2180	23.6

3.2.3.2 Horizontal diagonal brace connection

3.2.3.2.1 Load-deformation behaviour

In the entire system horizontal diagonal braces according to Annex B, page 9 including their connections taking into consideration the length of the diagonal cross braces must be taken into account irrespective of the load direction (compression or tensile load) with the equivalent stiffness ($E_d \cdot A_{eff}$) according to Table 8 as well as the looseness in diagonal direction of $f_0 = 0.12$ *cm*.

3.2.3.2.2 Proof of structural stability

For the horizontal diagonal braces the following proof of stability is to be provided:

$$\frac{N_{\mathrm{H,Ed}}}{N_{\mathrm{H,Rd}}} \leq 1 \qquad \text{(equation 9)}$$

Where:

$N_{H,Ed}$ tensile or compressive forces acting on the horizontal diagonal braces

$N_{H,Rd}$ load-bearing capacity of the horizontal diagonal ledgers according to Table 8

Table 8: Load-bearing capacities of the horizontal diagonal braces according to Table B, page 9

Bay length L [m]	Bay width [m]	$N_{H,Rd}$ [kN]	$E_{\mathrm{d}} \cdot A_{\mathrm{eff}}$ [kN]
0.73	0.73	3.10	2760
1.09	1.09	3.07	2970
1.57	1.57	3.03	2780
2.07	2.07	2.98	2240
2.57	2.57	2.91	1530
3.07	3.07	2.81	830
1.09	0.73	3.08	3160
1.40		3.07	3210
1.57		3.06	3200
2.07		3.03	3070
2.57		3.00	2850
3.07		2.96	2530
1.40	1.09	3.06	3210
1.57		3.05	3190
2.07		3.03	3040
2.57		2.99	2790
3.07		2.95	2460
1.40	1.57	3.04	3140
2.07		3.01	2910
2.57		2.98	2650
3.07		2.93	2330
1.40	2.07	3.02	2970
2.57		2.95	2450
3.07		2.90	2130
1.40	2.57	2.99	2900
3.07		2.86	1880
1.40	3.07	2.94	2380

3.2.3.3 Diagonal cross brace

For the proof of structural stability of the entire system, the diagonal cross braces according to Annex B, page 134 must be taken into account in connection with the equivalent stiffness and load-bearing capacities given in Table 9.

Table 9: Load-bearing capacities of the diagonal cross brace

Scaffolding width [m]	System length [m]	Load	Stiffness $E_d \bullet A_{eff}$ [kN]	Load-bearing capacity N_{Rd} [kN]
0.732	1.95	Compression	2730	-10.2
1.088		Tension	2890	+10.2
0.732	1.77	Compression	2570	-10.2
1.088		Tension	2670	+10.2
when $E_d = (21.000 / 1.1)\ kN/cm^2$				

3.2.4 Connector disc

3.2.4.1 Connection through adjacent opening in connector disc

When two ledgers or one ledger and one vertical diagonal brace or one ledger and one horizontal diagonal brace are connected in adjacent openings, the following proof of structural stability has to be provided:

$$(n^A + n^B)^2 + (v^A + v^B)^2 \leq 1 \qquad \text{(equation 10)}$$

where:

n, v	is the interaction ratio according to Table 10
A	ledger A
a	ledger a or vertical or horizontal diagonal brace

When 3 ledgers or vertical diagonal braces are connected in adjacent holes or two ledgers are connected at an angle of 90°, the proof of structural stability below must additionally be provided, if

$v^A > 0.814$ or $v^B > 0.814$ applies.

$$0.55 \cdot (v^A + v^a + v^B) \leq 1 \qquad \text{(equation 11)}$$

where:

v	is the interaction ratio according to Table 10
A	ledger A
B	ledger B at an angle smaller than 90° in relation to A
a	ledger or vertical diagonal brace between A and B according to Figure 2

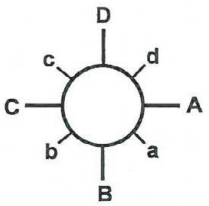


Figure 2: Connections to the connector disc (rosette)

Table 10: Interaction ratios

Interaction ratio	Connection ledger A/ ledger a	Connection ledger A/ ledger B/ vdiagonal brace a	Connection ledger A / horizontal diagonal brace a
n^{A}	$\frac{N_{Ed}^{A(+)} + \lvert M_{y,Ed}^{A} \rvert / e}{N_{Rd}}$		
n^{a}	$\frac{N_{Ed}^{a(+)} + \lvert M_{y,Ed}^{a} \rvert / e}{N_{Rd}^{*}}$	$\frac{0{,}707 \cdot N_{V,Ed}^{(+)} \cdot \sin\alpha + 1{,}883 \cdot \lvert N_{V,Ed} \rvert \cdot \cos\alpha}{1{,}29 \cdot N_{Rd}^{*}}$	$\frac{N_{H,Ed}^{(+)}}{N_{Rd}^{*}}$
v^{A}	$\frac{V_{z,Ed}^{A}}{V_{z,Rd}}$		
v^{B}	$\frac{V_{z,Ed}^{B}}{V_{z,Rd}}$		
v^{a}	$\frac{V_{z,Ed}^{a}}{V_{z,Rd}}$	$\frac{\lvert N_{V,Ed} \rvert \cdot \cos\alpha}{V_{z,Rd}}$	---

Where:

$N_{Es}^{A(+)}$; $N_{Ed}^{a(+)}$	Normal force (only consider tensile forces) in the ledger connection (ledger A bzw. ledger a)
$M_{y,Ed}^{A}$; $M_{y,Ed}^{a}$	Vertical lateral load in ledger connection (ledger A, ledger B, vertical diagonal a)
$V_{z,Ed}^{A}$; $V_{z,Ed}^{a}$ $V_{z,Ed}^{B}$	Bending in the ledger connection (ledger A bzw. ledger a)
$N_{V,Ed}$	Normal force in the vertical diagonal brace
$N_{V,Ed}^{(+)}$	Tensile force in the vertical diagonal brace
$N_{H,Ed}^{(+)}$	Tensile force in the horizontal diagonal brace
e	Load-bearing group "A": Lever arm tube ledger connection *e = 3.7 cm*
	Load-bearing group "B": Lever arm tube ledger connection e = 3.3 cm
N_{Rd}	Load-bearing group "A": N_{Rd} *= 47.9 kN*
	Load-bearing group "B": Load-bearing capacities in accordance with Table 6
N_{Rd}^{*}	Load-bearing group "A": N_{Rd} *= 40.7 kN*
	Load-bearing group "B": Load-bearing capacities in accordance with Table 6 $N_{Rd}^{*} = N_{Rd}$
$V_{z,Rd}$,	Load-bearing group "A": N_{Rd} *= 44.6 kN*
	Load-bearing group "B": Load-bearing capacities in accordance with Table 6

Proof of stability shall be provided in pairs around the nodes.

3.2.4.2 Connection of ledgers and/or diagonal braces in any openings of the connector disc (rosette)

$$\frac{\sum V_{z,Ed}}{\sum V_{z,Rd}} \leq 1 \qquad \text{(equation 12)}$$

Where:

$\sum V_{z,Ed}$ is the sum of all vertical shear forces acting on the connector disc (including vertical component of vertical diagonal braces)

$\sum V_{z,Rd}$ is the load-bearing capacity of the connector discs in relation to vertical shear forces depending on the load-bearing group

- Load-bearing group "A": $\sum V_{z,Rd} = 173.0 \ kN$
- Load-bearing group "B": $\sum V_{z,Rd} = 127.0 \ kN$

3.2.4.3 Interaction in case of adjacent ledger connections for connections to standard 4.0 *circular hollow section Ø 48.3 x 2.9 mm − S460MH*

For connection moments of opposite ledger connections A and C, see Figure 2, with the same sign, the following conditions are to be met:

$$\frac{M_{y,Ed}^{A} + 0{,}226 \cdot M_{y,Ed}^{C}}{M_{y,Rd}} \leq 1$$

where $|M_{y,Ed}^{A}| \geq |M_{y,Ed}^{C}|$ (equation 13)

3.2.5 Configuration and proof of structural stability of the standard joints

3.2.5.1 General Provisions

Unless otherwise specified below, the joints of the standards in the modular scaffolding system "ALFIX MODUL MULTI" are to be constructed and proof of structural stability is to be provided in accordance with the current Technical Building Rules. Please also refer to the "Calculation of standard joints with one-sided, centrally fixed joint pins for working and service scaffolding, and for supporting framework made of steel"[7].

The decision comprises 4 configurations of these detail. Table 11 summarizes these configurations and lists the most important characteristic values. If it is not possible to ensure which standard joint configuration shall be used, any proof of structural stability shall assume the least favourable variant.

Table 11: Standard and tube connector configurations

Typ	Standard			with tube connector	
	Designation	Annex B, page	Tube (D_i at the base) / yield stress	Design	Tube / yield stress
1	Standard 4.0	154, 155, 159	*Ø48.3x2.9 mm (40.9) / 460 N/mm²*	integrated	*Ø39.0x3.5 mm/ 460 N/mm²*
2	Standard with tube connector 200	11, 15, 159	*Ø48.3x3.2 mm (41.9) / 320 N/mm²*	plugged in, pressed	*Ø38.0x3.6 mm / 320N/mm²*
3	Standard with screwed-in tube connector	12, 13		plugged-in, screwed	*Ø38.0x4.0 mm / 320N/mm²*
4		14	*Ø48.3x4.05 mm (40.2) / 320 N/mm²*		

3.2.5.2 Load-bearing model “lap joint”

In accordance with the "Calculation notes for standard joints with centrally fixed joint pins on one side for working and service scaffolds, and for supporting framework made of steel”1, the standard joint parameters as per Table 12 shall be taken into account for the structural analysis of type 1 standard joints with standard tubes Ø 48.3 x 2.9 mm made of S460MH steel with integrated tube connectors in the load-bearing model “lap joint”.

[7] see DIBt Newsletter 4/2017

Table 12: Load-bearing capacities and load-deformation behaviour for type 1

Internal forces and moments	Tube connector	Load-bearing capacity	Load-deformation behaviour
Bending moment	Typ 1	$M_{Rd} = 122$ $kNcm^{*)}$	Stiffness behaviour: $\varphi_d = \frac{M}{18900 - 49 \cdot \lvert M \rvert}$ M in [kNcm]
*) Separate proof of stability of the net section at the tube connector is not mandatory.			

3.2.5.3 Structural behaviour under tensile stress

If tensile forces must be transmitted via a standard joint, the tubes shall be connected by means of bolt connections with a short thread whereby the thread may not be positioned in the shear loaded joint and whereby the clearances at the connecting members with short thread are to be taken into consideration. Connecting members are to be passed through the openings in the joint area intended for this use and secured against unintended lift-off (e.g. by means of a screw joint tightened by hand). Depending on the connecting members used and the standard joint variant, loads can be transmitted in accordance with Table 13 or 14 depending on the screws used.

For standard joints with standard tubes *Ø 48.3 x 2.9 mm* made of S460MH steel with integrated tube connectors *Ø 39 x 3.5 mm* according to Annex B, pages 154, 155 and 159, proof of structural stability (eq. 14) for the deformation range must additionally be met.

$$\frac{|M_{Ed}|}{M_{Rd} \cdot \cos\left(\frac{\pi}{2} \cdot \frac{Z_{Ed}}{72{,}1\ kN}\right)} \leq 1 \qquad \text{(equation 14)}$$

Where:

M_{Ed}	Bending stress
M_{Rd}	Bending capacity according to Table 12
Z_{Ed}	Tensile force load

Table 13: Tensile stress resistance of the standards in connection with **M12-8.8**

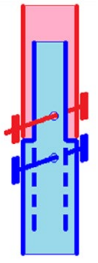
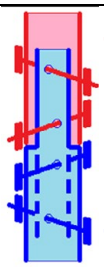
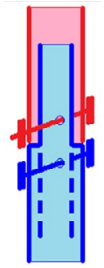
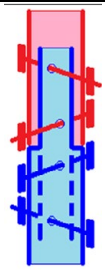
Tensile stress resistance Z_{Rd} [kN] when using M12-8.8 screws						
	**connection by means of one screw**		**Typ *) Tube II**			
			1	**2**	**3**	**4**
	Typ *) Tube I	**1**	43.7	33.5		42.4
		2	10.0			
		3	28.8	29.2		29.2
		4				30.4
	**connection by means of two screws**		**Typ *) Tube II**			
			1	**2**	**3**	**4**
	Typ *) Tube I	**1**	72.1	67.0		72.1
		2	10.0			
		3	57.6	58.4		58.4
		4				60.8
*) Tube types according to Table 11						

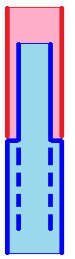
Table 14: Tensile stress resistance of the standards in connection with **M10-8.8**

Tensile stress resistance Z_{Rd} [kN] when using M10-8.8 screws						
	**connection by means of one screw**		**Typ *) Tube II**			
			1	**2**	**3**	**4**
	Typ *) Tube I	**1**	30.1	27.9		32.9
		2	10.0			
		3	17.0	17.2		17.2
		4				17.9
	**connection by means of two screws**		**Typ *) Tube II**			
			1	**2**	**3**	**4**
	Typ *) Tube I	**1**	60.2	55.8		65.8
		2	10.0			
		3	34.0	34.4		34.4
		4				35.8
*) Tube types according to Table 11						

3.2.5.4 Structural behaviour under compressive stress

Please refer to Table 15 for the compressive stress resistance of the standard joints for the respective assembly variant.
Proof of interaction for the lap joint supporting structure model is not mandatory in case standard joints are simultaneously subject to compressive and bending stress.

Table 15: Compressive stress resistance of the standards

Standard joint	Compressive stress resistance D_{Rd} [kN]		**Typ *) Tube II**			
			**1**	**2**	**3**	**4**
	Typ *) Tube I	**1**	173	132		164
		2	87.6	80.9		115
		3	39.6	36.9		67.2
		4	72.4	67.2		107
*) Tube types according to Table 11						

3.2.6 Wedge-head couplers

Wedge-head couplers (rigid or rotatable) according to Annex B, pages 122 and 125 are only to be used for connecting "free" scaffolding tubes *Ø 48.3 x 3.2 mm* to the standards of the scaffolding system in conjunction with the roof edge protection (e.g. see Annex D, p. 7).

3.2.7 Scaffolding components that are designed using components of the scaffolding nodes

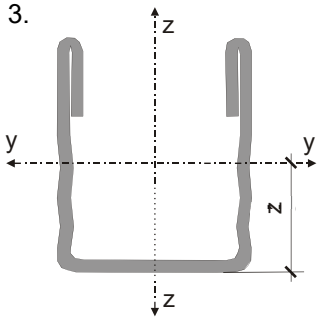
Proof of structural stabilitiy for the node connections of the scaffolding components that are designed in accordance with Section 2.1.3 is to be provided according to Sections 3.2.2 and 3.2.4. Any other proof of structural stability shall be provided in accordance with the Technical Building Regulations (Technische Baubestimmungen).

3.2.8 Proof of structural stability of the entire scaffolding system

3.2.8.1 Cross-section properties of the U-profiles

3.2.8.1.1 U-profile U48 x 52 x 2.5 (without holes)

Proof of structural stability of the U-profile U 48 x 52 x 2.5 (without holes) in accordance with Annex B, pages 32, 127, 147 and 149 is to be provided based on the properties given in Figure 3.

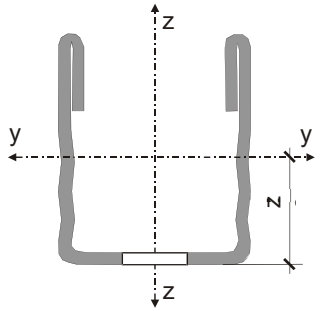


$A = 4.17\ cm^2$
$z_s = 2.32\ cm$
$I_y = 13.8\ cm^4$
$W_{y,pl} = 6.88\ cm^3$
$W_{y,el} = 4.79\ cm^3$

Figure 3: Properties of the U-profile U 48 x 52 x 2.5 without holes

3.2.8.1.2 U-profile U 48 x 52 x 2.5 with 15 mm opening width

Proof of structural stability of the U-profile U 48 x 52 x 2.5 with a 15 mm opening in accordance with Annex B, pages 32, 147 and 149 is to be provided based on the properties given in Figure 4.

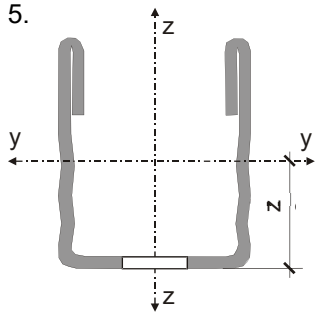


$A = 3.79\ cm^2$
$z_s = 2.54\ cm$
$I_y = 11.8\ cm^4$
$W_{y,pl} = 6.02\ cm^3$
$W_{y,el} = 4.44\ cm^3$

Figure 4: Properties of the U-profile U 48 x 52 x 2.5 with 15 mm opening width

3.2.8.1.3 U-profile U 48 x 52 x 2.5 with 22 mm opening width

Proof of structural stability of the U-profile U 48 x 52 x 2.5 with 22 mm opening in accordance with Annex B, page 127 is to be provided based on the properties given in Figure 5.



$A = 3{,}60\ cm^2$
$z_s = 2{,}65\ cm$
$I_y = 10{,}6\ cm^4$
$W_{y,pl} = 5{,}53\ cm^3$
$W_{y,el} = 4{,}02\ cm^3$

Figure 5: Properties of the U-profile U 48 x 52 x 2.5 with 22 mm opening width

3.2.8.2 Vertical load-bearing capacity of decks

Proof of structural stability for the decks of the "ALFIX MODUL MULTI" modular scaffolding system is provided in accordance with Table 16 for live loads of the scaffold load classes / service classes according to EN 12811-1:2004-03, Table 3 and for use in protection scaffold and roof edge protection scaffold with fall heights of up to 2 m according to DIN 4420-1:2004-03 (class D according to DIN EN 12810-1:2004-03).

Table 16: Assignment of decking to scaffold load classes (service classes)

Designation	Annex B, page	Bay width ℓ [m]	Use in load class (service class)
Aluminium frame platform with tube fixture	51 and 52	≤ 3.07	≤ 3
Aluminium access frame platform with tube fixture	54 and 55	≤ 3.07	≤ 3
Aluminium access frame platform with tube fixture 1.57 m – 3.07 m without ladder	57	≤ 3.07	≤ 3
Aluminium access frame platform with tube fixture 2.57 m – 3.07 m with aluminium chequer plate	58	≤ 3.07	≤ 3
Steel deck AF with tube fixture Intermediate deck AF with tube fixture 0.19 m	61 and 62 63	4.14	≤ 3
		3.07	≤ 4
		2.57	≤ 5
		≤ 2.07	≤ 6
Intermediate deck AF with tube fixture 0.16 m Steel deck AF with tube fixture Intermediate deck with tube fixture	63 64 65	3.07	≤ 4
		2.57	≤ 5
		≤ 2.07	≤ 6
Aluminium frame platform with plywood	66 and 67	≤ 3.07	≤ 3
Aluminium frame platform with internal hatch	69 and 70	≤ 3.07	≤ 3
Aluminium deck with plywood	72, 73, 78 and 79	≤ 3.07	≤ 3
Aluminium access deck with ladder	75, 76, 81 and 82	≤ 3.07	≤ 3
Steel deck Intermediate deck AF 0.16 m Intermediate deck	85 88 89	3.07	≤ 4
		2.57	≤ 5
		≤ 2.07	≤ 6
Steel deck AF Intermediate deck AF 0.19 m	84 and 86 88	4.14	≤ 3
		3.07	≤ 4
		2.57	≤ 5
		≤ 2.07	≤ 6
Steel plank 0.30 m	87	1.45 to 1.85	≤ 3
		≤ 1.45	≤ 4
Lightweight aluminium deck 0.60 m	90	3.07	≤ 3
		≤ 2.57	≤ 4
Solid wood deck 48 Wooden deck	91 93	3.07	≤ 3
		2.57	≤ 4
		2.07	≤ 5
		≤ 1.57	≤ 6
Solid wood deck 45	92	2.57	≤ 3
		2.07	≤ 4
		≤ 1.57	≤ 5

3.2.8.3 Elastic support of the vertical frame sections

Non-anchored nodes of vertical frame sections on the frame level (in case of facade scaffolding perpendicular to the facade) may be assumed to be elastically supported by the horizontal level (decking), provided that the neighbouring horizontal nodes are anchored. This elastic support may be taken into account by assuming a travel spring in connection with the design values given in Table 17.

Table 17: Design values of the horizontal travel springs

Deck	in accordance with Annex B, page	Scaffolding width b [m]	Bay width ℓ [m]	Maximum load-bearing capacity	Clearance $f_{\perp,o}$ [cm]	Stiffness $c_{\perp,d}$ [kN/cm]			Load-bearing capacity of the spring load $F_{\perp,Rd}$ [kN]
						$0 < F_{\perp} \leq F_{\perp,1,2}$ [kN]	$F_{\perp,1,2} < F_{\perp} \leq F_{\perp,Rd}$ [kN]	$F_{\perp,1,2}$ [kN]	
Aluminium frame platform with tube fixture	51, 52	**0.73**	≤ **3.07**	**LC 3**	3.40	0.78	0.78	1.50	1.71
Aluminium frame platform with plywood	66, 67								
Aluminium deck with plywood	72, 73, 78, 79								
Steel deck AF with tube fixture 0.32 m	61			**LC 4**	3.96	0.58	0.46	1.50	3.00
Steel deck with tube fixture	64								
Steel deck AF 0.32 m	84								
Steel deck	85								
Lightweight aluminium deck 0.60 m	90			**LC 3**	3.50	1.20	0.48	2.00	2.80
Steel deck AF with tube fixture 0.32 m	61	**1.09**	≤ **3.07**	**LC 4**	4.39	0.79	0.79	1.50	2.46
Steel deck with tube fixture	64								
Steel deck AF 0.32 m	84								
Steel deck	85								

3.2.8.4 Elastic coupling of the vertical levels

The inner and outer vertical level of a scaffolding may be assumed to be elastically coupled to each other by the decking in the direction of these levels (in the case of facade scaffolding parallel to the facade). This elastic coupling may be taken into account by assuming coupling springs in connection with the design values given in Table 18, irrespective of the bay width.

Table 18: Design values of the horizontal coupling springs

Deck	in accordance with Annex B, page	Scaffolding width b [m]	Bay width ℓ [m]	Maximum load-bearing capacity	Clearance $f_{\parallel,o}$ [cm]	Stiffness $c_{\parallel,d}$ [kN/cm]			Load-bearing capacity of the spring load $F_{\parallel,Rd}$ [kN]
						$0 < F_{\parallel} \leq F_{\parallel,1,2}$ [kN]	$F_{\parallel,1,2} < F_{\parallel} \leq F_{\parallel,Rd}$ [kN]	$F_{\parallel,1,2}$ [kN]	
Aluminium frame platform with tube fixture	51, 52	**0.73**	≤ **3.07**	**LC 3**	0.50	2.65	2.22	3.0	3.86
Aluminium frame platform with plywood	66, 67								
Aluminium deck with plywood	72, 73, 78, 79								
Steel deck AF with tube fixture 0.32 m	61			**LC 4**	1.40	2.58	3.46	3.0	4.50
Steel deck with tube fixture	64								
Steel deck AF 0.32 m	84								
Steel deck	85								
Lightweight aluminium deck 0.60 m	90			**LC 3**	0.40	6.90	2.47	3.75	5.75
Steel deck AF with tube fixture 0.32 m	61	**1.09**	≤ **3.07**	**LC 4**	1.95	1.67	1.67	3.0	3.94
Steel deck with tube fixture	64								
Steel deck AF 0.32 m	84								
Steel deck	85								
Steel deck AF with tube fixture 0.32 m	61		≤ **2.57**	**LC 4**	1.95	1.39	1.39	3.0	3.28
Steel deck with tube fixture	64								
Steel deck AF 0.32 m	84								
Steel deck	85								

3.2.8.5 Material parameters

For components made of S235JRH steel with an increased yield point ($R_{eH} \geq 320\ N/mm^2$) - any such components are marked accordingly in the drawings of Annex B - the design value of the yield point $f_{y,d} = 291\ N/mm^2$ may be used for the calculation. All other parameters are to be applied according to the basic material S235JRH.

3.2.8.6 Tubes *Ø 48.3 mm* made from S460MH steel

Scaffold tubes *Ø 48.3 x 2.9 mm* and *Ø 48.3 x 2.7 mm* made from S460MH may be assigned to buckling curve “a”.

For the proof of structural stability, the plastic shape coefficient shall be limited to 1.25. If for the tubes *Ø 48.3 mm* made from S460MH a calculation according to the second order theory of elasticity is carried out, the next value may be assumed as the design value of the initial bow imperfection:

$$v_0 = \frac{\ell}{300} \qquad \text{(equation 15)}$$

The cosine interaction may be used to provide proof of interaction pressure with bending.

3.2.8.7 Scaffolding spindles / base jacks

The substitute section properties for the stress and / or interaction analyses and calculations of deformation according to DIN 4425:2017-04 (Annex B of DIN EN 12811-1:2004-03) shall be assumed as follows:

- for the scaffolding spindles / base jacks according to Annex B, pages 17, 20, 21 and 22:

  $A = A_S = 3.52\ cm^2$
  $I = 4.00\ cm^4$
  $W_{el} = 2.68\ cm^3$
  $W_{pl} = 1.25 \cdot 2.68 = 3.35\ cm^3$

- for the scaffolding spindles / base jacks according to Annex B, pages 18, 19 and 140:

  $A = A_S = 3.85\ cm^2$
  $I = 4.27\ cm^4$
  $W_{el} = 2.83\ cm^3$
  $W_{pl} = 1.25 \cdot 2.83 = 3.54\ cm^3$

The cosine interaction in accordance with DIN 4420- 1:1990-12, Table 7 may be used to provide proof of stability of the load-bearing capacity of the scaffolding spindles / base jacks.

3.2.8.8 Halfcouplers

For the proof of stability of the halfcouplers attached to the various components, the load-bearing capacities and stiffness values for halfcouplers of class B shall be applied in accordance with the data provided in DIN EN 74-2:2009-01.

For halfcouplers of class B manufactured before January 2009, for which proof is provided that they comply with the "Zulassungsgrundsätze für den Verwendbarkeitsnachweis von Halbkupplungen an Stahl- and Aluminiumrohren“ (Approval principles for the proof of applicability of halfcouplers on steel and aluminium tubes), the resistances in accordance with the approval principles may be assumed, in deviation from DIN EN 74-2:2009-01.[8]

If it is not clear, which components are used, the load-bearing capacities and stiffness values for halfcouplers of class B in accordance with the DIN EN 74-2:2009-01 shall be applied for the verification of the scaffolding.

3.3 Provisions for execution

3.3.1 General Provisions

The assembly, alteration and dismantling of the scaffolding must be carried out in compliance with the Instructions for Assembly and Use[9] which are not the subject of this decision.

3.3.2 Condition of components

All components shall be inspected for proper condition prior to assembly. Damaged components may not be used.

[8] To be obtained from the Deutsches Institut für Bautechnik (the German technical authority and service provider for the construction sector).

[9] The "Instructions for Assembly and Use" must comply with the requirements of the "Application guideline for working scaffolds according to DIN EN 12811-1", see DIBt-Mitteilungen (notifications of the DIBt) issue 2/2006.

3.3.3 Structural design

3.3.3.1 General Provisions

In a working scaffold, the standards in accordance with Annex A, page 159 may not be mixed with other designs of vertical standards.

The following applies when using scaffolding nodes:

- Each connector disc (rosette) has a maximum of 8 openings, allowing to connect 8 members.
- The wedges of the connector heads are to be fixed by driving the wedge from top to bottom to the end-stop with a 0.5 kg hammer.

3.3.3.2 Base area

The lower standards or vertical starter pieces are to be positioned and adjusted on the base jacks in a way that the working levels are horizontal. It must be ensured that the base plates of the base jacks are horizontal and supported over the entire area to absorb and transmit the forces resulting from the scaffolding in the supporting surface.

3.3.3.3 Scaffolding decks

Scaffolding decks must be secured to prevent them from accidental lift-off.

3.3.3.4 Side protection

The provisions of DIN EN 12811-1:2004-03 apply to the side protection. Primarily use components intended for this use and only exceptionally use components such as steel tubes and couplers according to DIN EN 12811-1:2004-03 as well as scaffold decks and planks according to DIN 4420-1:2004-03.

3.3.3.5 Bracing

Scaffolds must be braced.

The vertical planes are to be braced by means of longitudinal ledgers or longitudinal ledgers in conjunction with vertical diagonal braces. System decks in conjunction with transoms can also be used as longitudinal ledgers for the structural analysis.

Horizontal scaffolding levels are to be braced by means of ledgers and horizontal diagonal braces or by means of system decks in conjunction with transoms in accordance with Sections 3.2.8.3 and 3.2.8.4.

The individual bracing levels are to be erected and positioned in accordance with the structural analysis.

3.3.3.6 Anchoring

Please refer to the structural analysis for anchor forces and the anchor configuration.

The anchorage of scaffold retainers/wall ties to the facade or to other parts of the building is not covered by this decision. The user must ensure that the respective forces can be securely absorbed and transmitted from scaffold retainers/wall ties. Vertical forces must not be transmitted in this process.

3.3.3.7 Couplers

Couplers with screwed connectors must be tightened with a torque of 50 Nm when connecting to the standards; tolerances of ± 10 % are permitted. According to the manufacturer's instructions for use, bolts/screws must be easy to reposition.

3.3.3.8 Standard joints

To secure against uplifting forces in accordance with the structural analysis, the standard joint shall be installed in accordance with the Instructions for Assembly and Use. If tensile stresses in accordance with Section 3.2.5.3 are included in the calculation, all screws in the required quality grades with short thread, the thread section of which may not be in the shear loaded joint, must be used to secure against tensile forces.

3.3.4 Attestation of conformity

The building contractor shall submit a declaration of conformity in accordance with §§ 16 a (5) in conjunction with 21 (2) Model Building Regulation (MBO) in order to confirm the conformity of the erected scaffold with the General construction technique permit (aBG) covered by this decision.

4 Provisions for use, maintenance, and inspection

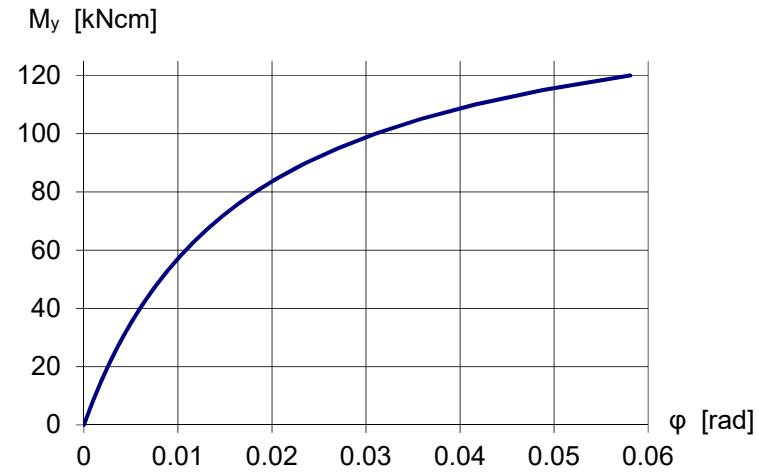
4.1 General Provisions

The use of the scaffolding is not covered by this approval.

4.2 Wooden scaffolding components

In order to prevent damage caused by moisture to wooden scaffolding components, they must be stored in a dry place, off the ground, and providing adequate ventilation.

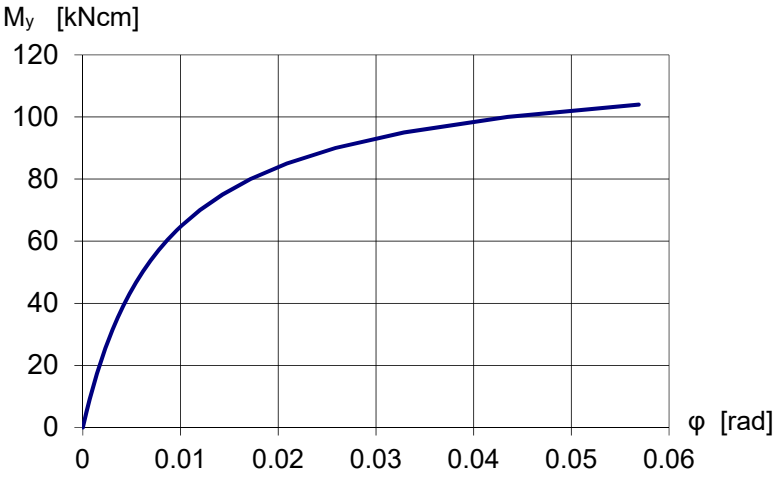
Head of Division Certified



$$\varphi_d = \frac{M_y}{9025\ kNcm - 58 \cdot |M_y|}\ [rad]$$

$with\ M_y\ in\ [kNcm]$

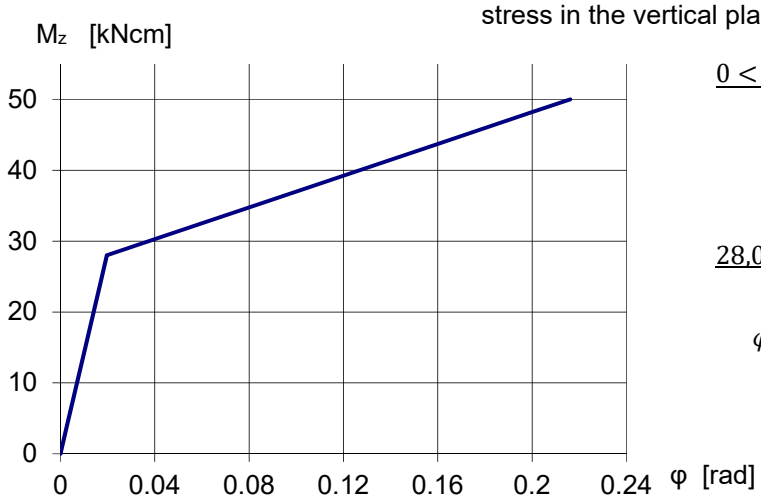
Figure 1: **Load-bearing group "A":** Spring stiffness at the ledger connection under bending stress in the vertical plane



$$\varphi_d = \frac{M_y}{14100\ kNcm - 118 \cdot |M_y|}\ [rad]$$

$with\ M_y\ in\ [kNcm]$

Figure 2: **Load-bearing group "B":** Spring stiffness at the ledger connection under bending stress in the vertical plane



$\underline{0 < |M_z| \leq 28.0\ kNcm:}$

$$\varphi_d = \frac{M_z}{1420\ kNcm}\ [rad]$$

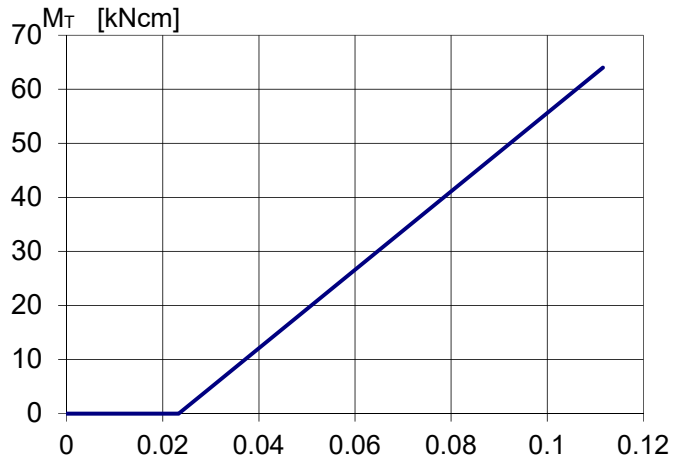
$\underline{28{,}0\ kNcm < |M_z| \leq 50{,}0\ kNcm:}$

$$\varphi_d = \frac{M_z}{|M_z|} \cdot \left(0{,}0197 + \frac{|M_z| - 28{,}0\ kNcm}{112\ kNcm}\right)$$

with $M_z\ in\ [kNcm]$

Figure 3: **Load-bearing group "A" and "B":** Spring stiffness at the ledger connection under bending stress in the horizontal planen

Modular scaffolding system "ALFIX MODUL MULTI"	Annex A, page 1
Spring stiffness values at the ledger connection for bending moments	



$\underline{|M_T| > 0:}$

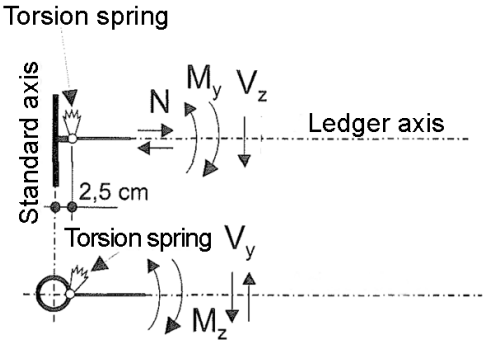
$$\varphi_d = \frac{M_T}{|M_T|}\left(0.0233 + \frac{|M_T|}{725\ kNcm}\right)\ [rad]$$

$with\ M_T\ in\ [kNcm]$

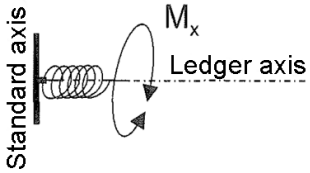
Figure 4: **Load-bearing group "A":** Spring stiffness at the ledger connection under torsional moment at the ledger axis section

Modular scaffolding system "ALFIX MODUL MULTI"	Annex A, page 2
Spring stiffness values at the torsional moment for the tube ledger connection	

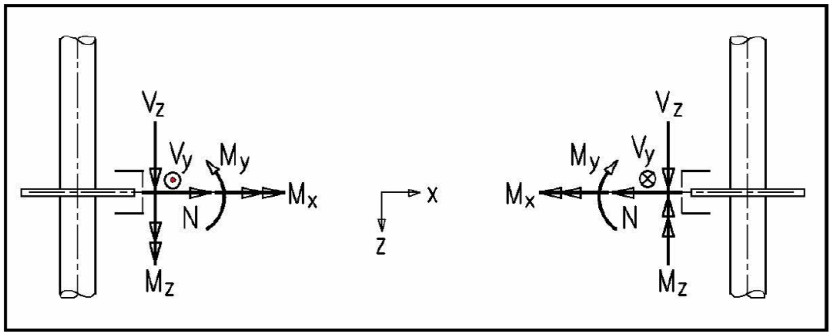
Structural system ledger connection:



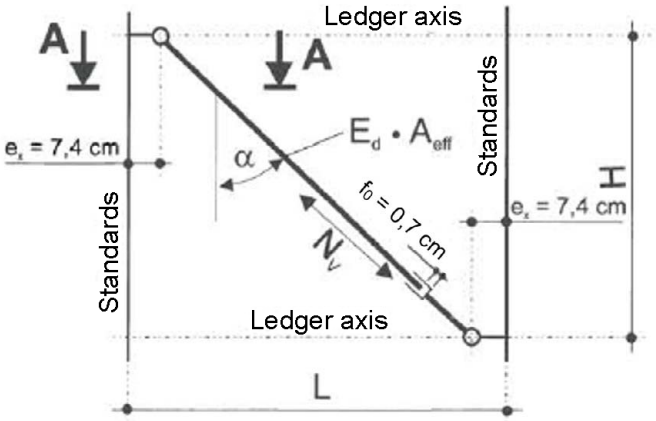
For load-bearing group "A" with tube ledger:



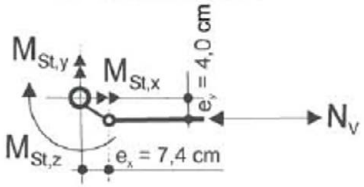
Sign convention:
Apart from the shear forces V_z, the signs of the common sign convention apply. However, the shear forces V_z act positively downward on both cut faces in the direction of the z axis.



Structural system vertical diagonal brace:



Section A-A

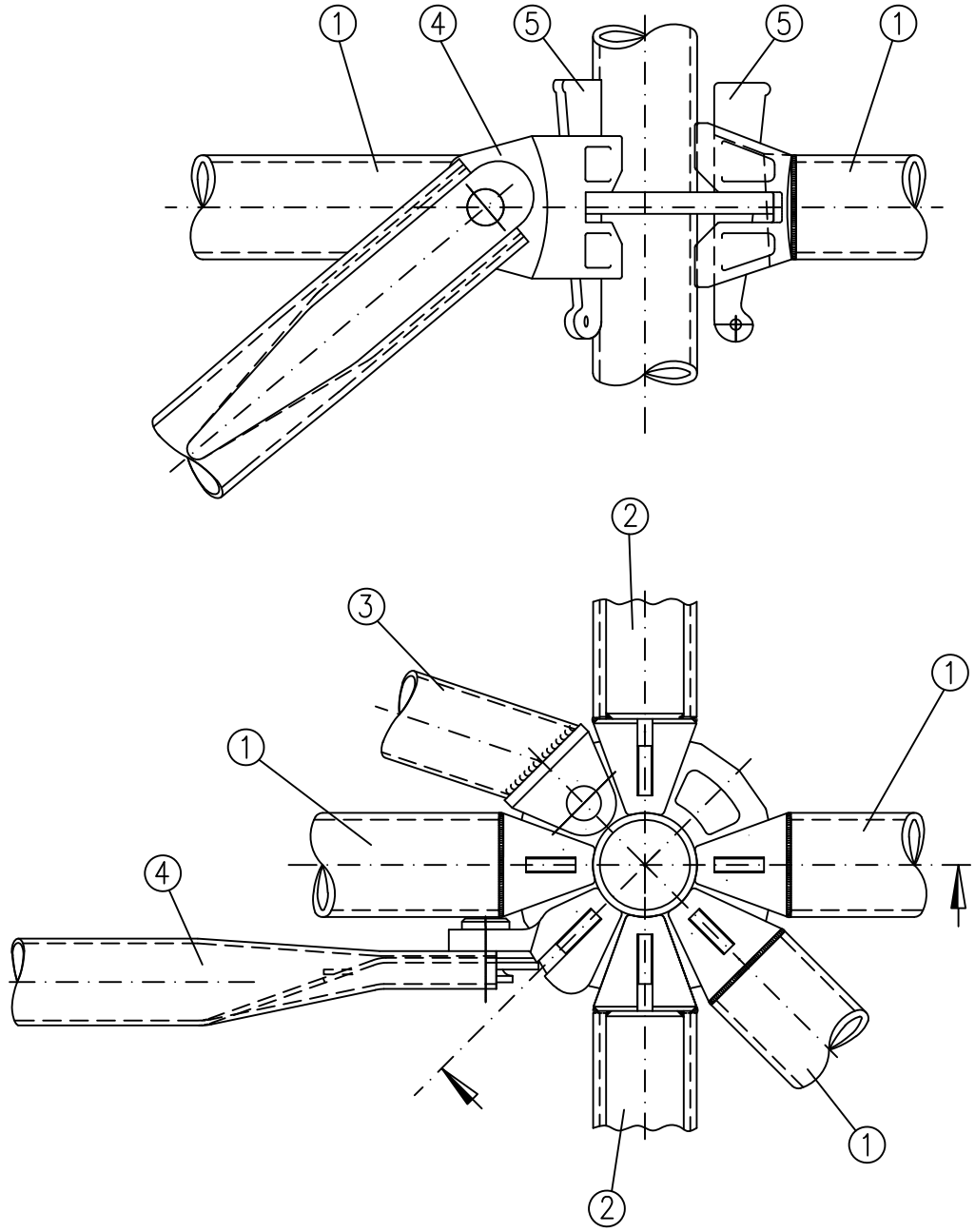


Node moments due to diagonal force N_V

$$M_{St,x} = N_V \cdot \cos \alpha \cdot 4.0 \ cm$$
$$M_{St,y} = N_V \cdot \cos \alpha \cdot 7.4 \ cm$$
$$M_{St,z} = N_V \cdot \sin \alpha \cdot 4.0 \ cm$$

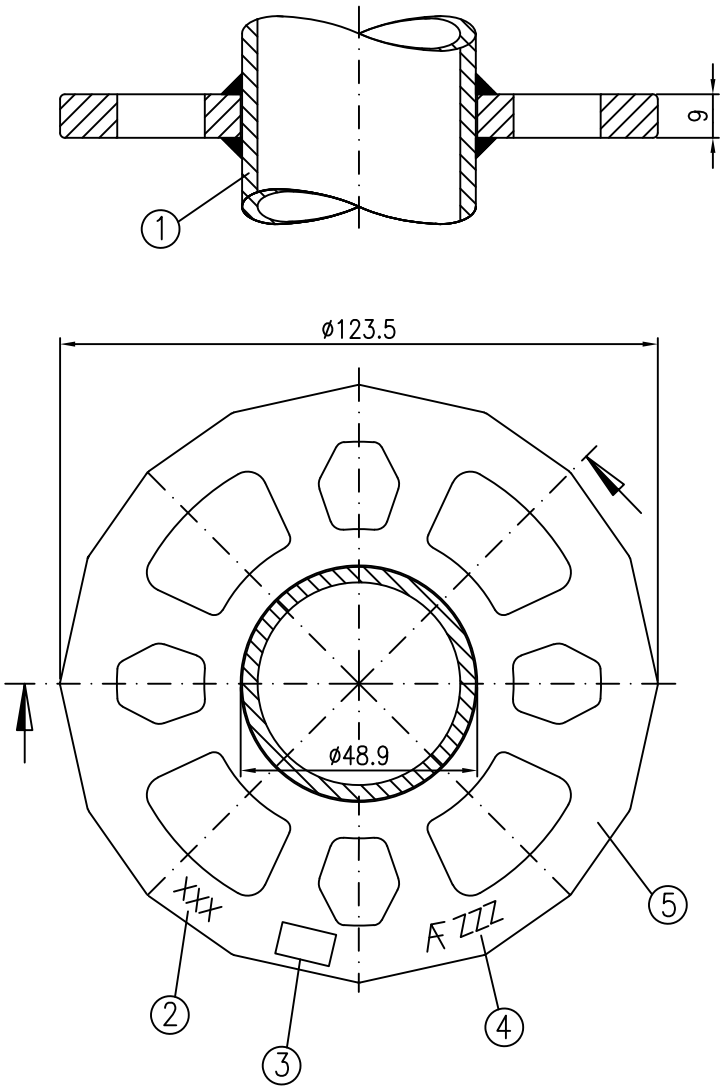
The node moments must be absorbed by the standard and the ledgers.

Modular scaffolding system "ALFIX MODUL MULTI"	Annex A, page 3
Structural systems ledger connection and vertical diagonal brace	



① Tube ledger
② U–ledger
③ Horizontal diagonal brace
④ Vertical diagonal brace
⑤ Wedge 6mm

ALFIX MODUL MULTI	
Overview of scaffolding nodes	Annex B, page 1
M710–B101 11.2016	



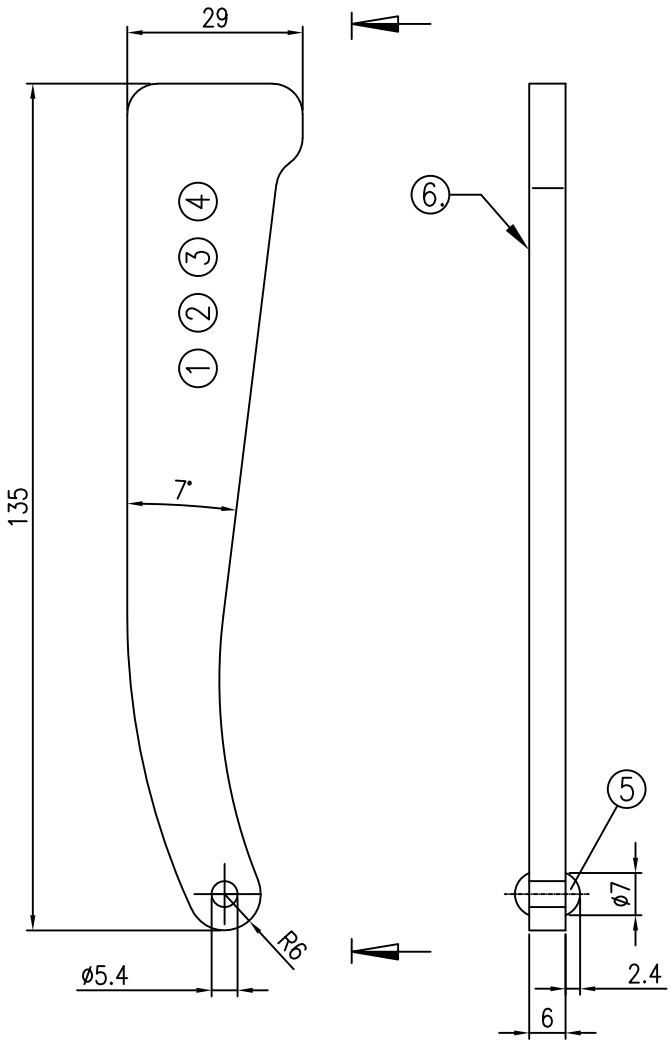
①	Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	Circular hollow section ø48.3x2.9 (Design 4.0)	DIN EN 10219–S460MH
②	Batch number / week year	Stamped 0.4
③	Company logo of the foundry	Stamped 0.4
④	Ⱥ Abbreviated approval number	Stamped 0.4
⑤	Cast steel alternatively: steel	Material in accordance with the documents filed at DIBt
	Material thickness=9mm	

ALFIX MODUL MULTI

Connector disc

M710–B102 10.2021

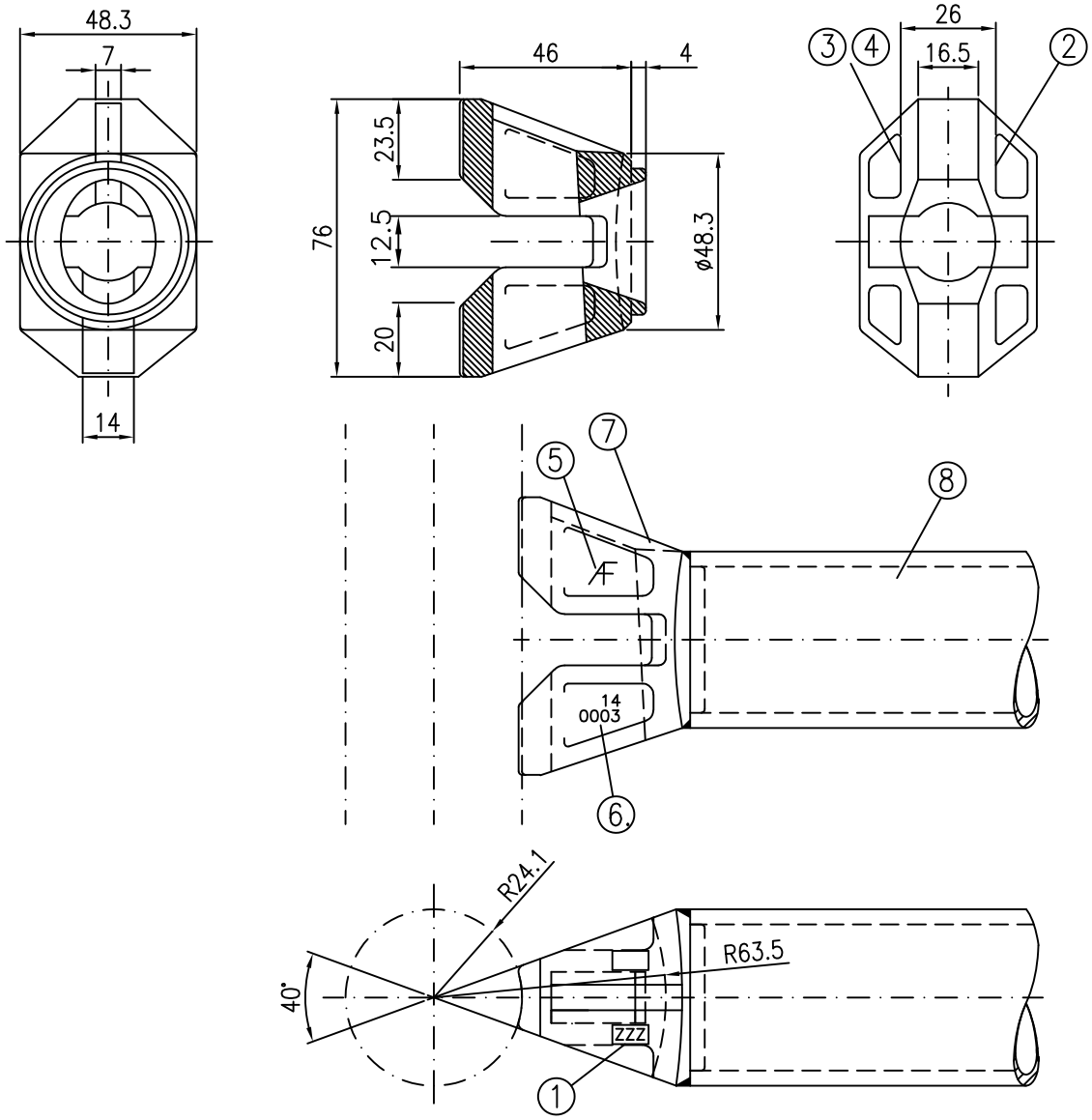
Annex B,
page 2



① XX = Supplier number
② ZZZ/ZZZ = Abbreviated approval number
③ Æ = ALFIX manufacturer's logo
④ YY = Year of manufacturing (e.g. 18=2018)
⑤ Round head rivet ø5x10 with rivet head of rivet Ø4 DIN 660 QSt 32-2 electrogalvanized
⑥ Marking

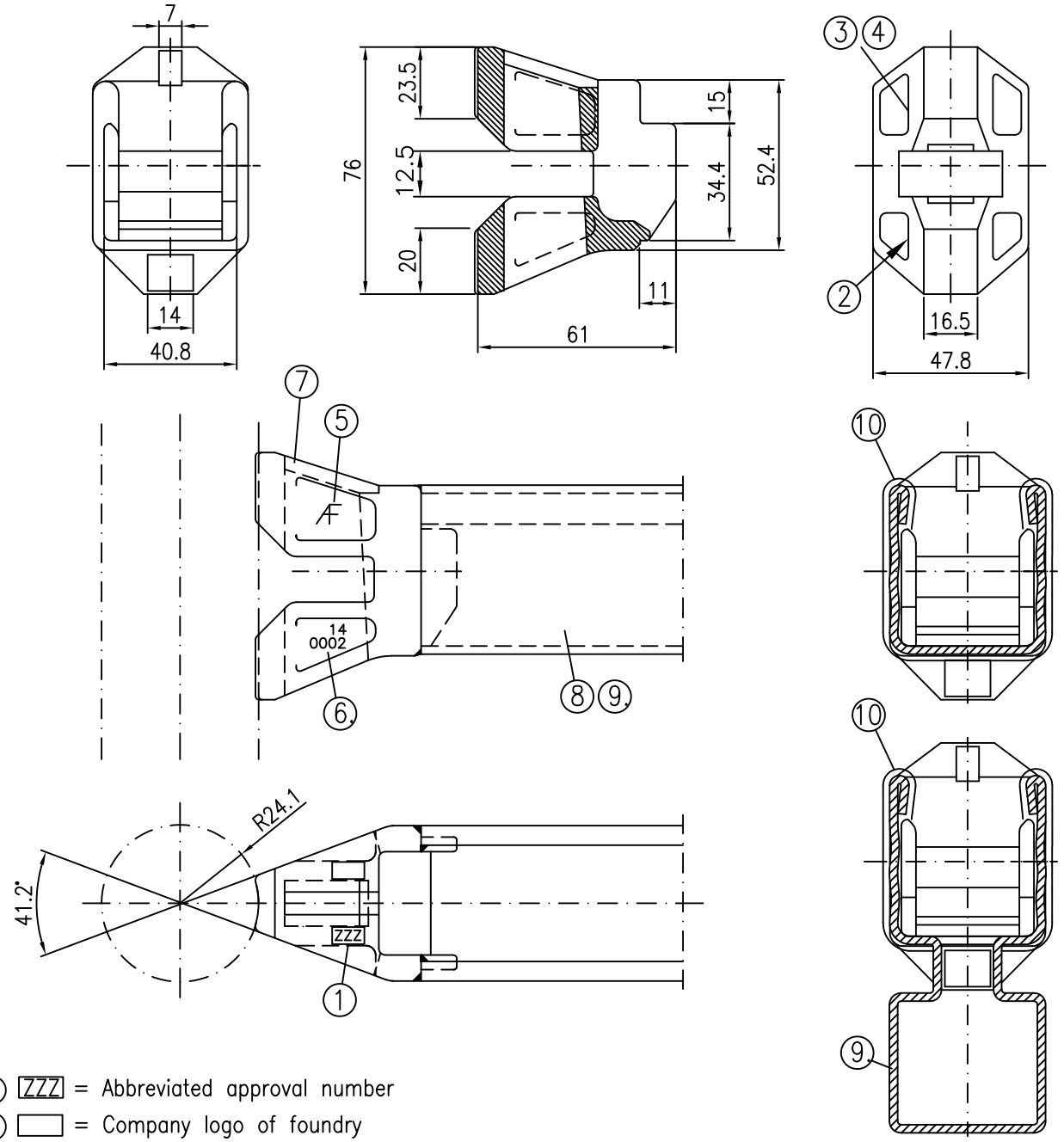
hot-dip galvanised; DIN EN 10149-S550MC

ALFIX MODUL MULTI	
Wedge	Annex B, page 3
M710-B103 06.2018	



① ZZZ = Abbreviated approval number
② ▭ = Company logo of foundry
③ XX = Calendar week and
④ YY = Year of manufacturing (e.g. 4016=CW40/2016)
⑤ AF = ALFIX manufacturer's logo
⑥ 14 0003 = Serial number
⑦ Cast steel — Material in accordance with the documents filed at DIBt
⑧ Circular hollow section ø48.3x3.2 alternatively: 48.3x2.7 — Material in accordance with the documents filed at DIBt

ALFIX MODUL MULTI	
Connection of tube ledger	Annex B, page 4
M710–B104 08.2018	



① ZZZ = Abbreviated approval number
② ▭ = Company logo of foundry
③ XX = Calendar week and
④ YY = Year of manufacturing (e.g. 4016=CW40/2016)
⑤ ⩘ = ALFIX manufacturer's logo
⑥ 14 0002 = Serial number

⑦ Cast steel	Material in accordance with the documents filed at DIBt
⑧ U–profile 48x52x2.5	Material in accordance with the documents filed at DIBt
⑨ Transom profile with integrated main beam	Material in accordance with the documents filed at DIBt

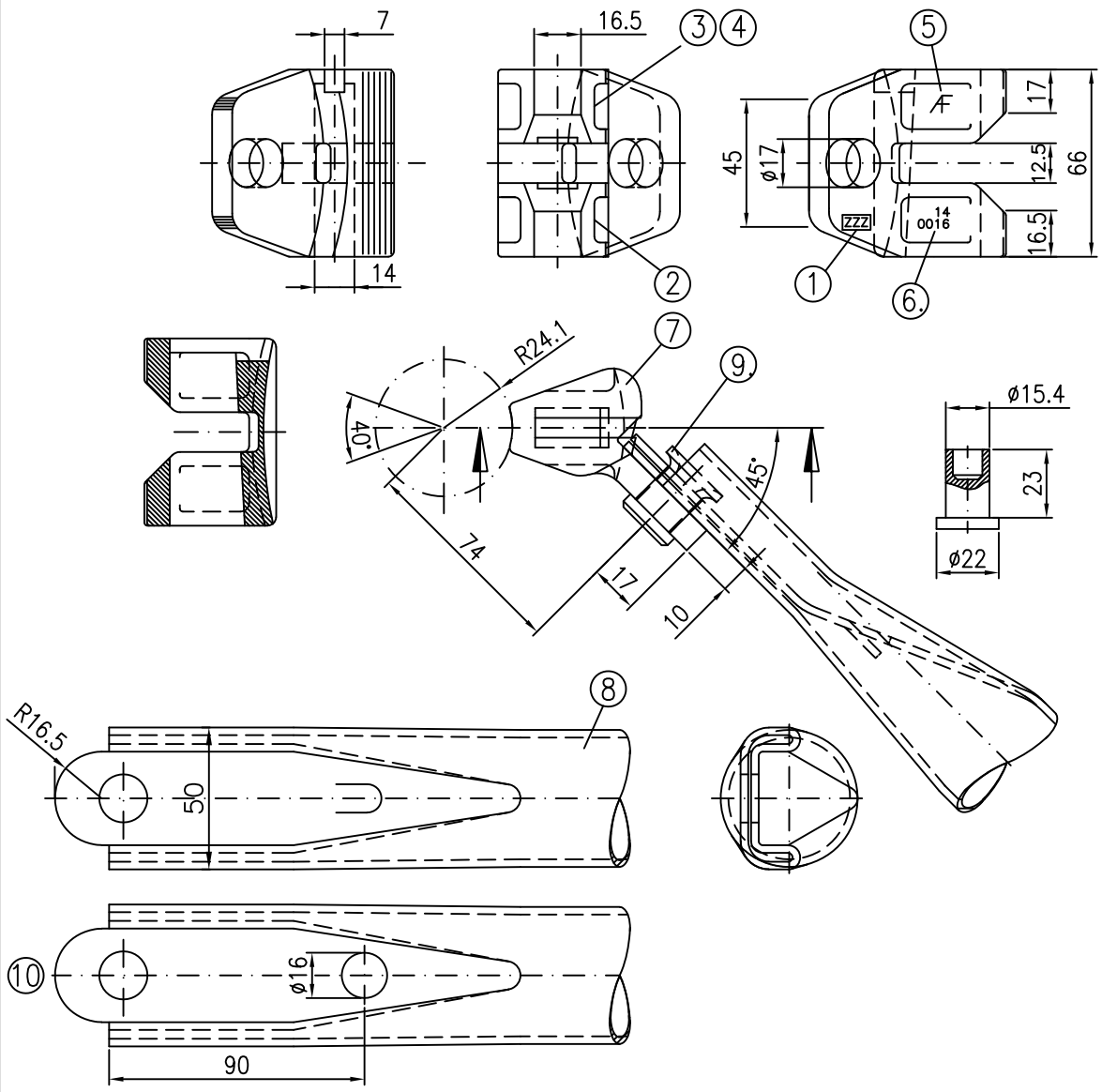
⑩ Welding section

ALFIX MODUL MULTI

Connection of U–ledger

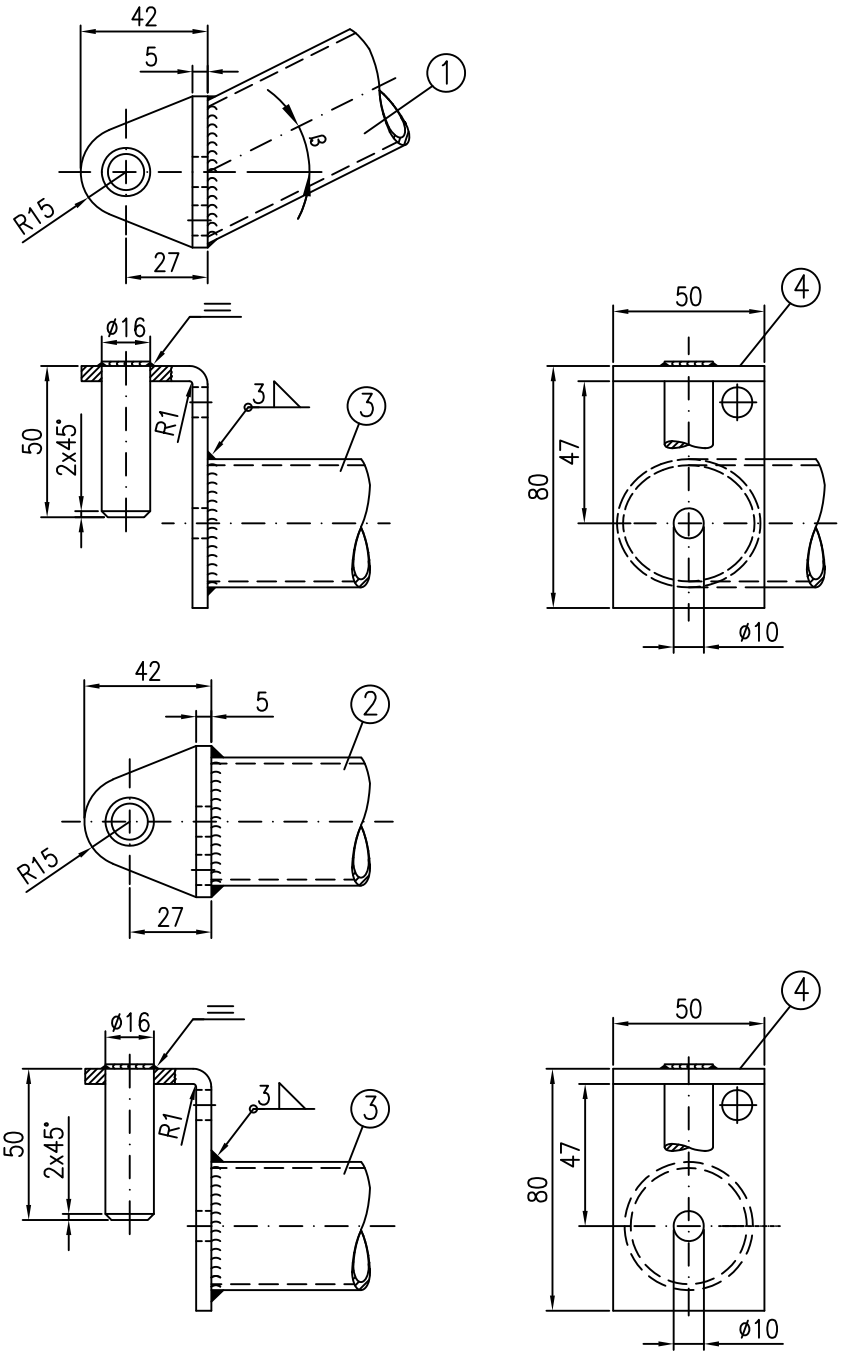
M710–B105 08.2018

Annex B,
page 5



① ZZZ = Abbreviated approval number
② ▭ = Company logo of foundry
③ XX = Calendar week and
④ YY = Year of manufacturing (e.g. 4016=CW40/2016)
⑤ AF = ALFIX manufacturer's logo
⑥ 14 0016 = Serial number
⑦ Cast steel — Material in accordance with the documents filed at DIBt
⑧ Circular hollow section ø48.3x2.7 — Material in accordance with the documents filed at DIBt | Diagonal cross brace head–right hand side
⑨ Rivet MODUL diagonal cross braces — Material in accordance with the documents filed at DIBt | Diagonal cross brace head–Left hand side mirror–image
⑩ alternatively

ALFIX MODUL MULTI	
Connection of V–diagonal brace	Annex B, page 6
M710–B106 08.2018	



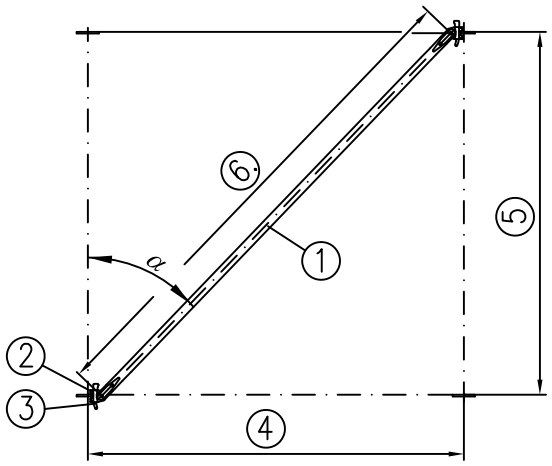
①	Form "A"	DIN EN 10025–S235JR
②	Form "B"	DIN EN 10025–S235JR
③	Circular hollow section ø42.4x2	DIN EN 10219–S235JRH
④	Marking	

ALFIX MODUL MULTI

Connection of H–diagonal brace

M710–B107 08.2020

Annex B,
page 7



④ [mm]	⑤ [mm]	⑥. [mm]	α	⑦ [kg]
732	500	769	49.5	3.8
1088	500	1065	62.0	4.7
1286	500	1243	66.3	5.2
1400	500	1348	68.2	5.5
1572	500	1509	70.7	6.0
2072	500	1988	75.5	7.4
2572	500	2475	78.4	8.8
3072	500	2966	80.3	10.0
732	1000	1158	30.3	4.9
1088	1000	1372	43.3	5.6
1286	1000	1515	48.7	6.0
1400	1000	1602	51.4	6.3
1572	1000	1740	55.0	6.5
2072	1000	2168	62.6	7.8
2572	1000	2622	67.6	9.0
3072	1000	3090	71.2	10.3
732	1500	1610	21.3	6.3
1088	1500	1770	32.1	6.8
1286	1500	1883	37.2	7.2
1400	1500	1954	39.8	7.4
1572	1500	2068	43.5	7.7
2072	1500	2440	52.1	8.8
2572	1500	2851	58.3	10.0
3072	1500	3286	62.9	11.0
732	2000	2084	16.3	7.5
1088	2000	2210	25.2	7.8
1286	2000	2301	29.7	8.2
1400	2000	2360	32.1	8.3
1572	2000	2455	35.5	8.8
2072	2000	2775	43.9	9.7
2572	2000	3143	50.5	10.9
3072	2000	3543	55.7	12.2

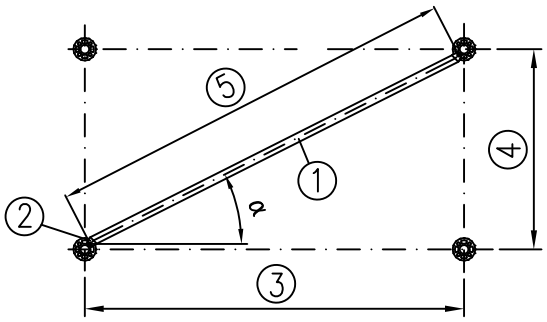
① Circular hollow section ø48.3x2.7 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
② Connection of V–diagonal brace see Annex B, page 6
③ Wedge 6mm see Annex B, page 3
④ Bay length L
⑤ Bay height H
⑥. Rivet spacing l
⑦ Weight

ALFIX MODUL MULTI

Vertical diagonals braces

M710–B108 08.2020

Annex B,
page 8



⑥	③	④	⑤	α	⑦
	[mm]	[mm]	[mm]	[°]	[kg]
B	732	732	953	45	2.5
A	1088	732	1231	33.9	3.1
A	1286	732	1399	28	4.8
A	1400	732	1502	27.6	6.0
A	1572	732	1657	25	6.6
A	2072	732	2124	19.5	4.8
A	2572	732	2603	15.9	6.0
A	3072	732	3088	13.4	6.6
B	1088	1088	1457	45	3.6
A	1286	1088	1601	40	3.7
A	1400	1088	1692	37.8	3.9
A	1572	1088	1831	34.7	4.4
A	2072	1088	2262	27.7	5.0
A	2572	1088	2717	22.9	6.3
A	3072	1088	3185	19.5	7.8
B	1286	1286	1777	45	4.2
A	1400	1286	1817	42	4.4
A	1572	1286	1948	39	4.7
A	2072	1286	2357	31	5.6
A	2572	1286	2796	25.7	6.5
A	3072	1286	3253	22	6.9
B	1400	1400	1898	45	4.3
A	1572	1400	2023	48.3	4.6
A	2072	1400	2420	55.9	5.4
A	2572	1400	2850	61.4	6.6
A	3072	1400	3299	65.5	7.1
B	1572	1572	2141	45	5.0
A	2072	1572	2519	37.2	5.8
A	2572	1572	2935	31.4	6.7
A	3072	1572	3373	27.1	7.7
B	2072	2072	2848	45	6.6
A	2572	2072	3221	38.8	7.3
A	3072	2072	3625	34	8.2
B	2572	2572	3555	45	8.0
A	3072	2572	3925	39.9	8.6
B	3072	3072	4262	45	9.6

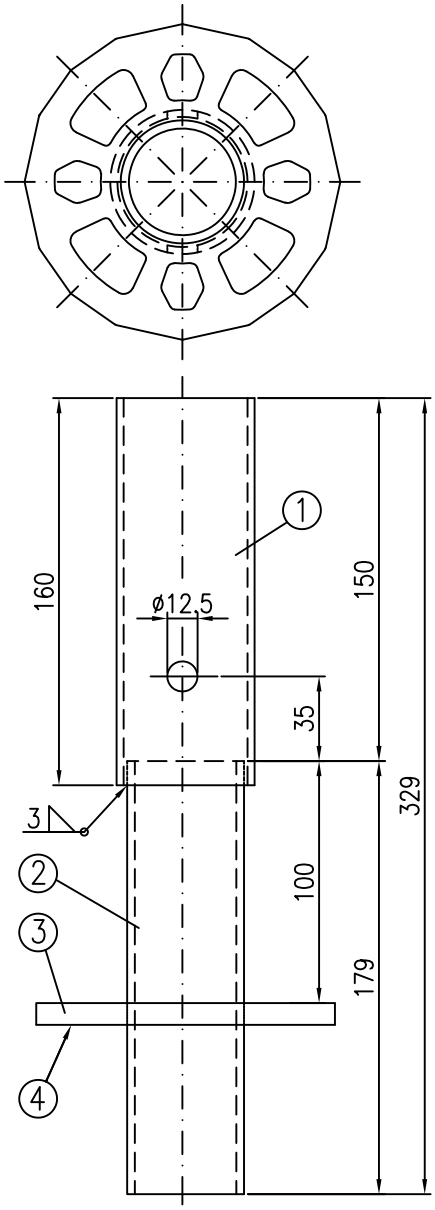
① Circular hollow section ø42.4x2 DIN EN 10219-S235JRH
② Connection of H-diagonal brace see Annex B, page 7
③ Bay length L
④ Bay width B
⑤ Bolt spacing l
⑥ Form
⑦ Weight

ALFIX MODUL MULTI

Horizontal diagonal braces

M710-B109 08.2020

Annex B,
page 9



① Circular hollow section ø57x2.9 DIN EN 10219-S235JRH
② Circular hollow section ø48.3x3.2 DIN EN 10219-S235JRH $R_{eH} \geq 320 N/mm^2$
③ Connector disc see Annex B, page 2
④ Marking

galvanised

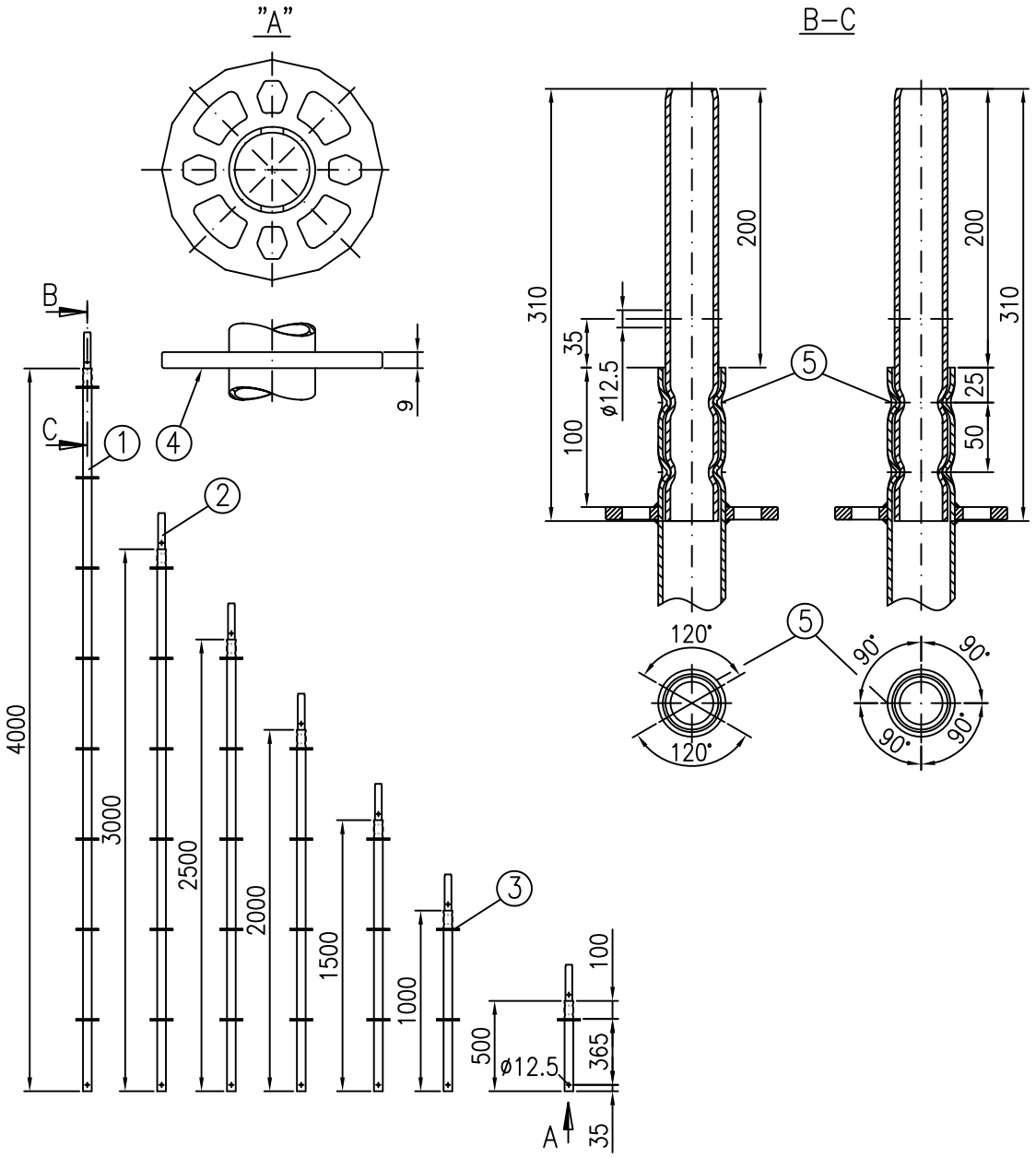
Dimens. [m]	Weight [kg]
0.41	1.8

ALFIX MODUL MULTI

Vertical starter piece

M710-B110 08.2020

Annex B,
page 10



① Circular hollow section ø48.3x3.2 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x3.6 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③ Connector disc see Annex B, page 2
④ Marking
⑤ Linear pressed connection alternatively: 4 point–joint pressed connections
galvanised

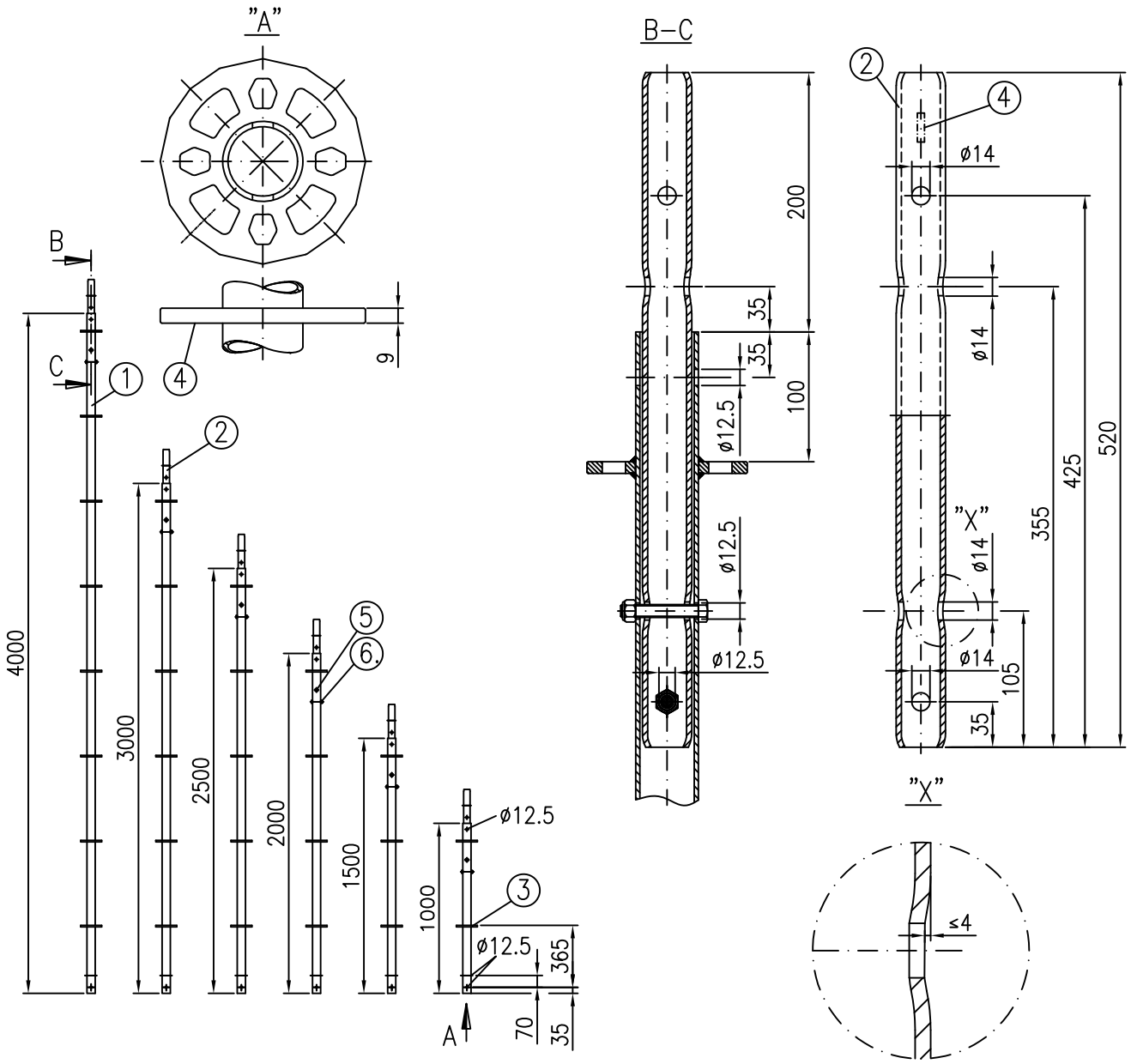
Dimens. [m]	Weight [kg]
0.50	3.2
1.00	5.5
1.50	7.7
2.00	10.1
2.50	12.3
3.00	14.6
4.00	19.2

ALFIX MODUL MULTI

Standard with tube connector 200

M710–B111 08.2020

Annex B,
page 11



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x4	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Connector disc	see Annex B, page 2	
④ Marking		
⑤ Hexagon bolt	DIN EN ISO 4014–M10x60–8.8–galvanised	
alternatively:	DIN EN ISO 4014–M12x60–8.8–galvanised	
⑥ Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised	
alternatively:	DIN EN ISO 10511–M12–8–galvanised	
galvanised		

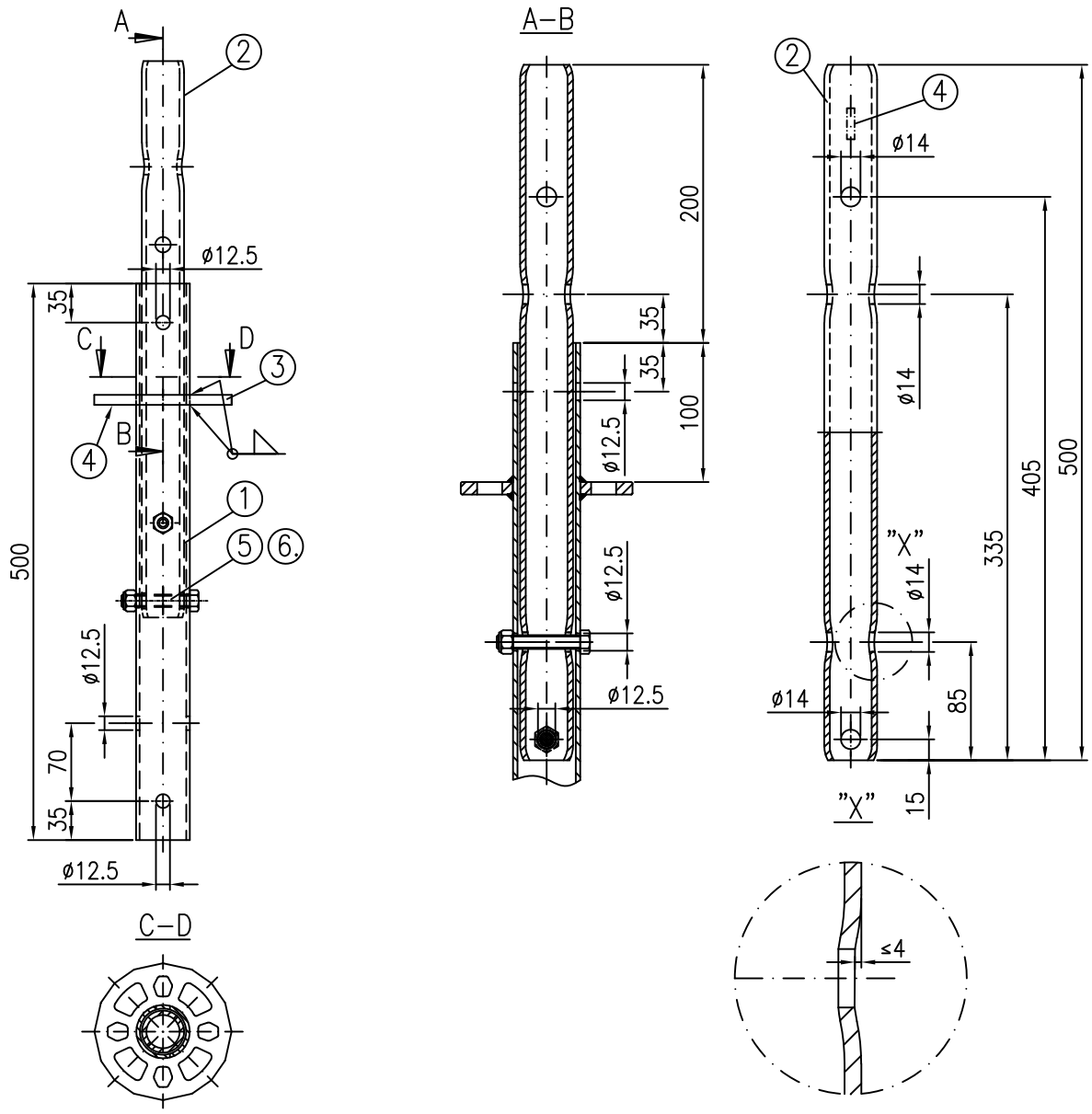
Dimens. [m]	Weight [kg]
1.00	6.2
1.50	8.5
2.00	10.8
2.50	13.0
3.00	15.3
4.00	19.9

ALFIX MODUL MULTI

Standard with screwed–in tube connector 200

M710–B112 08.2020

Annex B,
page 12



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x4	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Connector disc	see Annex B, page 2	
④ Marking		
⑤ Hexagon bolt	DIN EN ISO 4014–M10x60–8.8–galvanised	
alternatively:	DIN EN ISO 4014–M12x60–8.8–galvanised	
⑥ Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised	
alternatively:	DIN EN ISO 10511–M12–8–galvanised	
galvanised		

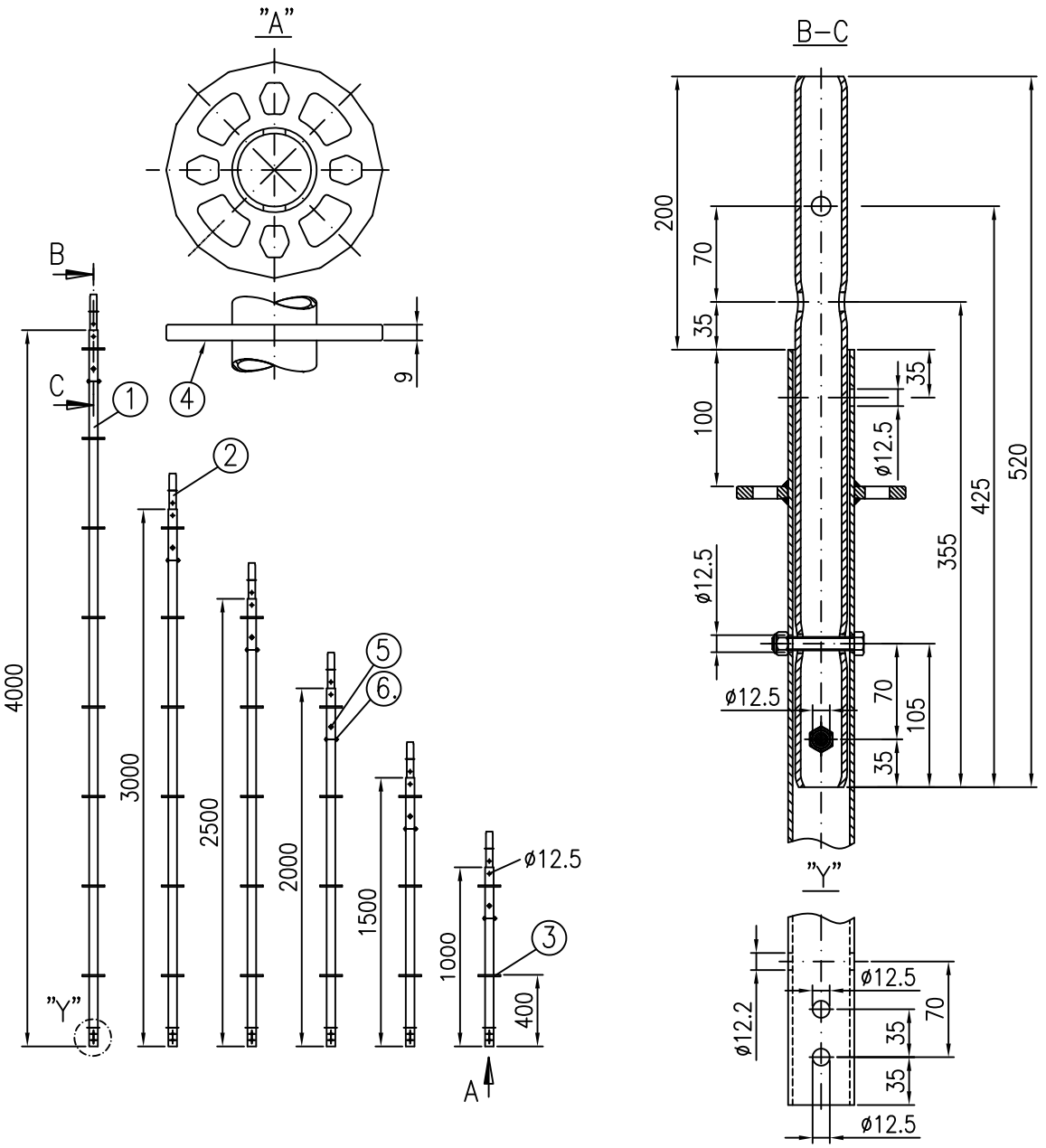
Dimens. [m]	Weight [kg]
0.50	4.0

ALFIX MODUL MULTI

Standard 0.50 m with screwed–in tube connector 500

M710–B169 08.2020

Annex B,
page 13



①	Circular hollow section ø48.3x4.05	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
②	Circular hollow section ø38x4	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$ see Annex B, page 12
③	Connector disc	see Annex B, page 2	
④	Marking		
⑤	Hexagon bolt	DIN EN ISO 4014–M10x60–8.8–galvanised	
	alternatively:	DIN EN ISO 4014–M12x60–8.8–galvanised	
⑥	Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised	
	alternatively:	DIN EN ISO 10511–M12–8–galvanised	
	galvanised		

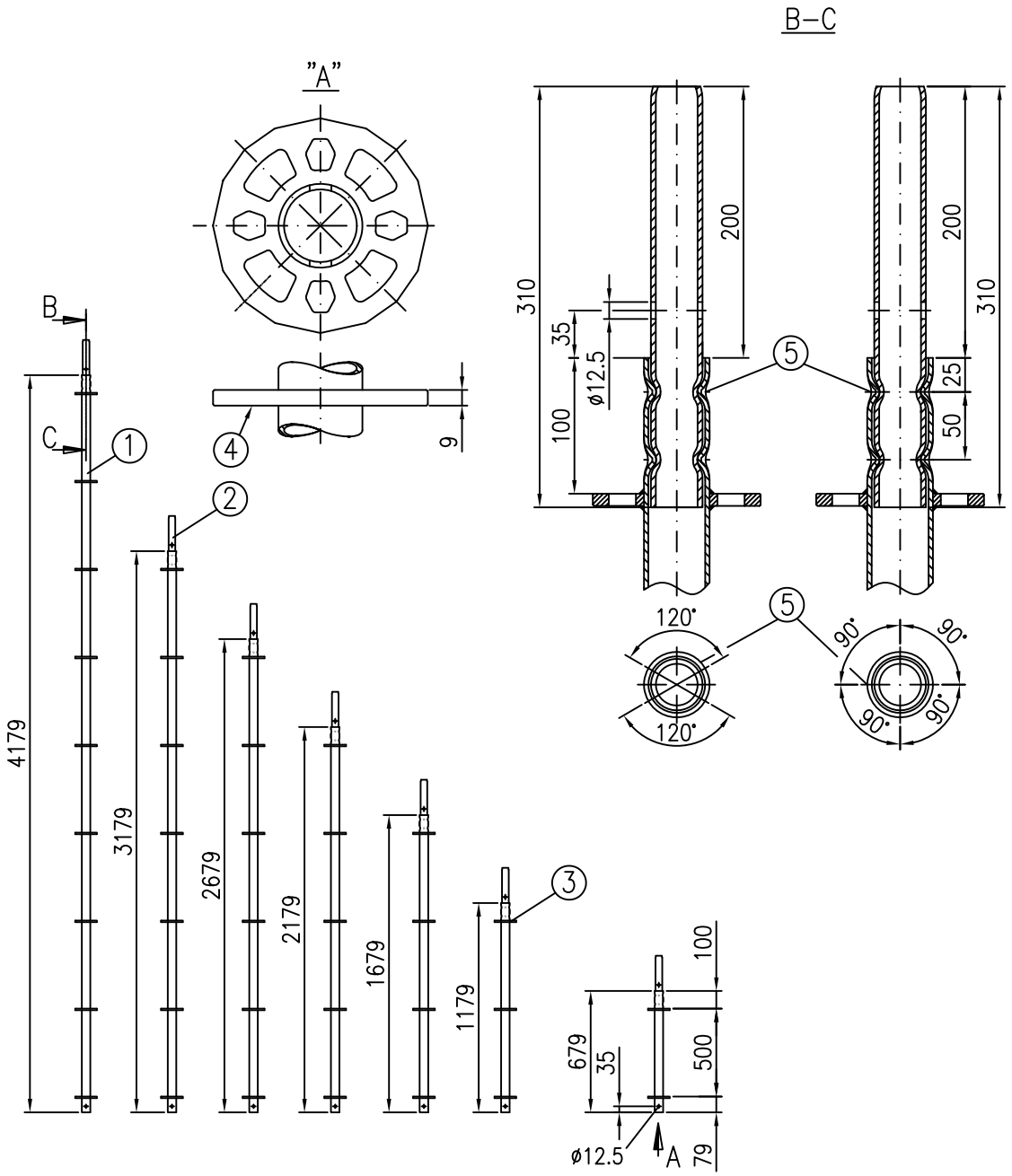
Dimens. [m]	Weight [kg]
1.00	6.9
1.50	9.5
2.00	12.2
2.50	15.0
3.00	17.6
4.00	22.6

ALFIX MODUL MULTI

Standard with screwed–in tube connector 520, s=4.05 mm

M716–B210 08.2020

Annex B,
page 14



① Circular hollow section ø48.3x3.2 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x3.6 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③ Connector disc see Annex B, page 2
④ Marking
⑤ Linear pressed connection alternatively: 4 point–joint pressed connections
galvanised

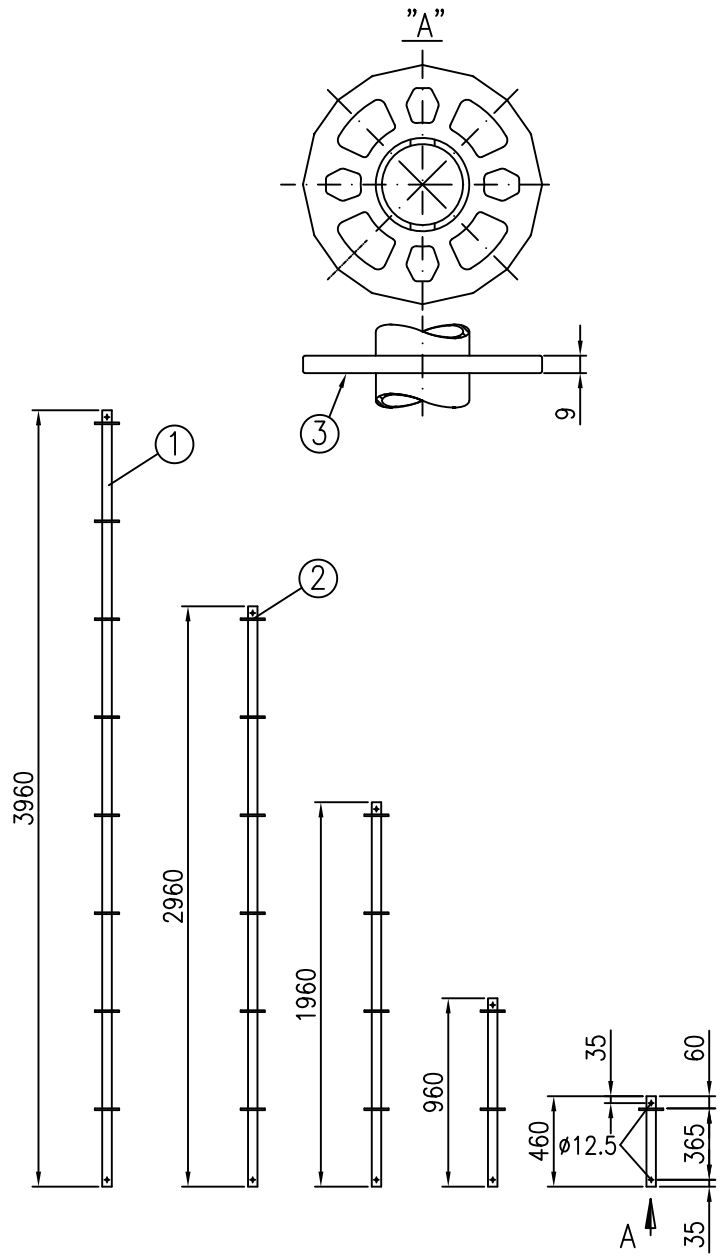
Dimens. [m]	Weight [kg]
0.66	3.9
1.16	6.0
1.66	8.0
2.16	10.2
2.66	11.7
3.16	13.8
4.16	17.7

ALFIX MODUL MULTI

Vertical starter standard

M710–B167 08.2020

Annex B,
page 15



① Circular hollow section ø48.3x3.2 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
② Connector disc see Annex B, page 2
③ Marking

galvanised

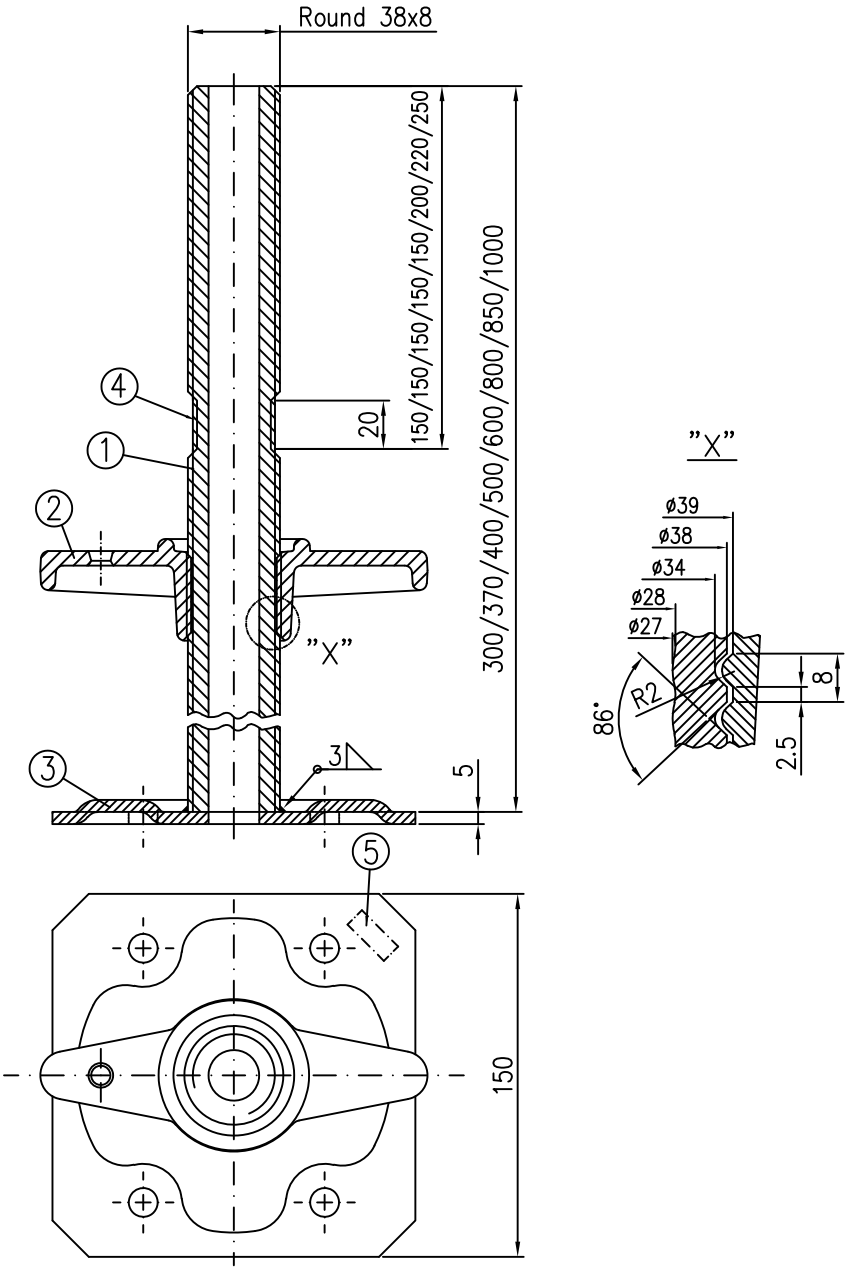
Dimens. [m]	Weight [kg]
0.46	1.9
0.96	4.0
1.96	8.3
2.96	12.5
3.96	16.8

ALFIX MODUL MULTI

Top standard

M710–B168 08.2020

Annex B,
page 16



Component no longer manufactured
–only approved for continued use–

① Thread rolled onto circular hollow section ø38x4.5 DIN EN 10219–S355J2H
② Adjusting nut DIN EN 10293–G20Mn5 electrogalvanized
③ Steel metal t=5mm DIN EN 10025–S235JR
④ Thread with 2 notches to limit collar nut travel
⑤ Marking

galvanised

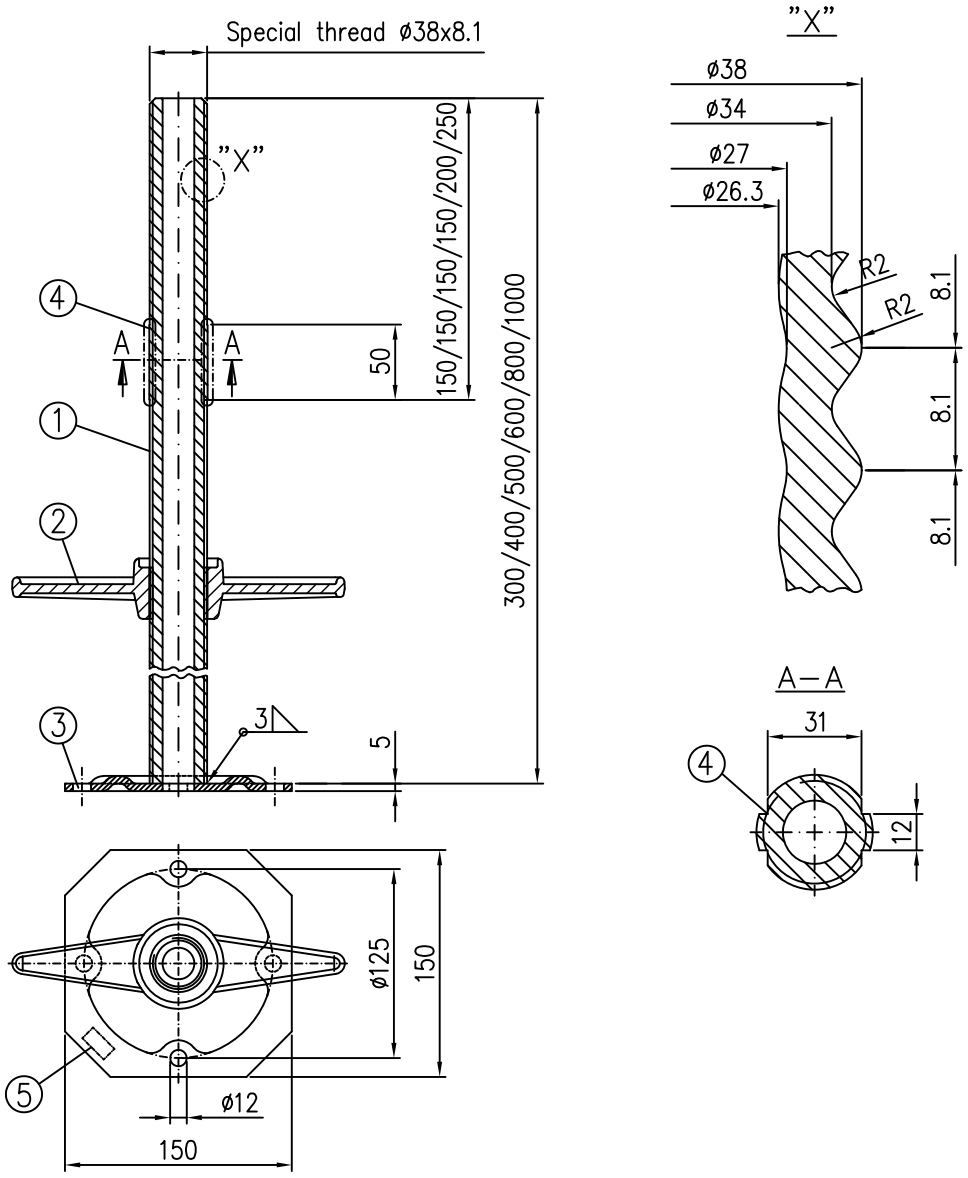
Dimens. [m]	Weight [kg]
0.30	2.5
0.40	2.9
0.50	3.2
0.60	3.6
0.80	4.3
1.00	5.0

ALFIX MODUL MULTI

Base jack
in accordance with Z–8.1–862

A709–A031_PU 09.2020

Annex B,
page 17



①	Thread rolled onto circular hollow section ø38x4.5	DIN EN 10219–S235JRH
②	Wing nut	EN 1562–EN GJMW–400–S EN 1562–EN–GJMB–450–6 EN 1563–EN–GJS–400–15 EN 10293–GE240+N EN 1562–EN–GJMW–360–12
③	Steel metal t=5mm	DIN EN 10025–S235JR
④	Thread with notches to limit collar nut travel	DIN EN 10025–S235JR
⑤	Marking	

galvanised

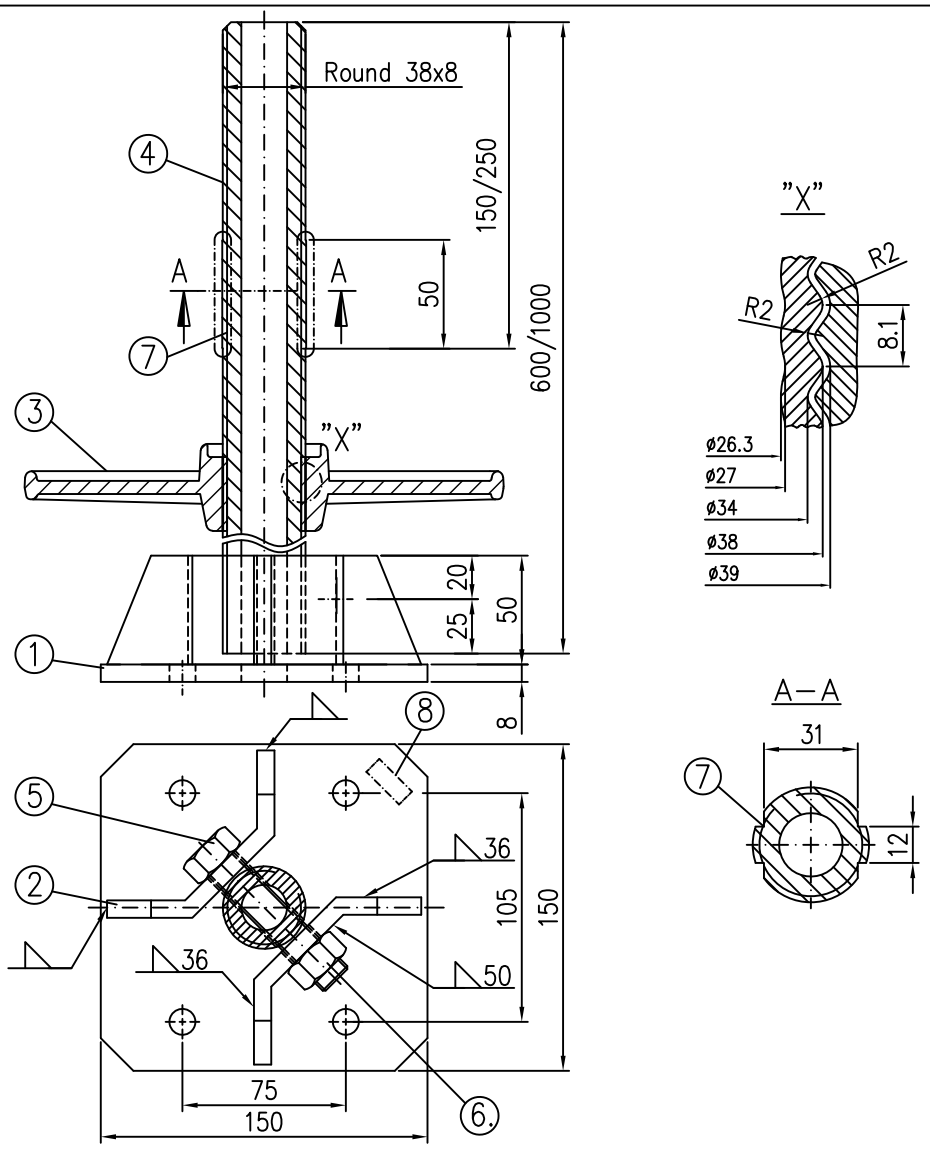
Dimens. [m]	Weight [kg]
0.30	2.6
0.40	3.0
0.50	3.4
0.60	3.6
0.80	4.4
1.00	5.2

ALFIX MODUL MULTI

AB Base jack
in accordance with Z–8.1–862

A713–A221_AMU 08.2020

Annex B,
page 18



①	Steel metal t=8mm	DIN EN 10025–S235JR
②	Flat 50x8	DIN EN 10025–S235JR
③	Wing nut	EN 1562–EN GJMW–400–S EN 1562–EN–GJMB–450–6 EN 1563–EN–GJS–400–15 EN 10293–GE240+N EN 1562–EN–GJMW–360–12 EN 10025–S235JR
④	Thread rolled onto Circular hollow section ø38x4.5	DIN EN 10219–S235JRH
⑤	Hexagon bolt	DIN EN ISO 4014–M16x75–8.8–galvanised
⑥	Hexagon nut, self–locking	DIN EN ISO 10511–M16–8–galvanised
⑦	Thread with 2 notches to limit collar nut travel	
⑧	Marking	
	galvanised; all welding seams a=3mm	

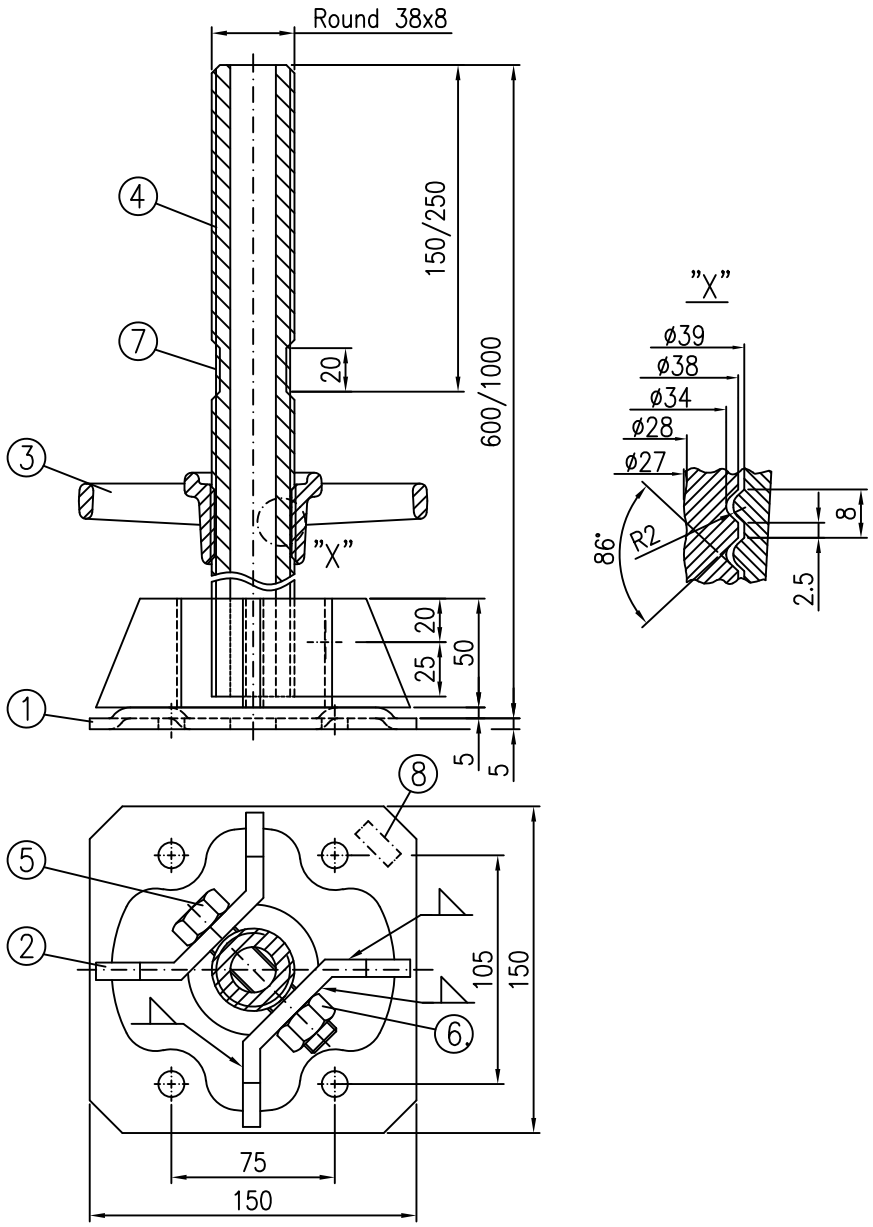
Dimens. [m]	Weight [kg]
0.60	4.5
1.00	6.6

ALFIX MODUL MULTI

Base jack with swivel base
in accordance with Z–8.1–862

A713–A222_AMU 08.2020

Annex B,
page 19



①	Steel metal t=5mm	DIN EN 10025–S235JR
②	Flat 50x8	DIN EN 10025–S235JR
③	Adjusting nut galvanized	G20Mn5 DIN EN 10293
④	Thread rolled onto circular hollow section ø38x4.5	S355J2H
⑤	Hexagon bolt	DIN EN ISO 4014–M16x75–8.8–galvanised
⑥	Hexagon nut, self–locking	DIN EN ISO 10511–M16–8–galvanised
⑦	Thread with 2 notches to limit collar nut travel	
⑧	Marking	

galvanised; all welding seams a=3mm

Component no longer manufactured
–only approved for continued use–

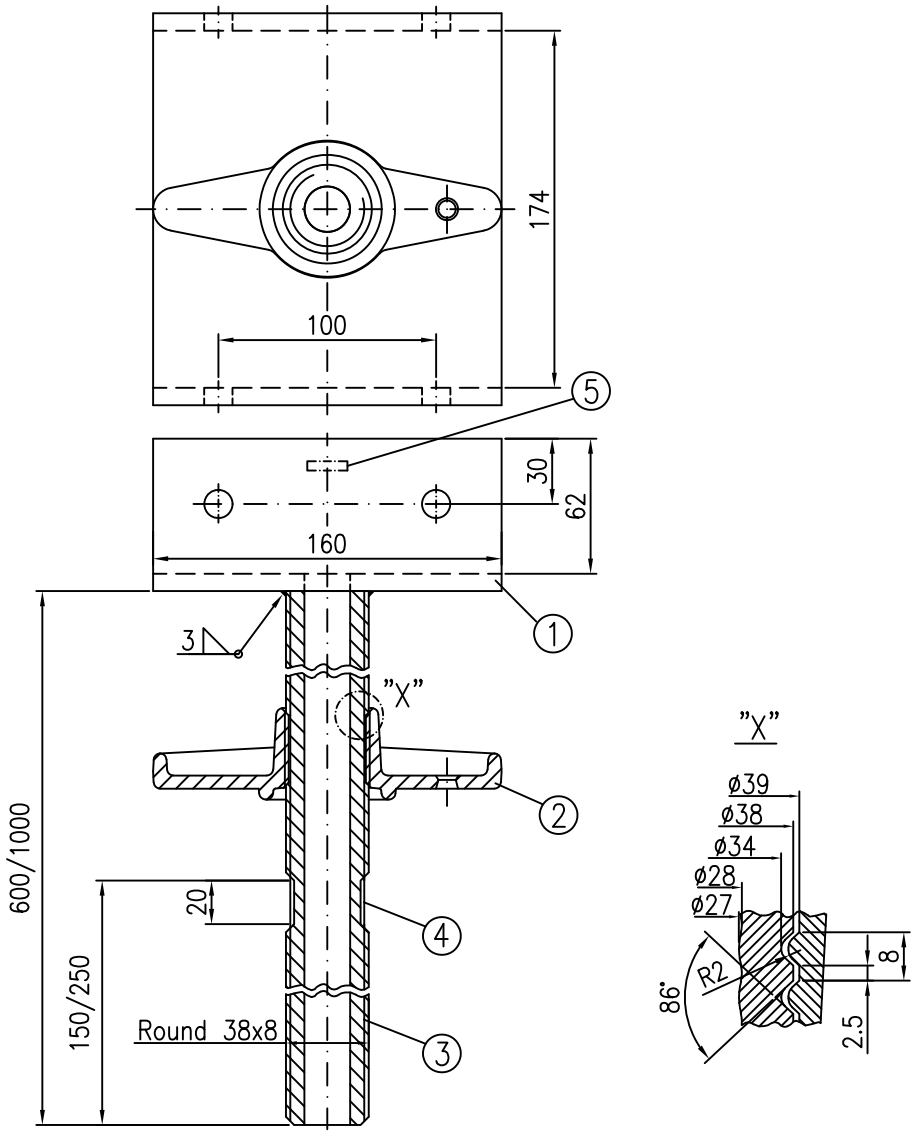
Dimens. [m]	Weight [kg]
0.60	6.0
1.00	7.0

ALFIX MODUL MULTI

Base jack with swivel base

M710–B141 09.2020

Annex B,
page 20



① Steel metal t=8mm	DIN EN 10025-S235JR
alternatively:	DIN EN 10149-S355MC
② Wing nut	EN 1562-EN GJMW-400-S
	EN 1562-EN-GJMB-450-6
	EN 1563-EN-GJS-400-15
	EN 10293-GE240+N
	EN 1562-EN-GJMW-360-12
	EN 10025-S235JR
③ Thread rolled onto circular hollow section ø38x4.5	DIN EN 10219-S355J2H
④ Thread with notches to limit collar nut travel	
⑤ Marking	
galvanised	

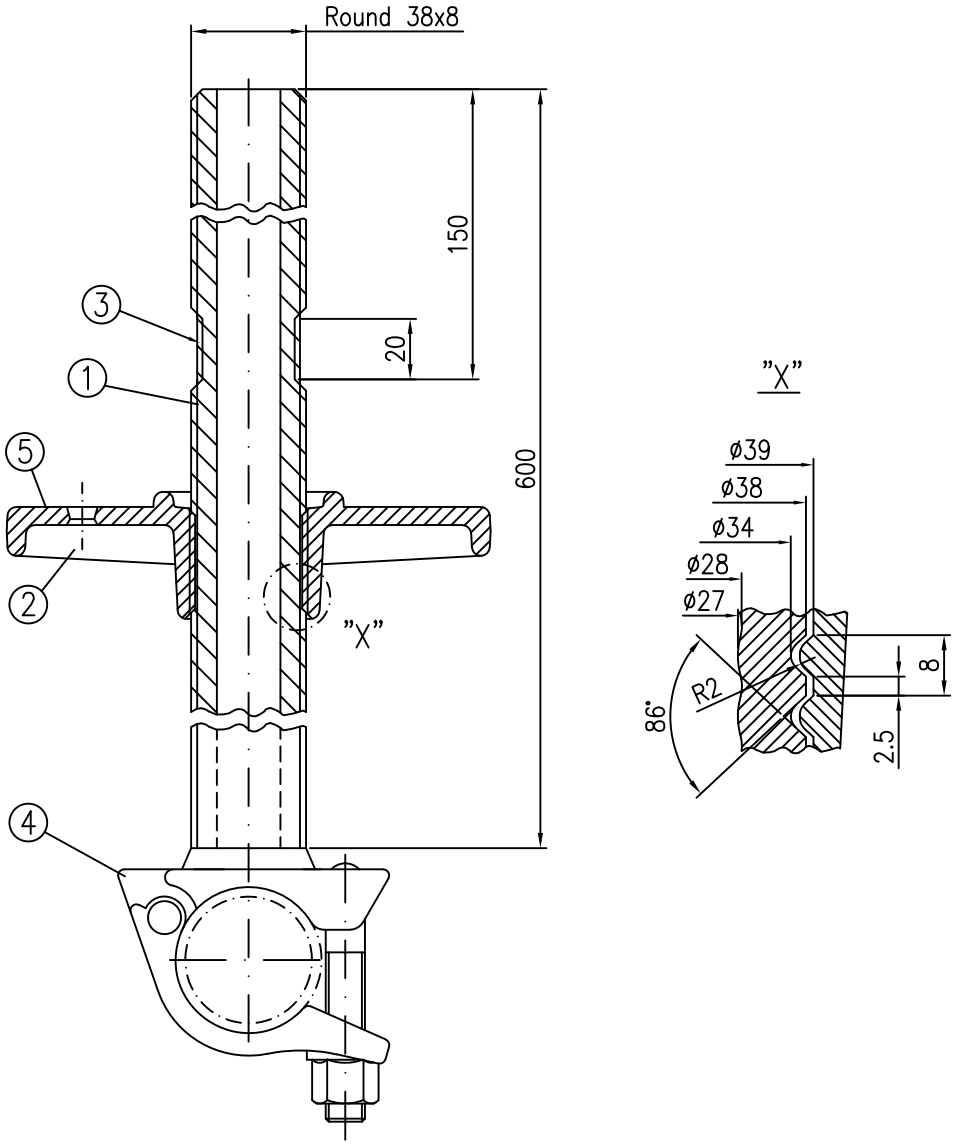
Dimens. [m]	Weight [kg]
0.60	6.0
1.00	8.0

ALFIX MODUL MULTI

U-head jack

M710-B142 08.2020

Annex B,
page 21



①	Thread rolled onto circular hollow section ø38x4.5	DIN EN 10219–S355J2H
②	Wing nut	EN 1562–EN GJMW–400–S EN 1562–EN–GJMB–450–6 EN 1563–EN–GJS–400–15 EN 10293–GE240+N EN 1562–EN–GJMW–360–12 EN 10025–S235JR
③	Thread with notches to limit collar nut travel	
④	Halfcoupler, class B	DIN EN 74–2
⑤	Marking	
	galvanised	

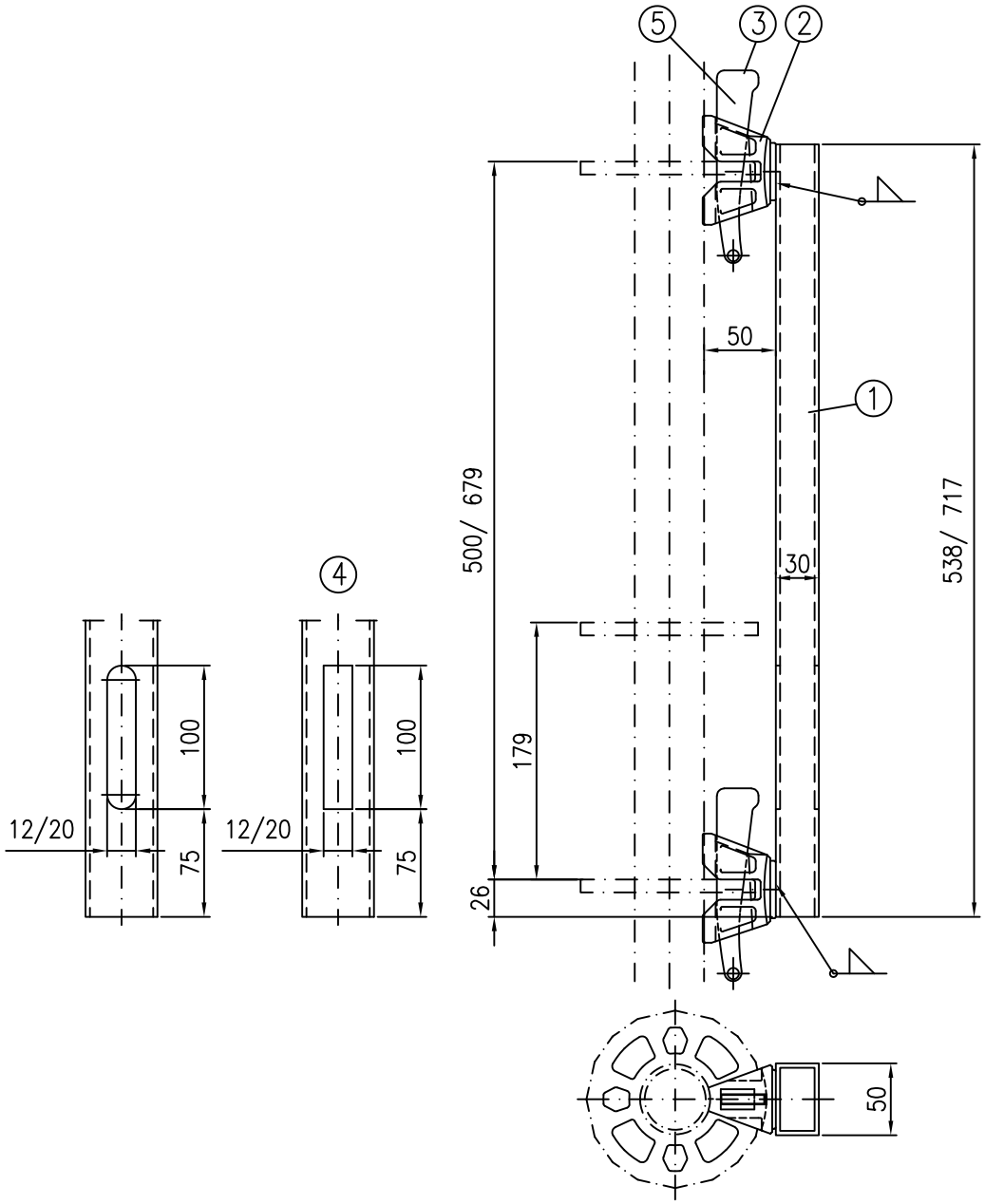
Dimens. [m]	Weight [kg]
0.60	3.2

ALFIX MODUL MULTI

Spindle coupler

M711–B201 08.2020

Annex B,
page 22



①	Rectangular hollow section 50x30x3	DIN EN 10219–S235JRH
	alternatively: Rectangular hollow section 50x30x2	DIN EN 10219–S355J2H
②	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
③	Wedge 6mm	see Annex B, page 3
④	alternatively	
⑤	Marking	For crane handling
	galvanised; all welding seams a=3mm	with an allowable load of up to 10kN

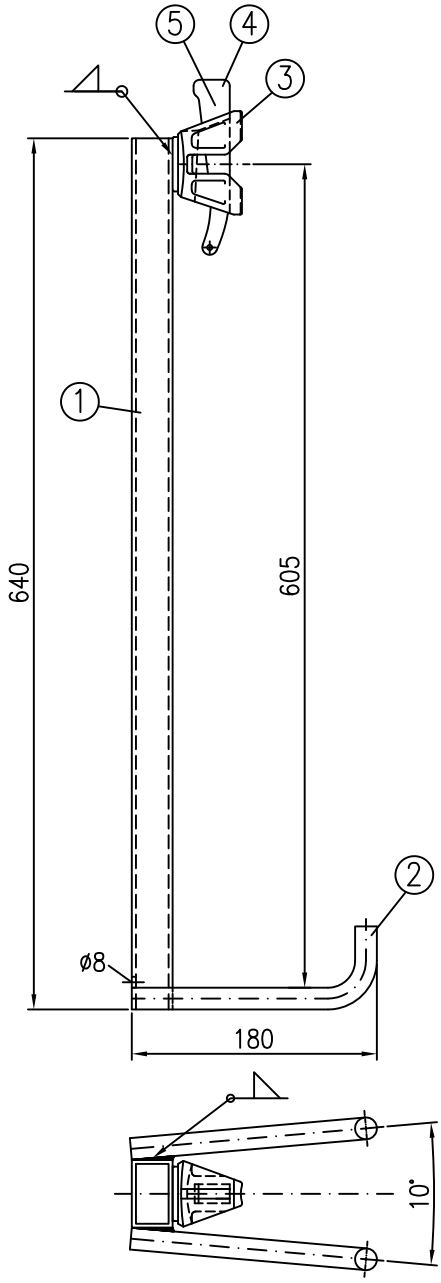
Dimens. [m]	Weight [kg]
0.60	3.0
0.80	3.6

ALFIX MODUL MULTI

Suspended scaffolding connector

M711–B205 08.2020

Annex B,
page 23



①	Rectangular hollow section 50x30x3	DIN EN 10219–S235JRH
	alternatively: Rectangular hollow section 50x30x2	DIN EN 10219–S355J2H
②	Round ø16	DIN EN 10025–S235JR
③	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	
	galvanised; all welding seams a=3mm	

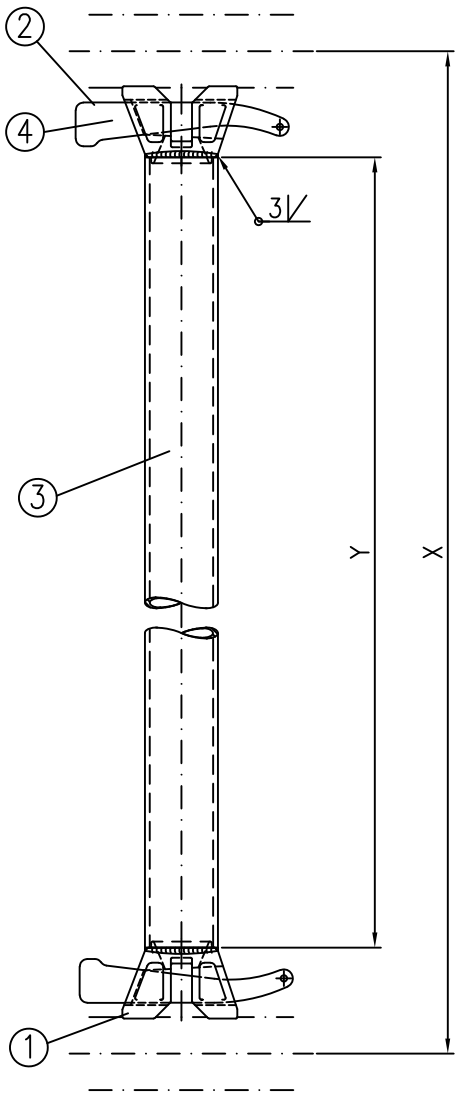
Dimens. [m]	Weight [kg]
0.65	3.5

ALFIX MODUL MULTI

Locking device for base jack

M710–B143 08.2020

Annex B,
page 24



"X" [m]	"X" [mm]	"Y" [mm]	Weight [kg]
0.36	356	215	1.8
0.37	366	225	1.8
0.39	390	249	2.0
0.45	450	309	2.3
0.50	500	359	2.5
0.73	732	591	3.2
1.04	1036	895	4.2
1.09	1088	947	4.5
1.29	1286	1145	5.0
1.40	1400	1259	5.6
1.57	1572	1431	6.3
2.07	2072	1931	8.1
2.57	2572	2431	9.9
3.07	3072	2931	11.8
4.14	4144	4003	16.5

① Connection of tube ledger — see Annex B, page 4
② Wedge 6mm — see Annex B, page 3
③ Circular hollow section ø48.3x3.2 — DIN EN 10219–S235JRH — $R_{eH} \geq 320 N/mm^2$
④ Marking

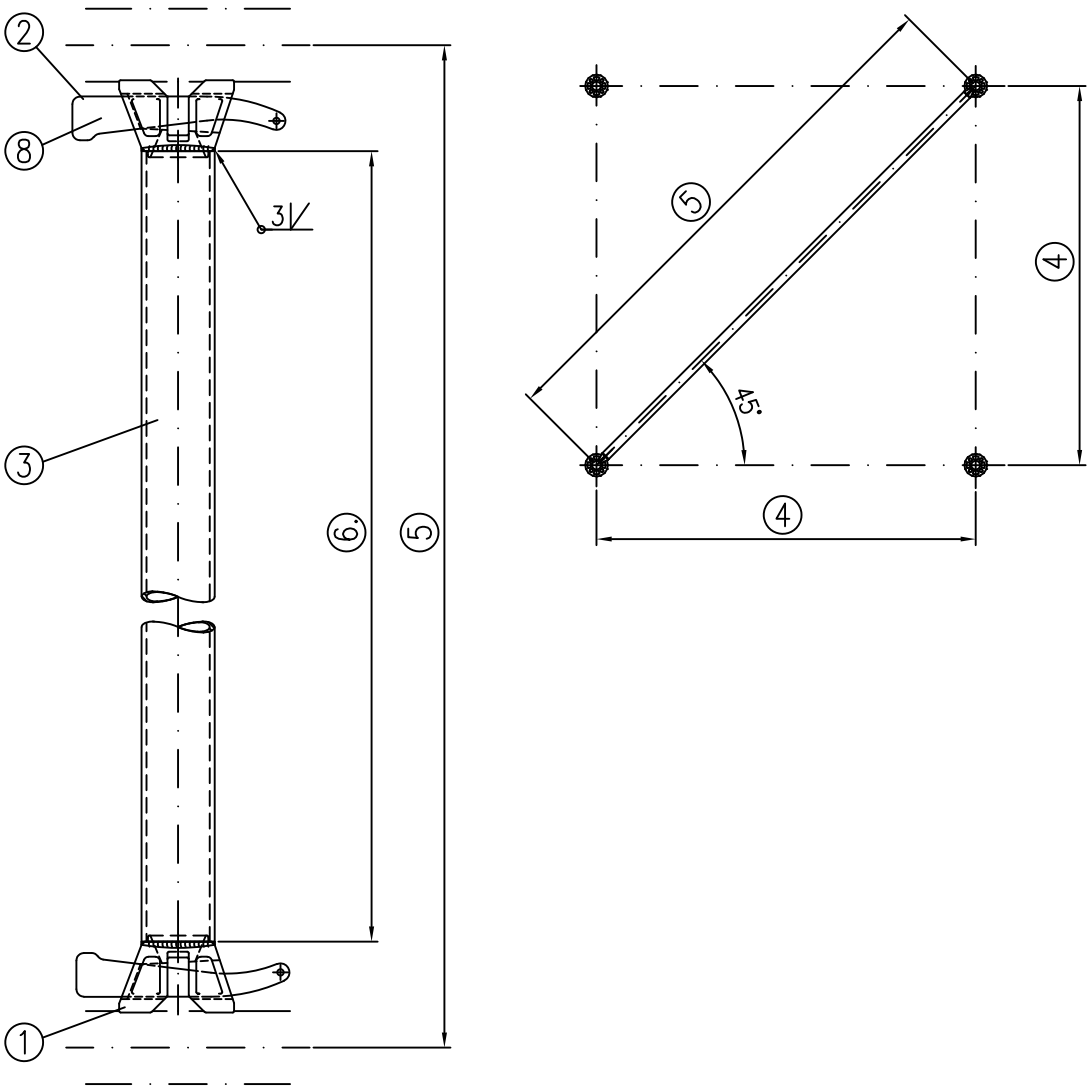
galvanised

ALFIX MODUL MULTI

Tube ledger

M710–B113 08.2020

Annex B,
page 25



① Connection of tube ledger	see Annex B, page 4	
② Wedge 6mm	see Annex B, page 3	
③ Circular hollow section ø48.3x3.2	DIN EN 10219-S235JRH	$R_{eH} \geq 320 N/mm^2$
④ Bay width		
⑤ Bay-diagonal brace		
⑥ Length pos. 3		
⑦ Weight		
⑧ Marking		
galvanised		

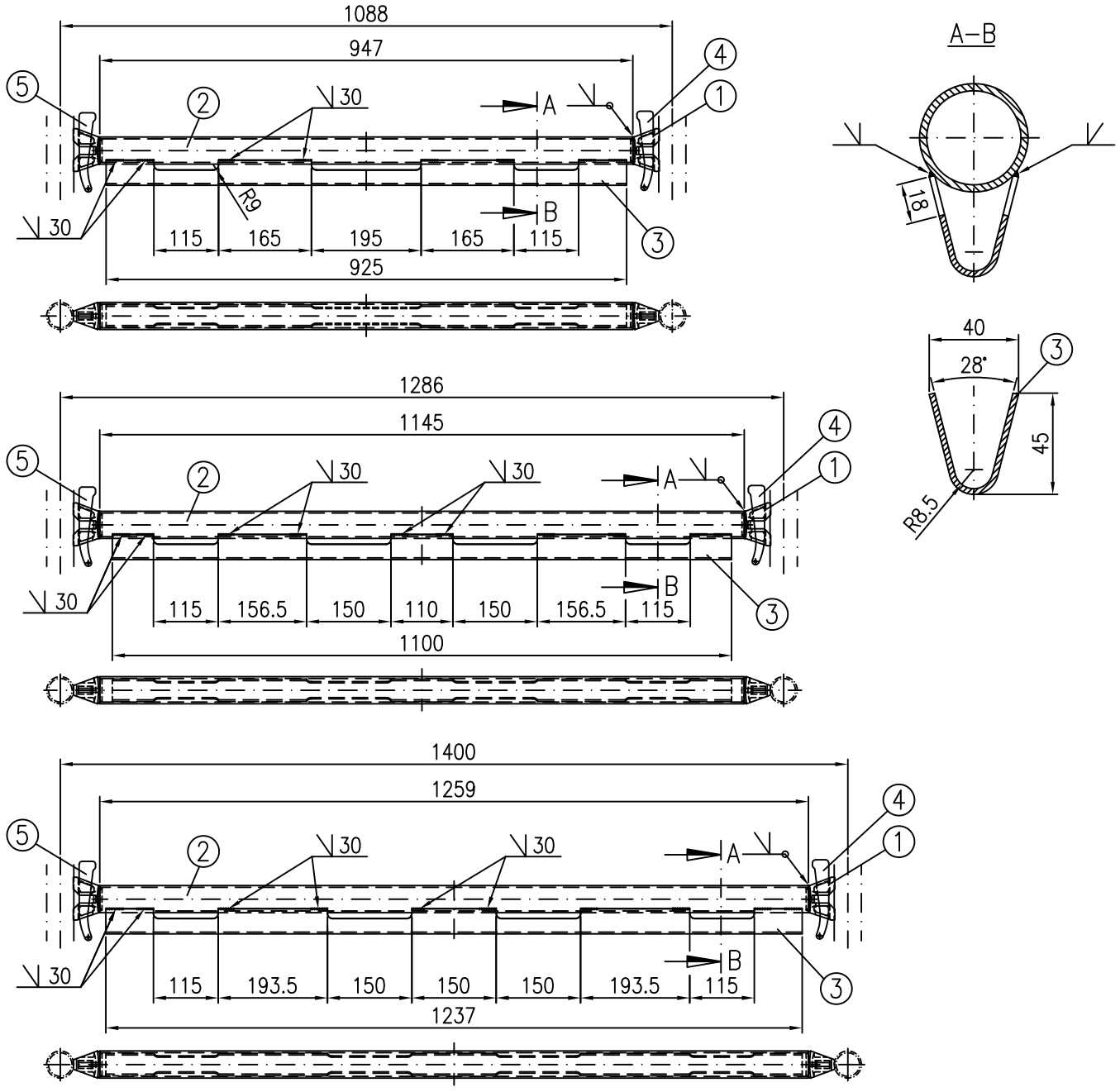
④ [m]	④ [mm]	⑤ [mm]	⑥ [mm]	⑦ [kg]
0.73	732	1035	894	4.2
1.09	1088	1539	1398	6.0
1.29	1286	1819	1678	7.0
1.40	1400	1980	1839	7.5
1.57	1572	2223	2082	8.5
2.07	2072	2930	2789	10.8
2.57	2572	3637	3496	13.3
3.07	3072	4344	4203	15.5

ALFIX MODUL MULTI

Horizontal diagonal ledger

M711-B202 08.2020

Annex B,
page 26



① Connection of tube ledger	see Annex B, page 4	
② Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Steel metal s=3mm	DIN EN 10025–S235JR	
④ Wedge 6mm	see Annex B, page 3	
⑤ Marking		

galvanised; all welding seams a=3mm

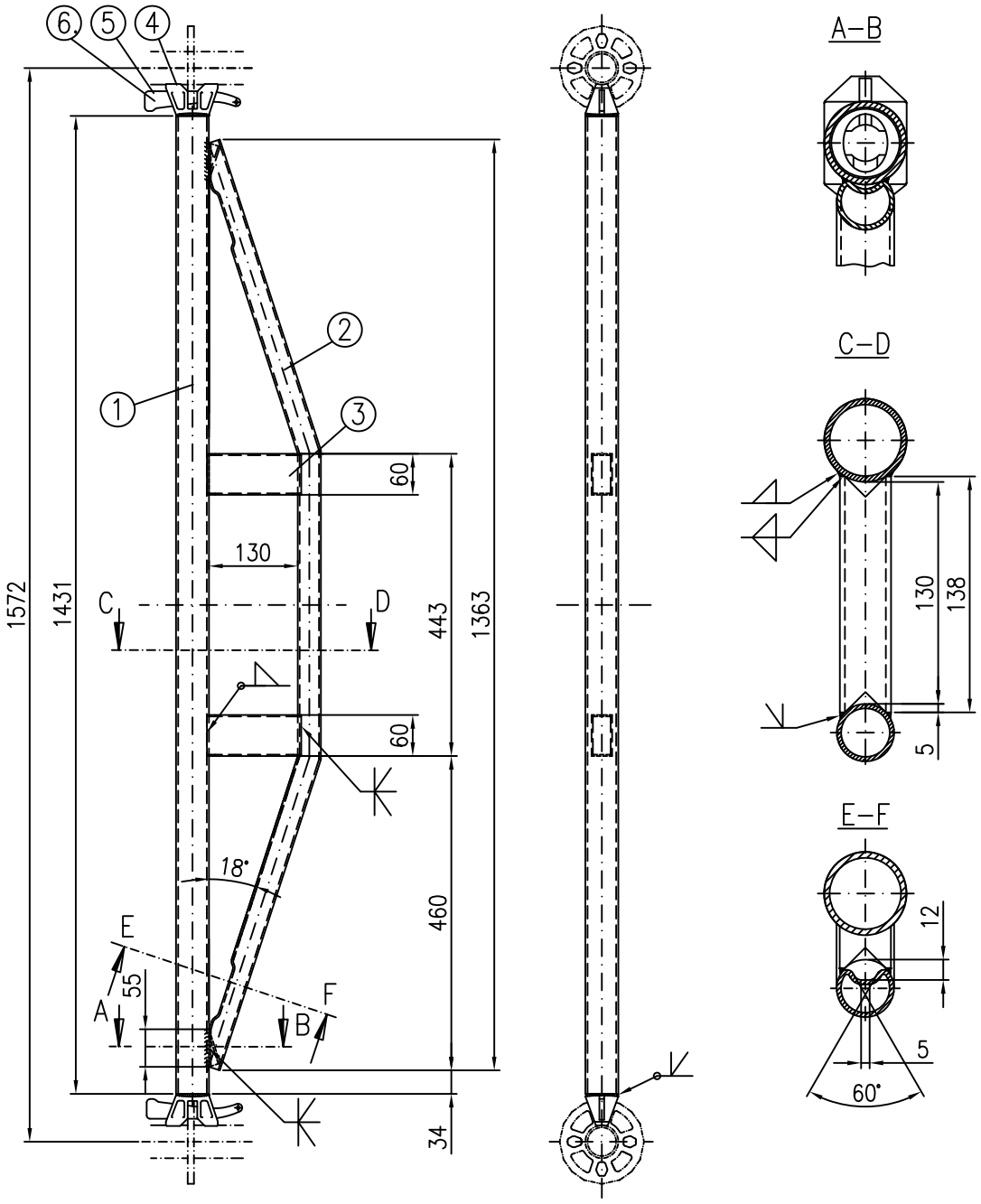
Dimens. [m]	Weight [kg]
1.09	5.9
1.29	7.1
1.40	8.0

ALFIX MODUL MULTI

Tube ledger, reinforced

M710–B114 08.2020

Annex B,
page 27



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of tube ledger	see Annex B, page 4	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking		

galvanised; all welding seams a=3mm

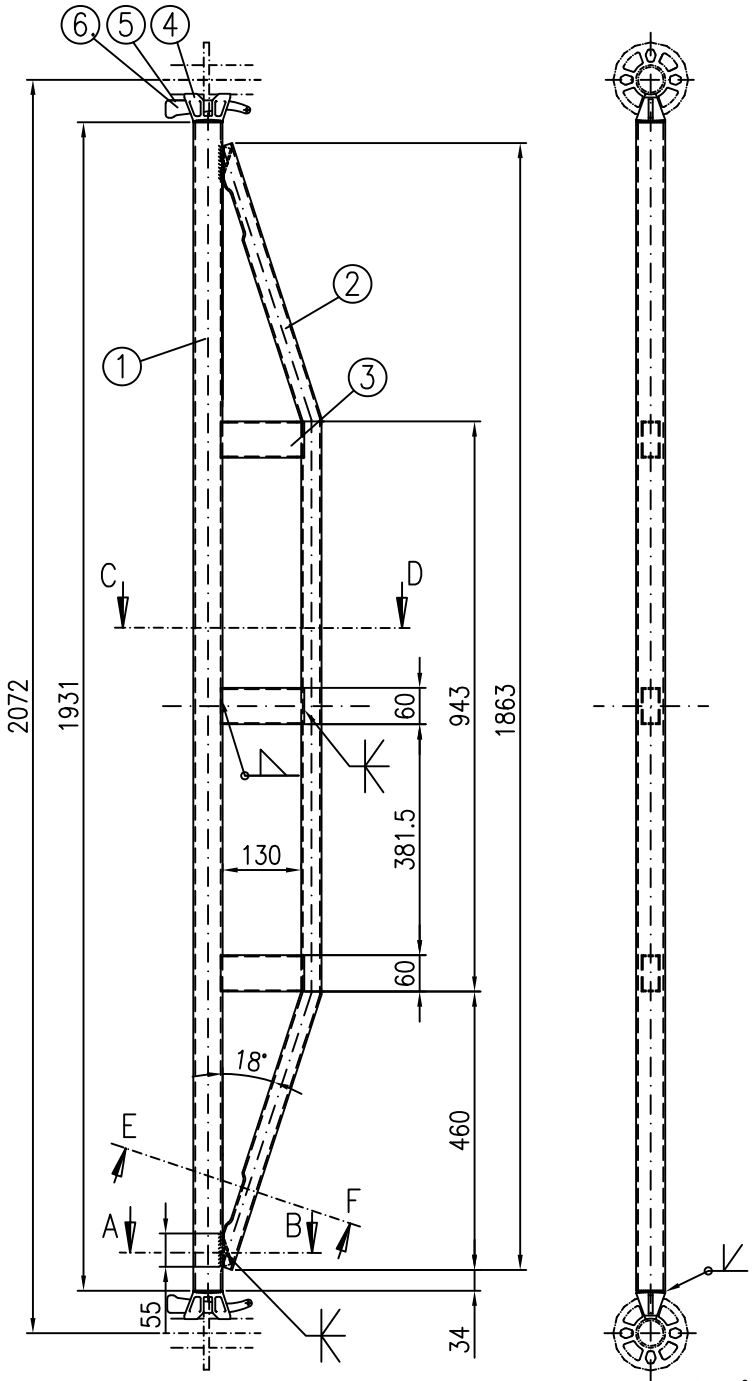
Dimens. [m]	Weight [kg]
1.57	9.8

ALFIX MODUL MULTI

Double tube ledger 1.57 m

M710–B156 08.2020

Annex B,
page 28



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of tube ledger	see Annex B, page 4	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking		

galvanised; all welding seams a=3mm — for sectional views see Annex B, page 28

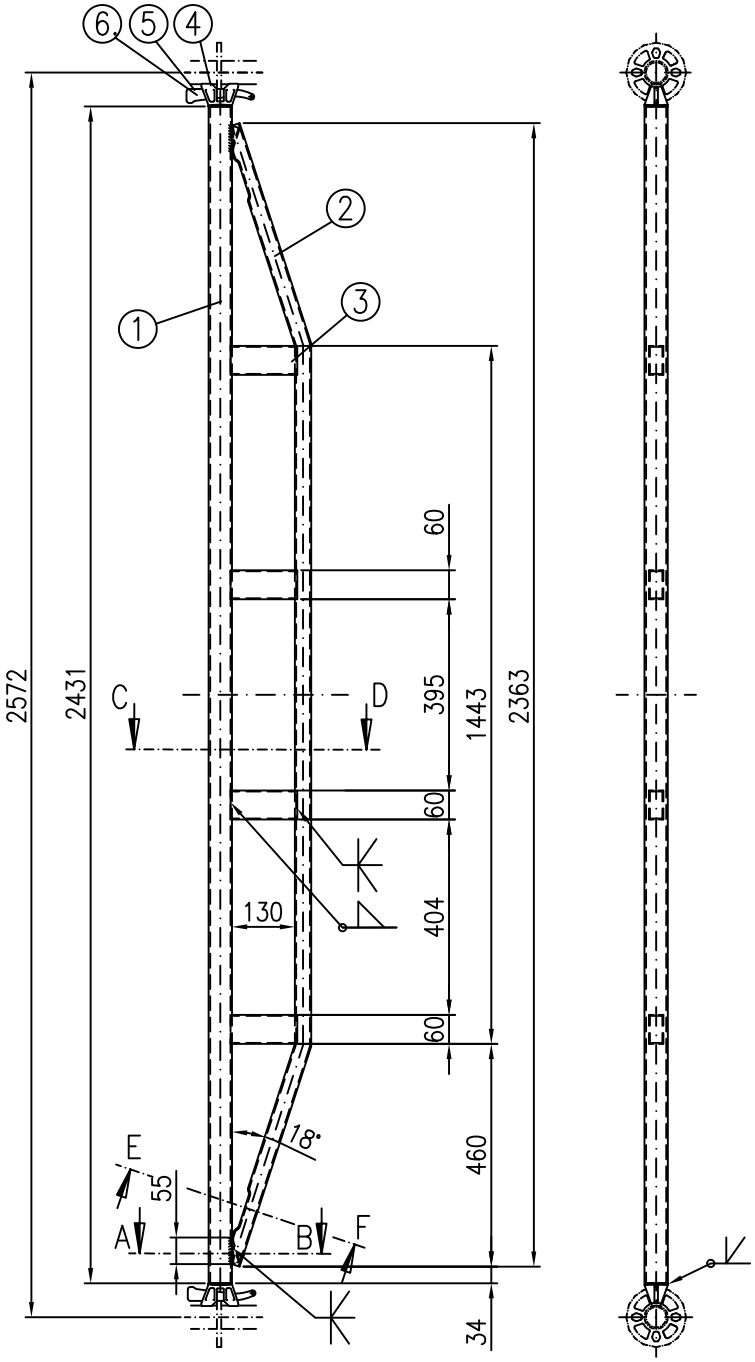
Dimens. [m]	Weight [kg]
2.07	12.7

ALFIX MODUL MULTI

Double tube ledger 2.07 m

M710–B157 08.2020

Annex B,
page 29



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of tube ledger	see Annex B, page 4	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking		

galvanised; all welding seams a=3mm

for sectional views see Annex B, page 28

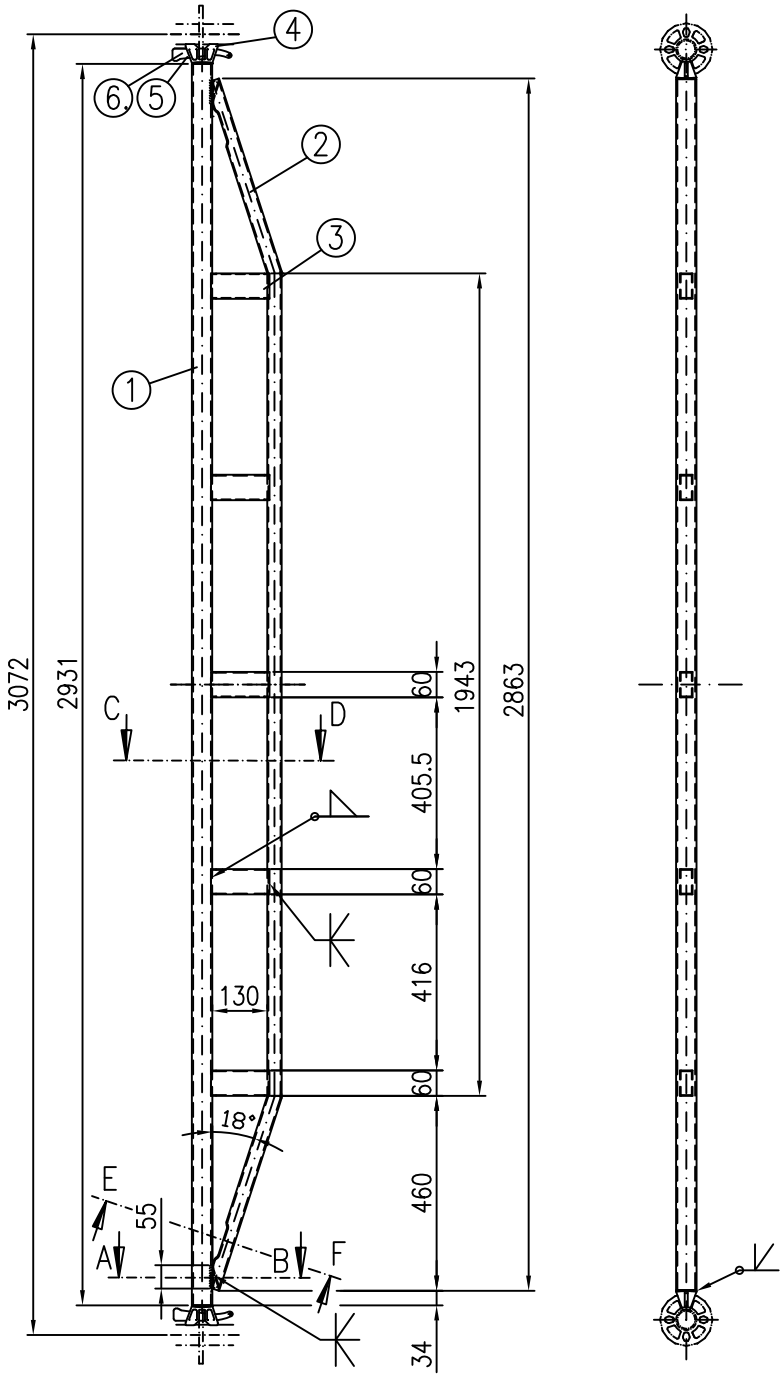
Dimens. [m]	Weight [kg]
2.57	16.4

ALFIX MODUL MULTI

Double tube ledger 2.57 m

M710–B158 08.2020

Annex B,
page 30



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of tube ledger	see Annex B, page 4	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking		

galvanised; all welding seams a=3mm for sectional views see Annex B, page 28

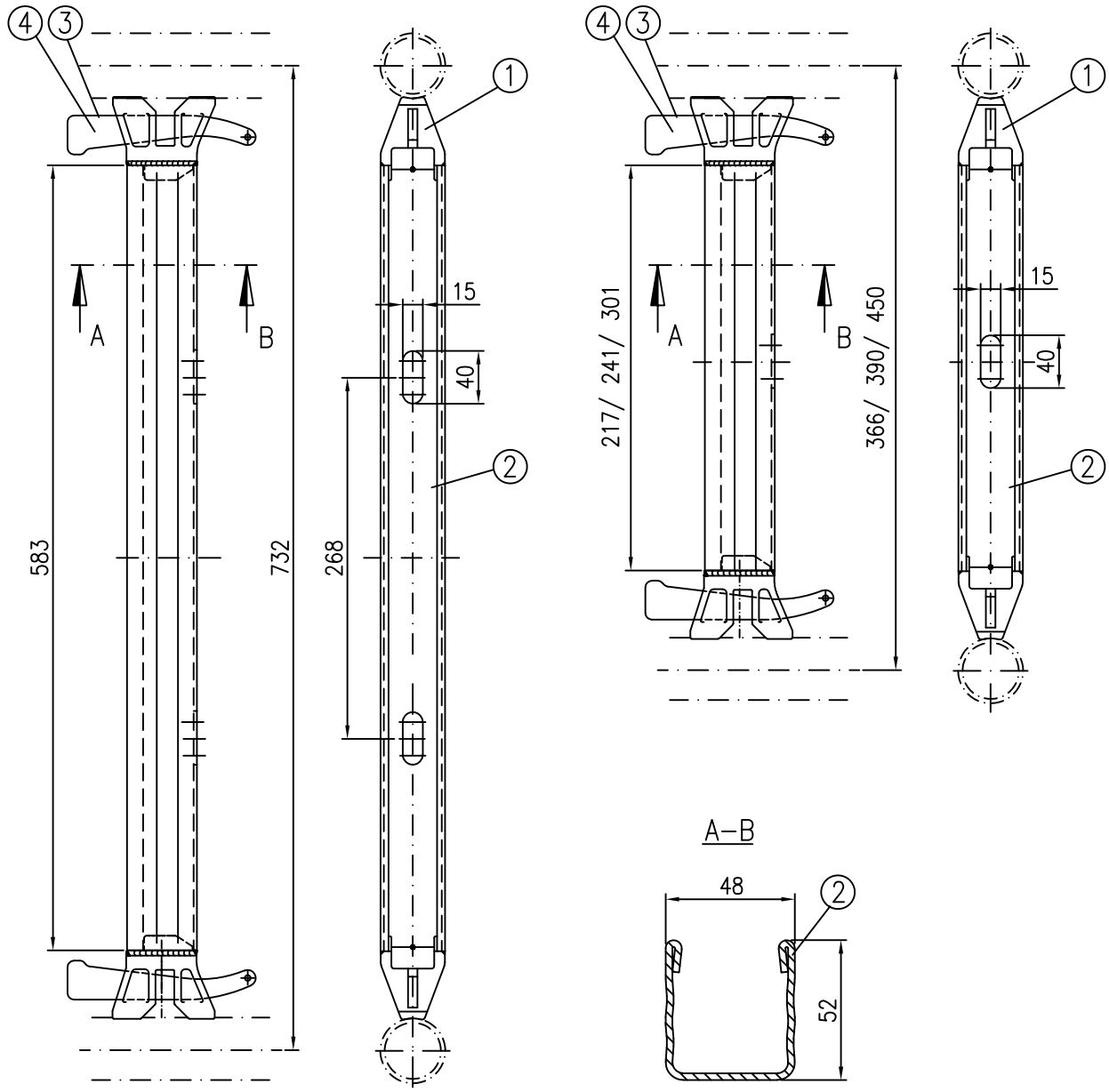
Dimens. [m]	Weight [kg]
3.07	19.5

ALFIX MODUL MULTI

Double tube ledger 3.07 m

M710–B159 08.2020

Annex B,
page 31



① Connection of U-ledger (I) — see Annex B, page 5
alternatively: Connection of U-ledger 4.0 (II) — see Annex B, page 153
② U-profile 48x52x2.5 (III) — DIN EN 10025-S235JR
alternatively: (IV) — DIN EN 10149-2-S460MC
③ Wedge 6mm — see Annex B, page 3
④ Marking

galvanised; all welding seams a=3mm see Annex B, page 5

allowed combination		
	III	IV
I	x	x
II	–	x

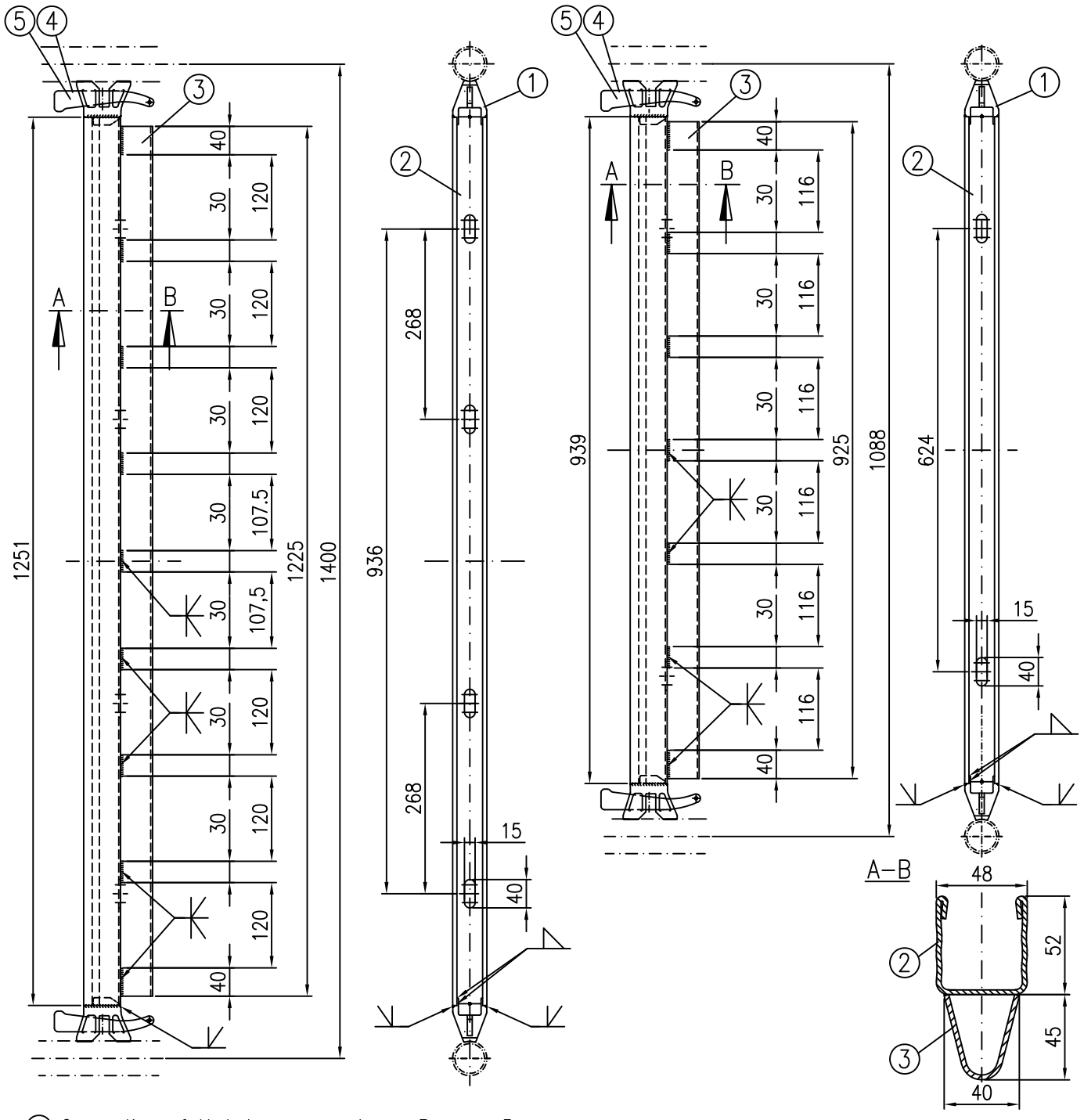
Dimens. [m]	Weight [kg]
0.37	1.8
0.39	1.9
0.45	2.0
0.73	3.0

ALFIX MODUL MULTI

U-ledger 0.37 m; 0.39 m, 0.45 m, 0.73 m

M710-B115 10.2021

Annex B,
page 32



① Connection of U–ledger	see Annex B, page 5	
② U–profile 48x52x2.5	see Annex B, page 32	
③ Steel metal s=3mm	see Annex B, page 27	
④ Wedge 6mm	see Annex B, page 3	
⑤ Marking		
galvanised		

Component no longer manufactured
–only approved for continued use–

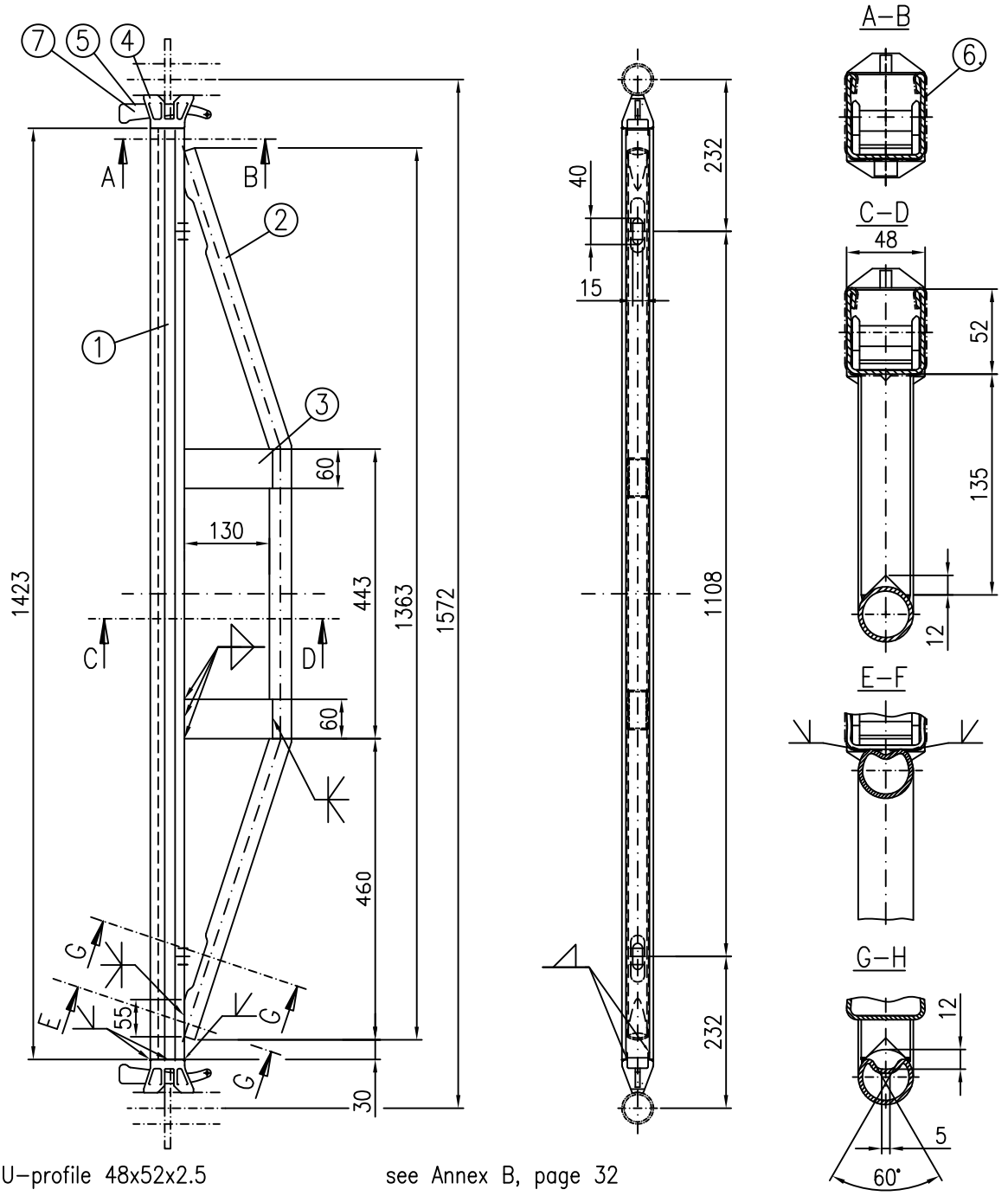
Dimens. [m]	Weight [kg]
1.09	5.3
1.40	7.9

ALFIX MODUL MULTI

U–ledger 1.09 m and 1.40 m, reinforced

M710–B116 09.2020

Annex B,
page 33



① U–profile 48x52x2.5	see Annex B, page 32	
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of U–ledger	see Annex B, page 5	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Welding section		
⑦ Marking		

Component no longer manufactured
–only approved for continued use–

galvanised; all welding seams a=2.5mm; all V–seams a=3mm

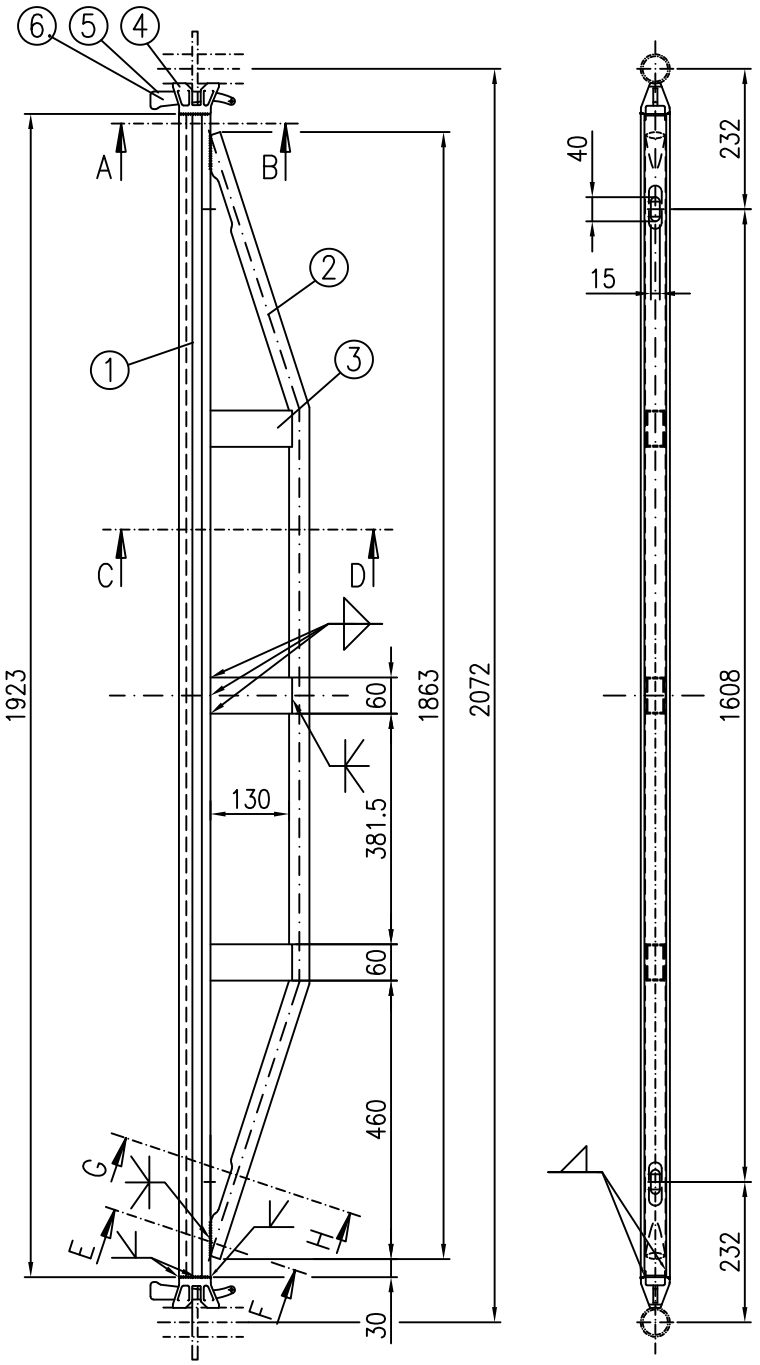
Dimens. [m]	Weight [kg]
1.57	9.2

ALFIX MODUL MULTI

U–2–deck bearer 1.57 m

M710–B152 09.2020

Annex B,
page 34



① U−profile 48x52x2.5	see Annex B, page 32	
② Circular hollow section ø33.7x2.6	DIN EN 10219−S235JRH $R_{eH} \geq 320 N/mm^2$	Component no longer manufactured
③ Rectangular hollow section 60x30x2	DIN EN 10219−S235JRH	−only approved for continued use−
④ Connection of U−ledger	see Annex B, page 5	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking	for sectional views see Annex B, page 34	

galvanised; all welding seams a=2.5mm; all V−seams a=3mm

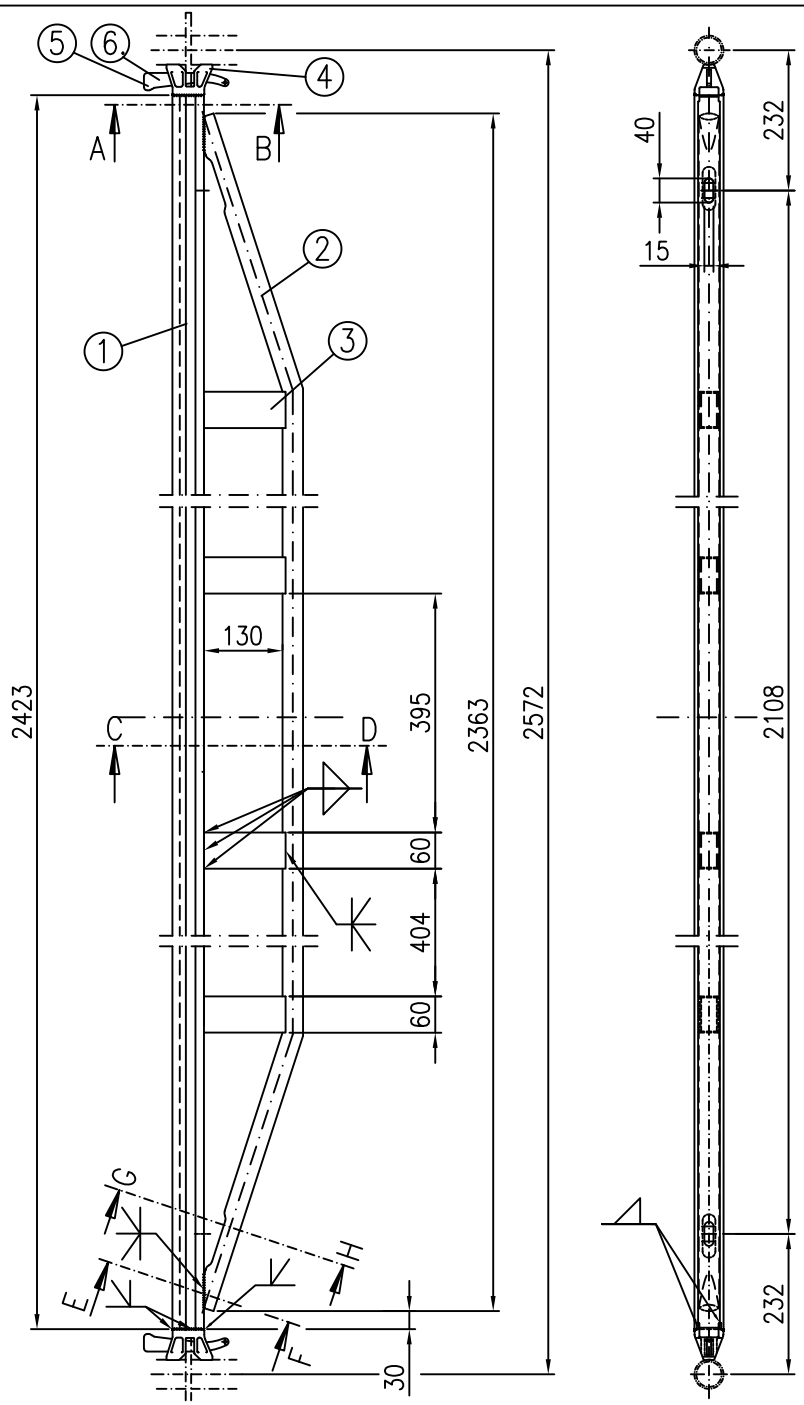
Dimens. [m]	Weight [kg]
2.07	12.4

ALFIX MODUL MULTI

U−2−deck bearer 2.07 m

M710−B153 09.2020

Annex B,
page 35



① U–profile 48x52x2.5	see Annex B, page 32	
② Circular hollow section ø33.7x2.6	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$	Component no longer manufactured –only approved for continued use–
③ Rectangular hollow section 60x30x2	DIN EN 10219–S235JRH	
④ Connection of U–ledger	see Annex B, page 5	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking	for sectional views see Annex B, page 34	

galvanised; all welding seams a=2.5mm; all V–seams a=3mm

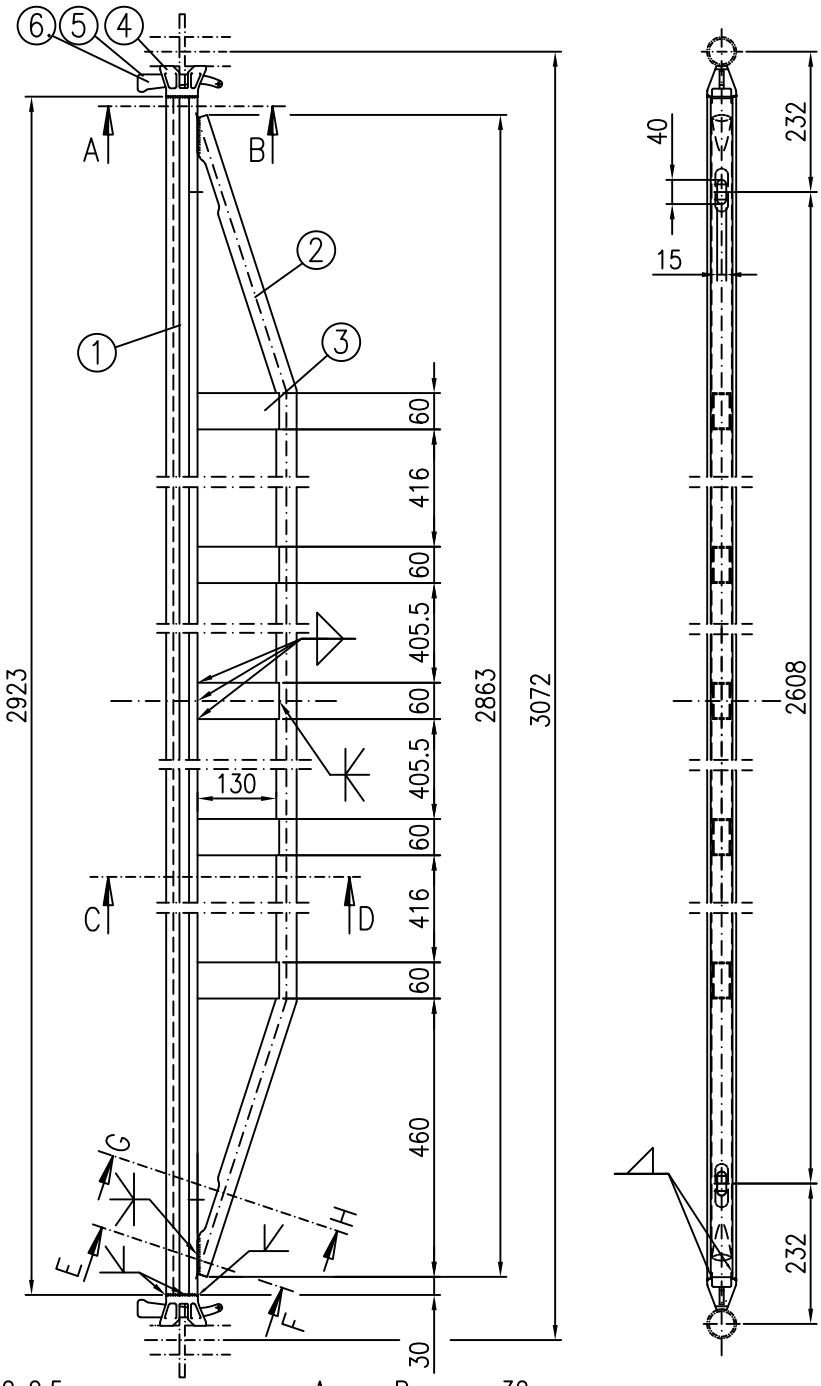
Dimens. [m]	Weight [kg]
2.57	15.1

ALFIX MODUL MULTI

U–2–deck bearer 2.57 m

M710–B154 09.2020

Annex B,
page 36



① U−profile 48x52x2.5	see Annex B, page 32	
② Circular hollow section ø33.7x2.6	DIN EN 10219−S235JRH $R_{eH} \geq 320 N/mm^2$	Component no longer manufactured −only approved for continued use−
③ Rectangular hollow section 60x30x2	DIN EN 10219−S235JRH	
④ Connection of U−ledger	see Annex B, page 5	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ Marking	for sectional views see Annex B, page 34	

galvanised; all welding seams a=2.5mm; all V−seams a=3mm

Dimens. [m]	Weight [kg]
3.07	18.1

ALFIX MODUL MULTI

U−2−deck bearer 3.07 m

M710−B155 09.2020

Annex B,
page 37

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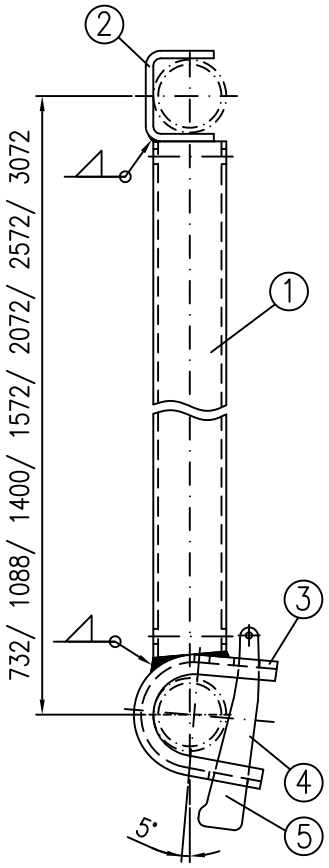

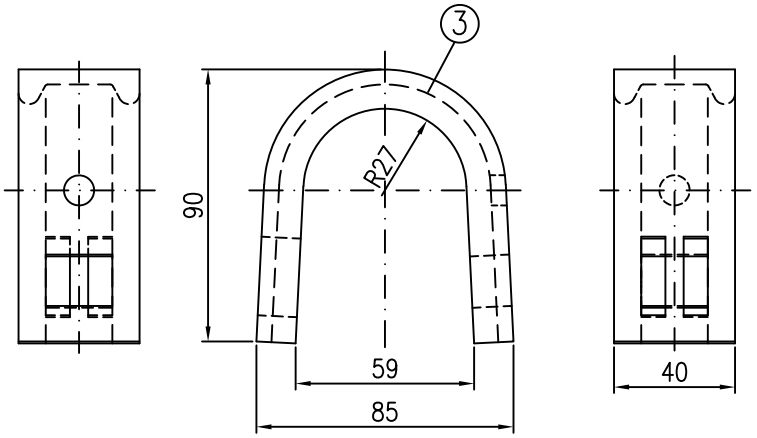

① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
alternatively: Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH	
② Steel plate 50x5	DIN EN 10025–S235JR	
③ Bended profile section 40x13x5x6.5	DIN EN 10025–S235JR	
④ Wedge 6mm	see Annex B, page 3	
⑤ Marking		
galvanised; all welding seams a=3mm		

Dimens. [m]	Weight [kg]
0.73	3.4
1.09	4.7
1.40	6.0
1.57	7.8
2.07	9.9
2.57	12.1
3.07	14.6

ALFIX MODUL MULTI

Support ledger with tube fixture

M710–B146 08.2020

Annex B,
page 40

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ALFIX MODUL MULTI	Annex B, page 41
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ALFIX MODUL MULTI	
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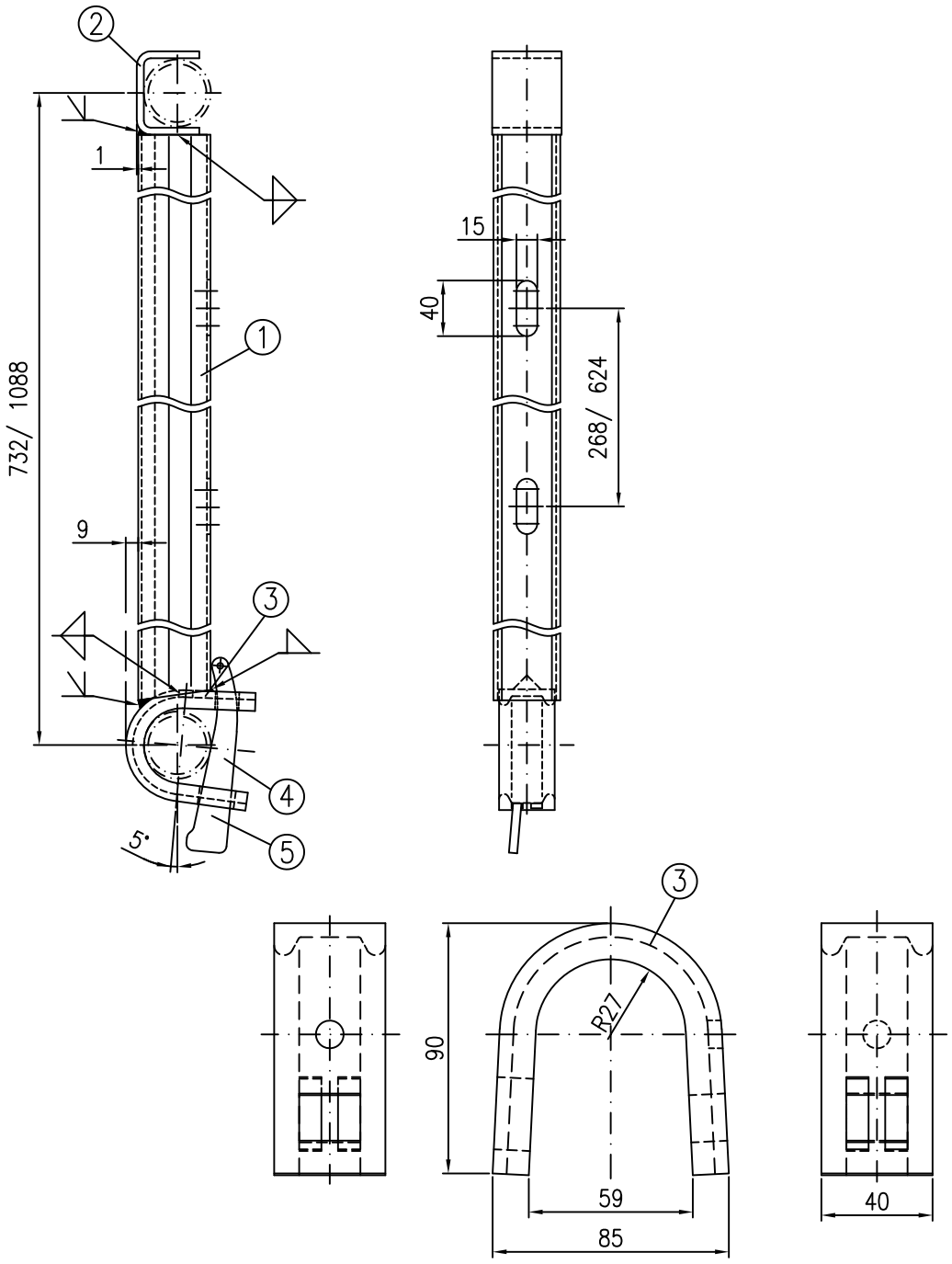


①	U–profile 48x52x2.5	see Annex B, page 32
②	Steel plate 50x5	DIN EN 10025–S235JR
③	Bended profile section 40x13x5x6.5	DIN EN 10025–S235JR
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	

galvanised; all welding seams a=3mm

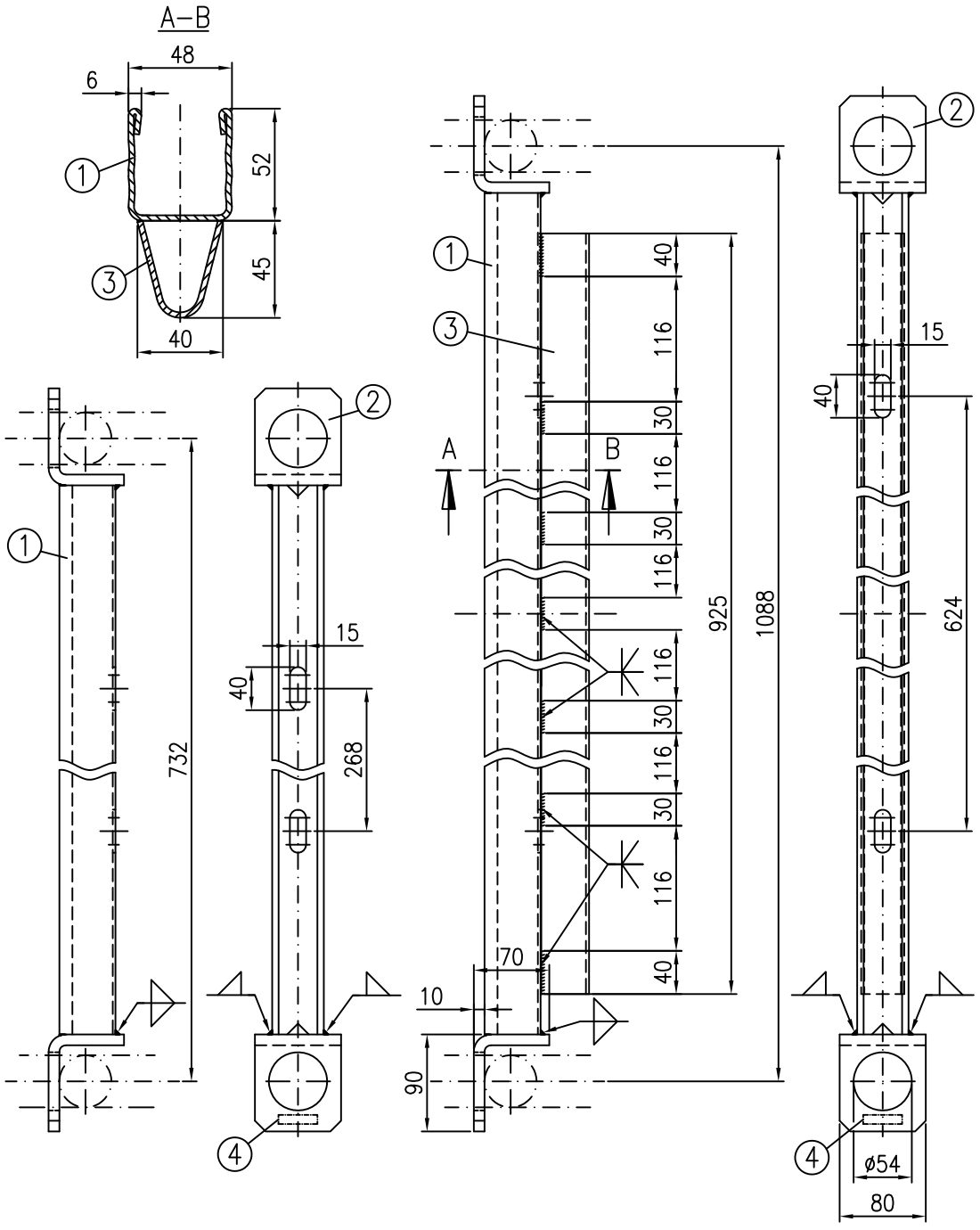
Dimens. [m]	Weight [kg]
0.73	3.0
1.09	4.1

ALFIX MODUL MULTI

Support ledger

M710–B149 08.2020

Annex B,
page 43



① U–profile 48x52x2.5 — see Annex B, page 32
alternatively: at 1.09m U–profile 48x52x2.5 without ③ — see Annex B, page 127
② Flat 80x10 — DIN EN 10025–S235JR
③ Steel metal s=3mm — see Annex B, page 27
④ Marking
galvanised; all welding seams a=3mm

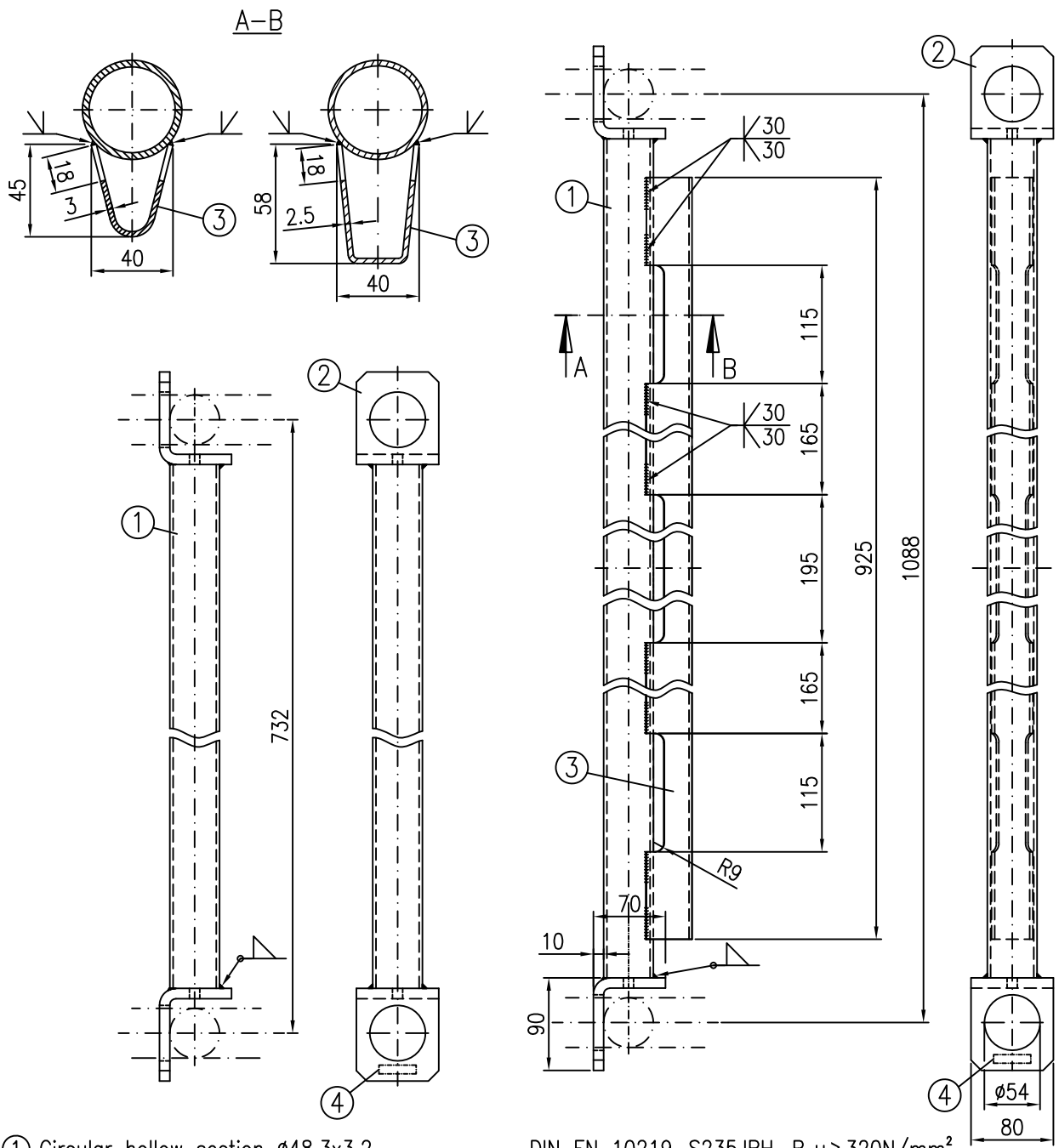
Dimens. [m]	Weight [kg]
0.73	2.2
1.09	3.3

ALFIX MODUL MULTI

U–transom lattice girder 0.73 m/ 1.09 m V

Annex B,
page 44

M710–B138 08.2020



①	Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH
②	Flat 80x10	DIN EN 10025–S235JR
③	Steel metal s=3mm	see Annex B, page 27
	alternatively: Steel metal s=2.5mm	see Annex B, page 144
④	Marking	
	galvanised; all welding seams a=3mm	

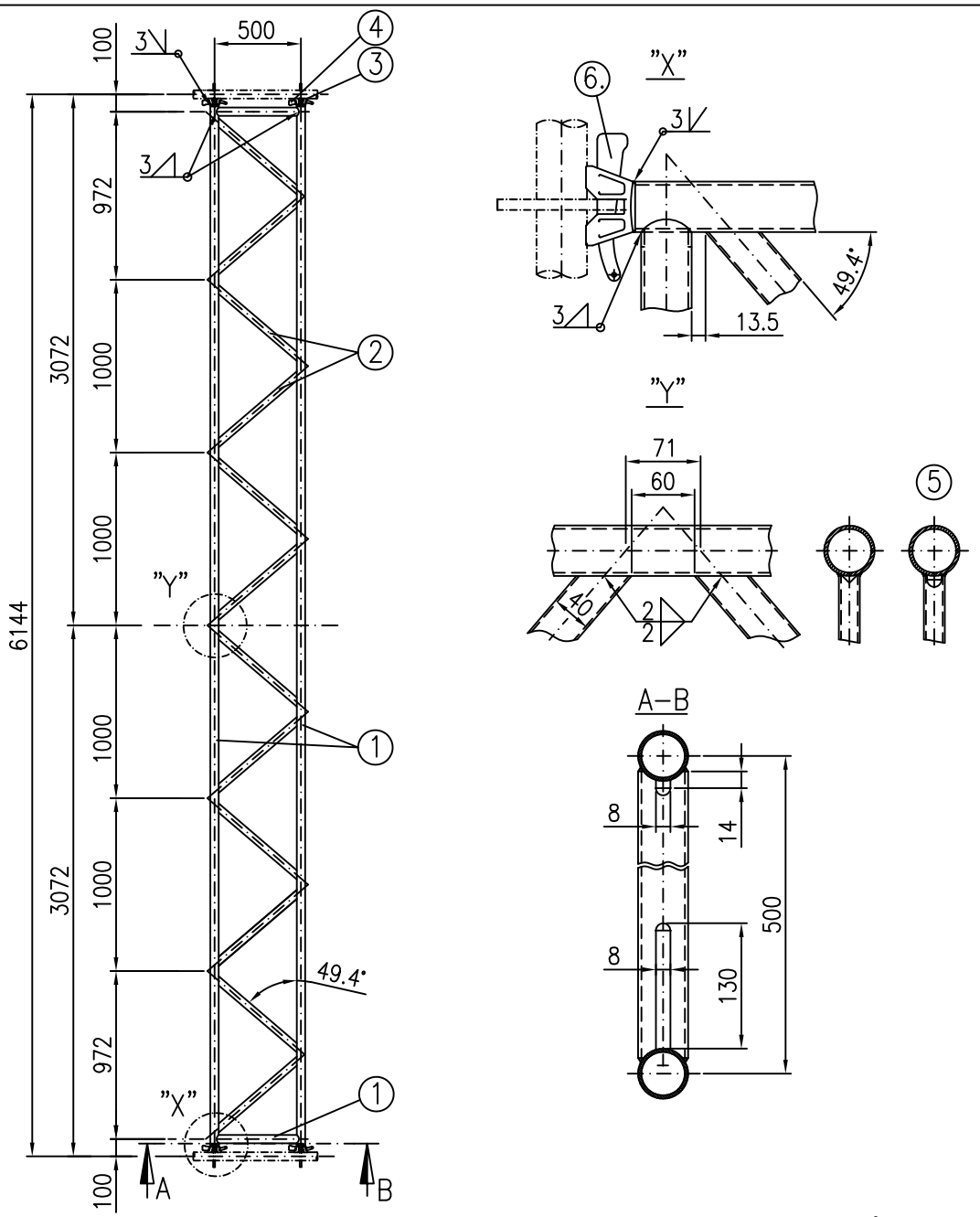
Dimens. [m]	Weight [kg]
0.73	1.6
1.09	3.6

ALFIX MODUL MULTI

Tube–transom lattice girder 0.73 m/ 1.09 m V

M710–B139 08.2020

Annex B,
page 45



①	Circular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH	
②	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③	Connection of tube ledger (I)	see Annex B, page 4	
	alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152	
④	Wedge 6mm	see Annex B, page 3	
⑤	alternatively		
⑥	Marking		
	galvanised		

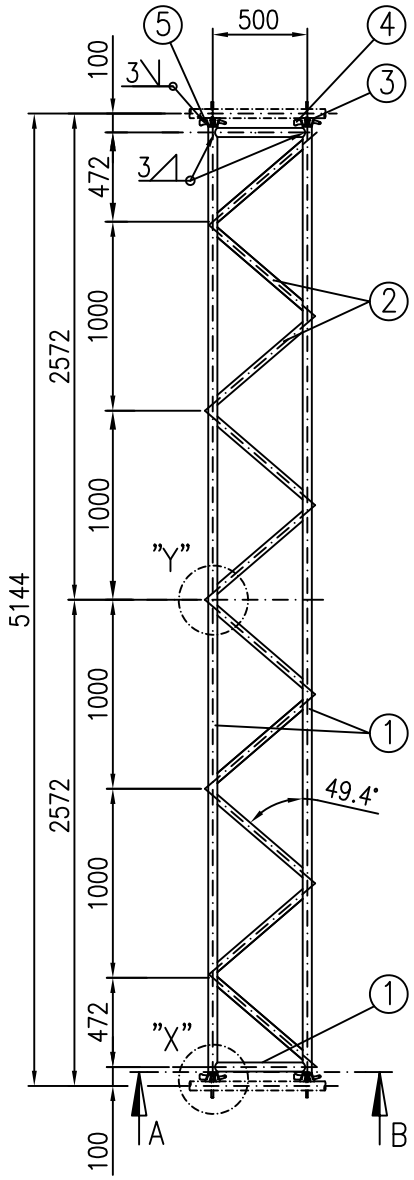
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	–	6.14	60.4
II	–	x		

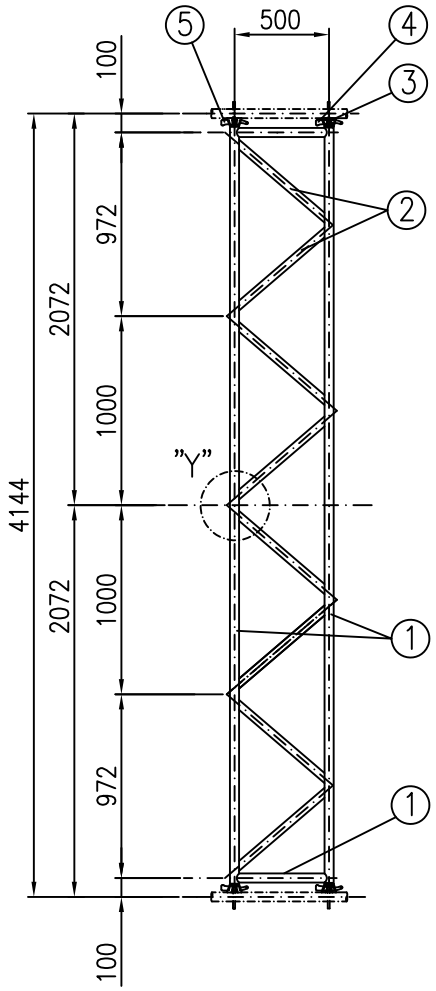
ALFIX MODUL MULTI

MODUL lattice girder 6.14 m

M710–B133 10.2021

Annex B,
page 46





①	Circular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH
②	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③	Connection of tube ledger (I)	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	
	galvanised	for details see Annex B, page 46

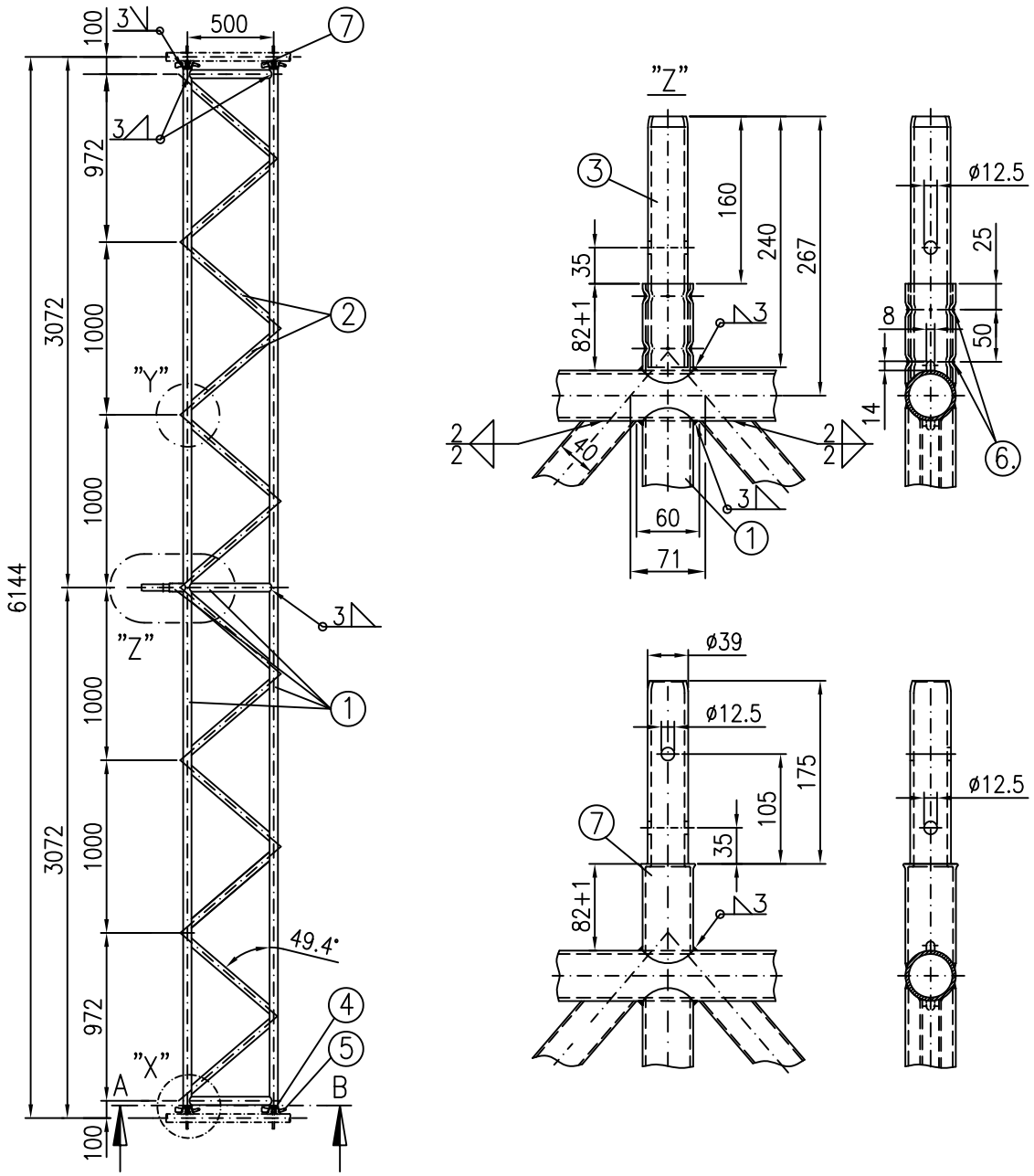
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	–	4.14	46.0
II	–	x	5.14	50.0

ALFIX MODUL MULTI

MODUL lattice girder 4.14 m/ 5.14 m

M710–B134 10.2021

Annex B,
page 47



①	Circular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH
②	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③	Circular hollow section ø38x3.6	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
④	Connection of tube ledger (I)	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152
⑤	Wedge 6mm	see Annex B, page 3
⑥	4 point–joint pressed connections	
⑦	alternatively: Circular hollow section ø48.3x2.7 without galvanised	③ DIN EN 10219–S460MH

for details see Annex B, page 46

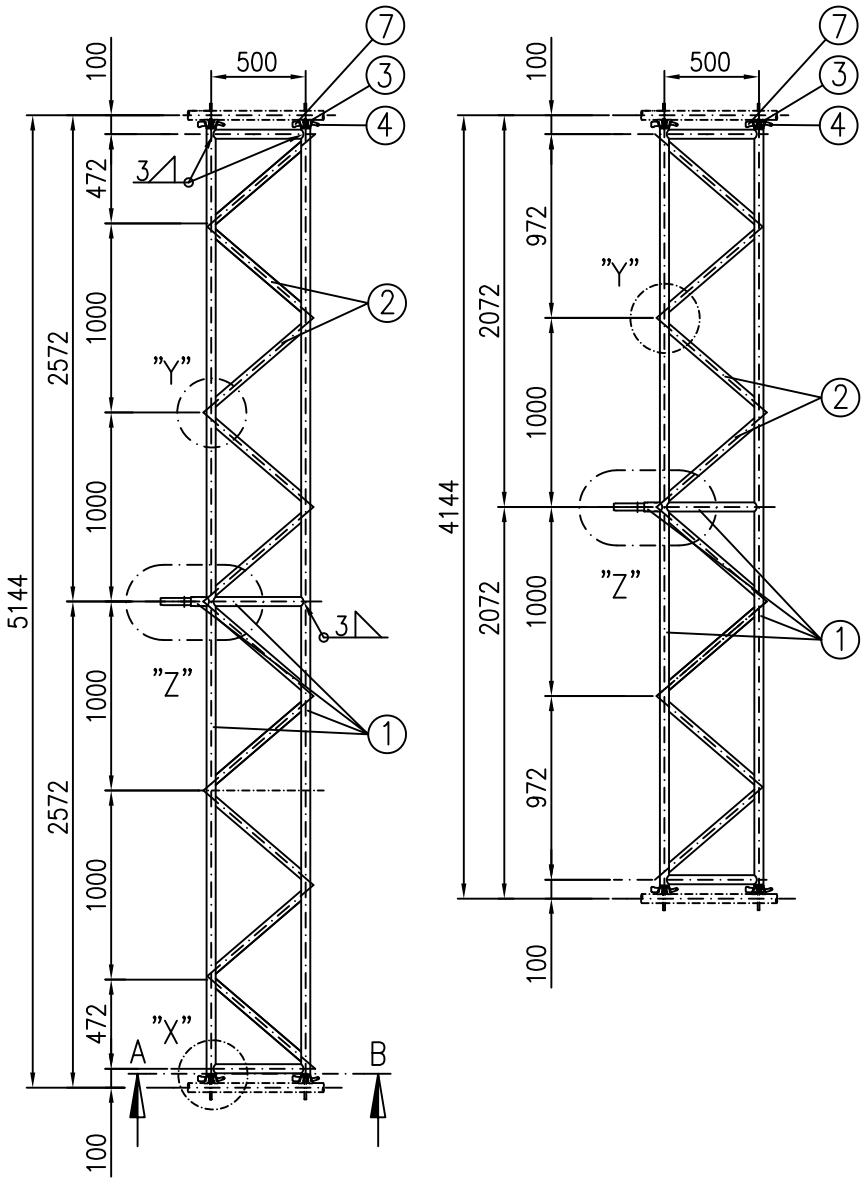
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	–	6.14	61.4
II	–	x		

ALFIX MODUL MULTI

MODUL lattice girder with tube fixture 6.14 m

M710–B135 10.2021

Annex B,
page 48



①	Circular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH
②	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③	Circular hollow section ø38x3.6	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
④	Connection of tube ledger (I)	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152
⑤	Wedge 6mm	see Annex B, page 3
⑥	4 point–joint pressed connections	
⑦	Marking	

galvanised — for details see Annex B, pages 46 and 48

allowed combination		
	III	IV
I	x	–
II	–	x

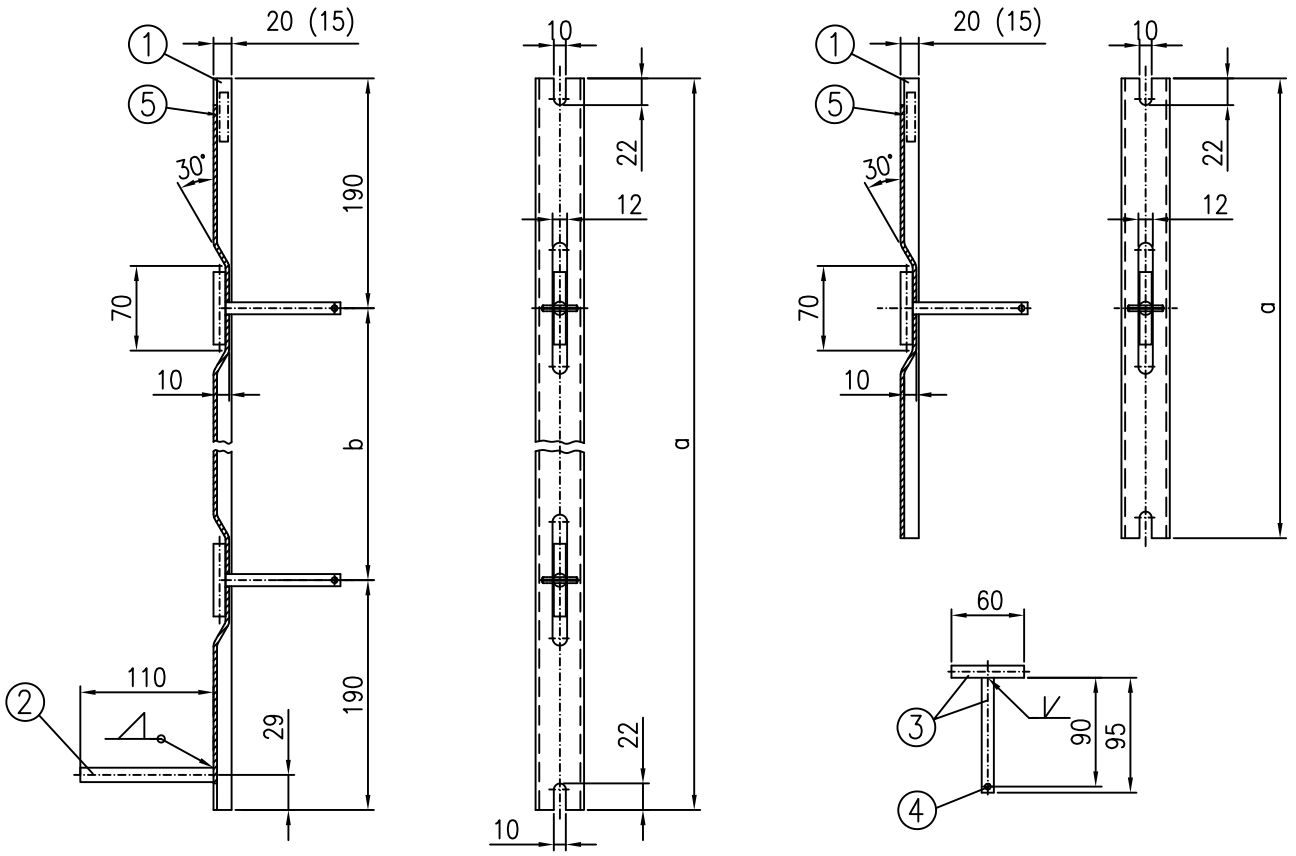
Dimens. [m]	Weight [kg]
4.14	47.0
5.14	51.0

ALFIX MODUL MULTI

MODUL lattice girder with tube fixture 4.14 m/ 5.14 m

M710–B136 10.2021

Annex B,
page 49



⑥	a (mm)	b (mm)	⑦ (kg)
390	306	–	0.7
450	366	–	0.8
732	648	268	1.4
1036	952	572	1.8
1088	1004	624	1.9
1286	1202	822	2.2
1400	1316	936	2.5
1572	1488	1108	2.9
2072	1988	1608	3.9
2572	2488	2108	4.8
3072	2988	2608	5.4

① U–profile 20 (15)x40x15x3 DIN EN 10025–S235JR
② Round ø12 (alternatively for toeboard ALFIX) DIN EN 10025–S235JR
③ Round ø10 DIN EN 10025–S235JR
④ Grooved cylindrical pin DIN EN ISO 8740–5x30–steel–galvanised
⑤ Marking
⑥ Length L (mm)

galvanised

ALFIX MODUL MULTI

MODUL lift–off preventer

M710–B130 08.2020

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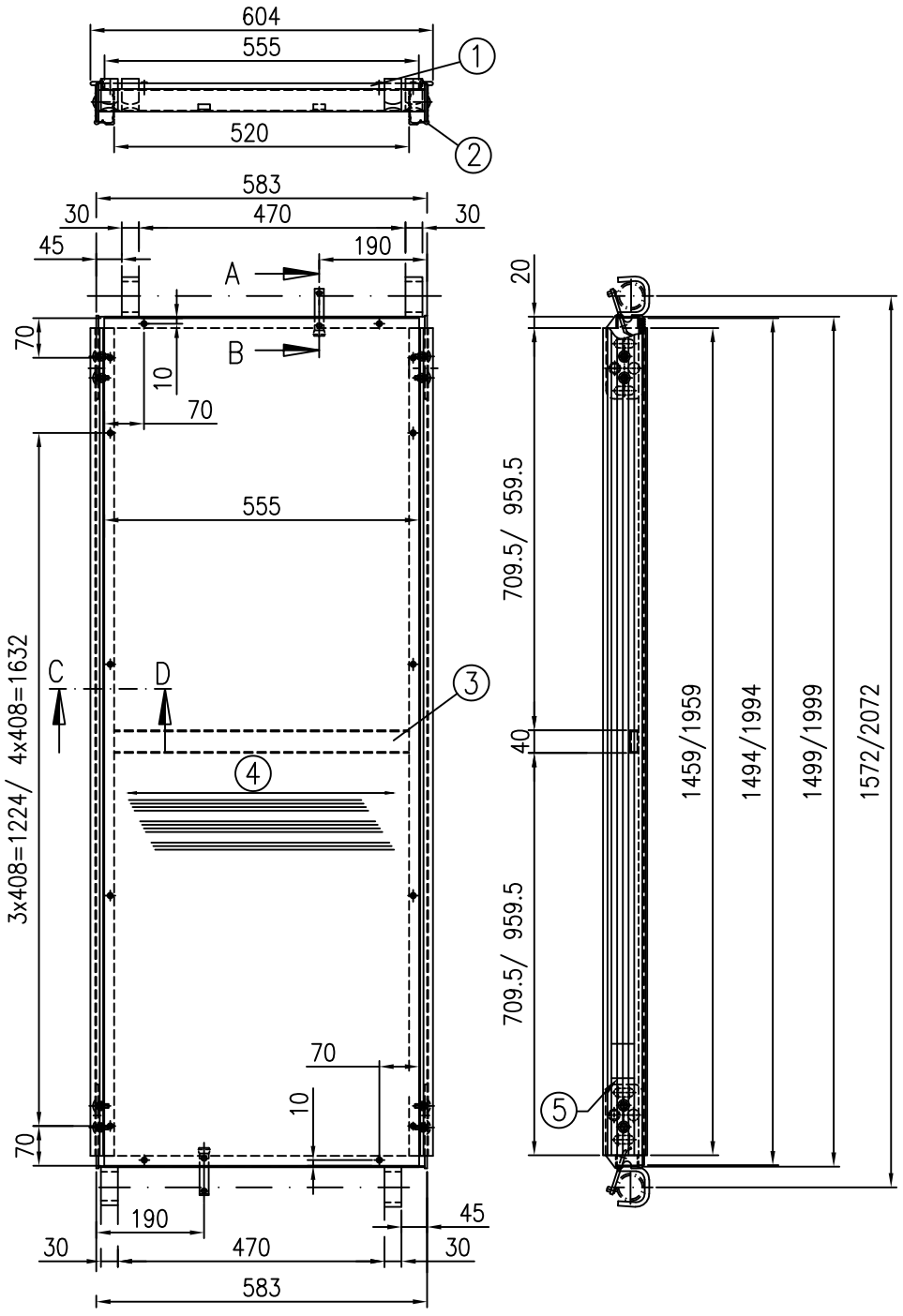
page 50



① Plywood 10x555	Plywood for use in scaffolding with national technical approval	
② Rail profile 78x42	DIN EN 755-2 EN AW-6063-T66	
③ Rectangular hollow section 40x15x2	DIN EN 755-2 EN AW-6063-T66	
④ Grain direction		
⑤ Marking	131-MIG: Type 4 (EC9) filler material	

all welding seams a=2mm for sectional views and details see Annex B, page 53 Load class 3

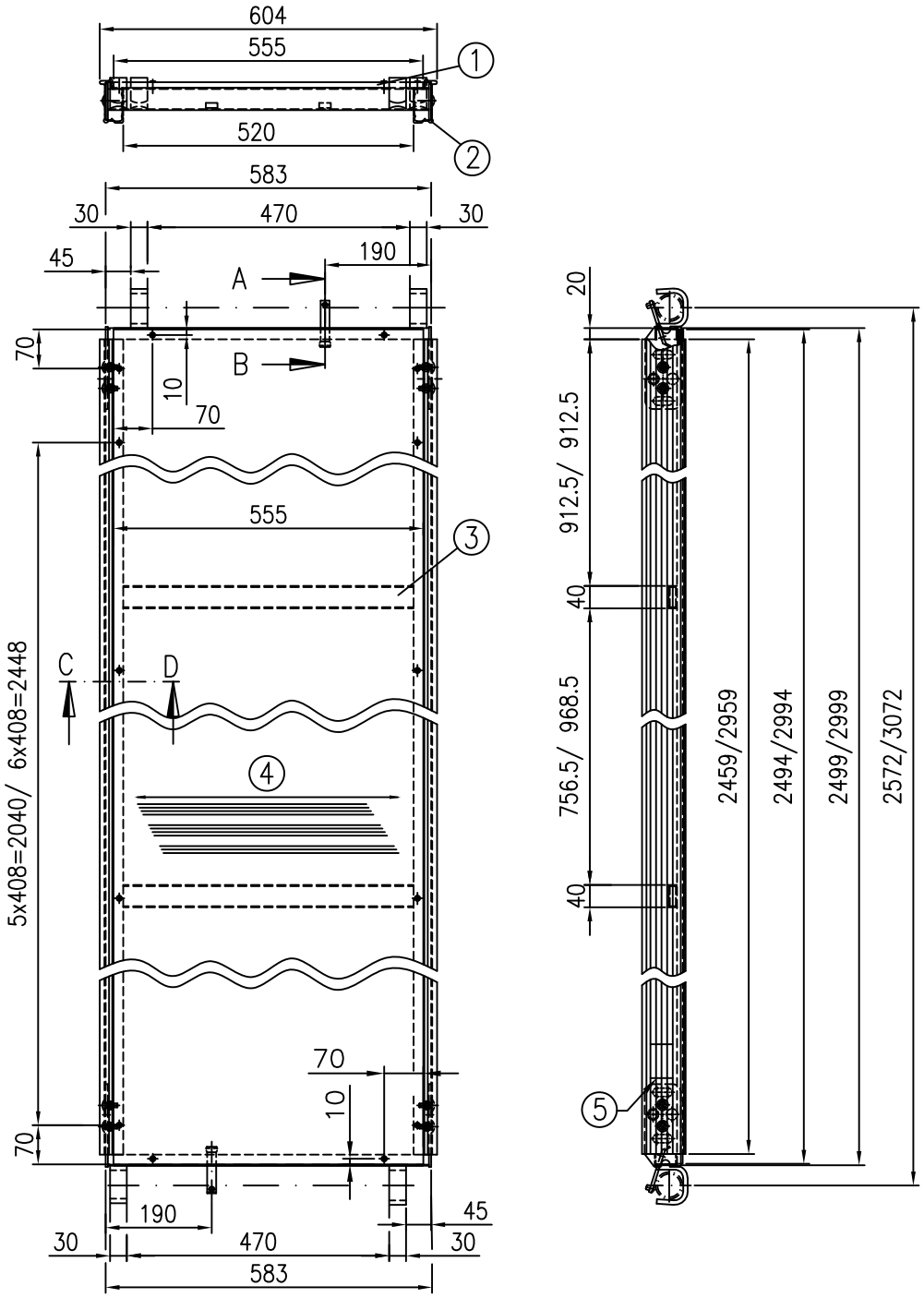
Dimens. [m]	Weight [kg]
1.57x0.60	13.3
2.07x0.60	16.3

ALFIX MODUL MULTI

Aluminium frame platform with tube fixture 1.57 m; 2.07 m

M710-B117 08.2020

Annex B,
page 51



① Plywood 10x555 — Plywood for use in scaffolding with national technical approval
② Rail profile 78x42 — DIN EN 755–2 EN AW–6063–T66
③ Rectangular hollow section 40x15x2 — DIN EN 755–2 EN AW–6063–T66
④ Grain direction
⑤ Marking — 131–MIG: Type 4 (EC9) filler material

all welding seams a=2mm for sectional views and details see Annex B, page 53 Load class 3

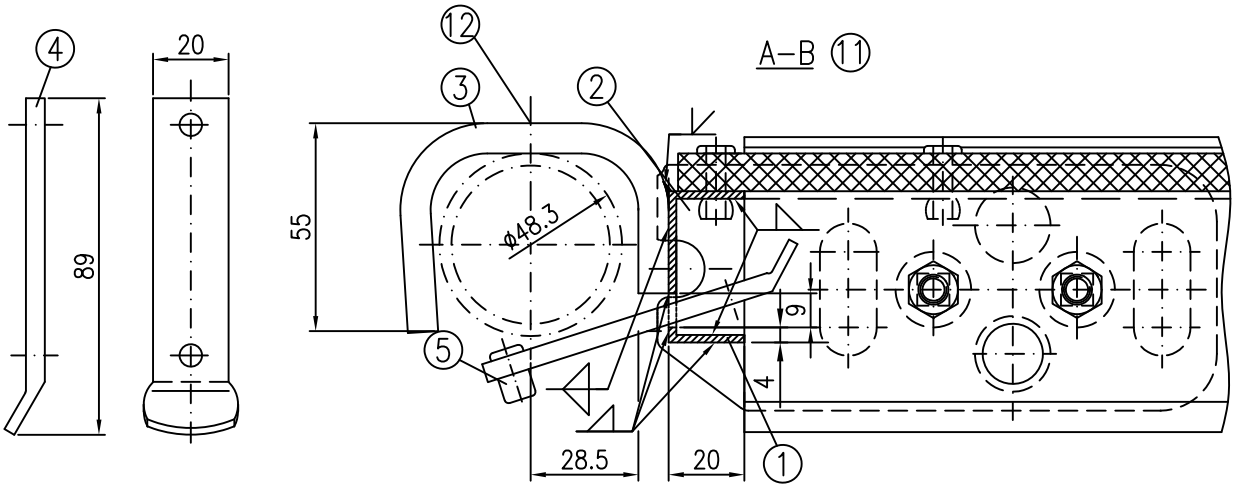
Dimens. [m]	Weight [kg]
2.57x0.60	19.4
3.07x0.60	22.5

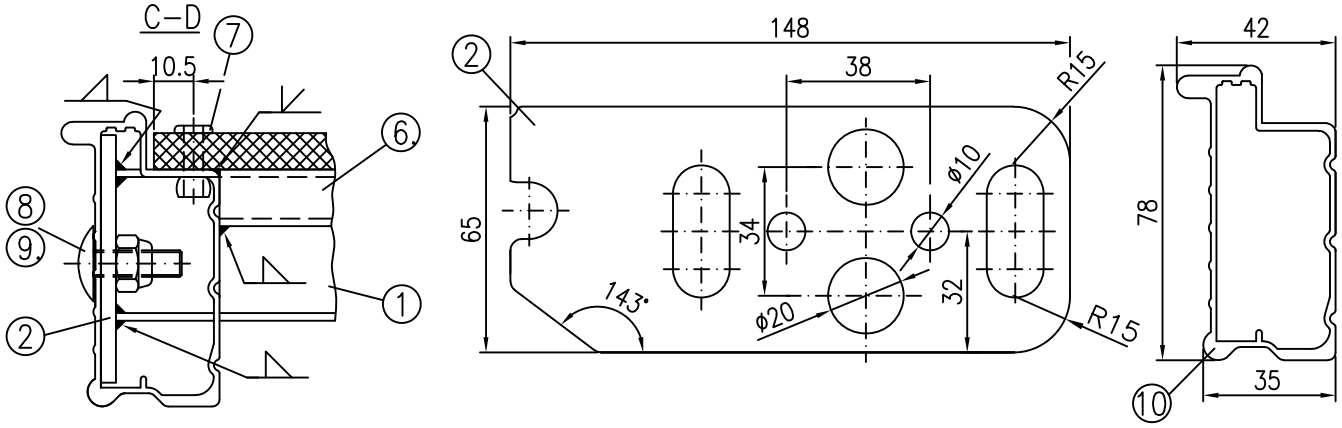
ALFIX MODUL MULTI

Aluminium frame platform with tube fixture 2.57 m; 3.07 m

M710–B118 08.2020

Annex B,
page 52





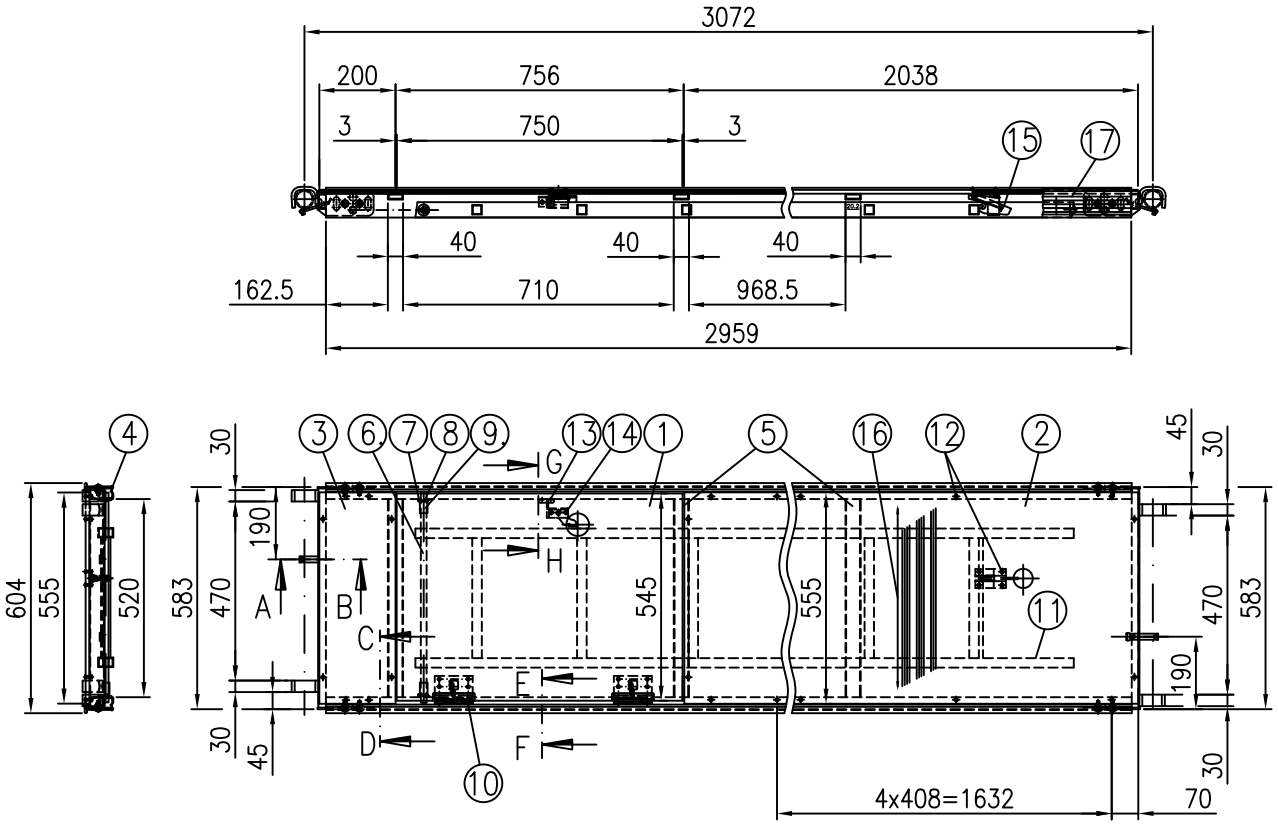
①	U–profile 40x20x2	DIN EN 10025–S235JR
②	Suspension lug, steel metal 4x65x148	DIN EN 10025–S235JR
③	Steel plate 30x8	DIN EN 10025–S355J2 alternatively: DIN EN 10149–S355MC
④	Lift–off prevention tube fixture, flat 20x5	DIN EN 10025–S235JR hot–dip galvanised
⑤	Blind rivet ø4.8x16/ 5x16	DIN EN ISO 15979 EN AW–5754 H112
⑥	Rectangular hollow section 40x15x2	DIN EN 755–2 EN AW–6063–T66
⑦	Blind rivet ø5x20	DIN EN ISO 15979 EN AW–5754 H112
⑧	Round–head screw	DIN 603–M8x20–8.8–galvanised
⑨	Hexagon nut, self–locking	DIN EN ISO 10511–M8–8–galvanised
⑩	Rail profile 78x42	DIN EN 755–2 EN AW–6063–T66
⑪	Head piece, hot–dip galvanised	
⑫	Marking	

ALFIX MODUL MULTI

Detailed view of aluminium frame platform with tube fixture

M710–B119 08.2020

Annex B,
page 53



① Plywood 10x545	Plywood for use in scaffolding with national technical approval	
② Plywood 10x555	Plywood for use in scaffolding with national technical approval	
③ Plywood 10x555	Plywood for use in scaffolding with national technical approval	
④ Rail profile 78x42	DIN EN 755–2	EN AW–6063–T66
⑤ Rectangular hollow section 40x15x2	DIN EN 755–2	EN AW–6063–T66
⑥ Circular hollow section ø15x2	DIN EN 10219	S235JRH
alternatively:	DIN EN 10296–2	1.4301
⑦ Disc	DIN EN ISO 7089–A 17–steel–galvanised	
⑧ Split pin	DIN EN ISO 1234–4x25–steel–galvanised	
⑨ Spacer sleeve, circular hollow section ø20x2/ ø20x1.9	PEHD	
⑩ Hinge with lever mechanism to prevent unintentional closing	DIN EN 10025 S235JR; electorgalvanized	
⑪ Ladder	see Annex B, page 60	
⑫ Blind rivet ø5x20	DIN EN ISO 15979 EN AW–5754 H112	
⑬ Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979 EN AW–5754 H112	
⑭ Blind rivet ø4.8x16/ ø5x18	DIN EN ISO 15979 EN AW–5754 H112	
⑮ Ladder bracket	DIN EN 10025	S235JR; electorgalvanized
⑯ Grain direction		
⑰ Marking	131–MIG: Type 4 (EC9) filler material	

for details see Annex B, page 53 and 56 Load class 3

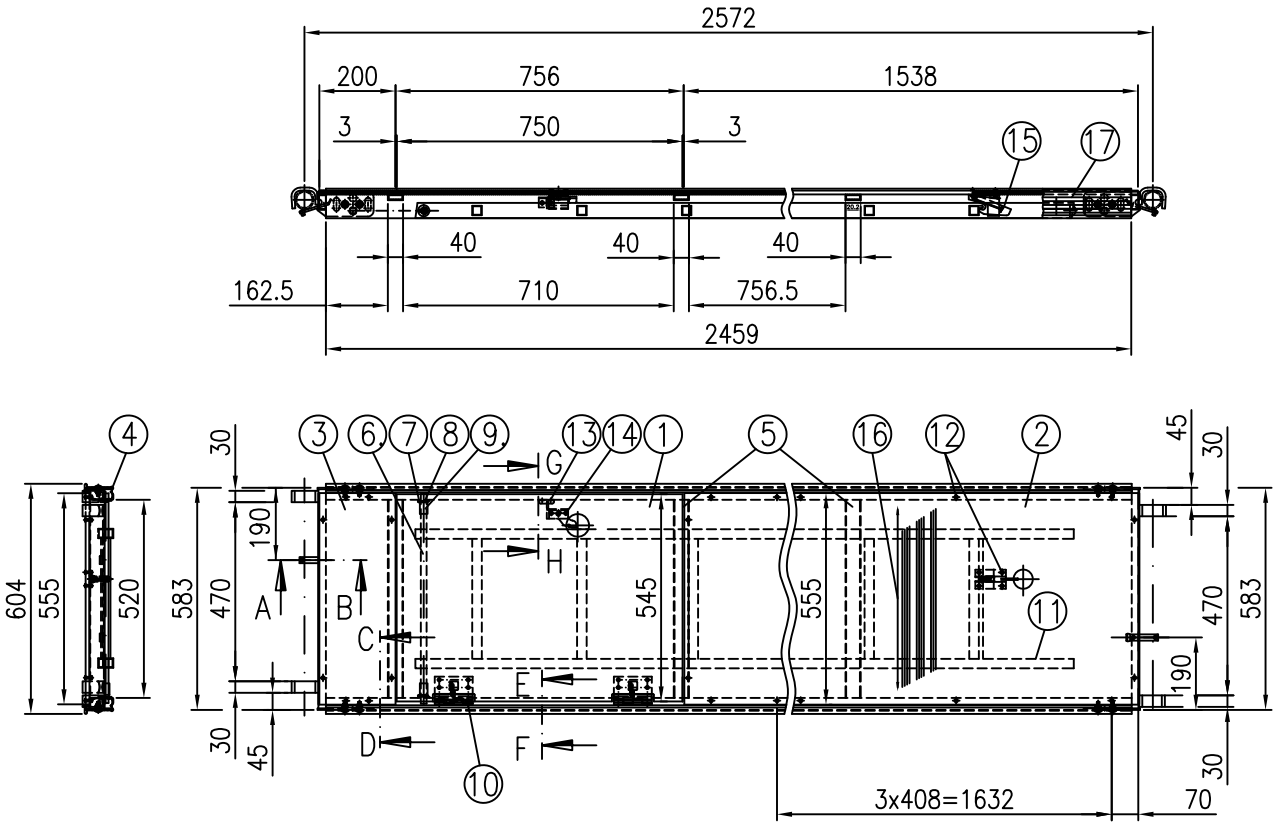
Dimension [m]	Weight [kg]
3.07x0.60	31.5

ALFIX MODUL MULTI

Aluminium access frame platform with tube fixture 3.07 m

Annex B, page 54

M710–B120 08.2020



① Plywood 10x545	Plywood for use in scaffolding with national technical approval	
② Plywood 10x555	Plywood for use in scaffolding with national technical approval	
③ Plywood 10x555	Plywood for use in scaffolding with national technical approval	
④ Rail profile 78x42	DIN EN 755-2	EN AW-6063-T66
⑤ Rectangular hollow section 40x15x2	DIN EN 755-2	EN AW-6063-T66
⑥ Circular hollow section ø15x2	DIN EN 10219	S235JRH
alternatively:	DIN EN 10296-2	1.4301
⑦ Disc ø17	DIN EN ISO 7089-steel-galvanised	
⑧ Split pin ø4x25	DIN EN ISO 1234-steel-galvanised	
⑨ Spacer sleeve, circular hollow section ø20x2/ ø20x1.9		PEHD
⑩ Hinge with lever mechanism to prevent unintentional closing		DIN EN 10025-S235JR-electrogalvanized
⑪ Ladder	see Annex B, page 60	
⑫ Blind rivet ø5x20	DIN EN ISO 15979 EN AW-5754 H112	
⑬ Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979 EN AW-5754 H112	
⑭ Blind rivet ø4.8x16/ ø5x18	DIN EN ISO 15979 EN AW-5754 H112	
⑮ Ladder bracket	DIN EN 10025-S235JR-electrogalvanized	
⑯ Grain direction		
⑰ Marking	131-MIG: Type 4 (EC9) filler material	

for details see Annex B, page 53 and 56 Load class 3

Dimension [m]	Weight [kg]
2.57x0.60	28.5

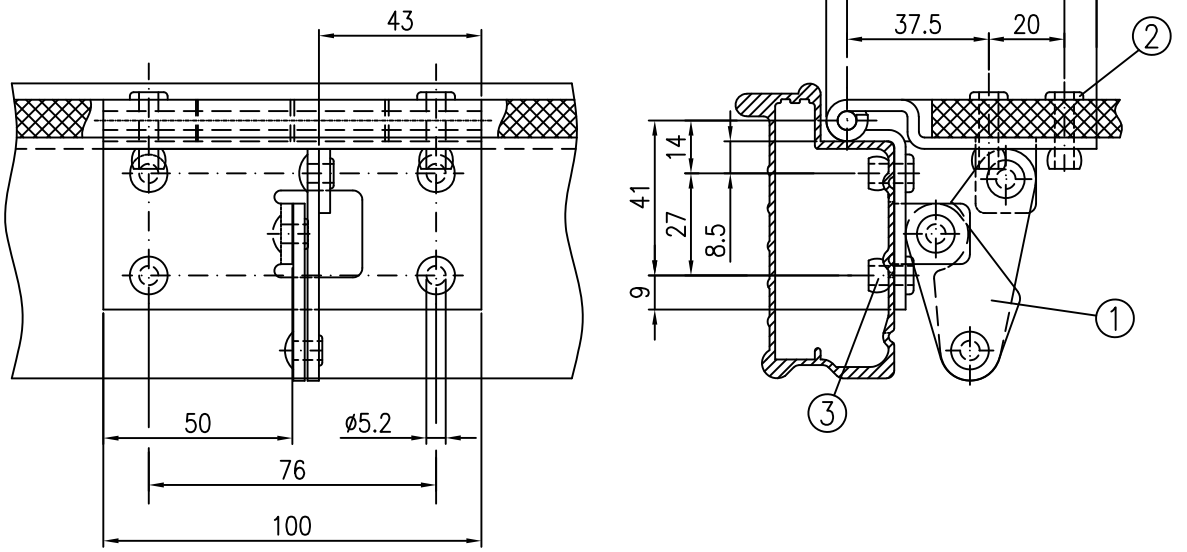
ALFIX MODUL MULTI

Aluminium access frame platform with tube fixture 2.57 m

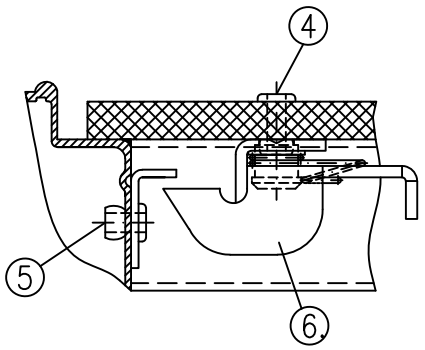
M710-B121 08.2020

Annex B,
page 55

E–F



G–H



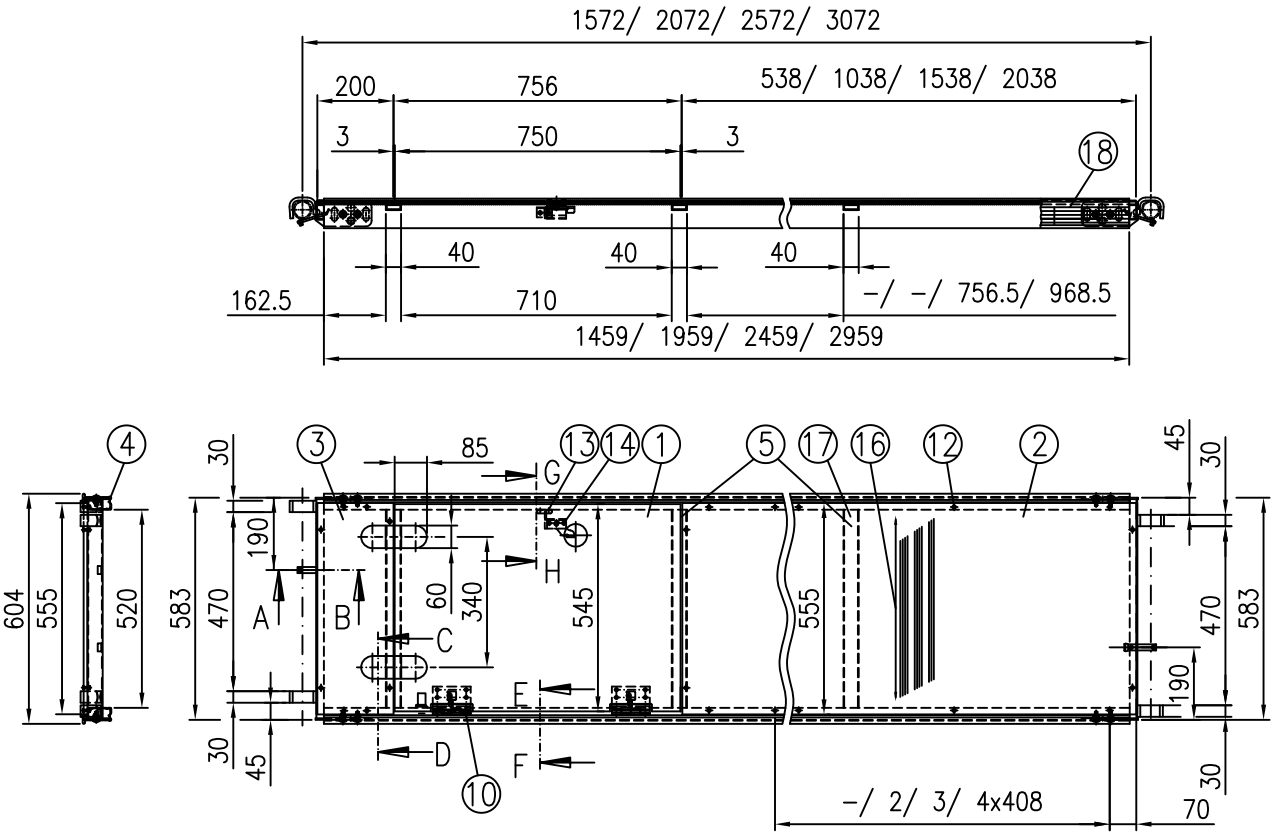
① Hinge with lever mechanism to prevent unintentional closing	DIN EN 10025–S235JR–electrogalvanized
② Blind rivet ø5x20	DIN EN ISO 15979 EN AW–5754 H112
③ Blind rivet ø5x12	DIN EN ISO 15979 EN AW–5754 H112
④ Blind rivet ø4.8x16/ ø5x18	DIN EN ISO 15979 EN AW–5754 H112
⑤ Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979 EN AW–5754 H112
⑥ Ledger	DIN EN 10025–S235JR–electrogalvanized

ALFIX MODUL MULTI

Details of aluminium access frame platform with tube fixture

M710–B122 08.2020

Annex B,
page 56



①	Plywood 10x545	Plywood for use in scaffolding with national technical approval
②	Plywood 10x555	Plywood for use in scaffolding with national technical approval
③	Plywood 10x555	Plywood for use in scaffolding with national technical approval
④	Rail profile 78x42	DIN EN 755-2 EN AW-6063-T66
⑤	Rectangular hollow section 40x15x2	DIN EN 755-2 EN AW-6063-T66
⑥	not applicable	
⑦	not applicable	
⑧	not applicable	
⑨	not applicable	
⑩	Hinge with lever mechanism to prevent unintentional closing	DIN EN 10025-S235JR-electrogalvanized
⑪	not applicable	
⑫	Blind rivet ø5x20	DIN EN ISO 15979 EN AW-5754 H112
⑬	Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979 EN AW-5754 H112
⑭	Blind rivet ø4.8x16/ ø5x18	DIN EN ISO 15979 EN AW-5754 H112
⑮	not applicable	
⑯	Grain direction	
⑰	not applicable for 1.57 m and 2.07 m	
⑱	Marking	131-MIG: Type 4 (EC9) filler material

for details see Annex B, page 53 and 56 Load class 3

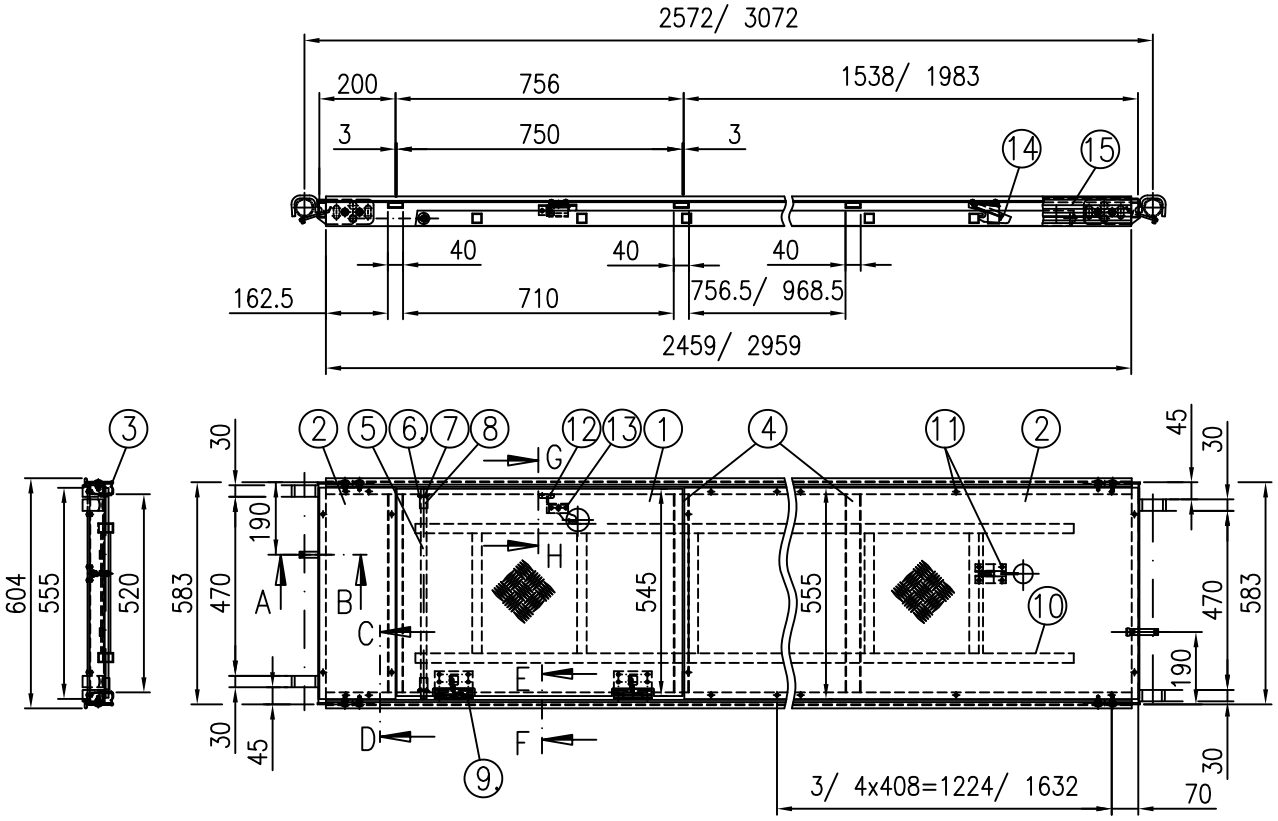
Dimension [m]	Weight [kg]
1.57x0.60	16.2
2.07x0.60	19.0
2.57x0.60	25.0
3.07x0.60	28.0

ALFIX MODUL MULTI

Aluminium access frame platform with tube fixture
1.57 m – 3.07 m, without ladder

M716-B215 08.2020

Annex B,
page 57



①	Chequer plate with 5 bar pattern t=3/4.5	DIN EN 1386	EN AW–5083 H114
	alternatively:	DIN EN 1386	EN AW–5083 H224
②	Chequer plate with 5 bar pattern t=3/4.5	DIN EN 1386	EN AW–5083
	alternatively:	DIN EN 1386	EN AW–5083
③	Rail profile 78x42	DIN EN 755–2	EN AW–6063–T66
④	Rectangular hollow section 40x15x2	DIN EN 755–2	EN AW–6063–T66
⑤	Circular hollow section ø15x2	DIN EN 10219	S235JRH
	alternatively:	DIN EN 10296–2	1.4301
⑥	Disc ø17	DIN EN ISO 7089–steel–galvanised	
⑦	Split pin ø4x25	DIN EN ISO 1234–steel–galvanised	
⑧	Spacer sleeve, circular hollow section ø20x2/ ø20x1.9	PEHD	
⑨	Hinge with lever mechanism to prevent unintentional closing	DIN EN 10025–S235JR–electrogalvanized	
⑩	Ladder	see Annex B, page 60	
⑪	Blind rivet ø5x12	DIN EN ISO 15979	EN AW–5754 H112
⑫	Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979	EN AW–5754 H112
⑬	Blind rivet ø4.8x16/ ø5x12	DIN EN ISO 15979	EN AW–5754 H112
⑭	Ladder bracket	DIN EN 10025–S235JR–electrogalvanized	
⑮	Marking	131–MIG: Type 4 (EC9) filler material	

Dimension [m]	Weight [kg]
2.57x0.60	29.0
3.07x0.60	32.0

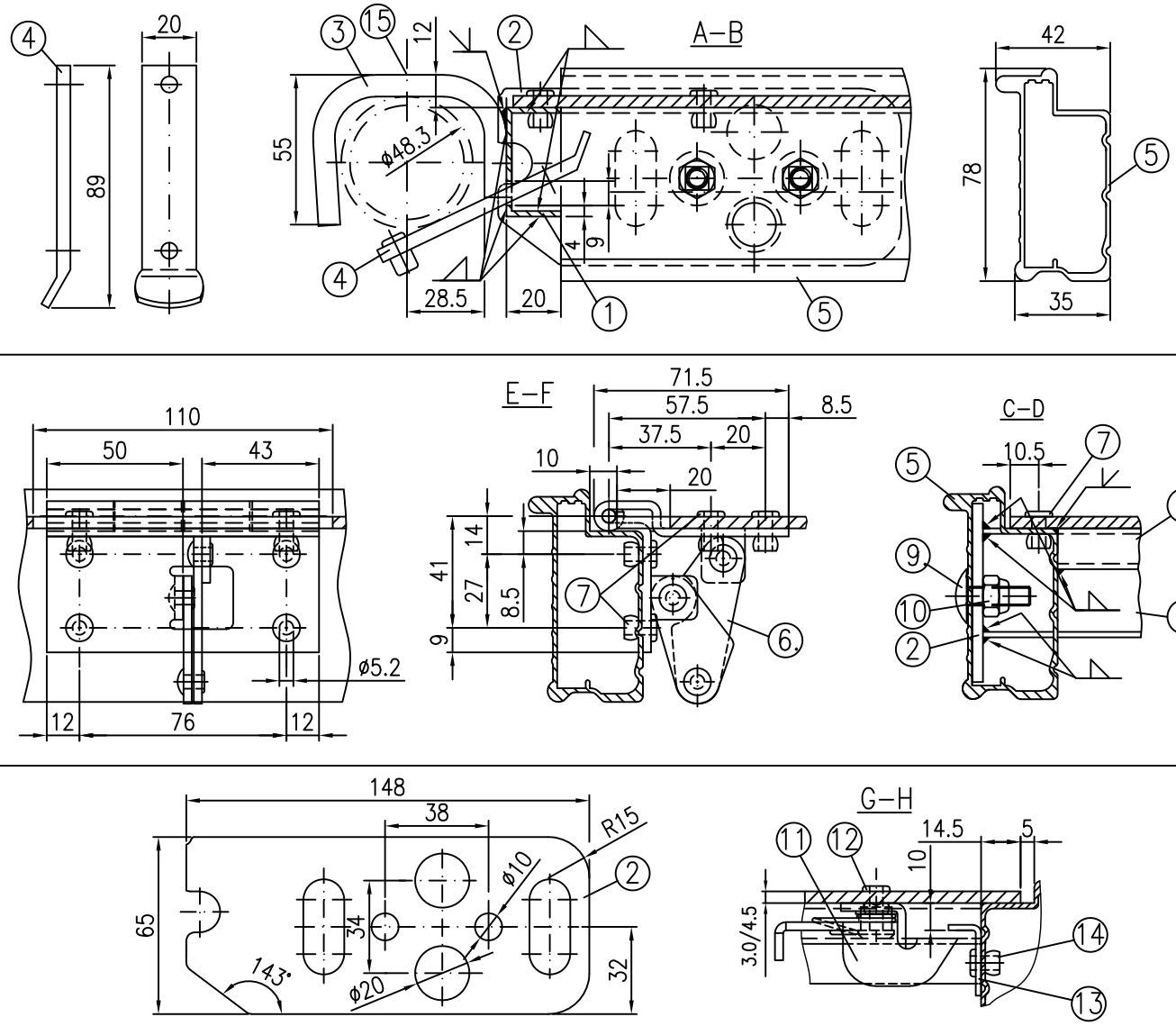
for sectional views and details see Annex B, page 59 Load class 3

ALFIX MODUL MULTI

Aluminium frame platform with tube fixture 2.57 m; 3.07 m
with aluminium chequer plate

M716–B216 08.2020

Annex B,
page 58



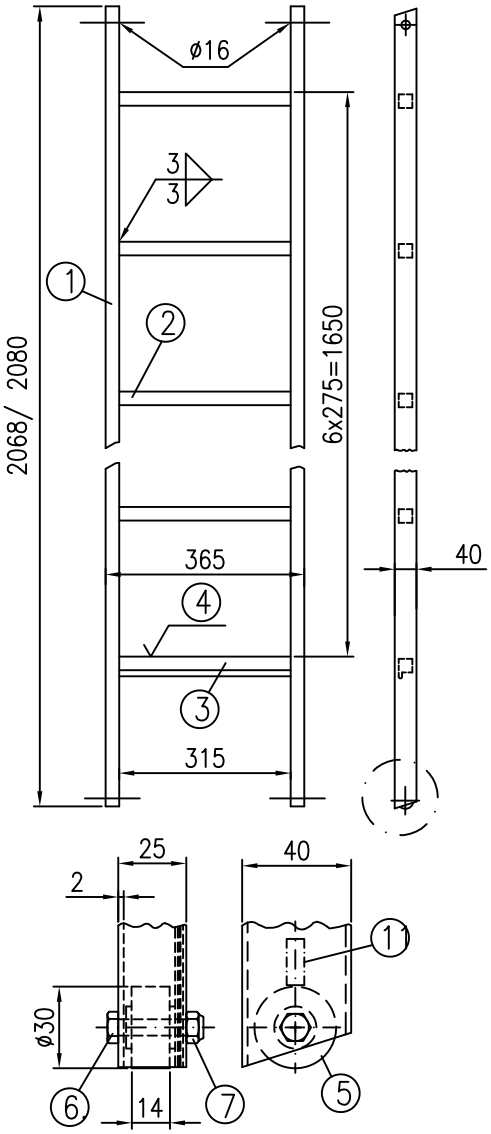
①	U–profile 40x20x2	DIN EN 10025–S235JR	
②	Suspension lug, steel metal 4x65x148	DIN EN 10025–S235JRH	
③	Steel plate 30x8	DIN EN 10025–S355J2	alternatively: DIN EN 10149–S355MC
④	Lift–off prevention tube fixture, flat 20x5	DIN EN 10025–S235JR	galvanised
⑤	Rail profile 78x42	DIN EN 755–2	EN AW–6063–T66
⑥	Hinge with lever mechanism to prevent unintentional closing		DIN EN 10025–S235JR–electrogalvanized
⑦	Blind rivet ø5x12	DIN EN ISO 15979	EN AW–5754 H112
⑧	Rectangular hollow section 40x15x2	DIN EN 755–2	EN AW–6063–T66
⑨	Round–head screw	DIN 603–M8x20–8.8–galvanised	
⑩	Hexagon nut, self–locking	DIN EN ISO 10511–M8–8–galvanised	
⑪	Ledger	DIN EN 10025–S235JR–electrogalvanized	
⑫	Blind rivet ø4.8x16 /ø5x12	DIN EN ISO 15979	EN AW–5754 H112
⑬	Locking lug, steel plate 40x2	DIN EN ISO 10088–2	1.4301
⑭	Blind rivet ø4.8x10/ ø5x10	DIN EN ISO 15979	EN AW–5754 H112
⑮	Marking		

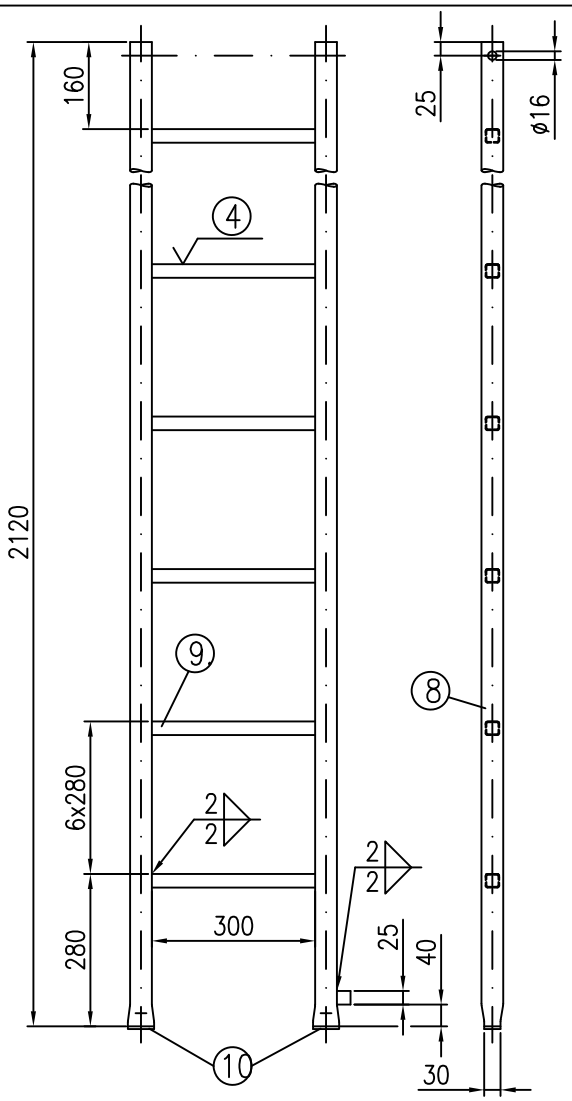
ALFIX MODUL MULTI

Sectional views and details of aluminium access frame platform with tube fixture with aluminium chequer plate

M716–A217 08.2020

Annex B,
page 59





Discontinued design

– only approved for continued use –

①	Rail profile 25x40x2	DIN EN 755–2 EN AW–6063–T66
②	Rung section 25x25x1.5	DIN EN 755–2 EN AW–6063–T66
③	Locking rung section 25x25x1.5	DIN EN 755–2 EN AW–6063–T66
④	Ribbed profile	
⑤	Rolled steel plate, round ø30x18	130PA/030/011/1/6
⑥	Hexagon bolt	DIN EN ISO 4014–M6x30–8.8–galvanised
⑦	Hexagon nut, self–locking	DIN EN ISO 10511–M6–8–galvanised
⑧	Circular hollow section ø40x2	AlMgSi1F28
⑨	Rung section	AlMgSi1F28
⑩	Tube end cap PVC	
⑪	Marking	

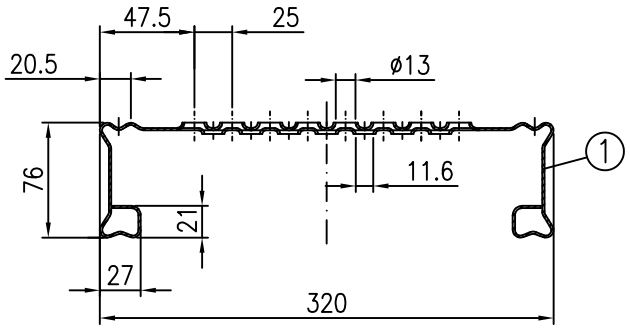
Dimens. [m]	Weight [kg]
2.00	3.5

ALFIX MODUL MULTI

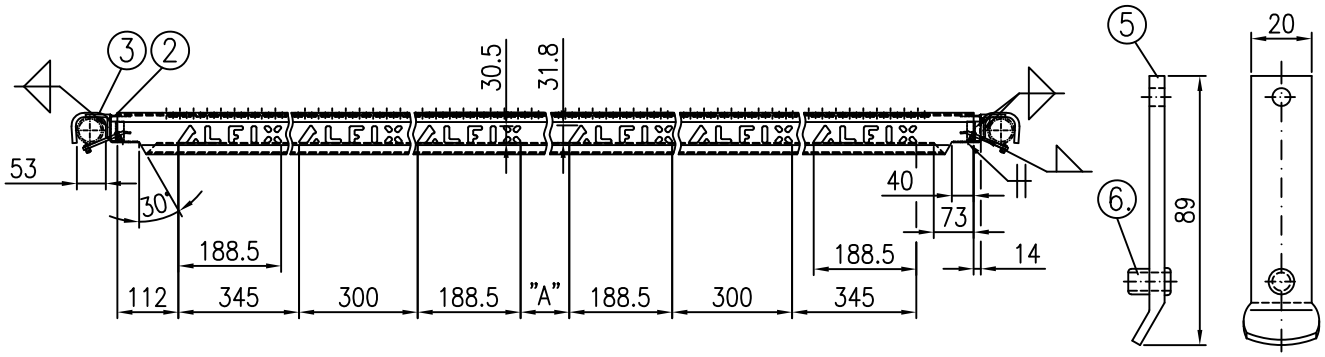
Internal ladder
in accordance with Z–8.1–862

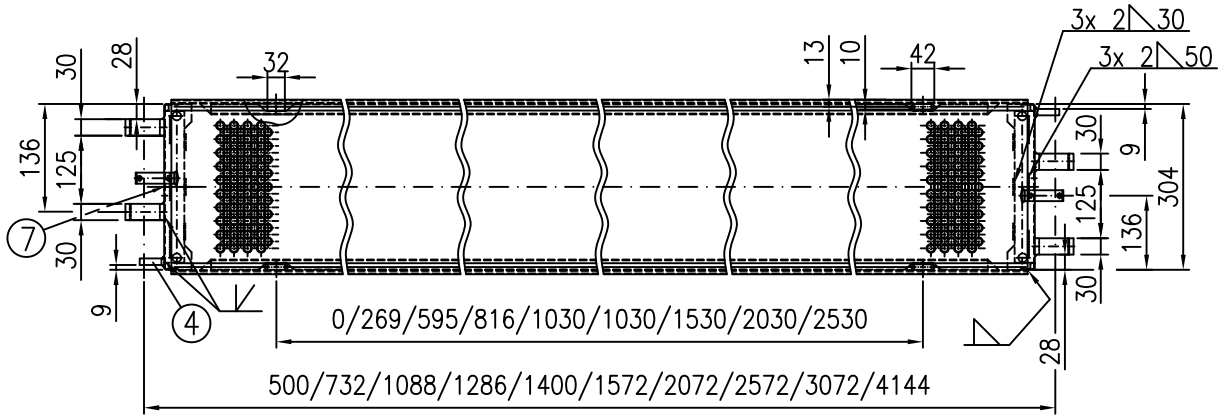
A709–A115_AMU 08.2020

Annex B,
page 60



Bay length [mm]	Number of logos [left/right]	Dimension "A" [mm]	Load class	Weight [kg]
500	1/–	–	6	5.0
732	1/1	36	6	6.1
1088	1/1	392	6	8.6
1286	1/1	590	6	9.7
1400	1/1	704	6	10.5
1572	1/1	876	6	11.9
2072	2/2	686	6	14.2
2572	2/2	1186	5	17.6
3072	3/3	1086	4	20.9
4144	3/3	2203	3	27.8





① Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
<u>alternatively:</u>	DIN EN 10025–2 S235JR	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
② Steel plate 2mm	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
③ Steel plate 30x8	DIN EN 10025–S355J2	alternatively: DIN EN 10149–S355MC	
④ Angle 45x45x5	DIN EN 10025–S235JR		
⑤ Flat 20x5	DIN EN 10025–S235JR hot–dip galvanised		
⑥ Blind rivet ø4.8x16	DIN EN ISO 15979–aluminium/steel		
⑦ Marking			

galvanised; all welding seams a=2mm

ALFIX MODUL MULTI

Steel deck AF with tube fixture 0.32 m

M710–B123 08.2020

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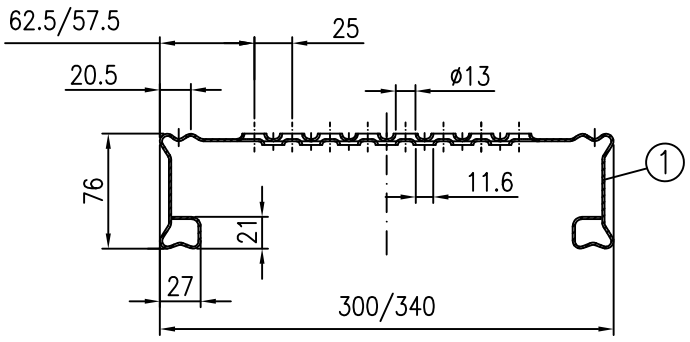
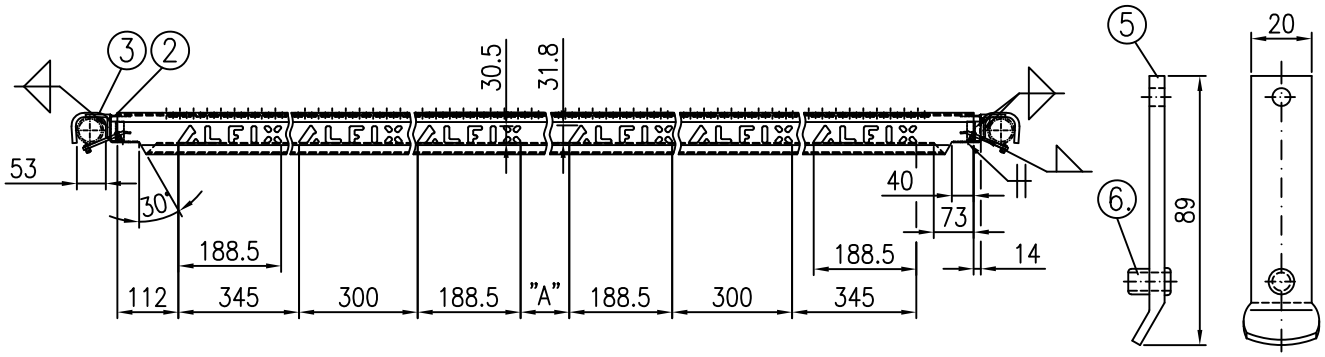
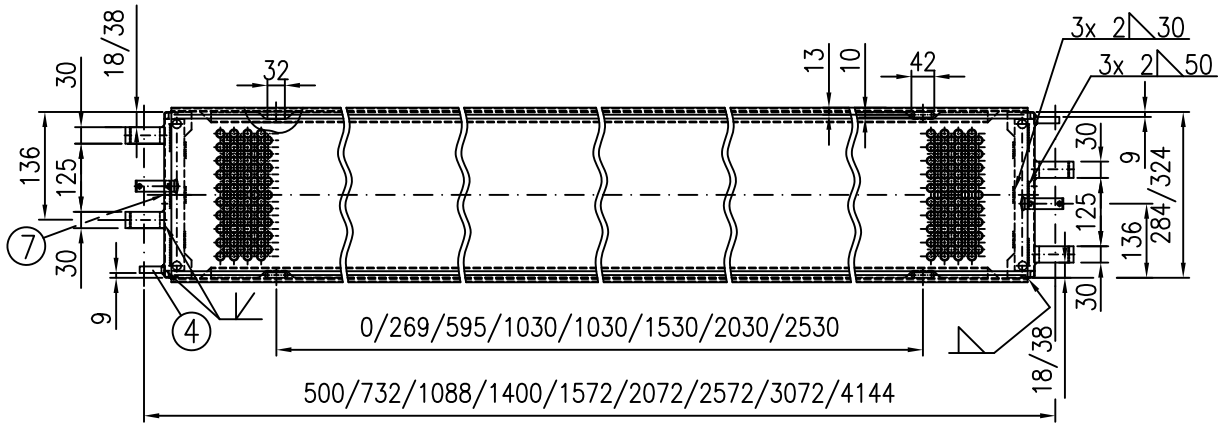
page 61



Bay length [mm]	Number of logos [left/right]	Dimension "A" [mm]	Load class
500	1/–	–	6
732	1/1	36	6
1088	1/1	392	6
1400	1/1	704	6
1572	1/1	876	6
2072	2/2	686	6
2572	2/2	1186	5
3072	3/3	1086	4
4144	3/3	2203	3





① Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
alternatively:	DIN EN 10025–2 S235JR	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
② Steel plate 2mm	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
③ Steel plate 30x8	DIN EN 10025–S355J2	alternatively: DIN EN 10149–S355MC	
④ Angle 45x45x5	DIN EN 10025–S235JR		
⑤ Flat 20x5	DIN EN 10025–S235JR hot–dip galvanised		
⑥ Blind rivet ø4.8x16	DIN EN ISO 15979–aluminium/steel		
⑦ Marking			

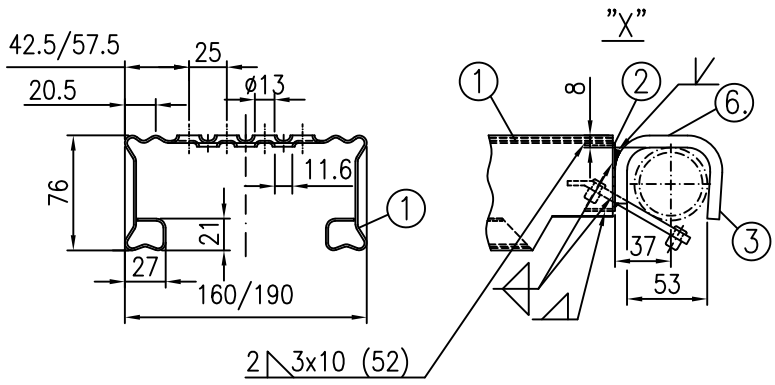
galvanised; all welding seams a=2mm

ALFIX MODUL MULTI

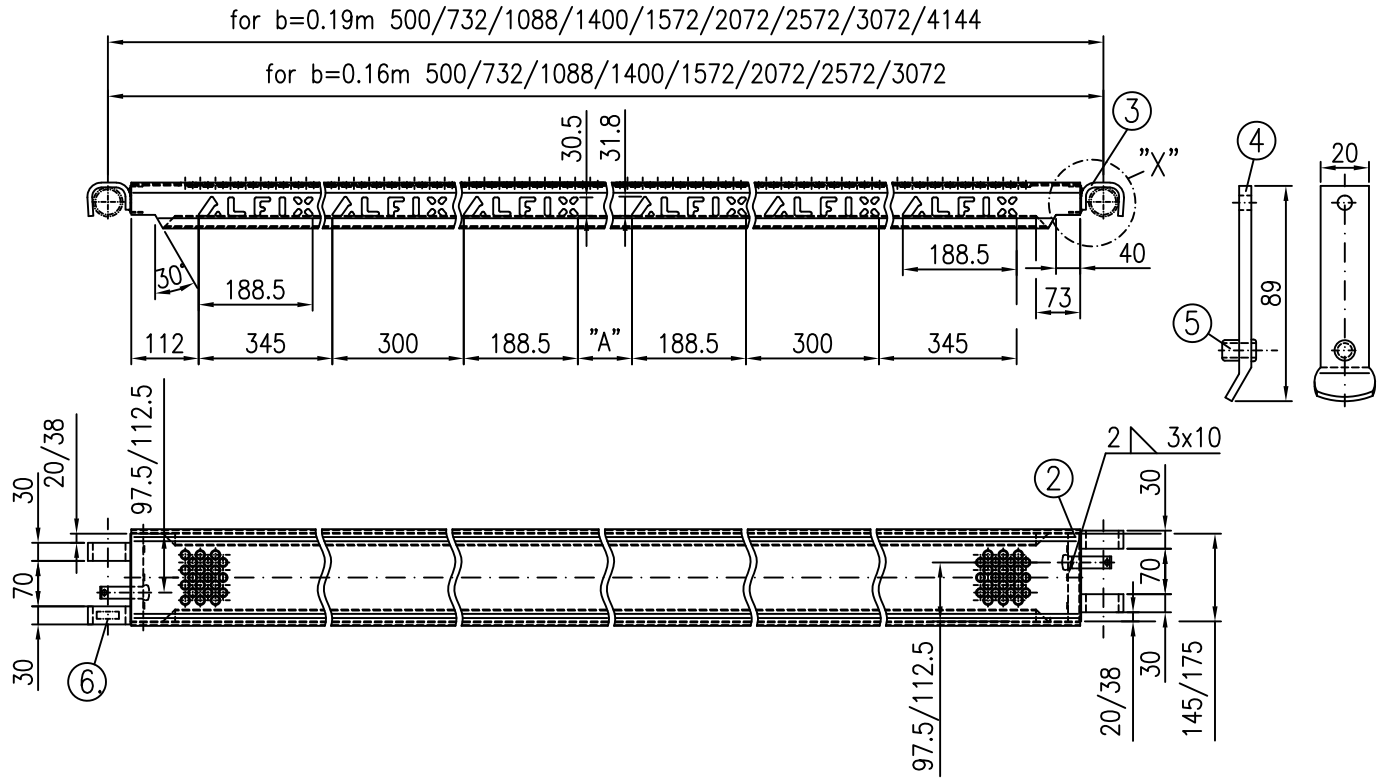
Steel deck AF with tube fixture 0.30 m; 0.34 m

M711–B206 08.2020

Annex B,
page 62



Bay length	Number of logos	Dimen-sion "A"	Load class	Weight 0.19m
[mm]	[left/right]	[mm]		[kg]
500	1/–	–	6	3.0
732	1/1	61	6	4.6
1088	1/1	417	6	6.7
1400	1/1	729	6	7.4
1572	1/1	901	6	9.2
2072	2/2	711	6	11.8
2572	2/2	1211	5	14.5
3072	3/3	1111	4	17.1
4144	3/3	2228	3	20.5



① Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
alternatively:	DIN EN 10025–2 S235JR	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
② U–profile 45x20x2	DIN EN 10025–2 S235JR		
alternatively: steel metal 2	DIN EN 10111–DD11		
③ Steel plate 30x8	DIN EN 10025–S355J2	alternatively: DIN EN 10149–S355MC	
④ Flat 20x5	DIN EN 10025–S235JR hot–dip galvanised		
⑤ Blind rivet ø4.8x16	DIN EN ISO 15979–aluminium/steel		
⑥ Marking			

galvanised; all welding seams a=2mm

ALFIX MODUL MULTI

Intermediate deck AF with tube suspension 0.16 m; 0.19 m

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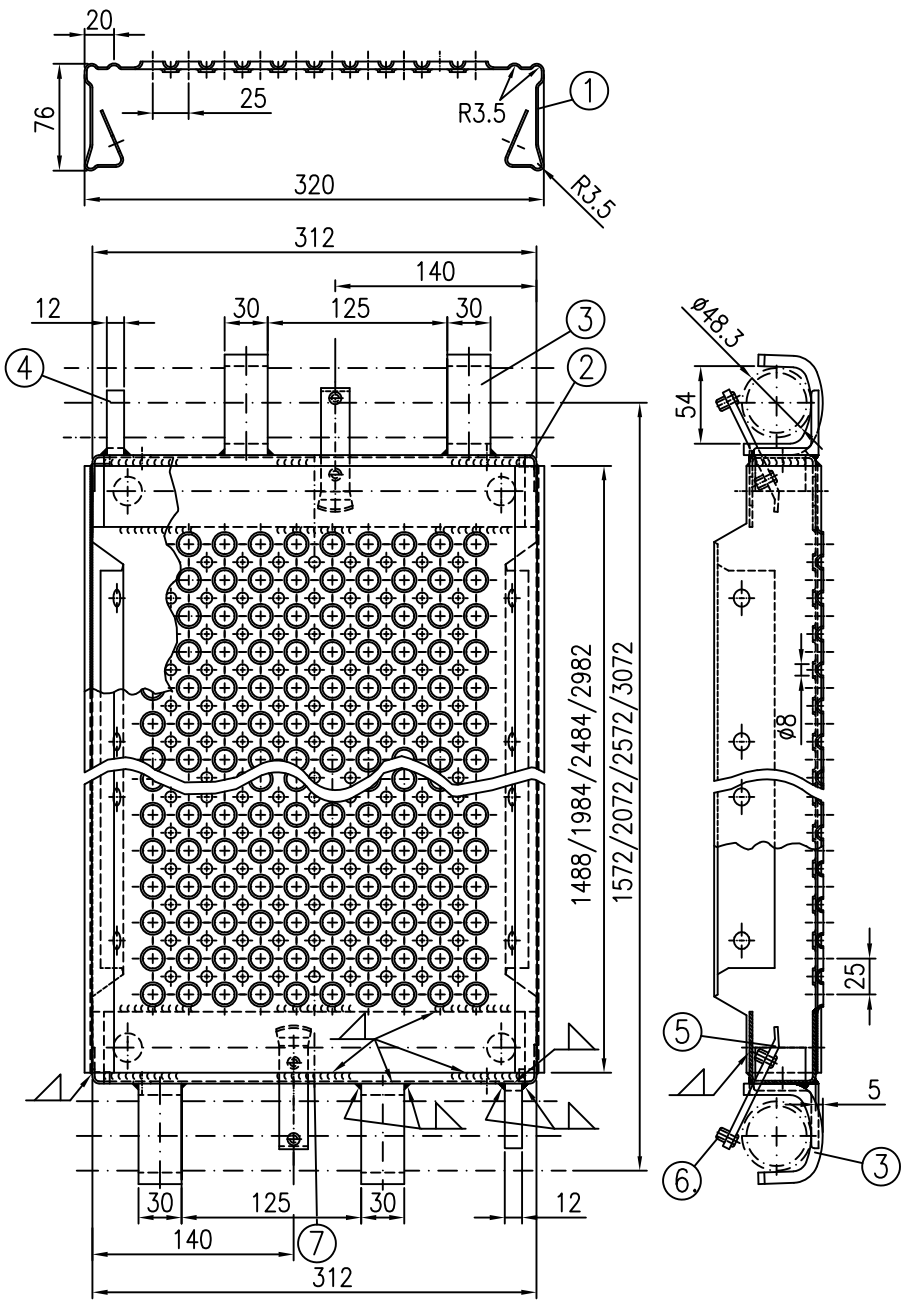
page 63

M710–B131 08.2020

Bay length	Load class	Weight
[mm]		[kg]
1572	6	13.4
2072	6	16.9
2572	5	20.4
3072	4	23.9



①	Steel plate 590x1.5	DIN EN 10111–DD11	$R_{eH} \geq 280 N/mm^2$
②	Steel plate 140x2	DIN EN 10111–DD11	$R_{eH} \geq 280 N/mm^2$
③	Steel plate 30x8	S355J2 alternatively: S355MC	
④	L–profile 45x45x5	S235JR	
⑤	Flat 20x5	S235JR	
⑥	Blind rivet ø4.8x16	DIN 7337	
⑦	Marking	Manufacturer's logo–AF XX–year of manufacturing	

galvnised; all welding seams a=2mm

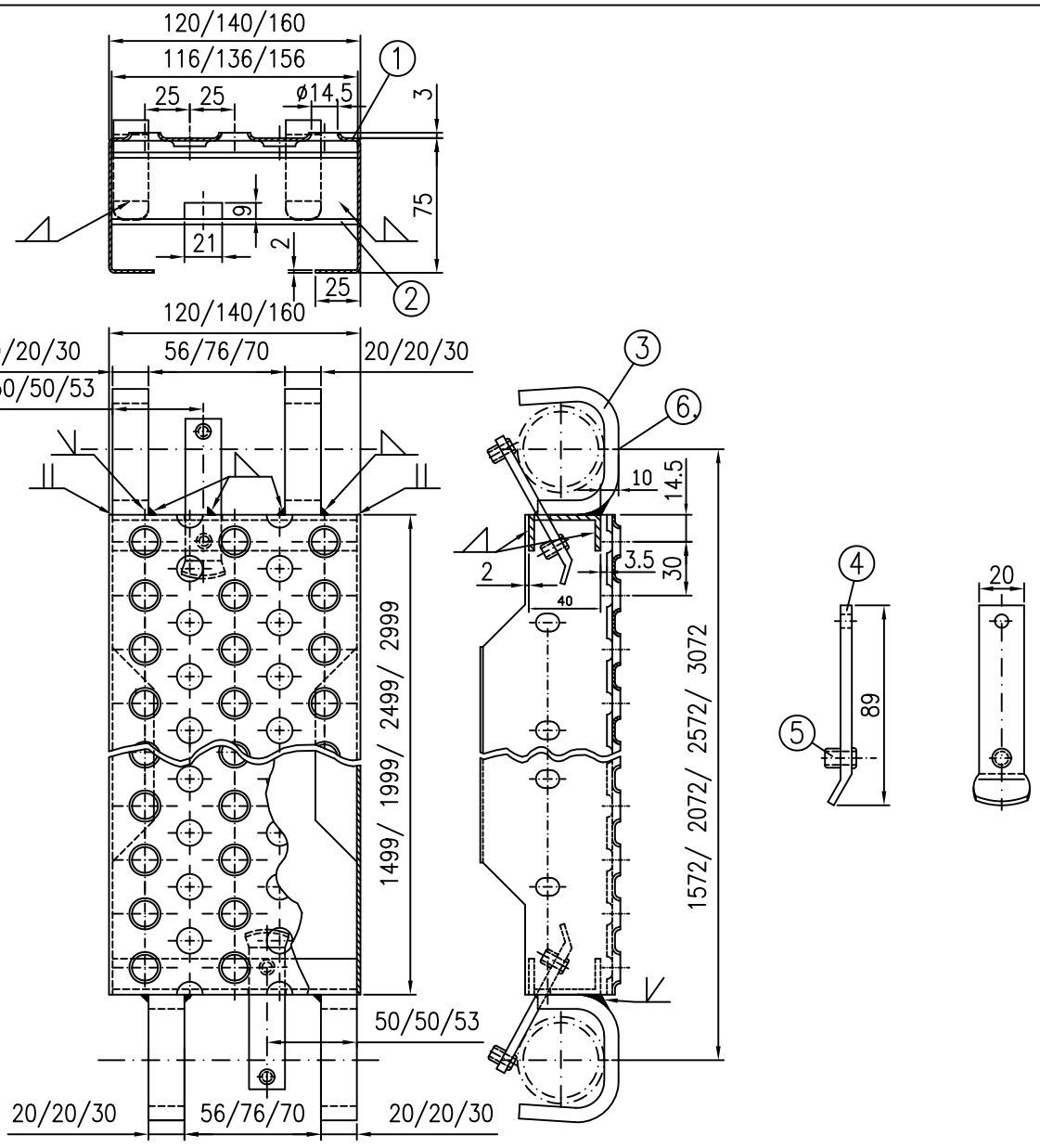
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Steel deck with tube fixture

M709–B023 09.2020

Annex B,
page 64



①	Steel plate 2mm	DIN EN 10025-S235JR		
	alternatively:	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
	alternatively steel plate 1.5mm	DIN EN 10025-S235JR		
		DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
②	U-profile 40x20x3	DIN EN 10025-S235JR		
③	Steel plate 20x8/ 30x8	DIN EN 10025-S355J2	alternatively: DIN EN 10149-S355MC	
④	Flat 20x5	DIN EN 10025-S235JR	hot-dip galvanised	
⑤	Blind rivet 4.8x16	DIN EN ISO 15979-aluminium/steel		
⑥	Marking			
	galvanised; all welding seams a=3mm			

Dimension [m]	Weight [kg]
1.57x0.16	7.1
2.07x0.16	9.0
2.57x0.16	10.9
3.07x0.16	12.8

ALFIX MODUL MULTI

Intermediate deck with tube suspension

M710-B124 08.2020

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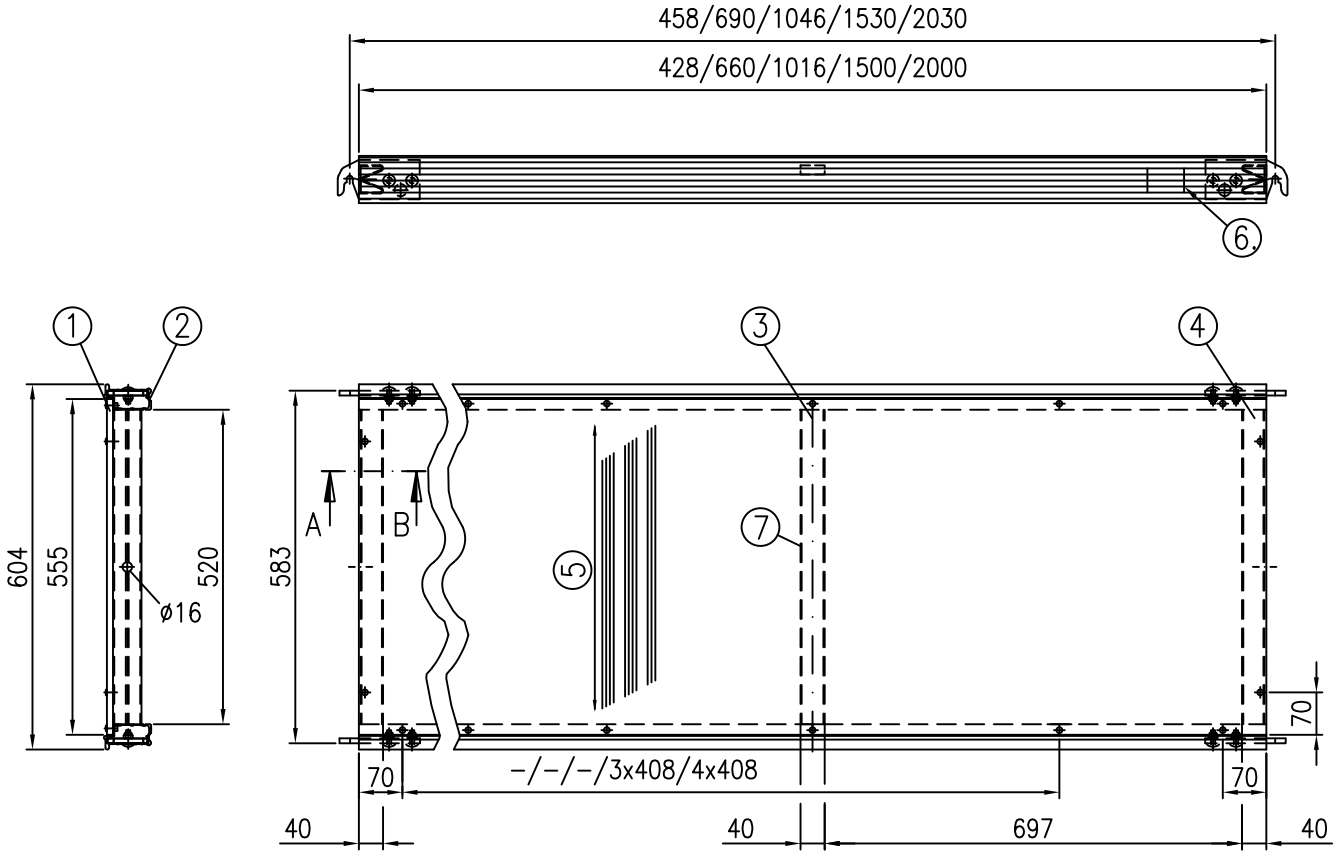
page 65



①	Plywood 10x555	Plywood for use in scaffolding with national technical approval
②	Rail profile 78x42	DIN EN 755-2 EN AW-6063-T66
③	Rectangular hollow section 40x15x2	DIN EN 755-2 EN AW-6063-T66
④	Grip profile; bridging deck thickness 2mm	DIN EN 755-2 EN AW-6063-T66
⑤	Grain direction	
⑥	Marking	
⑦	not applicable for 0.50m – 1.09m for 0.73m and 1.09m blind rivet in centre	

Component no longer manufactured
-only approved for continued use-

131-MIG: Type 4 (EC9) filler material

for details see Annex A, page 68

Load class 3

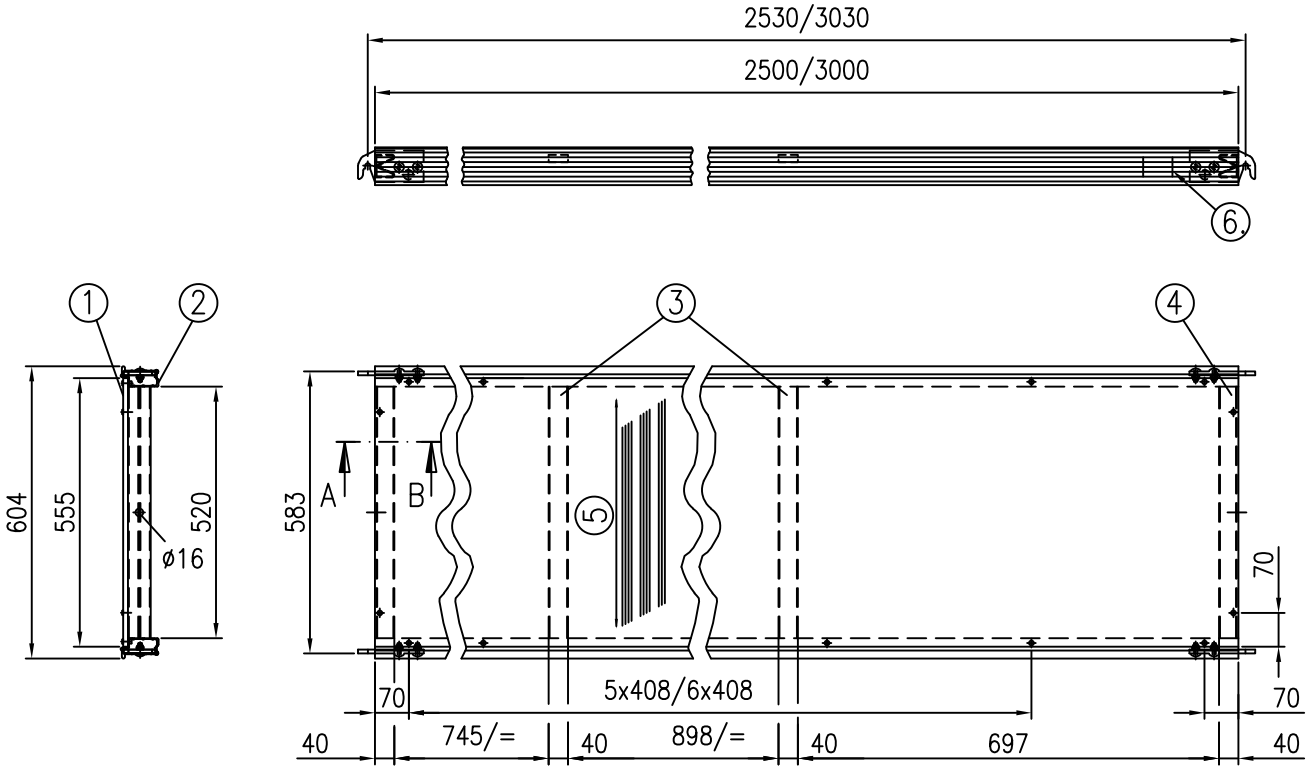
Dimension [m]	Weight [kg]
0.50	4.8
0.73	6.8
1.09	9.5
1.57	11.5
2.07	14.5

ALFIX MODUL MULTI

Aluminium frame platform with plywood 0.50 m – 2.07 m

A713-A230 08.2021

Annex B,
page 66



Component no longer manufactured
–only approved for continued use–

①	Plywood 10x555	Plywood for use in scaffolding with national technical approval
②	Rail profile 78x42	DIN EN 755–2 EN AW–6063–T66
③	Rectangular hollow section 40x15x2	DIN EN 755–2 EN AW–6063–T66
④	Grip profile; bridging deck thickness 2mm	DIN EN 755–2 EN AW–6063–T66
⑤	Grain direction	
⑥	Marking	131–MIG: Type 4 (EC9) filler material

for details see Annex A, page 68 Load class 3

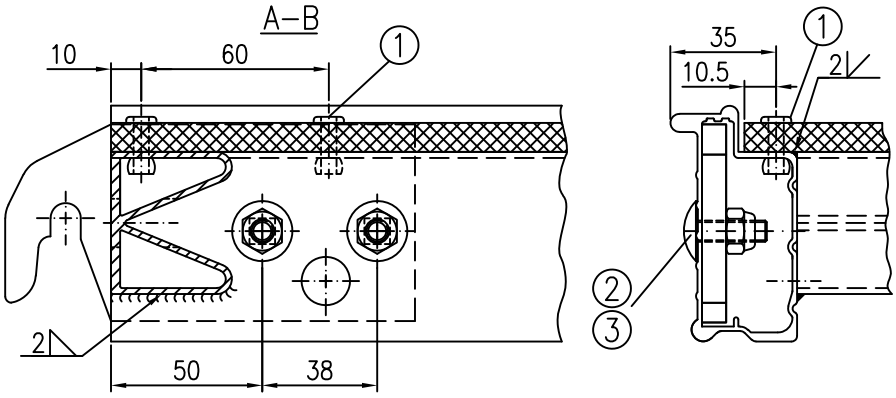
Dimension [m]	Weight [kg]
2.57	17.6
3.07	20.7

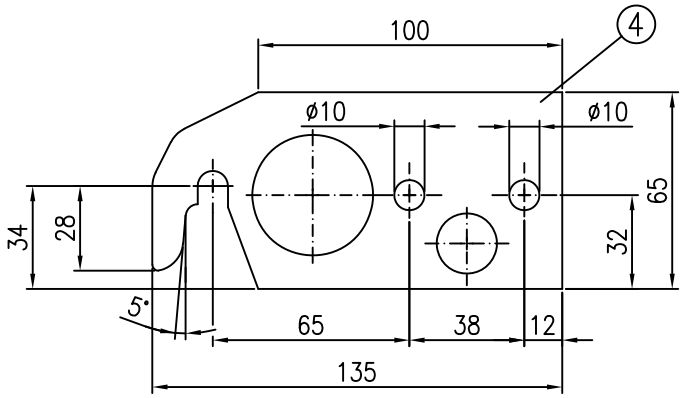
ALFIX MODUL MULTI

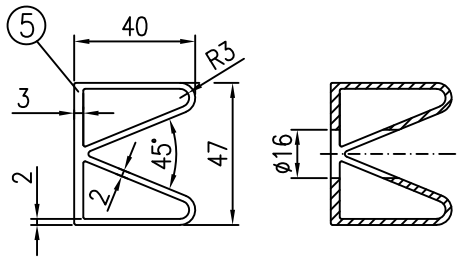
Aluminium frame platform with plywood 2.57 m; 3.07 m

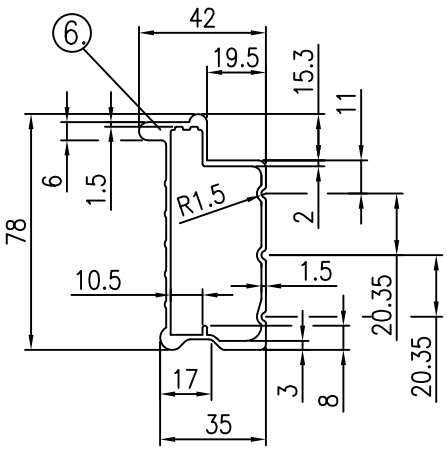
Annex B,
page 67

A713–A231 08.2021









Component no longer manufactured
–only approved for continued use–

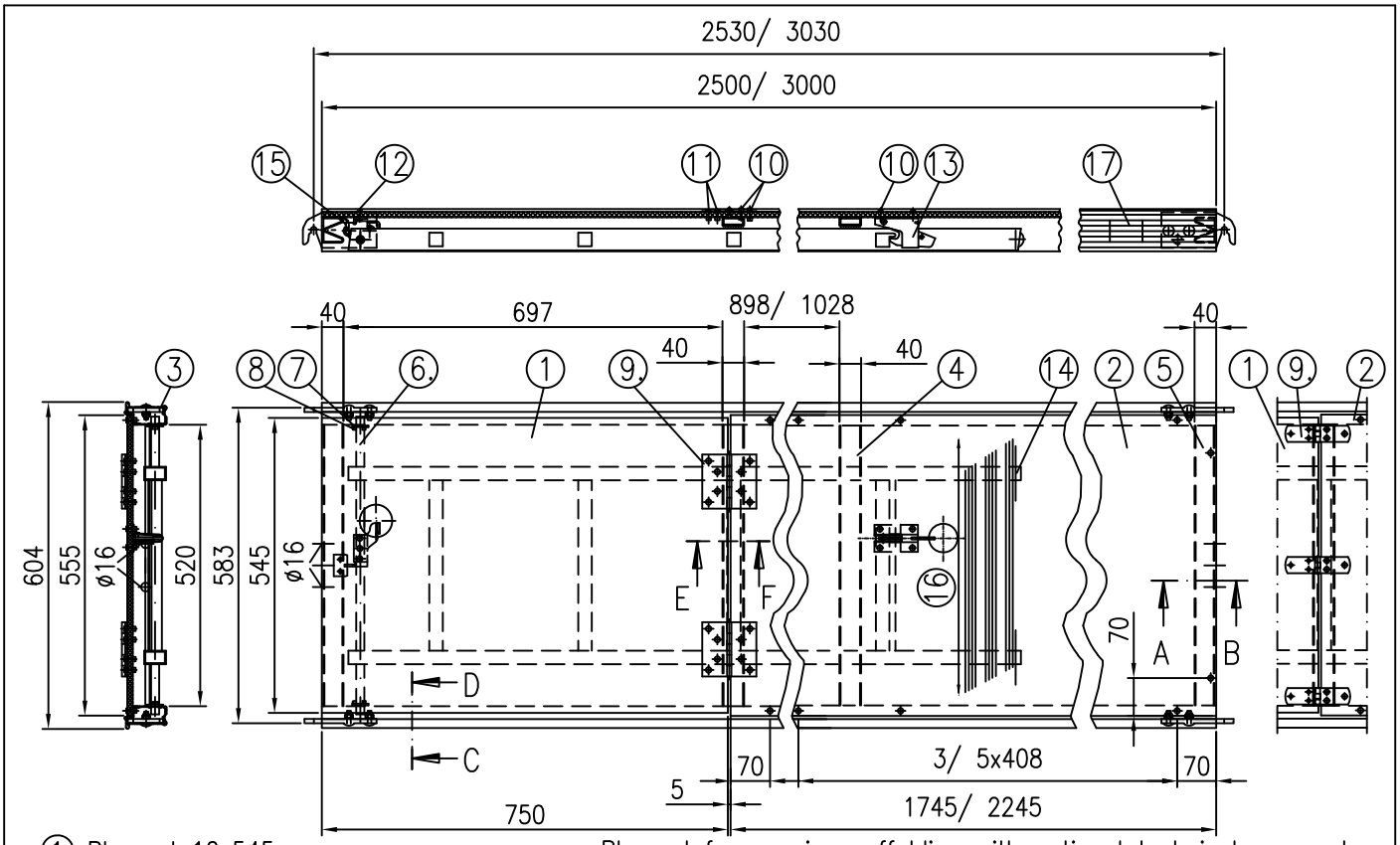
① Blind rivet ø5x20	DIN EN ISO 15979	EN AW–5754 H112
② Round–head screw	DIN 603–M8x20–8.8–galvanised	
③ Nut, self–locking	DIN EN ISO 7042–M8–8–galvanised	
④ Suspension claw, steel metal t=8mm	DIN EN 10025	S235JR hot–dip galvanised
⑤ Grip profile; bridging deck thickness 2mm	DIN EN 755–2	EN AW–6063–T66
⑥ Aluminium rail profile	DIN EN 755–2	EN AW–6063–T66

ALFIX MODUL MULTI

Deatils of aluminium frame platform

A713–A232 08.2021

Annex B,
page 68



①	Plywood 10x545	Plywood for use in scaffolding with national technical approval	
②	Plywood 10x555	Plywood for use in scaffolding with national technical approval	
③	Rail profile 78x42	DIN EN 755-2	EN AW-6063-T66
④	Rectangular hollow section 40x15x2	DIN EN 755-2	EN AW-6063-T66
⑤	Grip profile; bridging deck thickness 2mm	DIN EN 755-2	EN AW-6063-T66
⑥	Circular hollow section 15x2	DIN EN 10219	S235JRH
	alternatively:	DIN EN 10296-2	1.4301
⑦	Disc	DIN EN ISO 7089-A 17-steel-galvanised	
⑧	Split pin	DIN EN ISO 1234-4x25-steel-galvanised	
⑨	Hinge 100x100x1.6	DIN EN 10025-S235JR; electrogalvanized	
	alternatively: hinge 120x30x1.6	DIN EN 10025-S235JR; electrogalvanized	
⑩	Blind rivet ø5x20	DIN EN ISO 15979 EN AW-5754 H112	
⑪	Blind rivet ø5x18	DIN EN ISO 15979 EN AW-5754 H112	
⑫	Blind rivet ø4.8x16 alternatively: ø5x18	DIN EN ISO 15979 EN AW-5754 H112	
⑬	Ladder bracket	DIN EN 10025-S235JR; electrogalvanized	
⑭	Ladder	see Annex A, page 60	
⑮	Ledger	DIN EN 10025-S235JR; electrogalvanized	
⑯	Grain direction		
⑰	Marking	131-MIG: Type 4 (EC9) filler material	

Component no longer manufactured -only approved for continued use-

Dimens. [m]	Weight [kg]
2.57	24.0
3.07	27.0

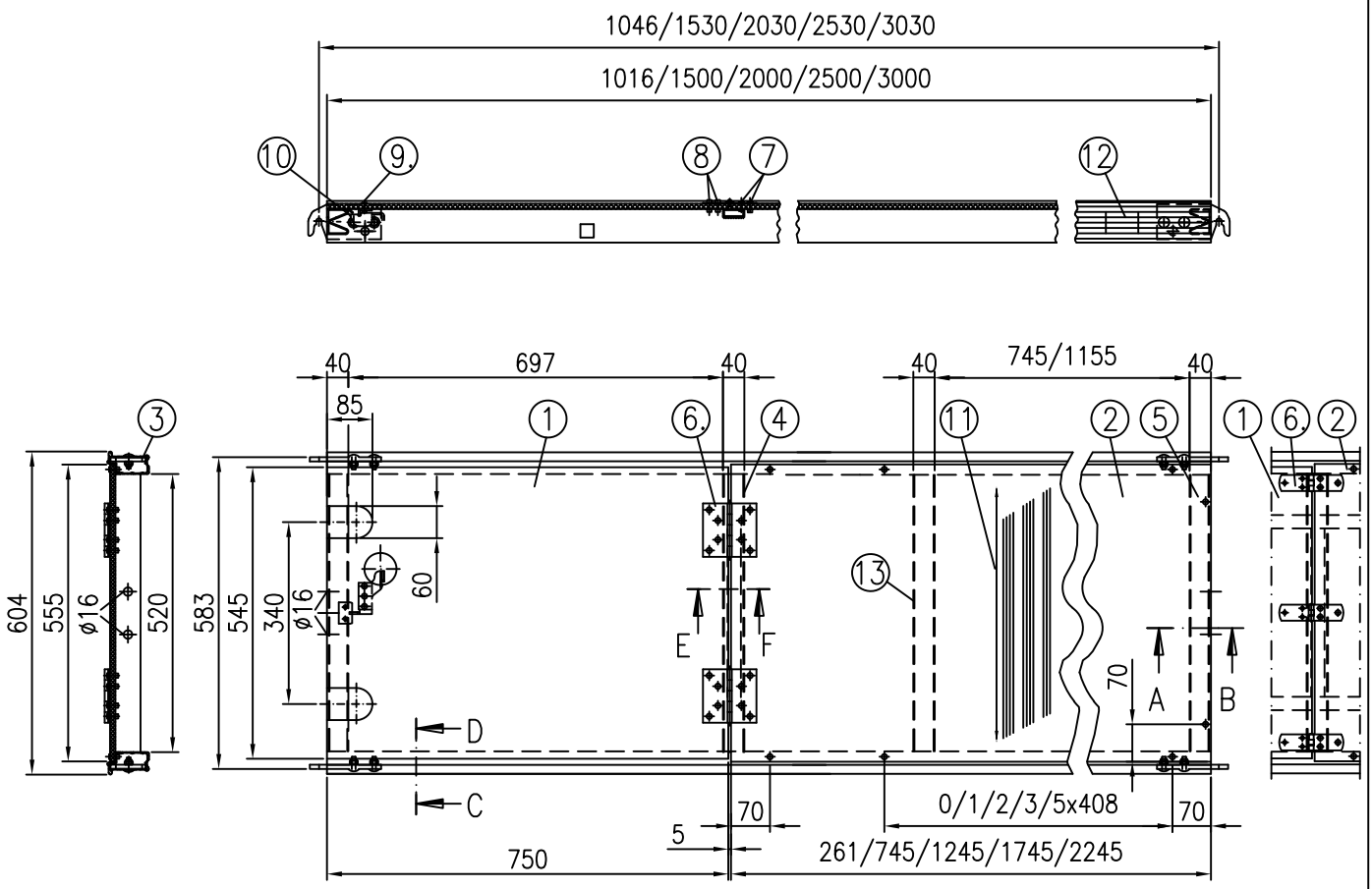
for details see Annex A, page 68 and 71 Load class 3

ALFIX MODUL MULTI

Aluminium frame platform with internal hatch 2.57 m; 3.07 m

Annex B, page 69

A713-A233 08.2021



①	Plywood 10x545	Plywood for use in scaffolding with national technical approval
②	Plywood 10x555	Plywood for use in scaffolding with national technical approval
③	Rail profile 78x42	DIN EN 755-2 EN AW-6063-T66
④	Rectangular hollow section 40x15x2	DIN EN 755-2 EN AW-6063-T66
⑤	Grip profile; bridging deck thickness 2mm	DIN EN 755-2 EN AW-6063-T66
⑥	Hinge 100x100x1.6	DIN EN 10025-S235JR; electrogalvanized
	alternatively: Hinge 120x30x1.6	DIN EN 10025-S235JR; electrogalvanized
⑦	Blind rivet ø5x20	DIN EN ISO 15979 EN AW-5754 H112
⑧	Blind rivet ø5x18	DIN EN ISO 15979 EN AW-5754 H112
⑨	Blind rivet ø4.8x16 alternatively: ø5x18	DIN EN ISO 15979 EN AW-5754 H112
⑩	Ledger	DIN EN 10025-S235JR; electrogalvanized
⑪	Grain direction	
⑫	Marking	
⑬	not applicable for 1.09m to 2.07m	

Component no longer manufactured
-only approved for continued use-

131-MIG: Type 4 (EC9) filler material

for details see Annex A, page 68 and 71 Load class 3

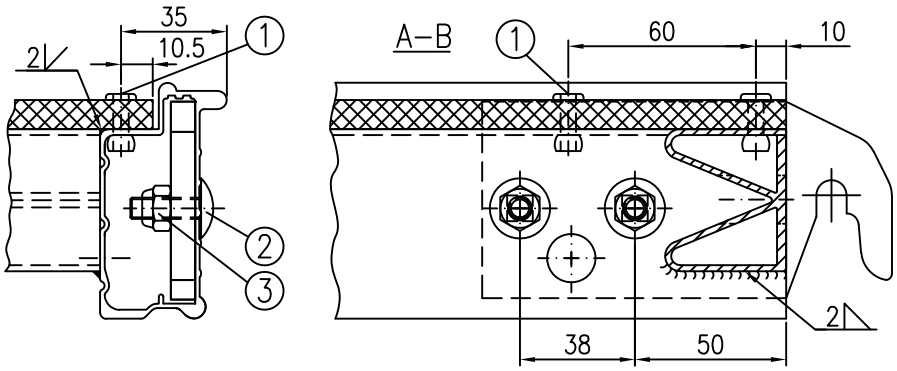
Dimens. [m]	Weight [kg]
1.09	10.5
1.57	13.0
2.07	17.0
2.57	22.0
3.07	25.5

Rahmengerüst ALFIX 70

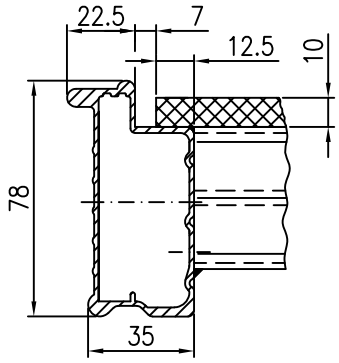
Aluminium frame platform with internal hatch
1.09 m – 3.07 m without ladder

A713-A236_AMU 08.2021

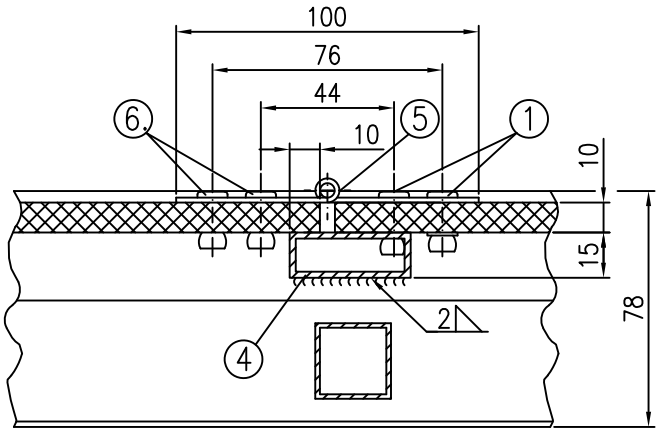
Annex B,
page 70



C–D



E–F



①	Blind rivet ø5x20	DIN EN ISO 15979 EN AW–5754 H112
②	Round–head screw	DIN 603–M8x20–8.8–galvanised
③	Nut, self–locking	DIN EN ISO 7042–M8–8–galvanised
④	Rectangualr hollow section 40x15x2	DIN EN 755–2 EN AW–6063–T66
⑤	Hinge 100x100x16	DIN EN 10025–S235JR; electrogalvanized
	alternatively: Hinge 120x30x1.6	DIN EN 10025–S235JR; electrogalvanized
⑥	Blind rivet ø5x18	DIN EN ISO 15979 EN AW–5754 H112

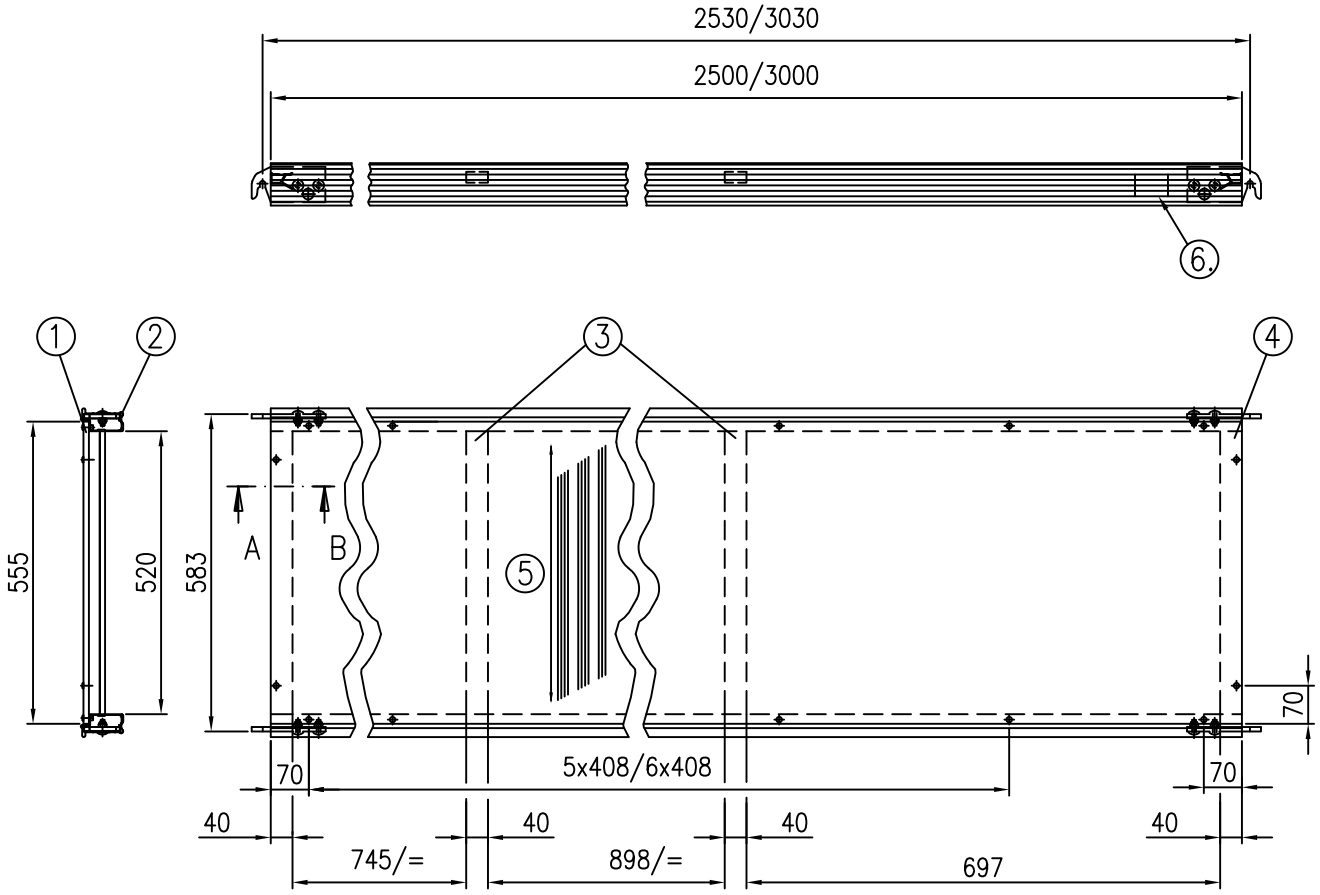
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Sectional views of aluminium frame platform with internal hatch

A713–A235 08.2021

Annex B,
page 71



① Combi Mirror WISA plywood 10x555 in accordance with Z-9.1-430 BFU 100-G
② Rail profile 78x42 EN AW-6063-T66 (AlMgSi0.5F25)
③ Tube connector 40x20x2 EN AW-6063-T66 (AlMgSi0.5F25)
④ Grip profile EN AW-6063-T66 (AlMgSi0.5F25)
⑤ Grain direction
⑥ Marking

Component no longer manufactured -only approved for continued use-

Dimension [m]	Weight [kg]
2.57x0.60	17.5
3.07x0.60	21.0

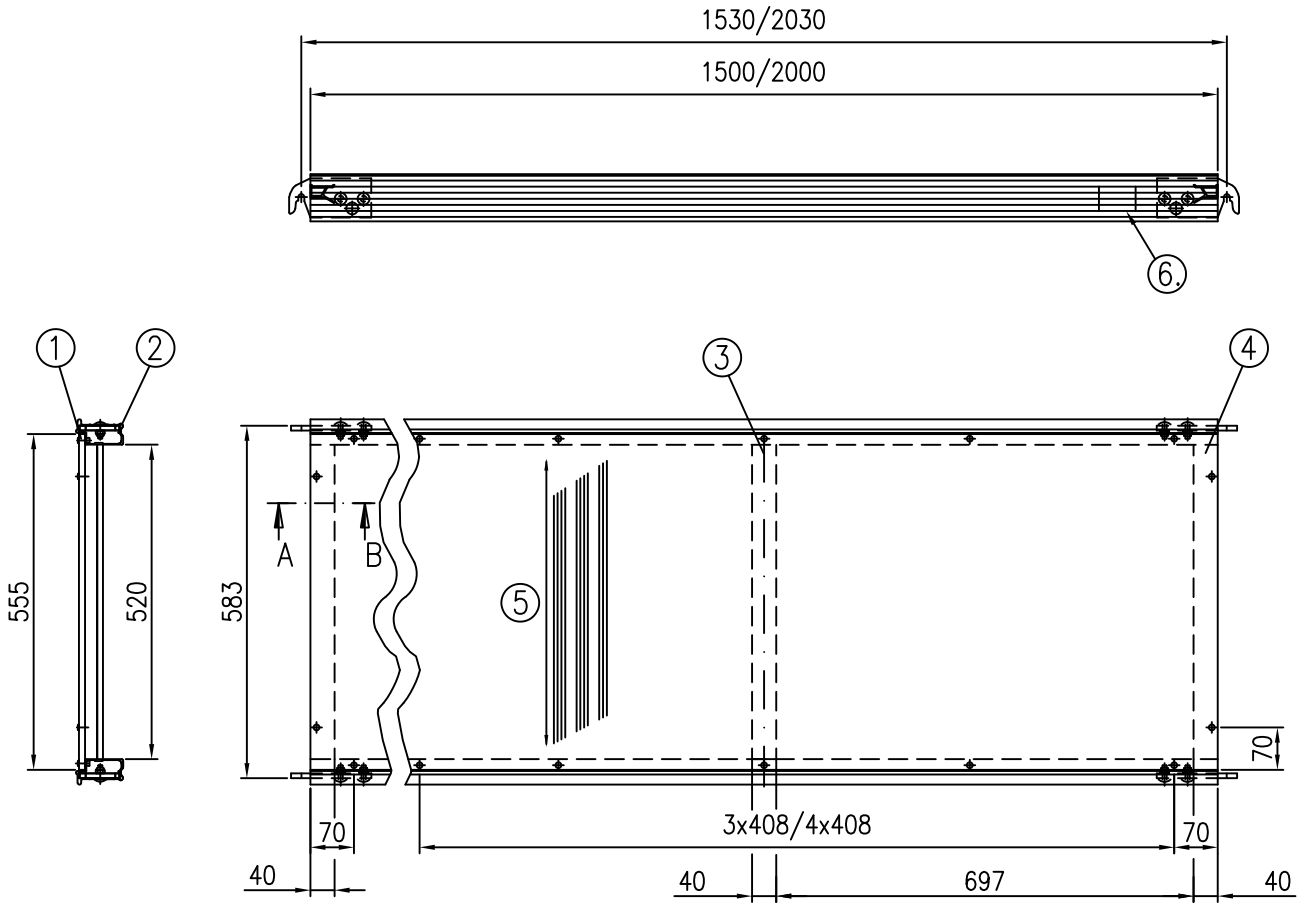
for detail see Annex B, page 74 Load class 3

ALFIX MODUL MULTI

Aluminium deck with plywood 2.57 m; 3.07 m
in accordance with Z-8.1-862

A705-A009_AMU 09.2020

Annex B,
page 72



① Combi Mirror WISA plywood 10x555 in accordance with Z-9.1-430 BFU 100-G
② Rail profile 78x42 EN AW-6063-T66 (AlMgSi0.5F25)
③ Tube connector 40x20x2 EN AW-6063-T66 (AlMgSi0.5F25)
④ Grip profile EN AW-6063-T66 (AlMgSi0.5F25)
⑤ Grain direction
⑥ Marking

Component no longer manufactured
-only approved for continued use-

Dimension [m]	Weight [kg]
1.57x0.60	11.0
2.07x0.60	14.5

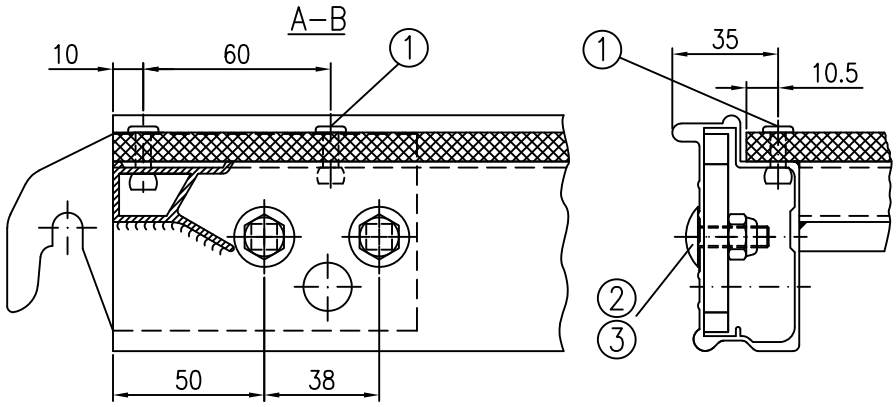
for details see Annex B, page 74 Load class 3

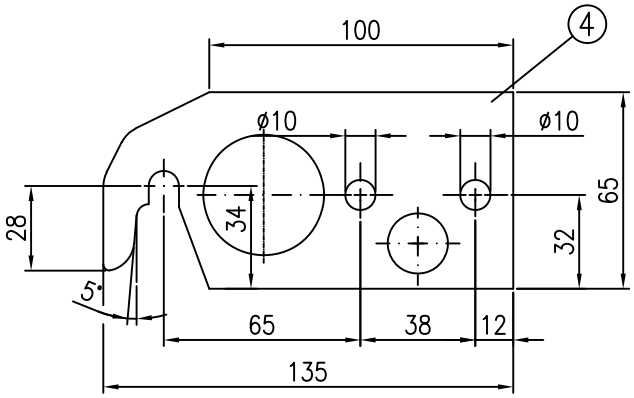
ALFIX MODUL MULTI

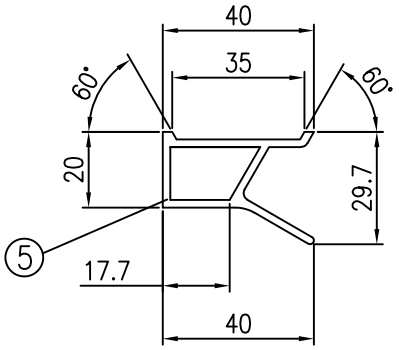
Aluminium deck with plywood 1.57 m; 2.07 m
in accordance with Z-8.1-862

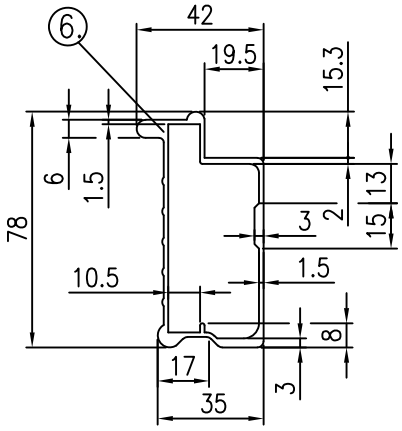
A705-A010_AMU 09.2020

Annex B,
page 73









① Blind rivet ø5x20		EN AW–5754 H112 (AlMg3)
② Round–head screw	M8x20 DIN 603	
③ Nut, self–locking	M8 DIN 980	
④ Suspension claw	Steel metal 8	S235JRG2, hot–dip galvanised
⑤ Grip profile; bridging deck thickness 2mm		EN AW–6063–T66 (AlMgSi0.5F25)
⑥ Aluminium rail profile		EN AW–6063–T66 (AlMgSi0.5F25)

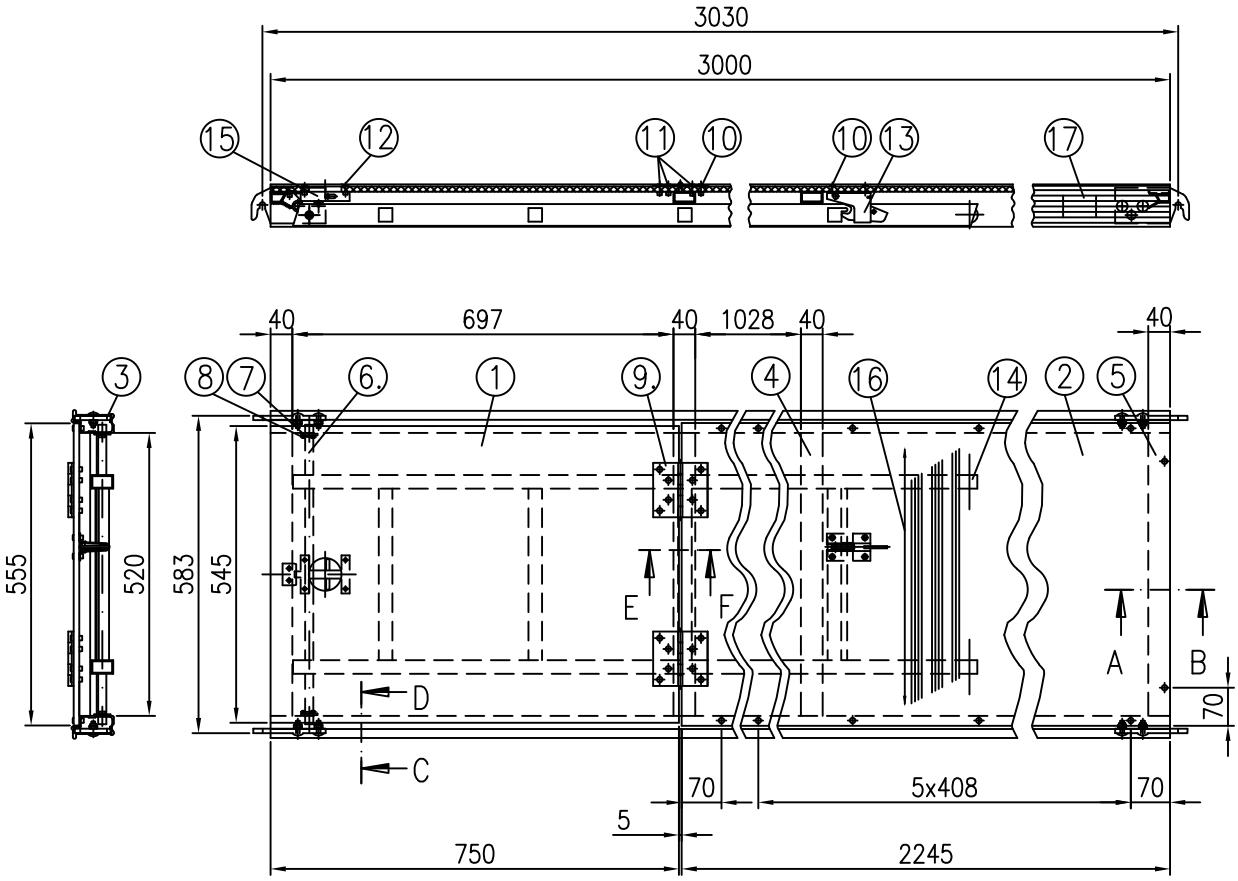
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Details of aluminium deck
in accordance with Z–8.1–862

A705–A011_AMU 11.2016

Annex B,
page 74



① Combi–Mirror WISA–Sperrholz 10x545 in accordance with Z–9.1–430 BFU 100–G
② Combi–Mirror WISA–Sperrholz 10x555 in accordance with Z–9.1–430 BFU 100–G
③ Rail profile 78x42 EN AW–6063–T66 (AlMgSi0.5F25)
④ Tube connector 40x20x2 EN AW–6063–T66 (AlMgSi0.5F25)
⑤ Grip profile EN AW–6063–T66 (AlMgSi0.5F25)
⑥ Tube ø15x2 S235JRH
⑦ Disc ø17 DIN 125
⑧ Split pin ø4x25 DIN 94
⑨ Hinge 100x100x1,6
⑩ Blind rivet ø5x20 EN AW–5754 H112 (AlMg3)
⑪ Blind rivet ø4.8x18 EN AW–5754 H112 (AlMg3)
⑫ Blind rivet ø4.8x16 EN AW–5754 H112 (AlMg3)
⑬ Ladder bracket
⑭ Ladder see Annex B, page 60
⑮ Ledger
⑯ Grain direction
⑰ Marking

Component no longer manufactured
–only approved for continued use–

Dimension [m]	Weight [kg]
3.07x0.60	22.5

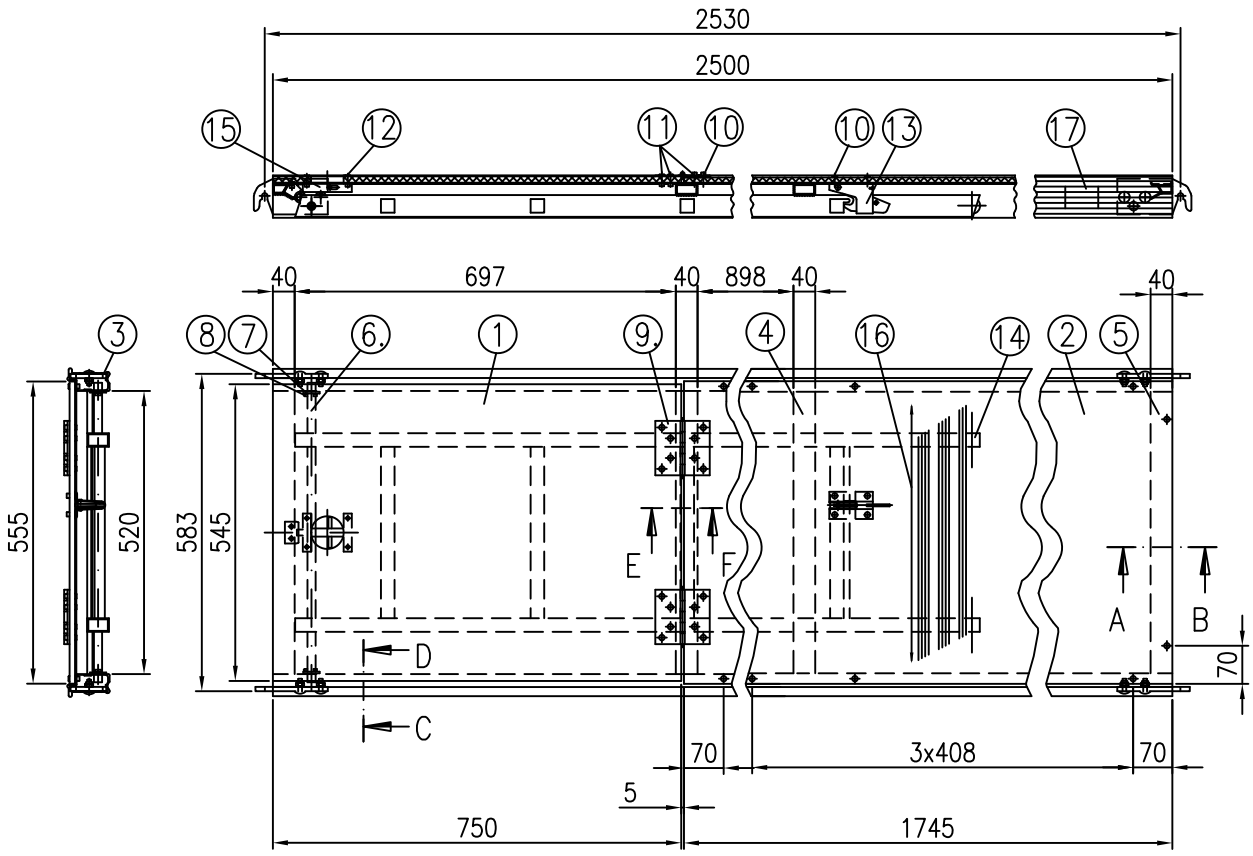
for details see Annex B, page 74 and 77 Load class 3

ALFIX MODUL MULTI

Aluminium access deck with ladder 3.07 m
in accordance with Z–8.1–862

A705–A012_AMU 09.2020

Annex B,
page 75



① Combi Mirror WISA plywood 10x545 in accordance with Z-9.1-430 BFU 100-G
② Combi Mirror WISA plywood 10x555 in accordance with Z-9.1-430 BFU 100-G
③ Rail profile 78x42 EN AW-6063-T66 (AlMgSi0.5F25)
④ Tube connector 40x20x2 EN AW-6063-T66 (AlMgSi0.5F25)
⑤ Grip profile EN AW-6063-T66 (AlMgSi0.5F25)
⑥ Tube ø15x2 S235JRH
⑦ Disc ø17 DIN 125
⑧ Split pin ø4x25 DIN 94
⑨ Hinge 100x100x1.6
⑩ Blind rivet ø5x20 EN AW-5754 H112 (AlMg3)
⑪ Blind rivet ø4.8x18 EN AW-5754 H112 (AlMg3)
⑫ Blind rivet ø4.8x16 EN AW-5754 H112 (AlMg3)
⑬ Ladder bracket
⑭ Ladder see Annex B, page 60
⑮ Ledger
⑯ Grain direction
⑰ Marking

Component no longer manufactured
-only approved for continued use-

Dimension [m]	Weight [kg]
2.57x0.60	18.5

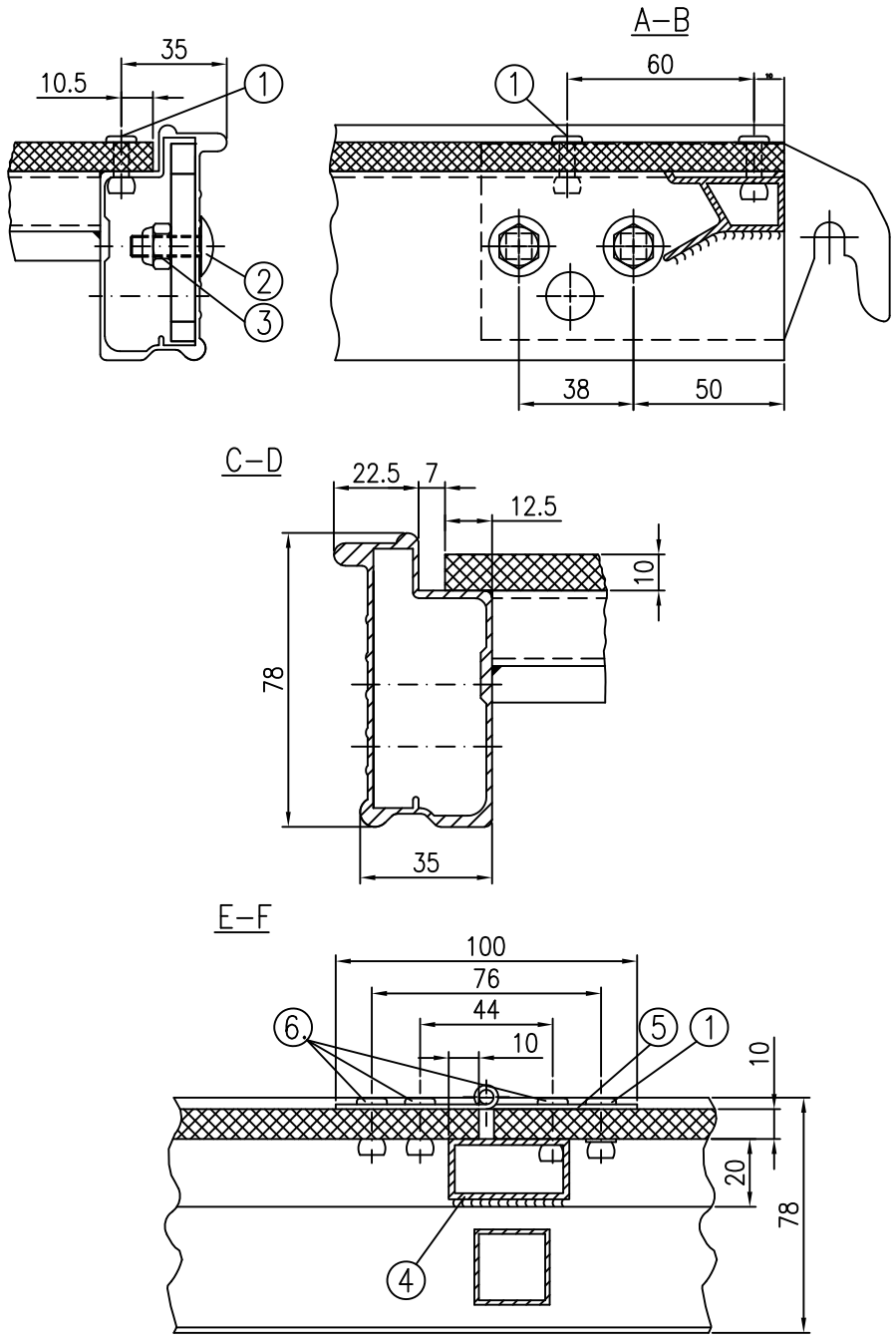
for details see Annex B, page 74 and 77 Load class 3

ALFIX MODUL MULTI

Aluminium access deck with ladder 2.57 m
in accordance with Z-8.1-862

A705-A013_AMU 11.2016

Annex B,
page 76



①	Blind rivet ø5x20	EN AW–5754 H112 (AlMg3)
②	Round–head screw	M8x20 DIN 603
③	Nut, self–locking	M8 DIN 980
④	Box 40x20x2	EN AW–6063–T66 (AlMgSi0.5F25)
⑤	Hinge 100x100x1.6	
⑥	Blind rivet ø4.8x18	EN AW–5754 H112 (AlMg3)

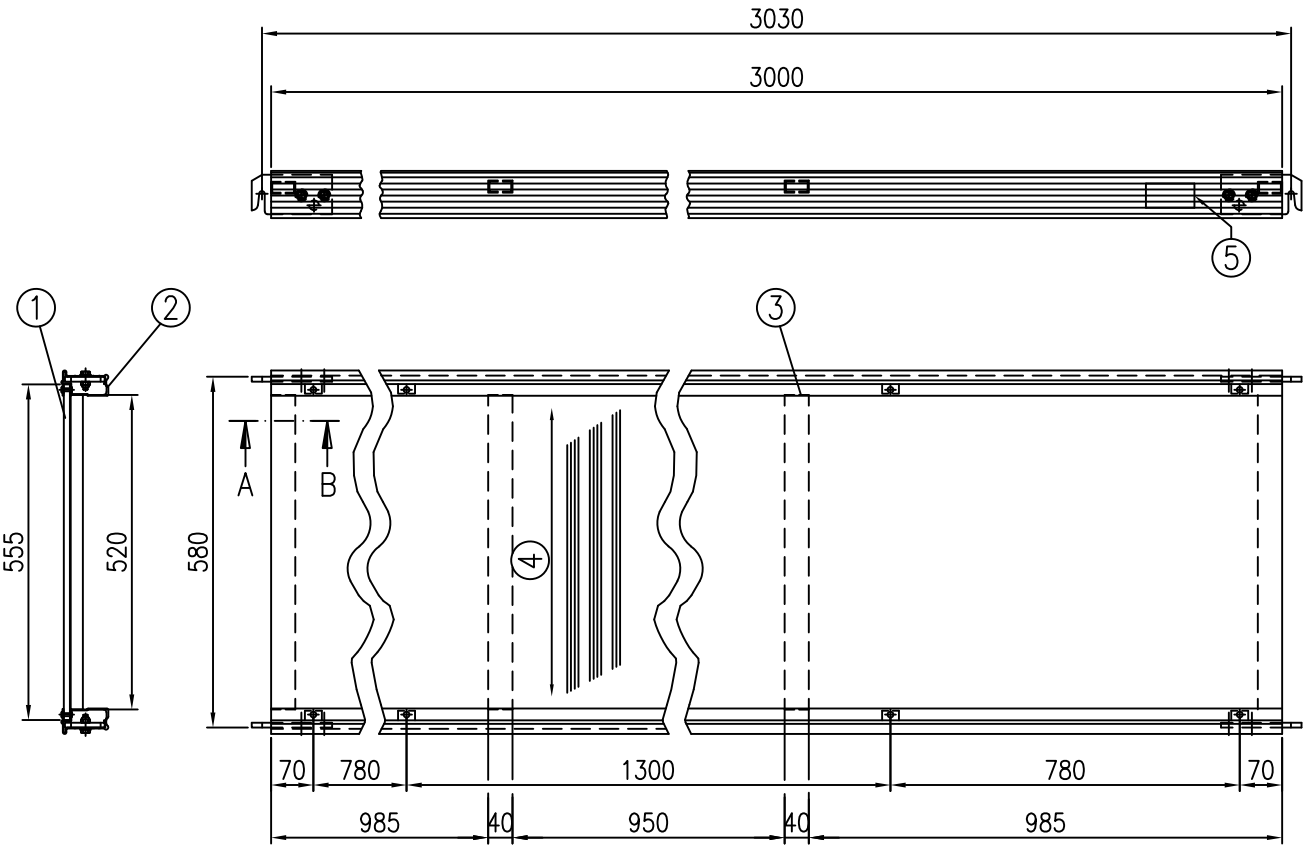
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Sectional views of aluminium access deck
in accordance with Z–8.1–862

A705–A014_AMU 11.2016

Annex B,
page 77



① Film-coated plywood 10x555 (BFU 100-10 DIN 68705 sheet 3) until '97
BFU 100G-10 DIN 68705 sheet 3

② Rail profile 78x42 (35) form A AlMgSi0.5F25

③ Square section 40x20x2 AlMgSi0.5F25

④ Grain direction

⑤ Marking

( ) = discontinued design, with marking:
manufacturer's logo, year of manufacturing, Z-8.1-310. Ü

Component no longer manufactured
-only approved for continued use-

Dimension [m]	Weight [kg]
3.07x0.60	21.0

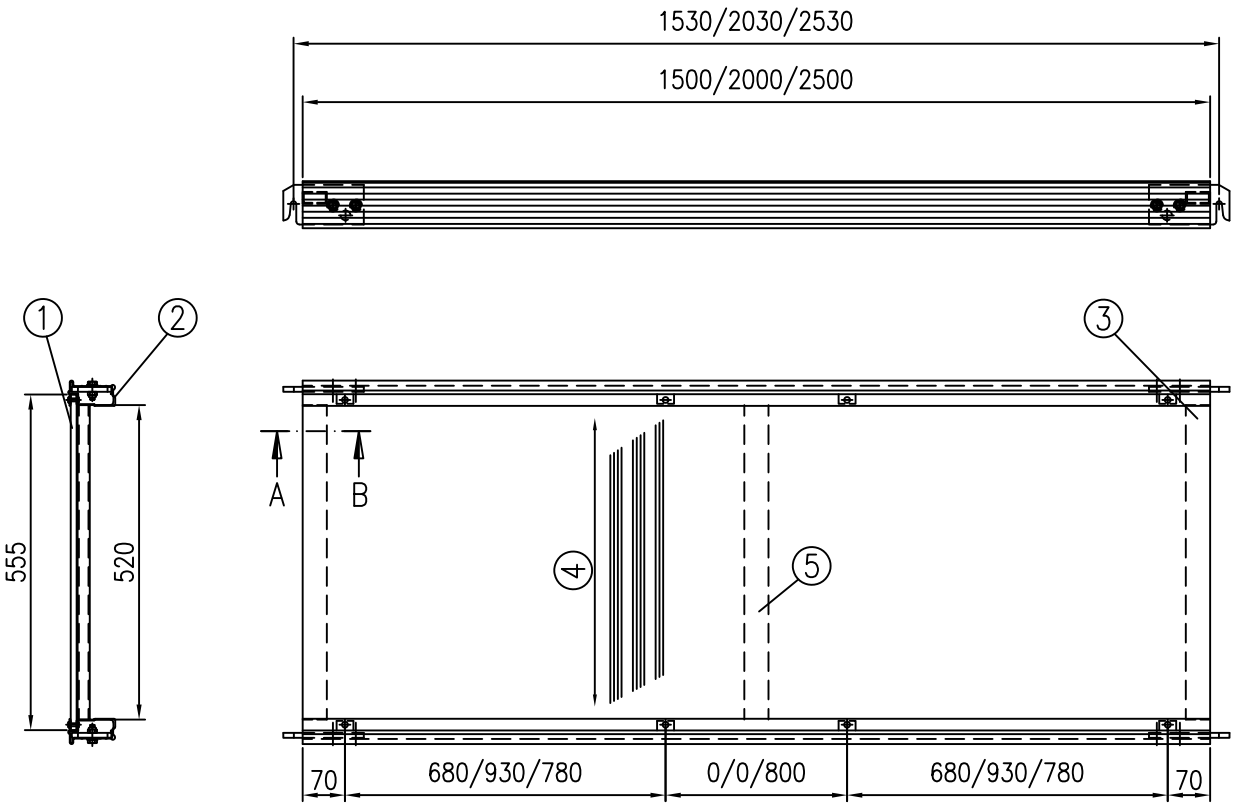
for details see Annex B, page 80 Load class 3

ALFIX MODUL MULTI

Aluminium deck with plywood 3.07 m
in accordance with Z-8.1-862

A705-A016_AMU 09.2020

Annex B,
page 78



① Film-coated plywood 10x555 (BFU 100-10 DIN 68705 sheet 3) until '97
BFU 100G-10 DIN 68705 sheet 3

② Rail profile 78x42 (35) form A AlMgSi0.5F25

③ Square section 40x20x2 AlMgSi0.5F25

④ Grain direction

⑤ only for bay length 2.5m

Component no longer manufactured
-only approved for continued use-

( ) = discontinued design, with marking: manufacturer's logo, year of manufacturing, Z-8.1-310. Ü

Dimension [m]	Weight [kg]
1.57x0.60	11.0
2.07x0.60	14.5
2.57x0.60	17.5

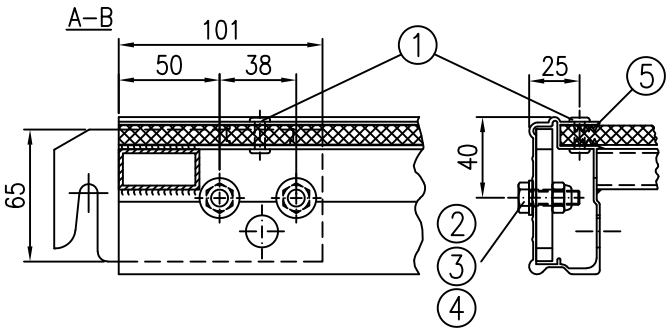
for details see Annex B, page 80 Load class 3

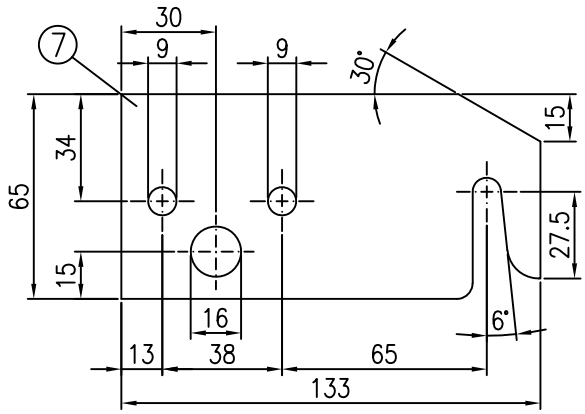
ALFIX MODUL MULTI

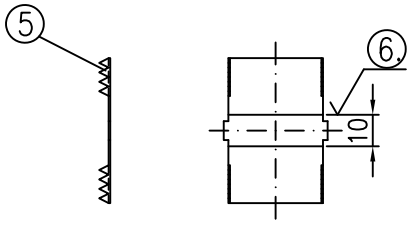
Aluminium deck with plywood 1.57 m; 2.07 m; 2.57 m
in accordance with Z-8.1-862

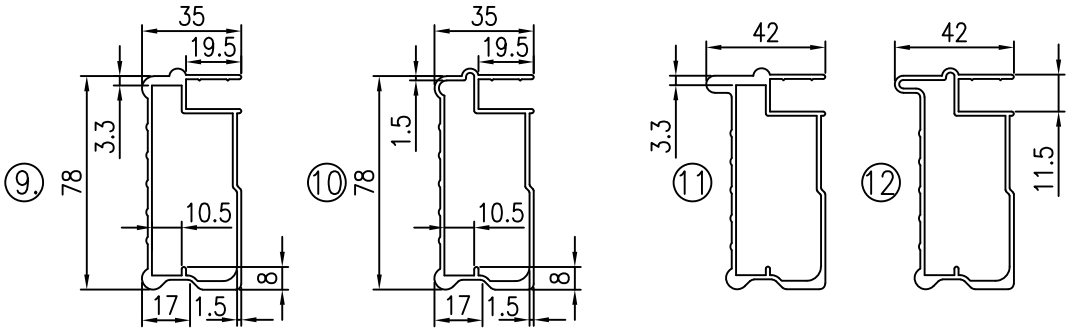
A705-A017_AMU 09.2020

Annex B,
page 79









① Rivet ø5x21	AlMg3 DIN 7337
② Screw M8x25	DIN 933
③ Disc ø8.4	DIN 125
④ Nut, self–locking M8	DIN 982
⑤ Cramp; steel metal t=0.5; since year of construction 1992	S235JRG2 hot–dip galvanised
⑥, Stamped for later bending	EN AW–6063–T66 (AlMgSi0.5F25)
⑦ Suspension claw; steel metal t=8	S235JRG2 hot–dip galvanised
⑧ Aluminium rails	AlMgSi0.5F25
⑨, Form A (discontinued design)	
⑩ Form B (discontinued design)	
⑪ Form A as of 01/95	
⑫ Form B as of 01/95	

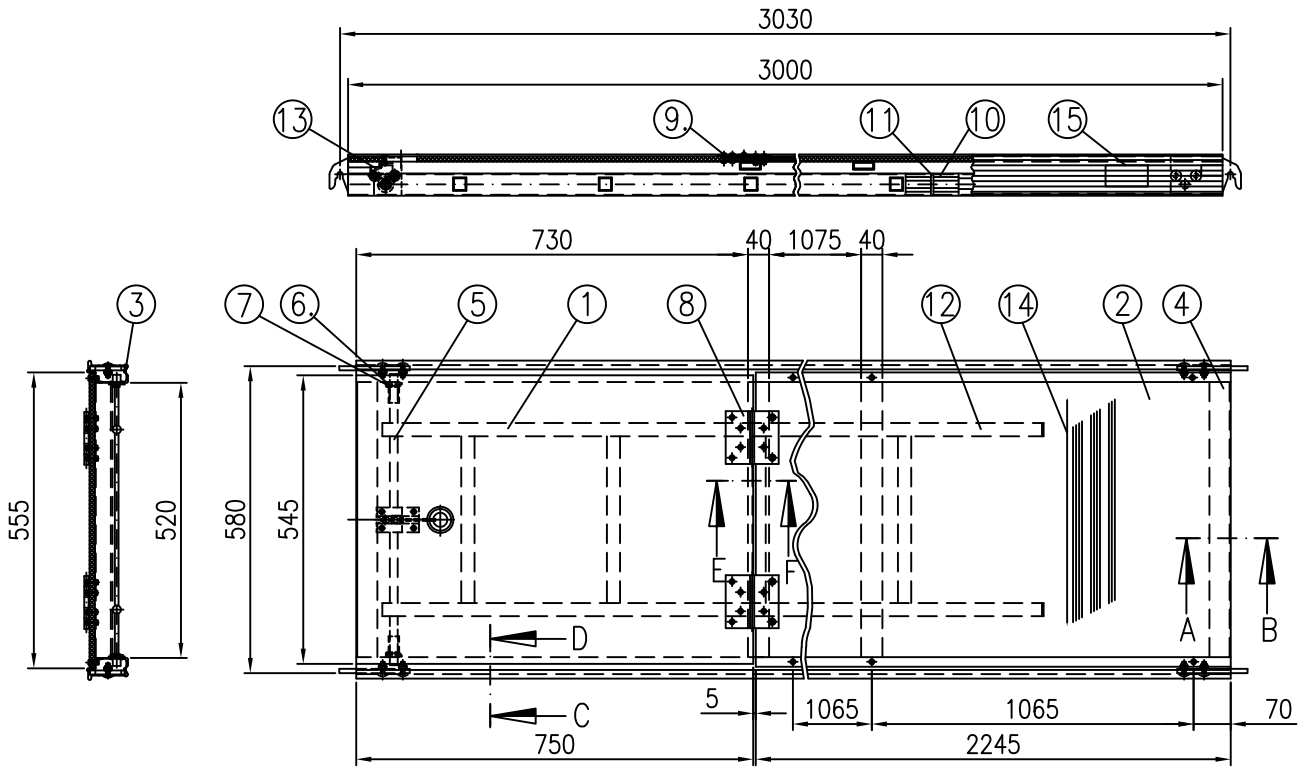
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Detailed view of aluminium deck
in accordance with Z–8.1–862

A705–A018_AMU 11.2016

Annex B,
page 80



①	Film-coated plywood 10x545	(BFU100-12 DIN 68705 sheet 3) until '97 BFU100G-12 DIN 68705 sheet 3
②	Film-coated plywood 10x555	(BFU100-10 DIN 68705 sheet 3) until '97 BFU100G-10 DIN 68705 sheet 3
③	Aluminium rail 78x42(35) /A	AlMgSi0.5F25
④	Square section 40x20x2	AlMgSi0.5F25
⑤	(Tube 15x1	AlMgSi0.5F25) until '97
	Round ø15	AlMgSi0.5F22
⑥	Disc ø15	DIN 125
⑦	Split pin ø4x32	DIN 94
⑧	Hinge 100x100x1.6	
⑨	Rivet ø5x16	DIN 7337
⑩	Rivet ø5x18	DIN 7337
⑪	Ledger 100mm	
⑫	Ladder	see Annex B, page 60
⑬	Cranked ledger with ring 100mm	
⑭	Grain direction	
⑮	Marking	

Component no longer manufactured
-only approved for continued use-

Dimension [m]	Weight [kg]
3.07x0.60	22.5

( ) = discontinued design, with marking: manufacturer's logo, year of manufacturing, Z-8.1-310, Ü

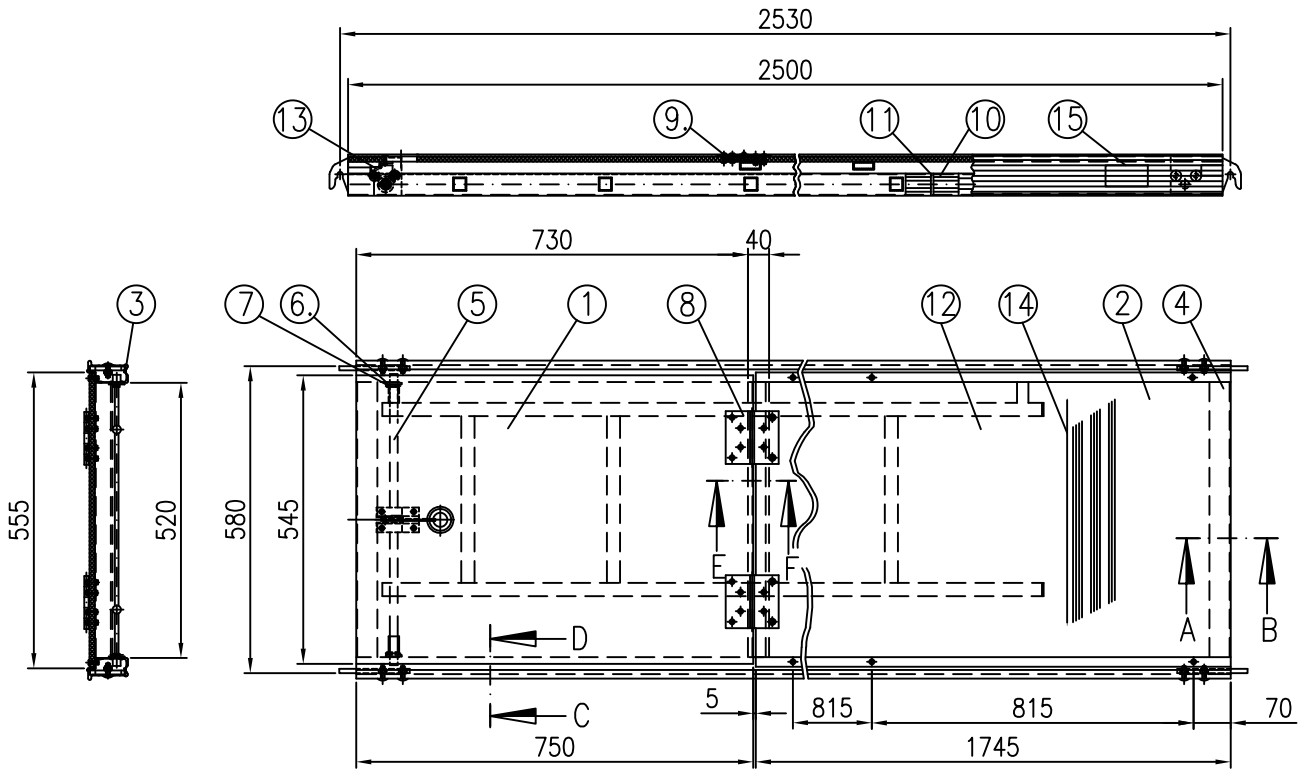
for details see Annex B, page 80 and 83 Load class 3

ALFIX MODUL MULTI

Aluminium access deck with ladder 3.07 m
in accordance with Z-8.1-862

A705-A019_AMU 09.2020

Annex B,
page 81



①	Film-coated plywood 10x545	(BFU100-12 DIN 68705 sheet 3) until '97 BFU100G-12 DIN 68705 sheet 3
②	Film-coated plywood 10x555	(BFU100-10 DIN 68705 sheet 3) until '97 BFU100G-10 DIN 68705 sheet 3
③	Aluminium rail 78x42(35) /A	AlMgSi0.5F25
④	Square section 40x20x2	AlMgSi0.5F25
⑤	(Tube 15x1	AlMgSi0.5F25) until '97
	Round ø15	AlMgSi0.5F22
⑥	Disc ø15	DIN 125
⑦	Split pin ø4x32	DIN 94
⑧	Hinge 100x100x1.6	
⑨	Rivet ø5x16	DIN 7337
⑩	Rivet ø5x18	DIN 7337
⑪	Ledger 100mm	
⑫	Ladder	see Annex B, page 60
⑬	Cranked ledger with ring 100mm	
⑭	Grain direction	
⑮	Marking	

Component no longer manufactured
-only approved for continued use-

Dimens. [m]	Weight [kg]
2.57x0.60	18.5

( ) = discontinued design, with marking: manufacturer's logo, year of manufacturing, Z-8.1-310, Ü

for details see Annex B, page 80 and 83 Load class 3

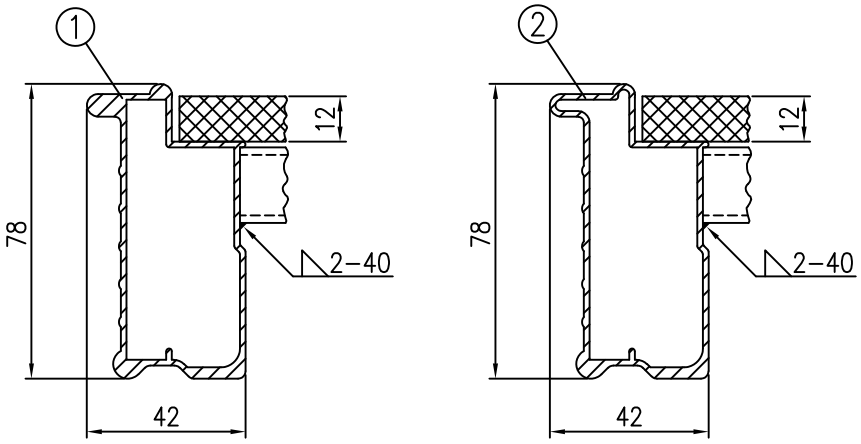
ALFIX MODUL MULTI

Aluminium access deck with ladder 2.57 m
in accordance with Z-8.1-862

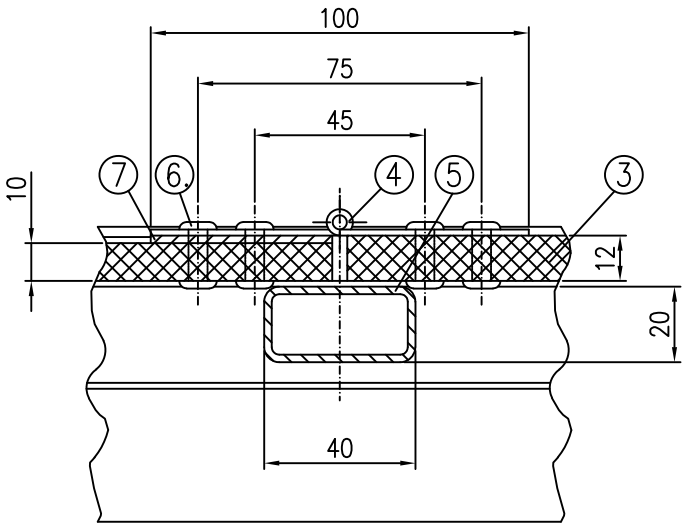
A705-A020_AMU 09.2020

Annex B,
page 82

C–D



E–F



① Form A
② Form B
③ Hatch
④ Hinge 100x100x1.6
⑤ Square section 40x20x2 AlMgSi0.5F25
⑥ Aluminium blind rivet ø5x16 DIN 7340
⑦ Thickness compensation

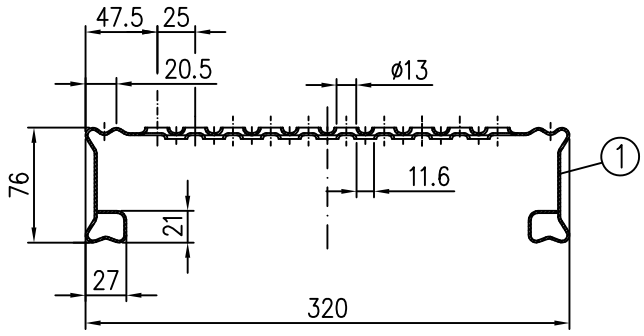
Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

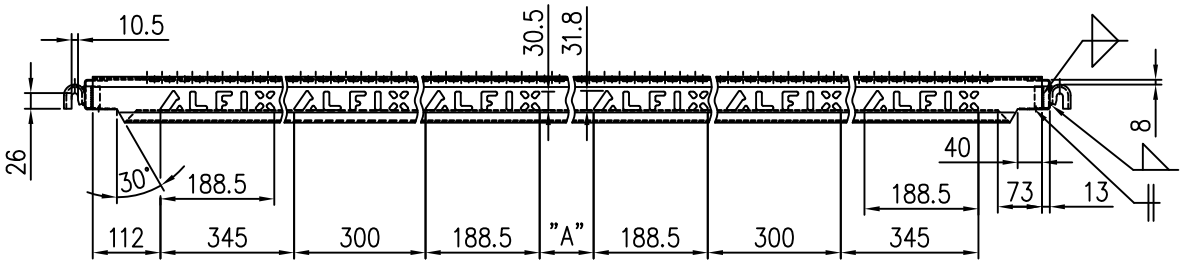
Sectional views of aluminium access deck
in accordance with Z–8.1–862

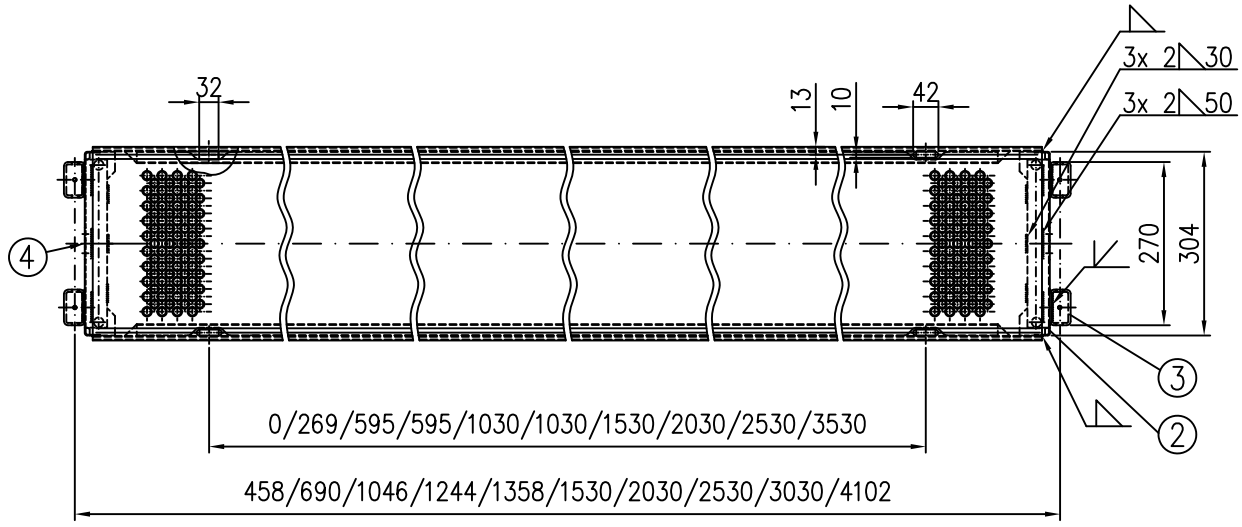
A705–A021_AMU 11.2016

Annex B,
page 83



Bay length [mm]	Number of logos [left/right]	Dimension "A" [mm]	Load class	Weight [kg]
500	1/–	–	6	4.1
732	1/1	36	6	5.6
1088	1/1	392	6	8.1
1286	1/1	590	6	9.5
1400	1/1	704	6	10.2
1572	1/1	876	6	11.4
2072	2/2	686	6	13.7
2572	2/2	1186	5	17.1
3072	3/3	1086	4	20.5
4144	3/3	2203	3	32.1





① Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	R_{eH} ≥280N/mm²	R_m≥360N/mm²
alternatively:	DIN EN 10025–2 S235JR	R_{eH} ≥280N/mm²	R_m≥360N/mm²
② Steel plate 1.5mm	DIN EN 10111–DD11	R_{eH} ≥240N/mm²	R_m≥360N/mm²
③ Steel plate 4mm	DIN EN 10111–DD13	R_{eH} ≥240N/mm²	R_m≥360N/mm²

④ Marking

galavnised; all welding seams a=2mm

ALFIX MODUL MULTI

Steel deck AF 0.32 m
in accordance with Z–8.1–862

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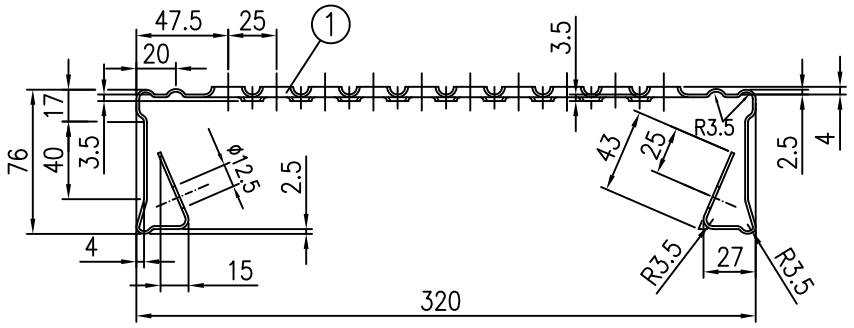
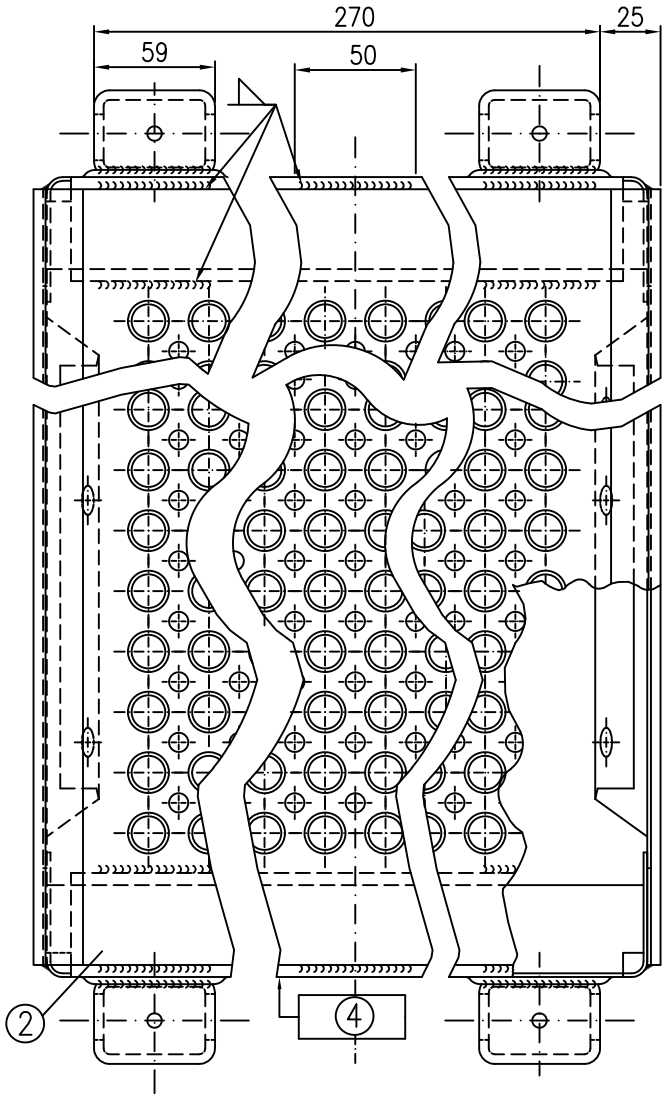
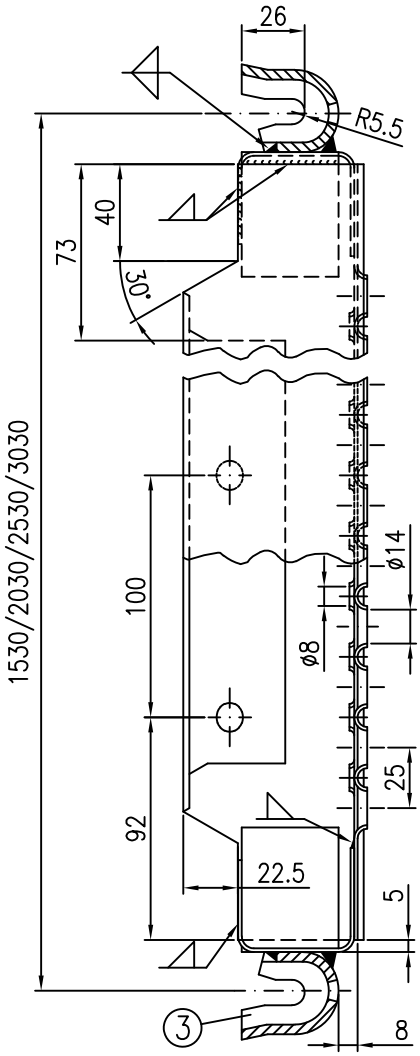
Annex B,
page 84

Bay length	Load class	Weight
[mm]		[kg]
1572	6	12.0
2072	6	15.0
2572	5	19.5
3072	4	23.0







① Steel plate 590x1.5 DIN EN 10111–DD11 $R_{eH} \geq 280 N/mm^2$

② Steel plate 120x2; altern. steel plate 120x1.5 DIN EN 10111–DD11 $R_{eH} \geq 240 N/mm^2$

③ Steel plate 70x4 DIN EN 10111–DD13 $R_{eH} \geq 240 N/mm^2$

④ Marking

galvanised; all welding seams a=3mm

Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Steel deck
in accordance with Z–8.1–862

A705–A007_AMU 09.2020

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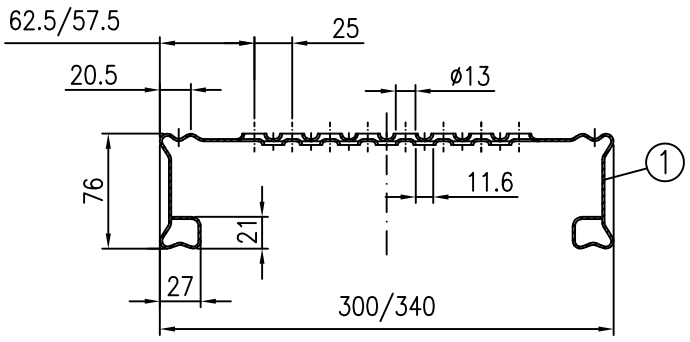
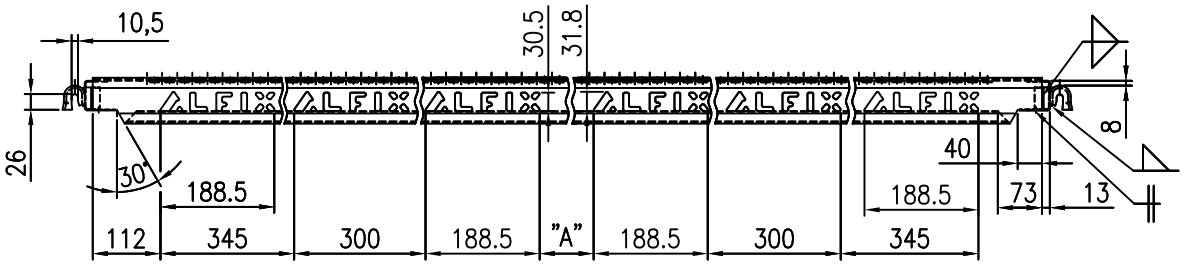
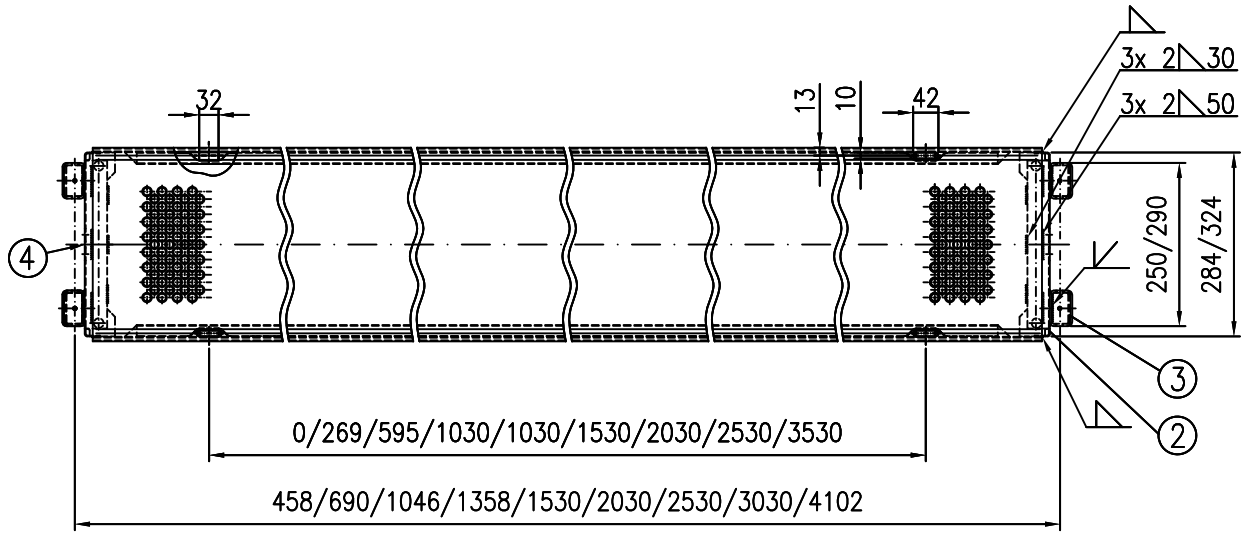


Bay length [mm]	Number of logos [left/right]	Dimension "A" [mm]	Load class
500	1/–	–	6
732	1/1	36	6
1088	1/1	392	6
1400	1/1	704	6
1572	1/1	876	6
2072	2/2	686	6
2572	2/2	1186	5
3072	3/3	1086	4
4144	3/3	2203	3





①	Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
	alternatively:	DIN EN 10025–2 S235JR	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
②	Steel plate 1.5mm	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
③	Steel plate 4mm	DIN EN 10111–DD13	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
④	Marking			

galavnised; all welding seams a=2mm

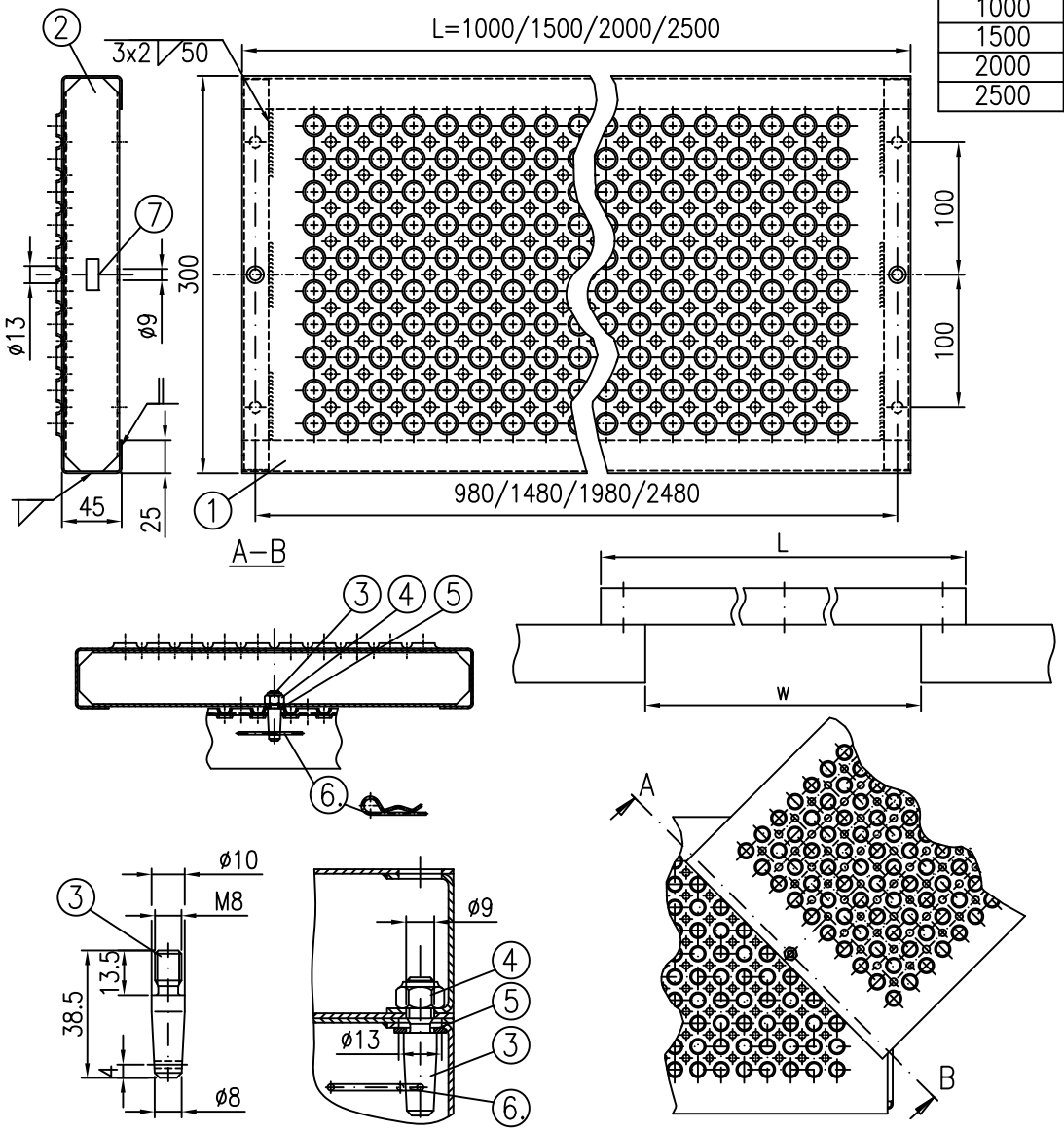
ALFIX MODUL MULTI

Steel deck AF 0.30 m; 0.34 m
in accordance with Z–8.1–862

A709–A167_AMU 08.2020

Annex B,
page 86

Length L [mm]	w	Load class
1000	900	4
1500	1450	4
2000	1850	3
2500	1850	3



① Steel plate 1.5mm	DIN EN 10111–DD11	R_{eH} ≥280N/mm²	R_m ≥360N/mm²	
alternatively:	DIN EN 10025–S235JR	R_{eH} ≥280N/mm²	R_m ≥360N/mm²	
② Steel plate 1.5mm	DIN EN 10111–DD11	R_{eH} ≥280N/mm²	R_m ≥360N/mm²	
③ Lift–off prevention	DIN EN 10025–S235JR			
④ Hexagon nut, self–locking	DIN EN ISO 10511–M8–8–galvanised			
⑤ Disc	DIN EN ISO 7089–A8.4–steel–galvanised			
⑥ Spring clip	DIN 11024–2x42–steel–galvanised			
alternatively:	DIN 11024–2x50–steel–galavnised			
⑦ Marking				
galvanised; all welding seams a=2mm				

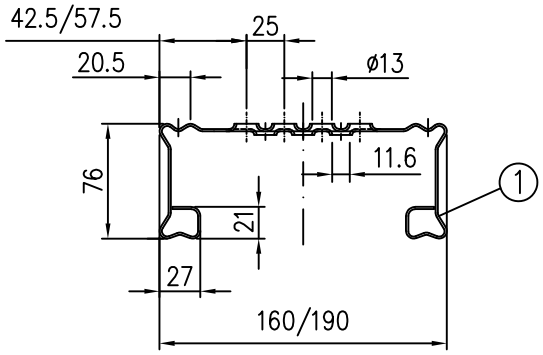
Dimens. [m]	Weight [kg]
1.00	5.5
1.50	8.0
2.00	10.5
2.50	12.8

ALFIX MODUL MULTI

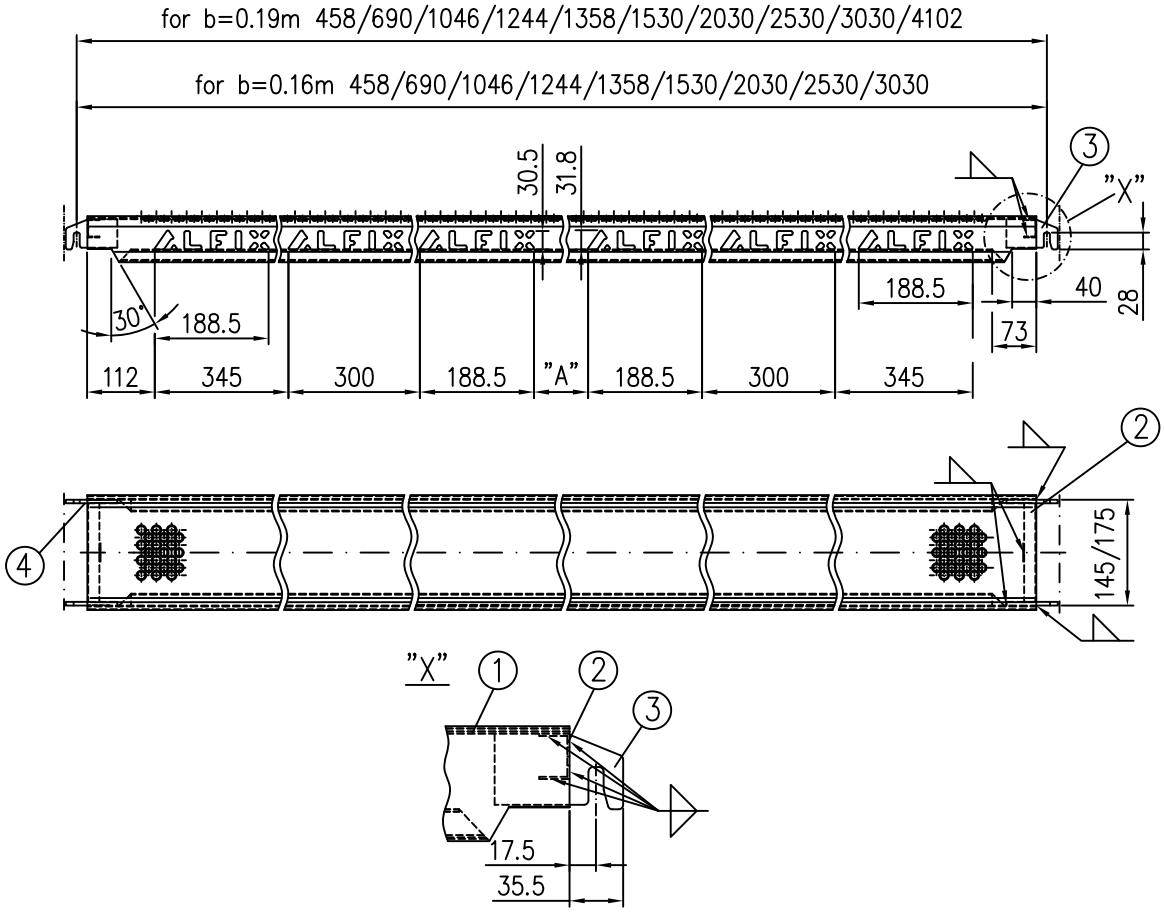
Steel plank 0.30 m
in accordance with Z–8.1–862

A709–A168_AMU 08.2020

Annex B,
page 87



Bay length [mm]	Number of logos [left/right]	Dimension "A" [mm]	Load class	Weight 0.19m [kg]
500	1/–	–	6	3.1
732	1/1	61	6	4.3
1088	1/1	417	6	6.1
1286	1/1	615	6	7.1
1400	1/1	729	6	7.7
1572	1/1	901	6	8.6
2072	2/2	711	6	11.2
2572	2/2	1211	5	13.9
3072	3/3	1111	4	16.5
4144	3/3	2228	3	22.0



① Steel plate 1.5mm	DIN EN 10111–DD11 (DD12)	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
alternatively:	DIN EN 10025–2 S235JR	$R_{eH} \geq 280 N/mm^2$	$R_m \geq 360 N/mm^2$
② U–profile 30x20x1.5	DIN EN 10025–2 S235JR		
alternatively: U–profile 25x25x1.5	DIN EN 10162 S235JR		
③ Flat 50x6	DIN EN 10025–2 S235JR		
④ Marking			

galvanised; all welding seams a=2mm

ALFIX MODUL MULTI

Intermediate deck AF 0.16 m; 0.19 m
in accordance with Z–8.1–862

A709–A181_AMU 08.2020

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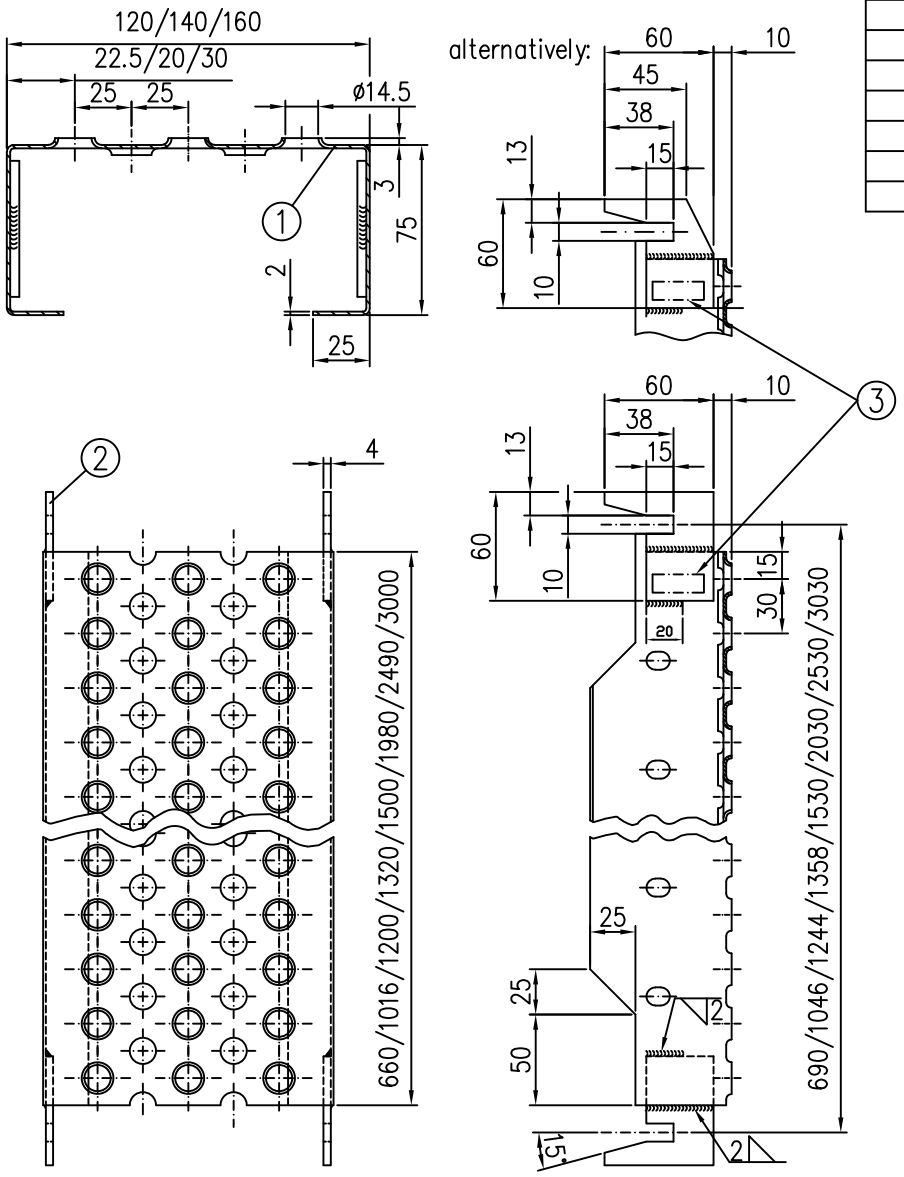
page 88

Bay length	Load class	Weight 0.16m
[mm]		[kg]
732	6	4.6
1088	6	6.0
1286	6	7.2
1400	6	7.8
1572	6	8.7
2072	6	11.4
2572	5	14.2
3072	4	16.7



① Steel plate 2mm	DIN EN 10025-2 S235JR		
<u>alternatively:</u>	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
alternatively: Steel plate 1.5mm	DIN EN 10025-2 S235JR		
<u>alternatively:</u>	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
② Steel metal 4x60x60	DIN EN 10025-2 S235JR		
③ Marking			
galvanised			

ALFIX MODUL MULTI

Intermediate deck
in accordance with Z-8.1-862

A709-A108_AMU 08.2020

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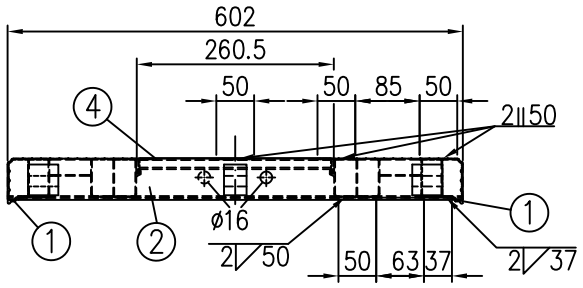
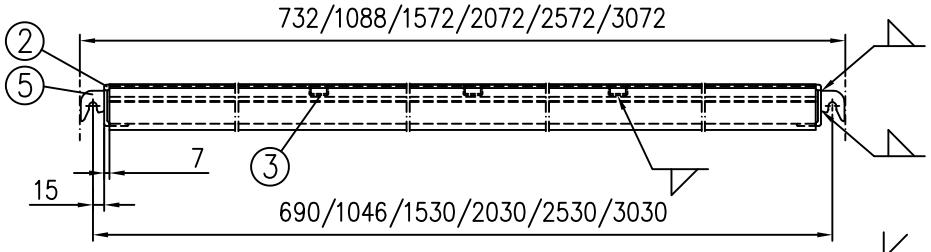
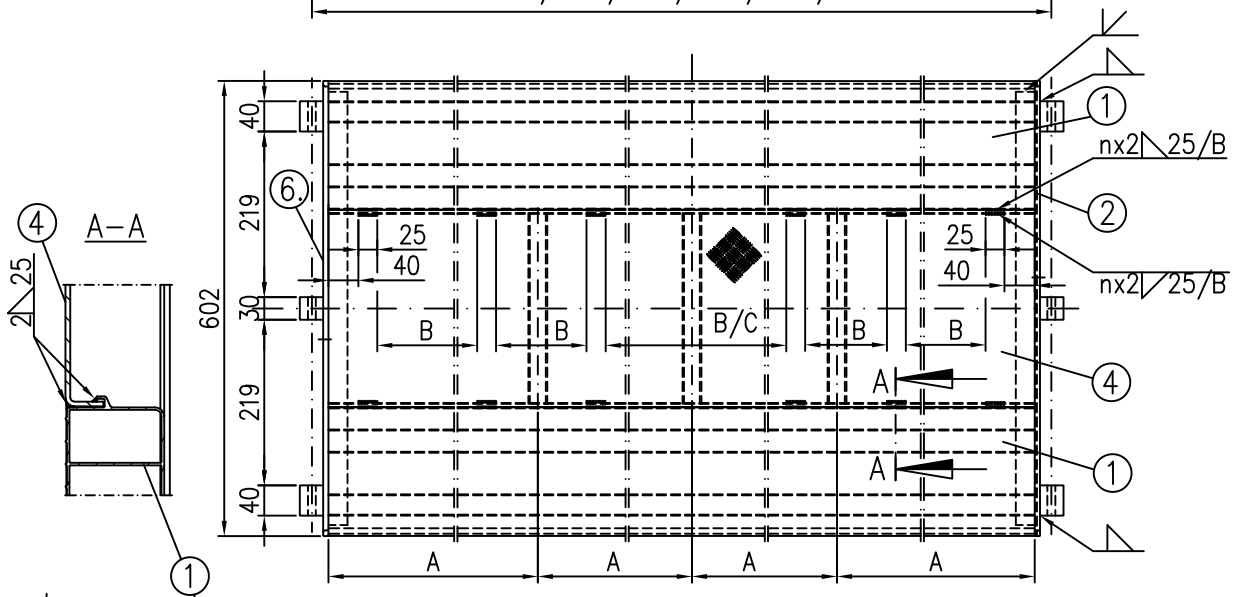
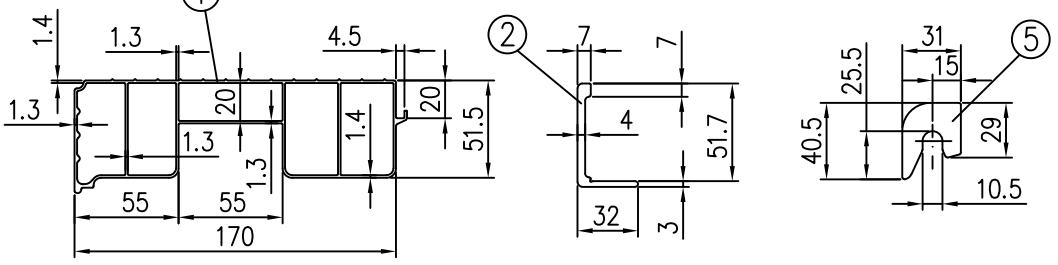
page 89



Bay length [mm]	Units ③	Dimen-sion "A" [mm]	Dimen-sion "B" [mm]	Dimen-sion "C" [mm]	n	Load class	Weight [kg]
732	–	–	155	–	4	4	6.0
1088	–	–	274	–	4	4	8.6
1572	1	743	435	–	4	4	11.5
2072	2	662	351	–	6	4	16.7
2572	2	829	414	600	6	4	18.2
3072	3	746	551	–	6	3	21.6







①	Edge section	DIN EN 755–2	EN AW–6063–T66
②	Headpiece profile	DIN EN 755–2	EN AW–6063–T66
③	U–profile 12x25x12x2	DIN EN 755–2	EN AW–6063–T66
④	Chequer plate with 5 bar pattern 2/3.5	DIN EN 1386	EN AW–5083 H114
⑤	Suspension claw	DIN EN 755–2	EN AW–6063–T66
⑥	Marking	all welding seams a=2mm 131–MIG: Type 4 (EC9) filler material	

ALFIX MODUL MULTI

Lightweight aluminium deck 0.60 m
in accordance with Z–8.1–862

A712–A213_AMU 08.2020

Annex B,
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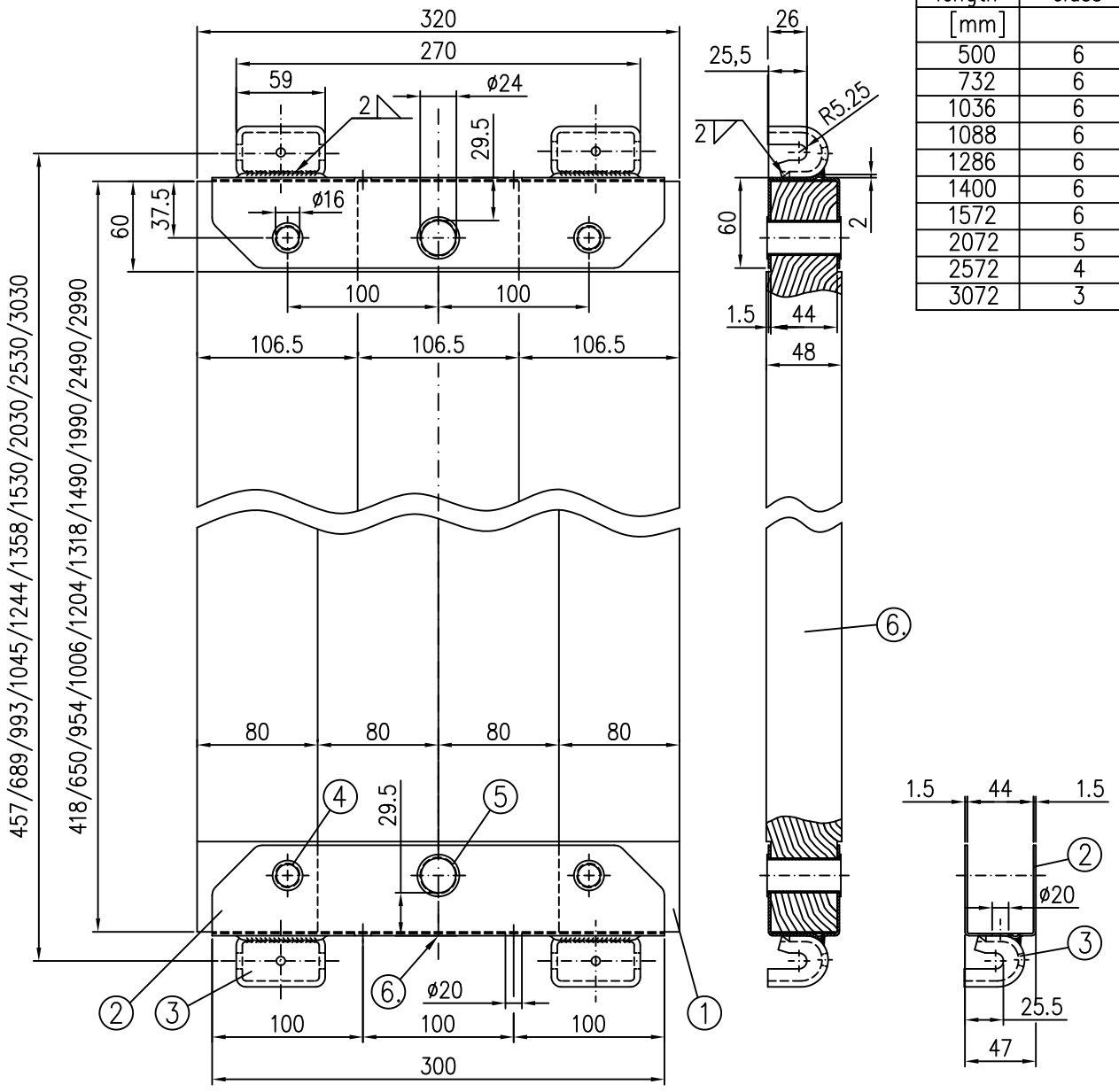
Bay length [mm]	Load class	Weight [kg]
500	6	4.5
732	6	6.0
1036	6	8.2
1088	6	8.6
1286	6	9.7
1400	6	10.5
1572	6	11.4
2072	5	14.5
2572	4	18.6
3072	3	23.0



① Solid wood deck 4 planks 80x48; alternatively 3 planks 106.5x48	DIN 4074-1-S10/S13* or DIN EN 338 C24/C30*	
② Steel plate 162x1.5		$R_{eH} \geq 240 N/mm^2$
③ Steel plate 70x4	DIN EN 10111-DD13	$R_{eH} \geq 240 N/mm^2$
④ Tubular rivet	DIN 7340-B15x1x53-steel	
⑤ Tubular rivet	DIN 7340-B23x1x53-steel	
⑥ Marking		
all components made of steel – galvanised	* for 3.07m	

ALFIX MODUL MULTI

Solid wood deck 48
in accordance with Z-8.1-862

A709-A124_AMU 10.2020

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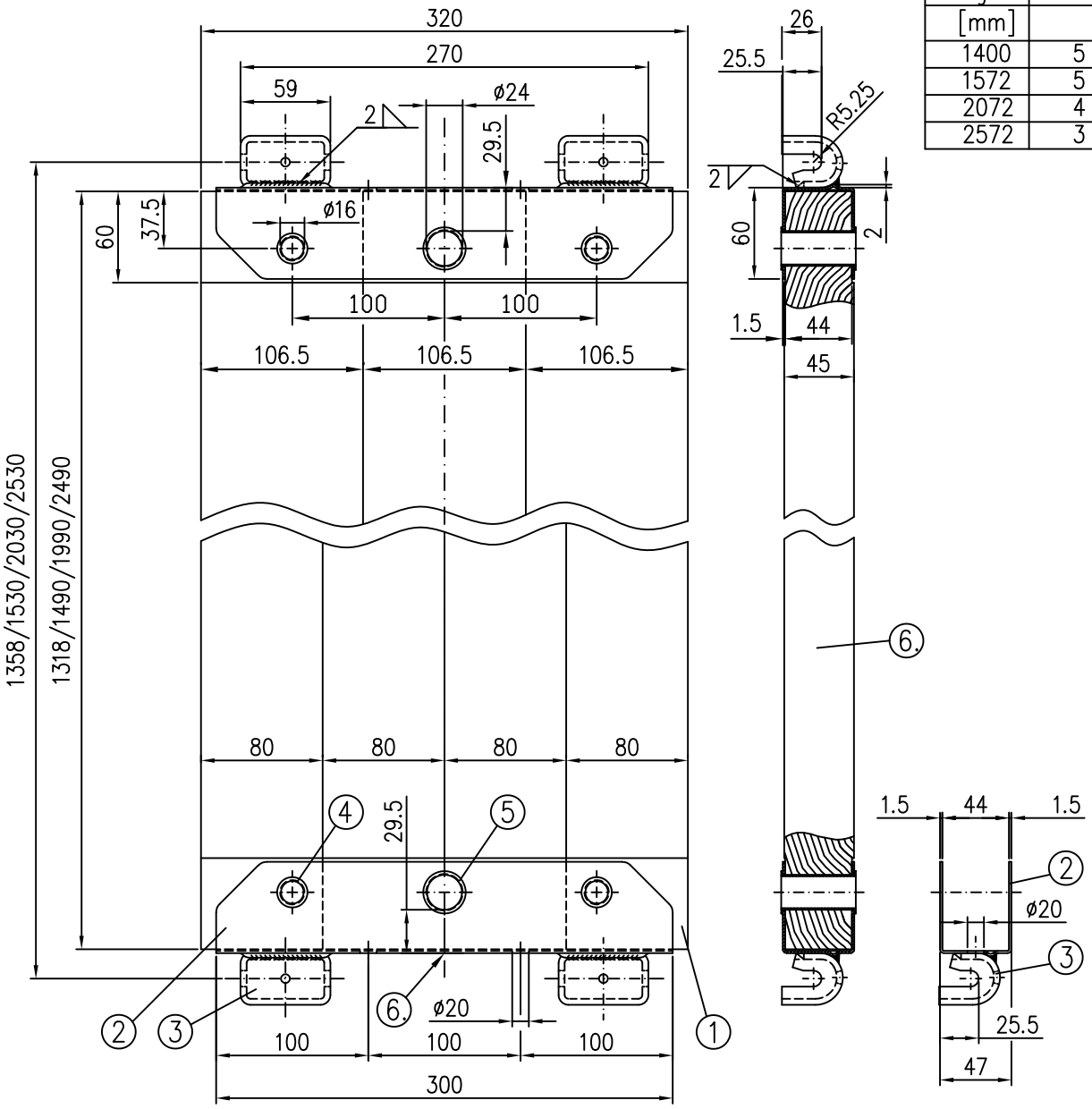
page 91

Bay length	Load class	Weight
[mm]		[kg]
1400	5	10.0
1572	5	11.1
2072	4	14.4
2572	3	17.6



① Solid wood deck 4 planks 80x45; alternatively 3 planks 106.5x45	DIN 4074-1-S10/S13 or DIN EN 338 C24/C30	
② Steel plate 162x1.5	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$
③ Steel plate 70x4	DIN EN 10111-DD13	$R_{eH} \geq 240 N/mm^2$
④ Tubular rivet	DIN 7340-B15x1x53-steel	
⑤ Tubular rivet	DIN 7340-B23x1x53-steel	
⑥ Marking		

all components made of steel – galvanised

ALFIX MODUL MULTI

Solid wood deck 45
in accordance with Z-8.1-862

A709-A200_AMU 09.2020

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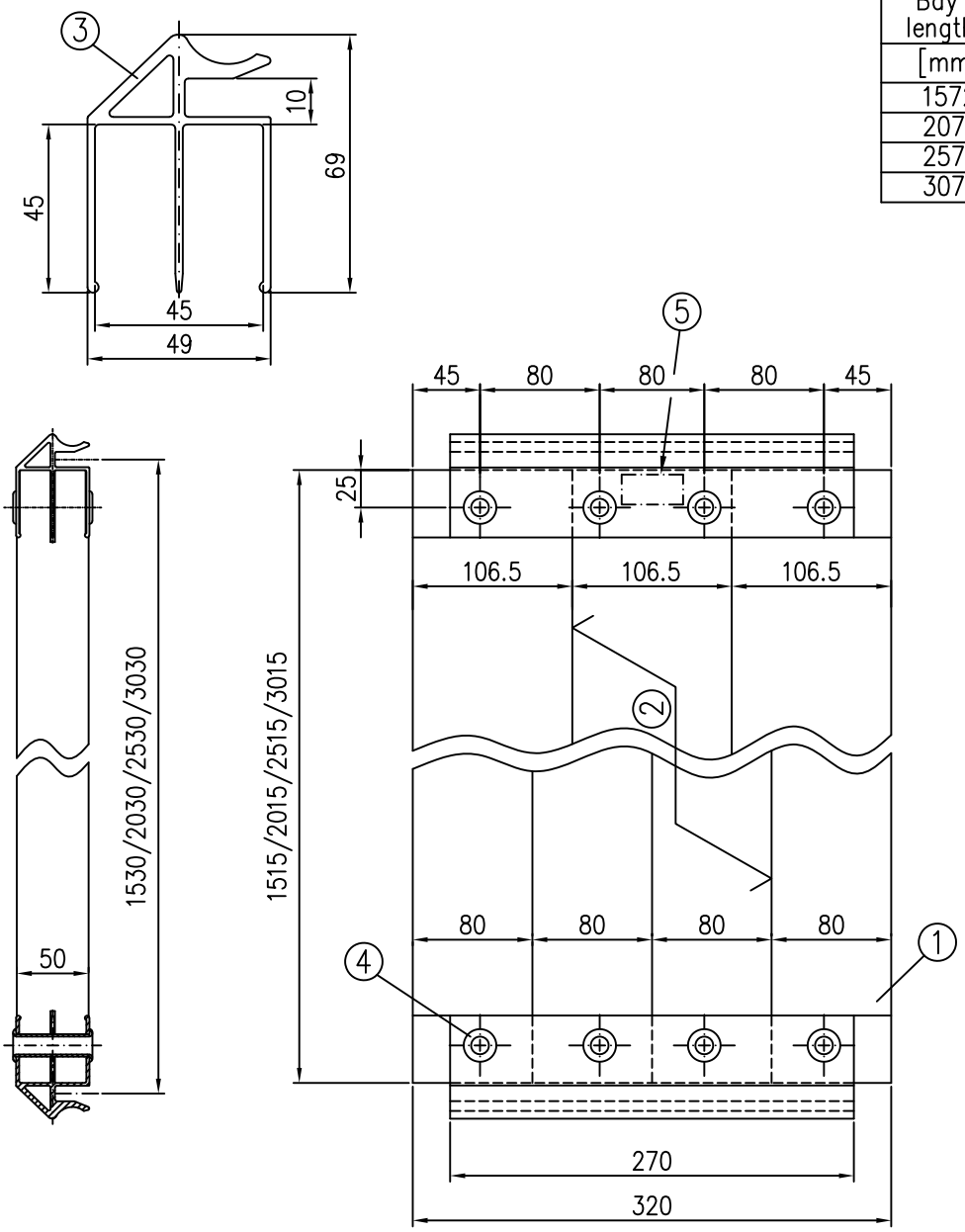
page 92

Bay length	Load class	Weight
[mm]		[kg]
1572	6	13,0
2072	5	16,0
2572	4	19,0
3072	3	22,0



① Pine wooden deck visual strength grade S13 for bay length L=3.07m
or S10 for bay length L=2.57m (single planks S10)
alternatively: – 4 planks made from wooden decks 80x50
– 3 planks made from wooden decks 106.5x50

② glued as structural component

③ Suspension section EN AW–6082–T5 (AlMgSi1F28)

④ Tubular rivet DIN 7340–B15x1x53–steel–galvanised

⑤ Marking

Component no longer manufactured
–only approved for continued use–

ALFIX MODUL MULTI

Wooden deck
in accordance with Z–8.1–862

A705–A124_AMU 09.2020

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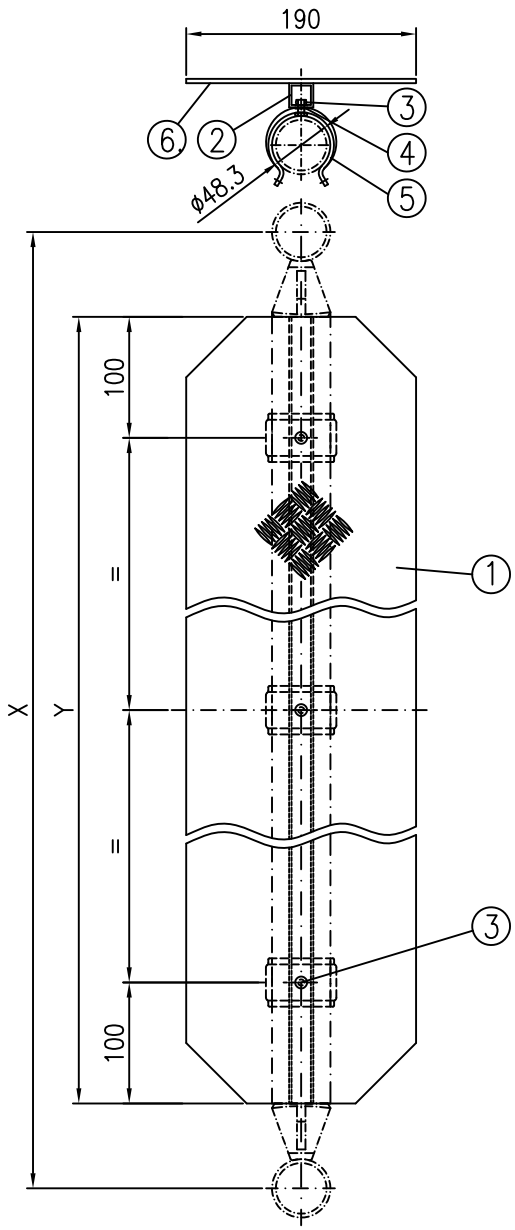
page 93

X	X	Y	Weight
[m]	[mm]	[mm]	[kg]
0.73	732	591	1.2
1.09	1088	947	2.0
1.29	1286	1145	2.2
1.40	1400	1259	2.4
1.57	1572	1431	3.0
2.07	2072	1931	4.0
2.57	2572	2431	5.1
3.07	3072	2931	6.1
4.14	4144	4003	7.3



① Chequer plate with 5 bar pattern 2.5/3.3x190	DIN EN 1386 EN AW-5083 H224
alternatively: Chequer plate with 5 bar pattern 2.5/4.0x190	DIN EN 1386 EN AW-5754 H111/ H114
② Rectangular hollow section 20x20x2	DIN EN 755-2 EN AW-6060-T66
③ Blind rivet	DIN EN ISO 15979-A5x12 EN AW-5754 H112
④ Disc	DIN EN ISO 7089-5.3-steel-galvanised
alternatively:	DIN EN ISO 7094-5.5-steel-galvanised
⑤ Tube clamp, hot-dip galvanised	
⑥ Marking	

ALFIX MODUL MULTI

MODUL gap cover

M710-B170 08.2020

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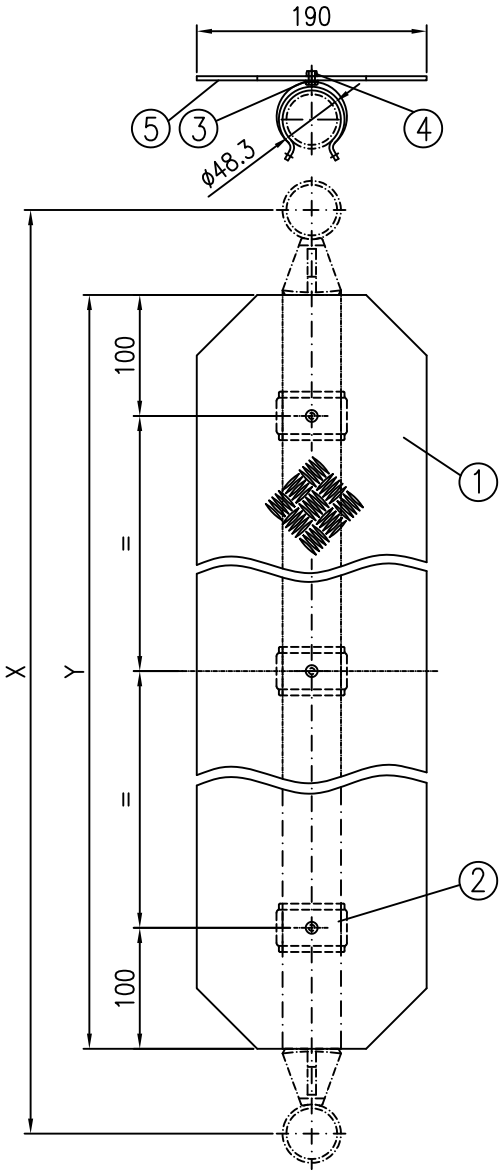
page 94

X [m]	X [mm]	Y [mm]	Weight [kg]
0.73	732	591	1.0
1.09	1088	947	1.6
1.29	1286	1145	1.9
1.40	1400	1259	2.1
1.57	1572	1431	2.4
2.07	2072	1931	3.3
2.57	2572	2431	4.1
3.07	3072	2931	5.0
4.14	4144	4003	6.8



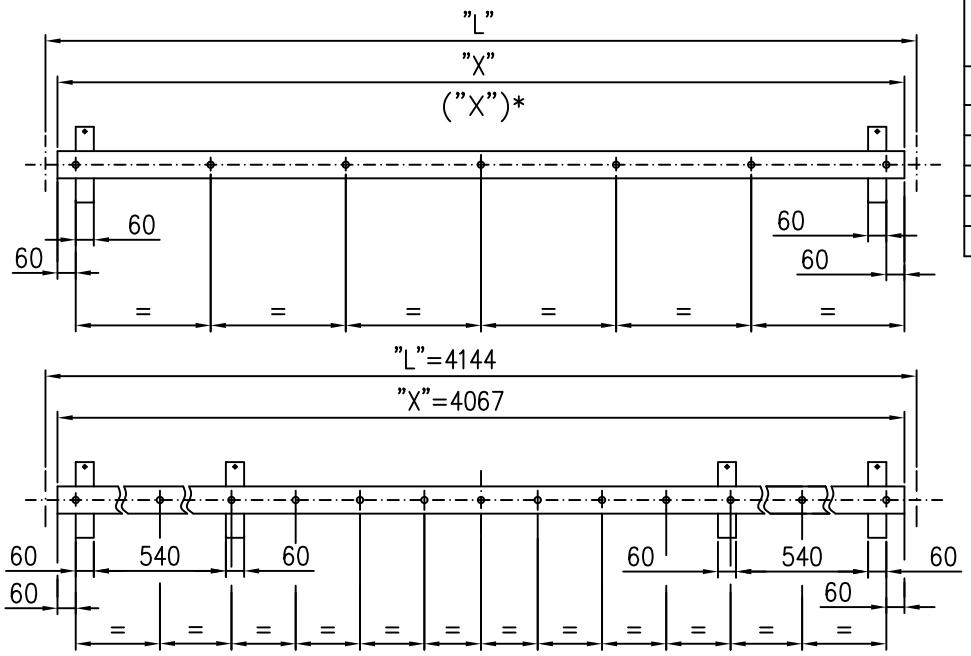
① Chequer plate with 5 bar pattern 2.5/3.3x190 DIN EN 1386 EN AW–5083 H224
alternatively: Chequer plate with 5 bar pattern 2.5/4.0x190 DIN EN 1386 EN AW–5754 H111/ H114
② Tube clamp, hot–dip galvanised
③ Disc DIN EN ISO 7089–5.3–steel–galvanised
alternatively: DIN EN ISO 7094–5.5–steel–galvanised
④ Blind rivet DIN EN ISO 15979–A5x12 EN AW–5754 H112
⑤ Marking

ALFIX MODUL MULTI

MODUL gap cover with tube suspension

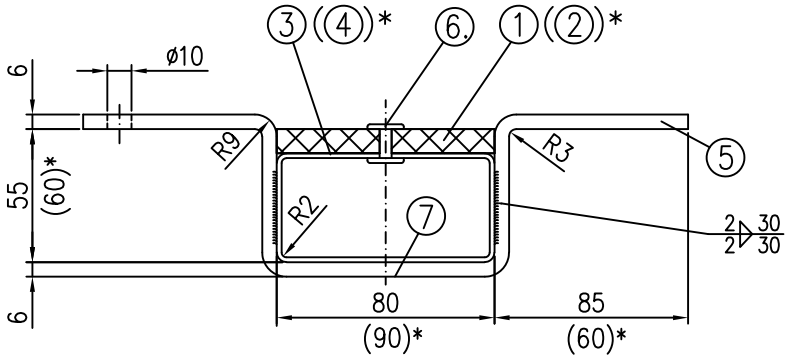
M710–B132 08.2020

Annex B,
page 95



⑧ "L"	⑨ "X"	⑩ ("X")*	⑪	⑫	(⑬)*
[mm]	[mm]	[mm]			
1572	1495	1500	6	7	7
2072	1995	2000	6	7	7
2572	2495	2500	5	7	7
3072	2995	3000	4	9	7
4144	4067	–	3	13	7

Cross section



① Plywood 10x80 Plywood for use in scaffolding with national technical approval
(② Film-coated plywood 10x90 BFU 100G-10 DIN 68705 sheet 3)*
③ Rectangular hollow section 80x40x2 DIN EN 10219-S235JRH
(④ Rectangular hollow section 90x45x2 DIN 59411-S235JRH)*
⑤ Flat 60x6 DIN EN 10025-S235JR
⑥ Blind rivet ø5x20 DIN EN ISO 15979 EN AW-5754 H112
⑦ Marking
⑧ Bay length "L"
⑨ Length "X"
⑩ Length ("X")*
⑪ Load class
⑫ and (⑬)* Number of rivets

all components made of steel, galvanised

( )* Alternative design

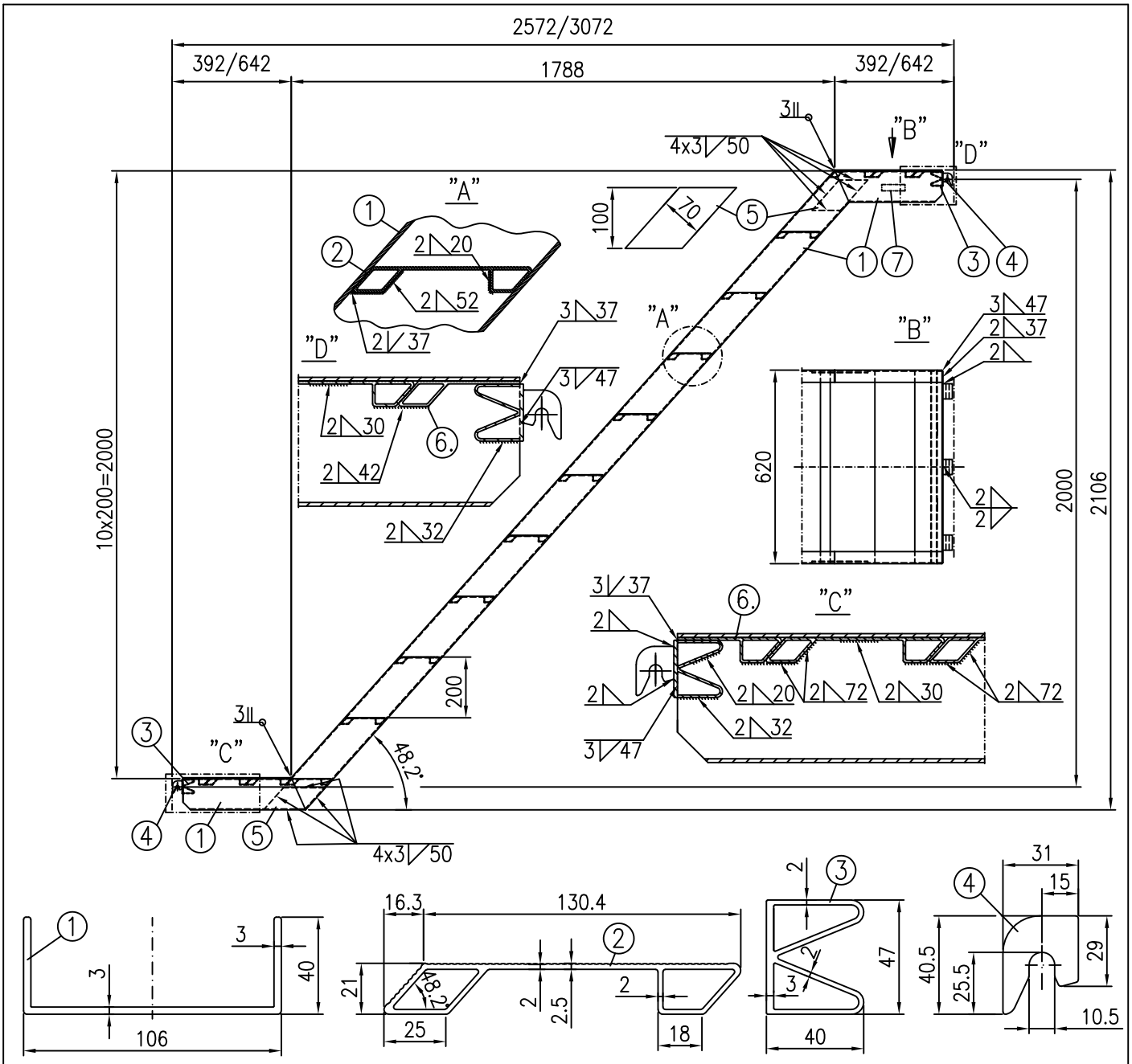
Dimens. [m]	Weight [kg]
1.57	9.0
2.07	11.2
2.57	13.5
3.07	15.8
4.14	19.8

ALFIX MODUL MULTI

Gap cover
in accordance with Z-8.1-862

A709-A160_AMU 08.2020

Annex B,
page 96



①	U-profile 40x106x40x3	DIN EN 755-2 EN AW-6063-T66
②	Stair tread section	DIN EN 755-2 EN AW-6063-T66
③	Grip profile; bridging deck thickness 2mm	DIN EN 755-2 EN AW-6063-T66
④	Suspension claw	DIN EN 755-2 EN AW-6063-T66
⑤	Flat 100x5	DIN EN 485-2 EN AW-5754 H24/H34
	alternatively:	DIN EN 755-2 EN AW-6063-T66
⑥	Stair tread section reduced	DIN EN 755-2 EN AW-6063-T66
⑦	Marking	131-MIG: Type 4 (EC9) filler material

Dimens. [m]	Weight [kg]
2.57x2.00	26.0
3.07x2.00	32.0

ALFIX MODUL MULTI

Aluminium stairway AF-0.62 m 2.57 m; 3.07 m
in accordance with Z-8.1-862

A709-A172_AMU 08.2020

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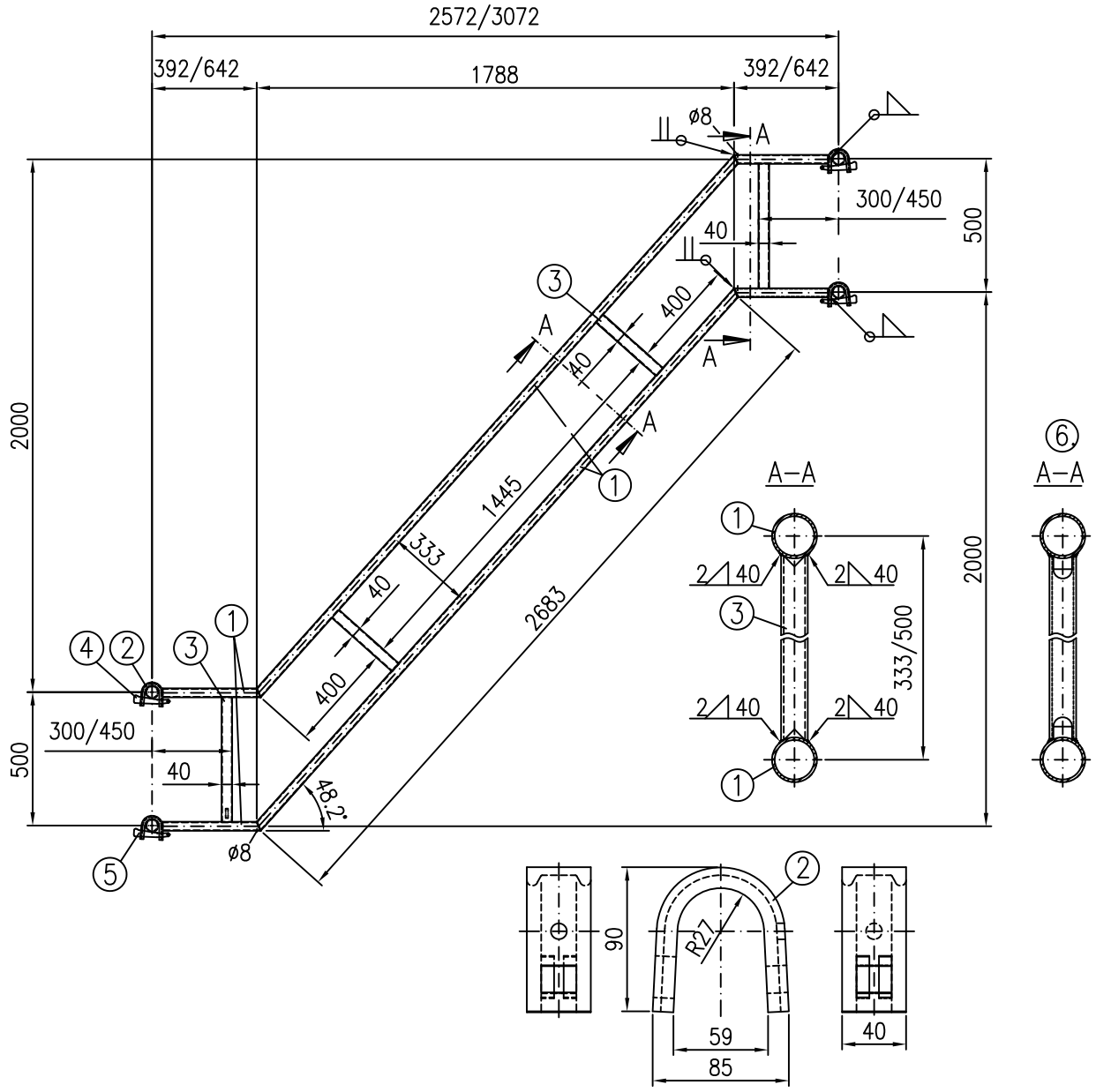

①	Circular hollow section ø38x2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø38x2.3	DIN EN 10219–S235JRH	
	alternatively: Circular hollow section ø33.7x2.3	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
②	Bended profile section 40x13x5x6.5	DIN EN 10025–S235JR	
③	Rectangualr hollow section 40x20x2	DIN EN 10219–S235JRH	
④	Wedge 6mm	see Annex B, page 3	
⑤	Marking		
⑥	alternatively		

galvanised; all welding seams a=2mm

Dimension [m]	Weight [kg]
2.57x2.00	18.0
3.07x2.00	19.9

ALFIX MODUL MULTI

Stair guardrail 2.57; 3.07 m

M716–B218 08.2020

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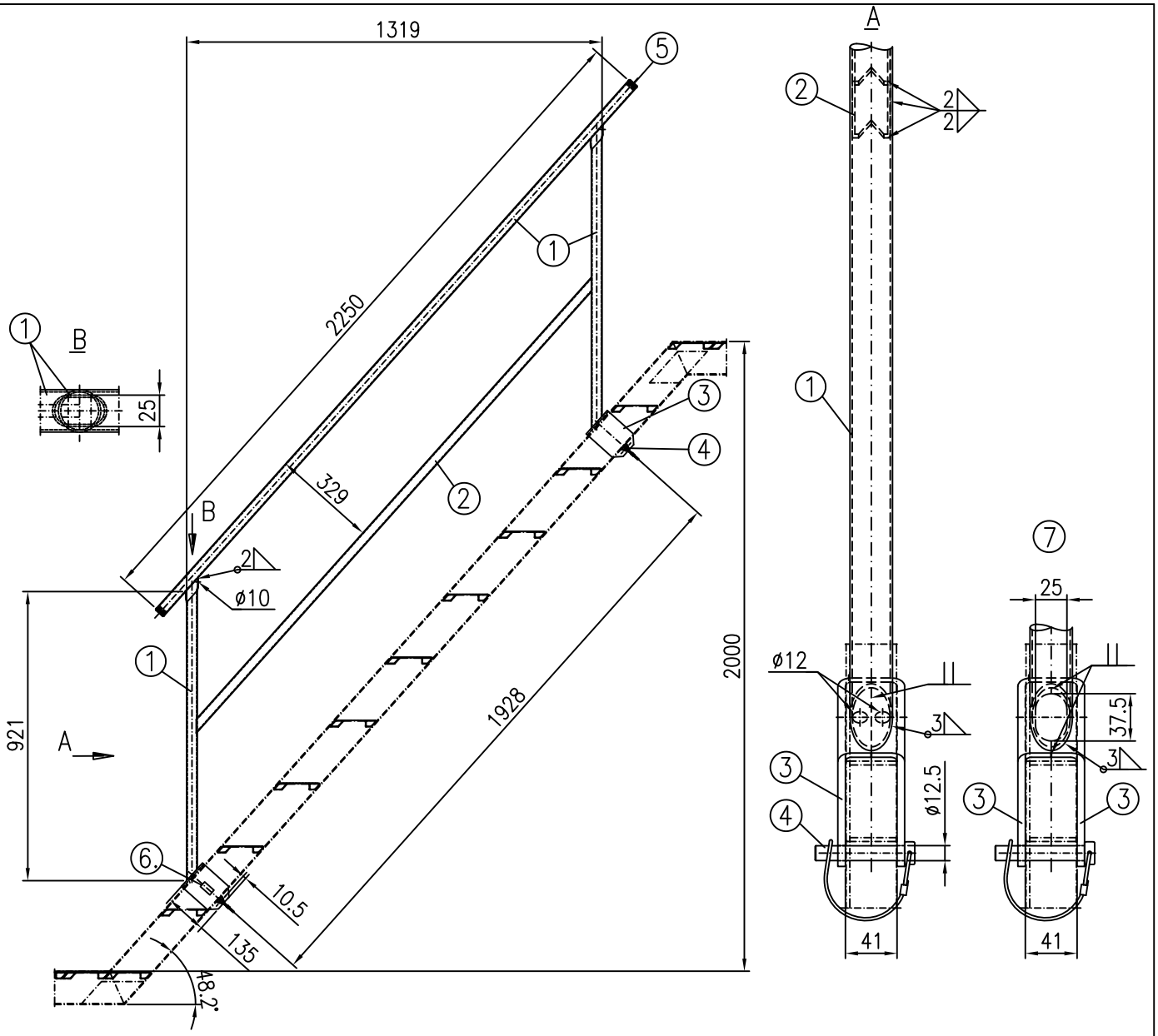


①	Circular hollow section ø33.7x1.8	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø33.7x2.0	DIN EN 10219–S235JRH
②	Rectangualr hollow section 30x30x2	DIN EN 10219–S235JRH
③	Flat 100x6	DIN EN 10025–S235JR
④	Tube linchpin RK 112 12x70 with snap–on lock	
	Pin	DIN EN 10025–S355J2
	Ring	DIN 17223 B Spring steel
⑤	Tube end cap GL 34 S–Poly.	
⑥	Marking	
⑦	alternatively	
	galvanised	

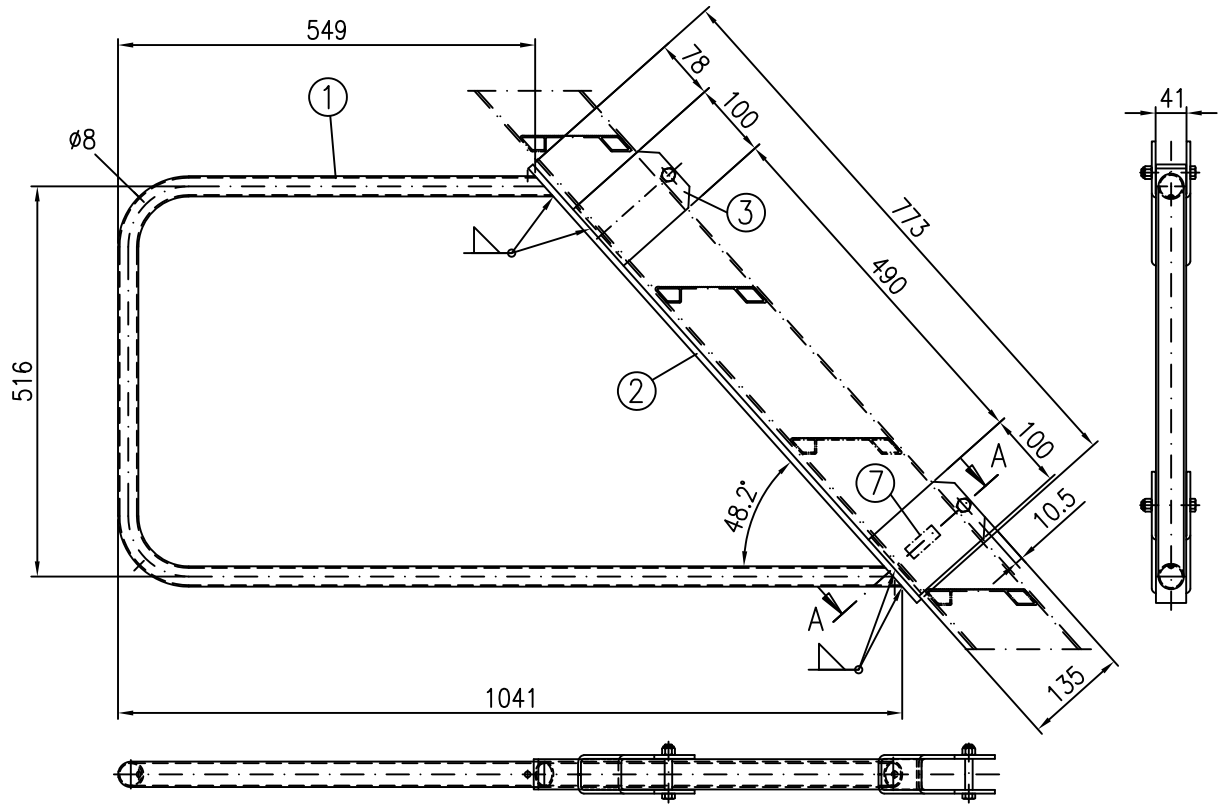
Dimens. [m]	Weight [kg]
2.00	13.3

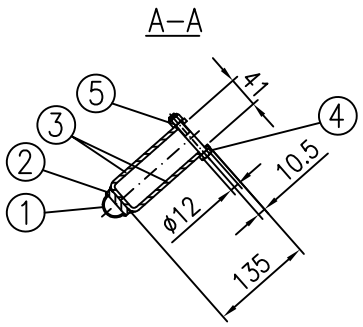
ALFIX MODUL MULTI

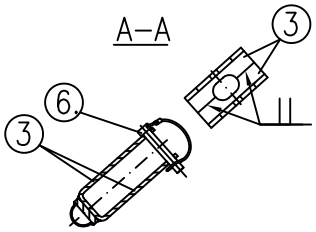
Inner guardrail for aluminium stairway 2.00 m
in accordance with Z–8.1–862

A709–A174_AMU 08.2020

Annex B,
page 99







①	Circular hollow section ø33.7x1.8	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø33.7x2.0	DIN EN 10219–S235JRH
②	Flat 40x8	DIN EN 10025–S235JR
③	Flat 100x6	DIN EN 10025–S235JR
④	Hexagon bolt	DIN EN ISO 4014–M10x65–8.8–galvanised
⑤	Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised
⑥	alternatively: Tube linchpin RK 112 12x70 with snap–on lock	
	Pin	DIN EN 10025–S355J2
	Ring	DIN 17223 B Spring steel
⑦	Marking	
	galvanised; all welding seams a=3mm	

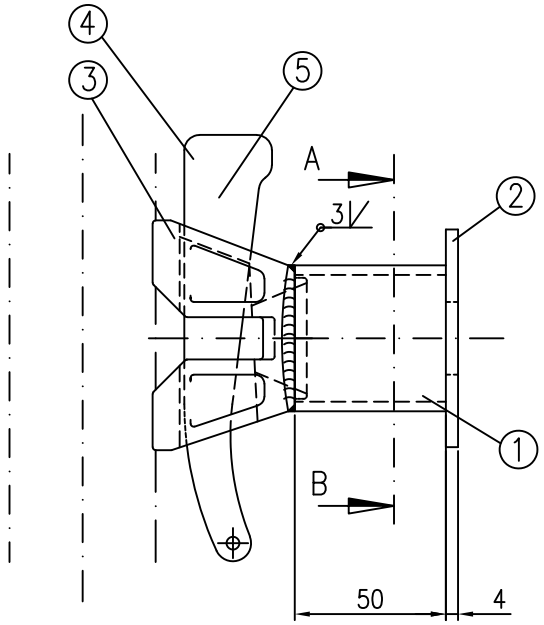
Dimension [m]	Weight [kg]
1.00x0.50	8.8

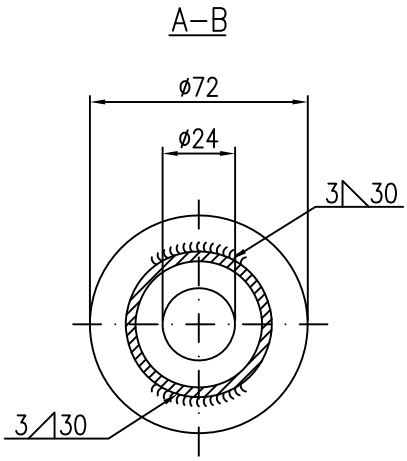
ALFIX MODUL MULTI

Stair stringer fall protection 1.00 x 0.50 m
in accordance with Z–8.1–862

A709–A175_AMU 08.2020

Annex B,
page 100





① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
alternatively: Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH	
② Steel metal 4 t=4mm	DIN EN 10025–S235JR	
alternatively: Disc	DIN EN ISO 7093–1–26x70x4–steel	
③ Connection of tube ledger	see Annex B, page 4	
alternatively: Connection of tube ledger 4.0	see Annex B, page 152	
④ Wedge 6mm	see Annex B, page 3	
⑤ Marking		
galvanised		

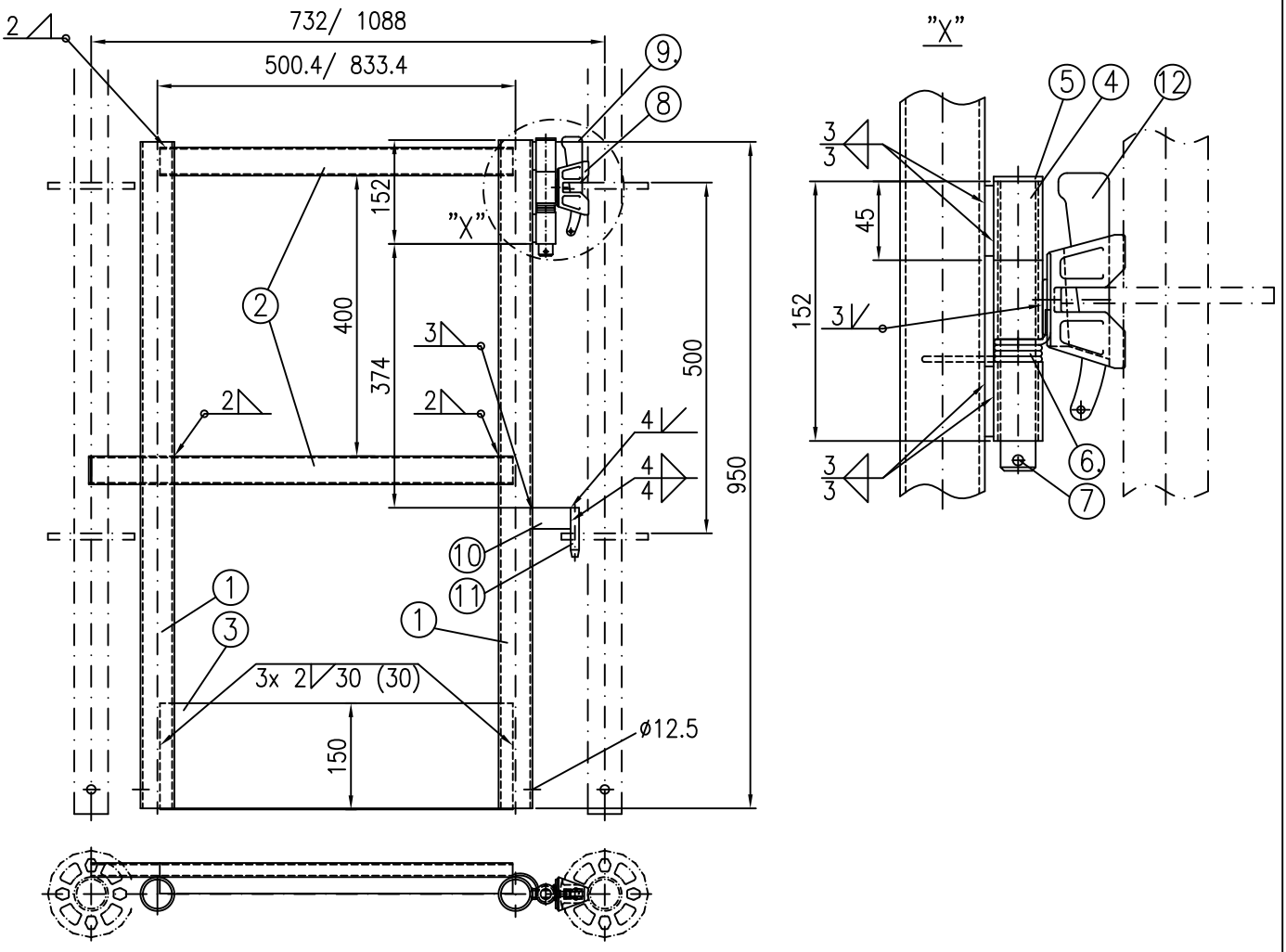
Dimens. [m]	Weight [kg]
–	0.8

ALFIX MODUL MULTI

MODUL stair guardrail fixing device

M711–B209 08.2020

Annex B,
page 101



①	Circular hollow section ø48.3x2.7	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
②	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH
③	Steel metal 1.5	DIN EN 10111–DD11
④	Circular hollow section ø28x2.5	DIN EN 10305–3–E235+CR1
⑤	Hinge pin	
⑥	Spring	Spring steel
⑦	Split pin	DIN EN ISO 1234–4x40–steel–galavnised
⑧	Connecting head U–ledger PLUS, new connector design	see Annex B, page 139
⑨	Wedge 6mm	see Annex B, page 3
⑩	Flat 30x10	DIN EN 10025–S235JR
⑪	Round ø12	DIN EN 10025–S235JR
⑫	Marking	
	galvanised	

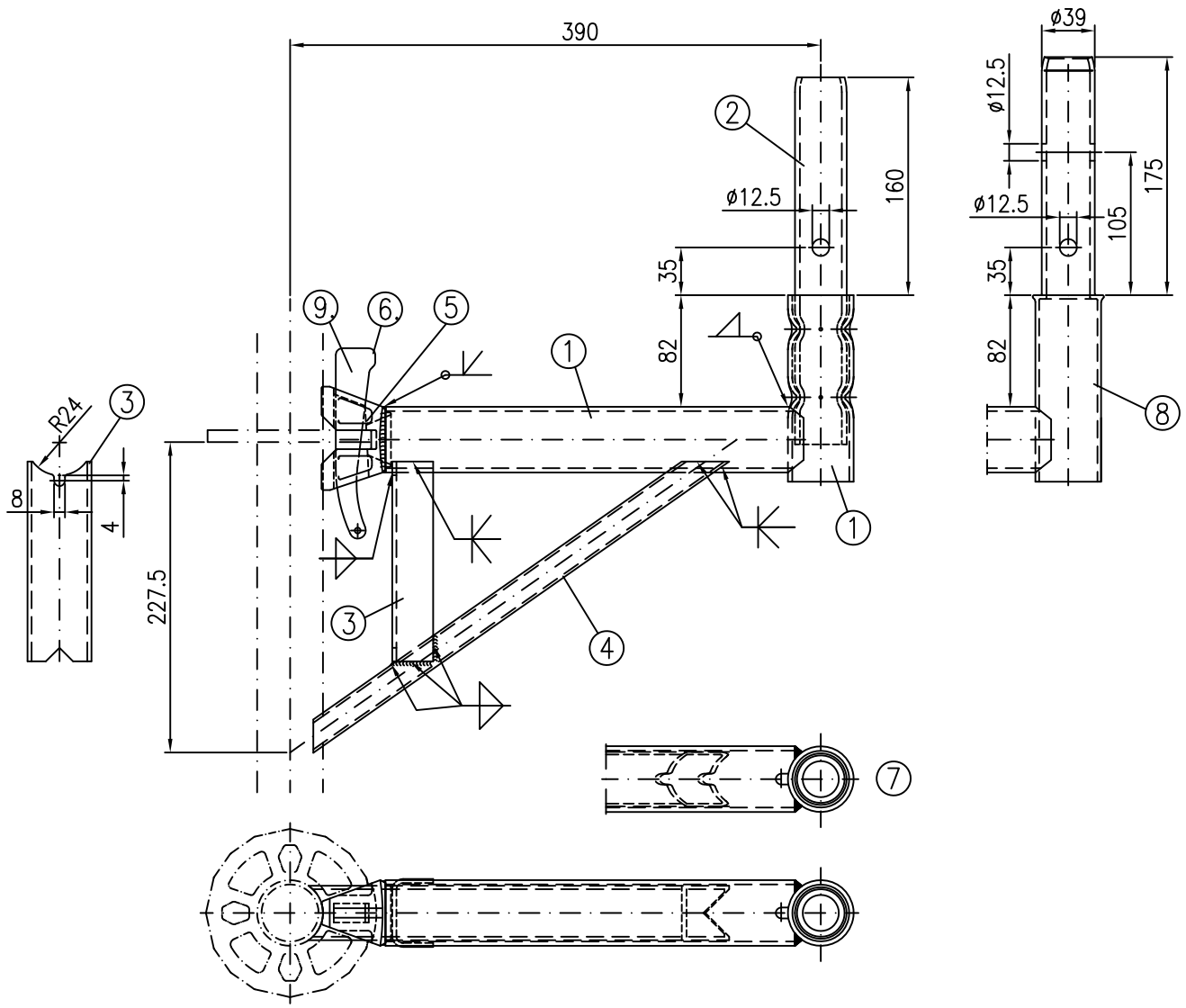
Dimens. [m]	Weight [kg]
0.70	11.8
1.00	13.8

ALFIX MODUL MULTI

MODUL swinggate

M710–B151 08.2020

Annex B,
page 102



① Circular hollow section ø48.3x3.2 (III)	DIN EN 10219-S235JRH	$R_{eH} \geq 320 N/mm^2$
alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219-S460MH	
② Circular hollow section ø38x3.6	DIN EN 10219-S235JRH	$R_{eH} \geq 320 N/mm^2$
③ U-profile 50x30x3 L=146	DIN EN 10025-S235JR	
alternatively: U-profile 47x30x3	DIN EN 10025-S235JR	
④ Rectangular hollow section 40x20x2	DIN EN 10219-S235JRH	
⑤ Connection of tube ledger (I)	see Annex B, page 4	
alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152	
⑥ Wedge 6mm	see Annex B, page 3	
⑦ alternatively		
⑧ alternatively: Circular hollow section ø48.3x2.7 without ②	DIN EN 10219-S460MH	
⑨ Marking		
galavnised; all welding seams a=3mm		

Dimens. [m]	Weight [kg]
0.39	3.8

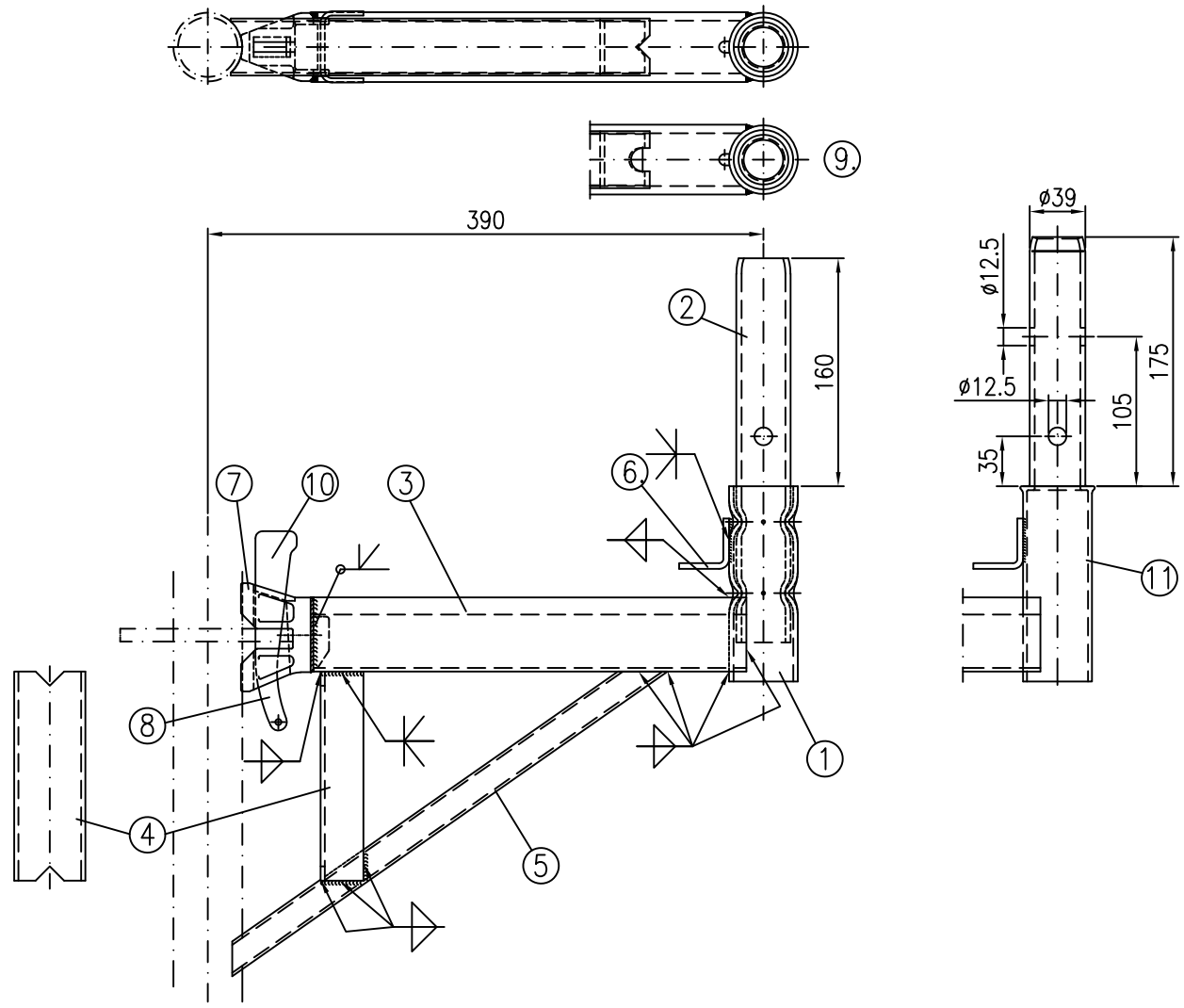
allowed combination		
	III	IV
I	x	x
II	-	x

ALFIX MODUL MULTI

Bracket 0.39 m with tube fixture

M710-B126 10.2021

Annex B,
page 103



① Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x3.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ U–profile 48x52x2.5 (III and IV)	see Annex B, page 32	
④ U–profile 50x30x3 L=146	DIN EN 10025–S235JR	
alternatively: U–profile 47x30x3	DIN EN 10025–S235JR	
⑤ Rectangualr hollow section 40x20x2	DIN EN 10219–S235JRH	
⑥ Steel plate 35x4	DIN EN 10025–S235JR	
⑦ Connection of U–ledger (I)	see Annex B, page 5	
alternatively: Connection of U–ledger 4.0 (II)	see Annex B, page 153	
⑧ Wedge 6mm	see Annex B, page 3	
⑨ alternatively		
⑩ Marking		
⑪ alternatively: Circular hollow section ø48.3x2.7 without galavnised; all welding seams a=2.5mm	② DIN EN 10219–S460MH	

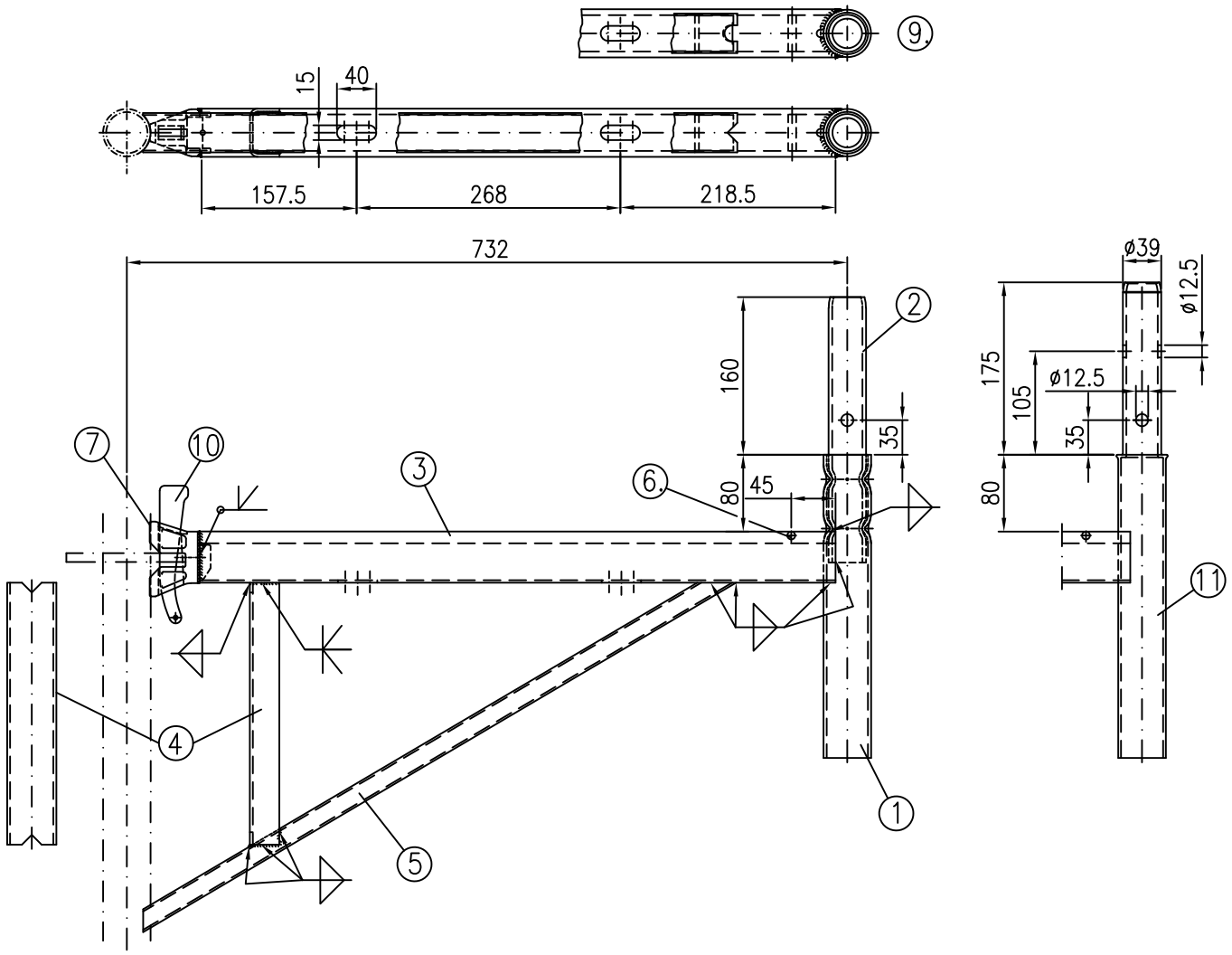
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	x	0.39	3.9
II	–	x		

ALFIX MODUL MULTI

Modul bracket 0.39 m

M710–B127 10.2021

Annex B,
page 104



①	Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
②	Circular hollow section ø38x3.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③	U–profile 48x52x2.5 (III and IV)	see Annex B, page 32	
④	U–profile 50x30x3 L=266	DIN EN 10025–S235JR	
	alternatively: U–profile 47x30x3	DIN EN 10025–S235JR	
⑤	Rectangualr hollow section 40x20x2	DIN EN 10219–S235JRH	
⑥	Round ø8	DIN EN 10277–2–S235JRC+C	
⑦	Connection of U–ledger (I)	see Annex B, page 5	
	alternatively: Connection of U–ledger 4.0 (II)	see Annex B, page 153	
⑧	Wedge 6mm	see Annex B, page 3	
⑨	alternatively		
⑩	Marking		
⑪	alternatively: Circular hollow section ø48.3x2.7 without galvanised; all welding seams a=2.5mm	② DIN EN 10219–S460MH	

allowed combination		
	III	IV
I	x	x
II	–	x

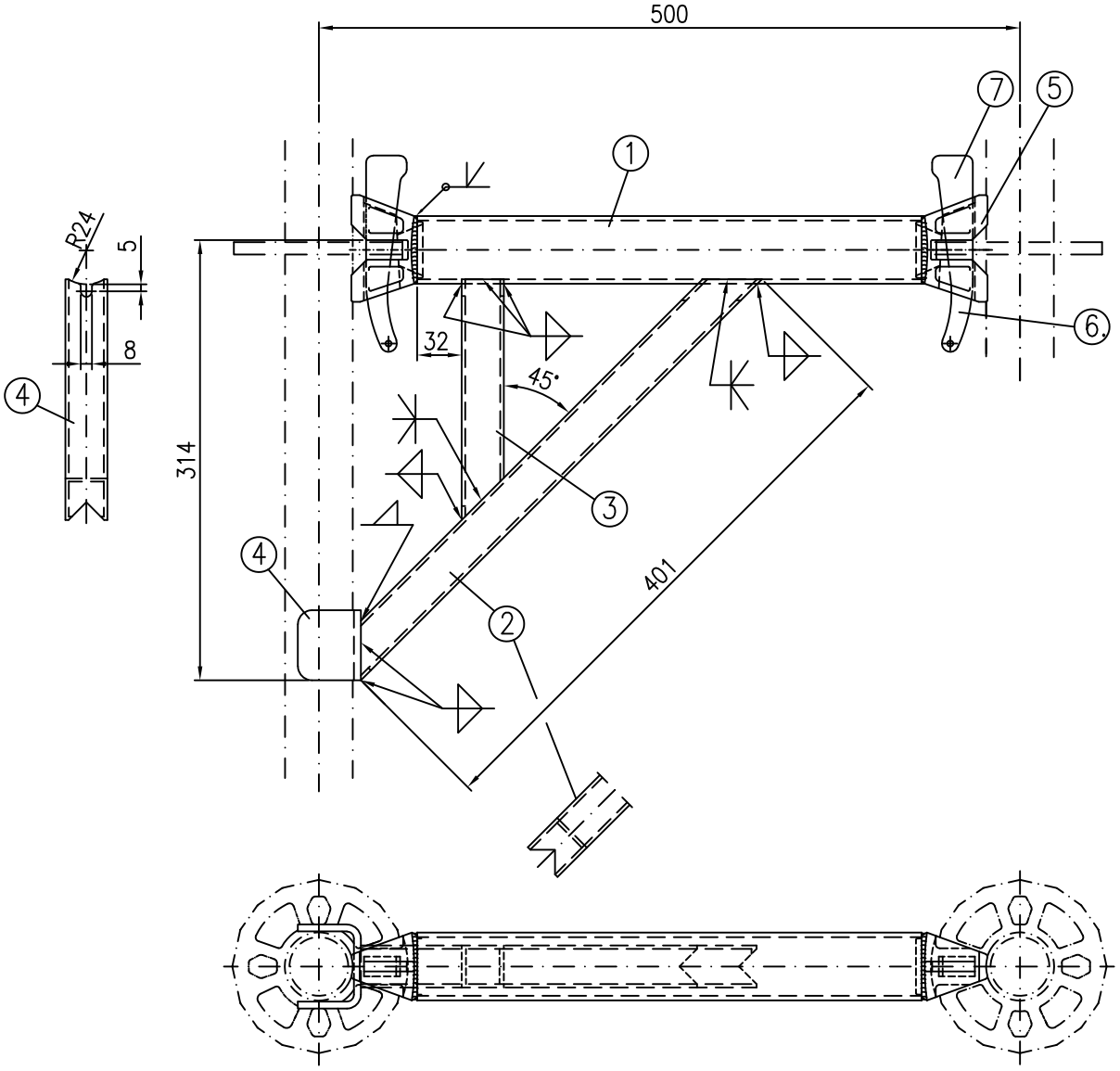
Dimens. [m]	Weight [kg]
0.73	6.4

ALFIX MODUL MULTI

Modul bracket 0.73 m

M711–B207 10.2021

Annex B,
page 105



① Circular hollow section ø48.3x3.2 (III)	DIN EN 10219-S235JRH	$R_{eH} \geq 320 N/mm^2$
alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219-S460MH	
② Rectangular hollow section 30x30x2.5	DIN EN 10219-S235JRH	
③ Rectangular hollow section 30x30x2.5	DIN EN 10219-S235JRH	
④ Steel plate 50x5	DIN EN 10025-S235JR	
⑤ Connection of tube ledger (I)	see Annex B, page 4	
alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152	
⑥ Wedge 6mm	see Annex B, page 3	
⑦ Marking		

galvanised; all welding seams a=3mm

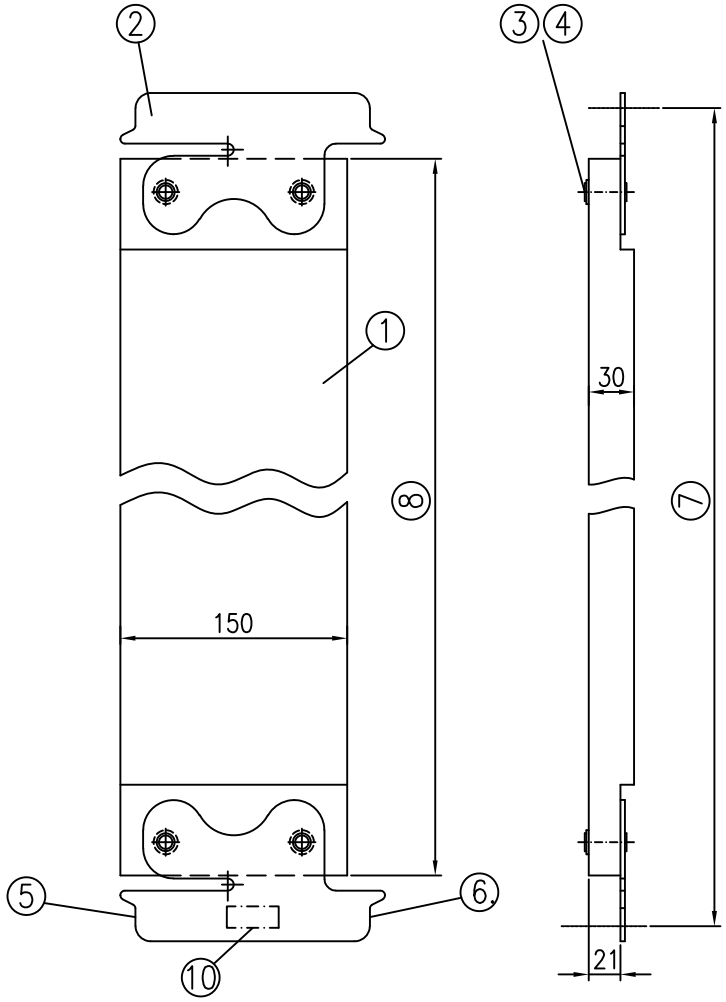
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	x	0.50	3.6
II	–	x		

ALFIX MODUL MULTI

Bracket 0.50 m with tube fixture

M711-B204 10.2021

Annex B,
page 106



⑦	⑧	⑨
[mm]	[mm]	[kg]
390	323	0.7
450	383	1.0
732	665	1.6
1088	1021	2.3
1286	1219	2.7
1400	1333	3.0
1572	1505	3.3
2072	2005	4.2
2572	2505	5.3
3072	3005	6.3

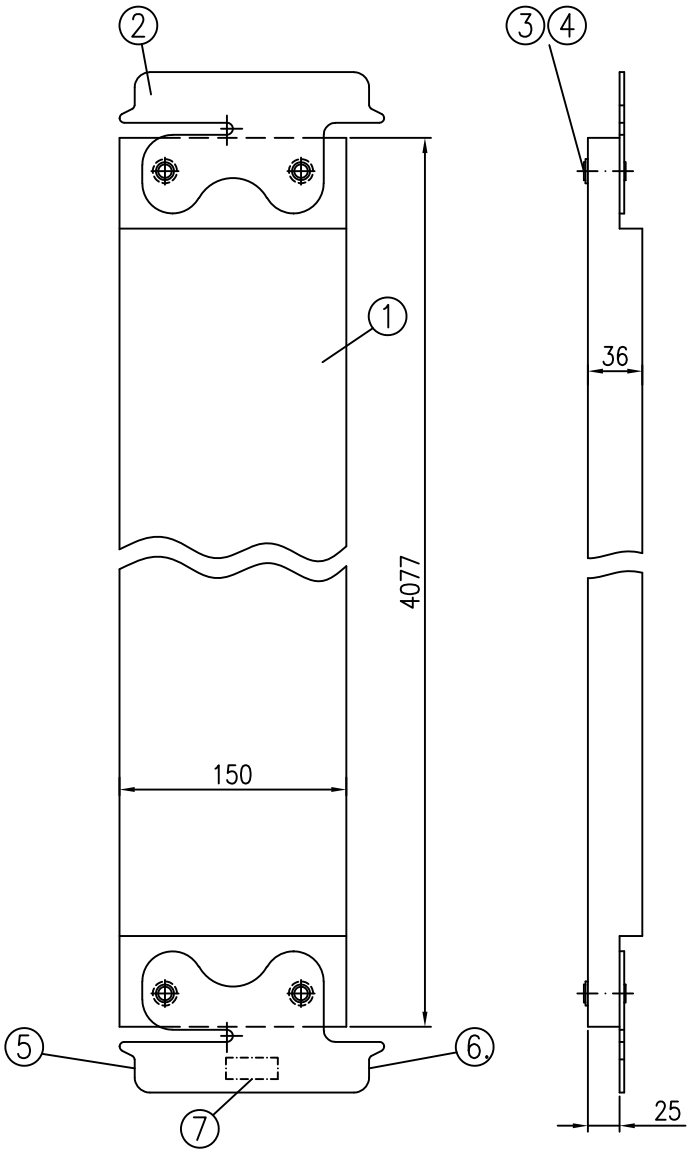
① Pine wooden deck visual strength grade S10	DIN 4074–1
② Slit strip 175x2	DIN EN 10111–DD11
alternatively:	DIN EN 10346–DX51D+Z275
③ Tubular rivet	DIN 7340–A8x0.75x28–steel–electrogalvanized
④ Disc	DIN EN ISO 7089–A8.4–steel–galvanised
⑤ Bearing surface: Connection of tube ledger	
⑥ Bearing surface: Connection of U–ledger	
⑦ Bay length	
⑧ Length L	
⑨ Weight	
⑩ Marking	

ALFIX MODUL MULTI

MODUL toeboard

M710–B125 08.2020

Annex B,
page 107



①	Pine wooden deck visual strength grade S10	DIN 4074-1
②	Slit strip 175x2	DIN EN 10111-DD11
	alternatively:	DIN EN 10346-DX51D+Z275
③	Tubular rivet	DIN 7340-A8x0.75x34-steel-electrogalvanized
④	Disc	DIN EN ISO 7089-A8.4-steel-galvanised
⑤	Bearing surface: Connection of tube ledger	
⑥	Bearing surface: Connection of U-ledger	
⑦	Marking	

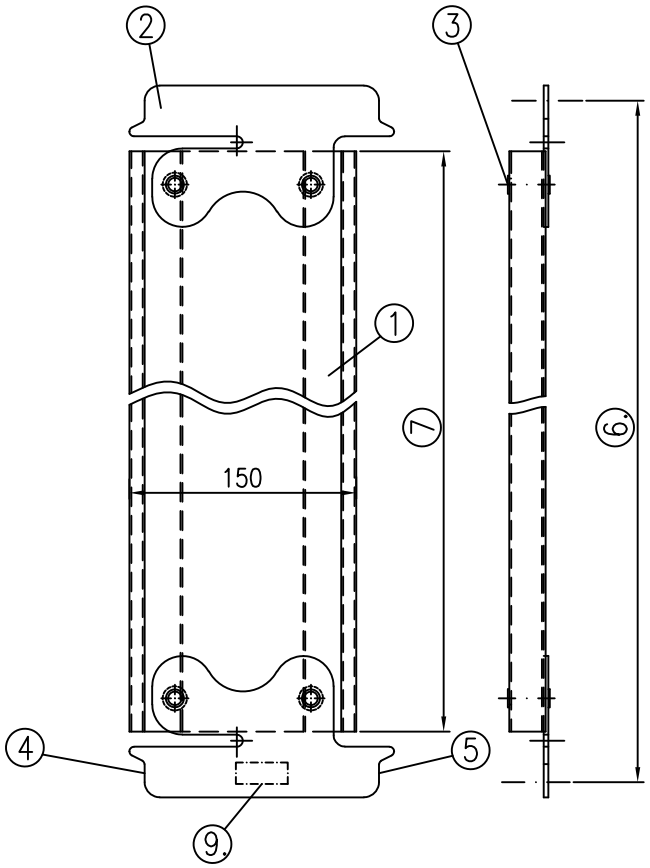
Dimens. [m]	Weight [kg]
4.14	8.1

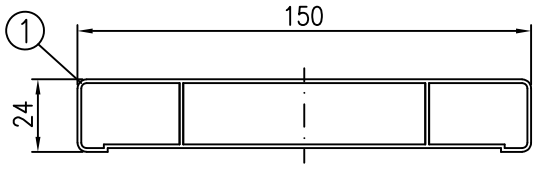
ALFIX MODUL MULTI

MODUL toeboard 4.14 m

M710-B166 08.2020

Annex B,
page 108





⑥	⑦	⑧
[mm]	[mm]	[kg]
390	323	0.6
732	665	1.2
1088	1021	1.7
1286	1219	1.9
1400	1333	2.1
1572	1505	2.3
2072	2005	3.0
2572	2505	3.6
3072	3005	4.3

① Sectional view aluminium toeboard; s=1.25mm	DIN EN 755-2 EN AW-6063-T66
② Slit strip 175x2	DIN EN 10111-DD11 hot-dip galvanised
alternatively:	DIN EN 10346-DX51D+Z275
③ Tubular rivet	DIN 7340-A8x0.75x29-steel-galvanised
alternatively:	DIN 7340-A8x1x28-steel-galvanised

④ Bearing surface: Connection of tube ledger
⑤ Bearing surface: Connection of U-ledger
⑥ Bay length
⑦ Length L
⑧ Weight
⑨ Marking

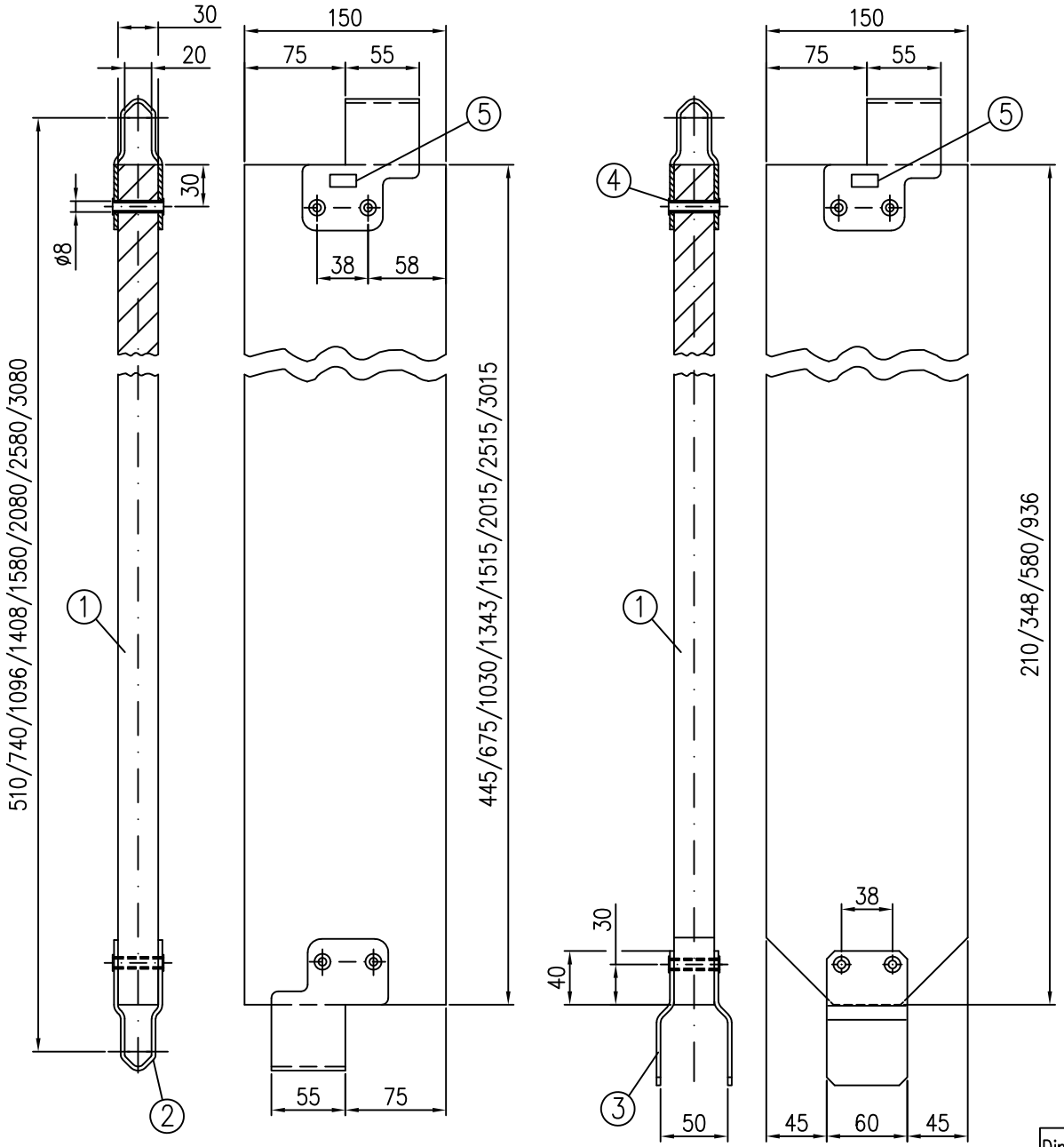
all components made of steel – galavnised

ALFIX MODUL MULTI

MODUL toeboard, aluminium

M710-B171 08.2020

Annex B,
page 109



① Pine wooden deck visual strength grade S10		DIN 4074-1
② Slit strip 90x3	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$
alternatively:	DIN EN 10346-DX52D+Z275	$R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$
③ Slit strip 60x3	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$
alternatively:	DIN EN 10346-DX52D+Z275	$R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$
④ Tubular rivet	DIN 7340-A8x0.75x39-steel-electrogalvanized	
⑤ Marking		

all components made of steel – galvanised

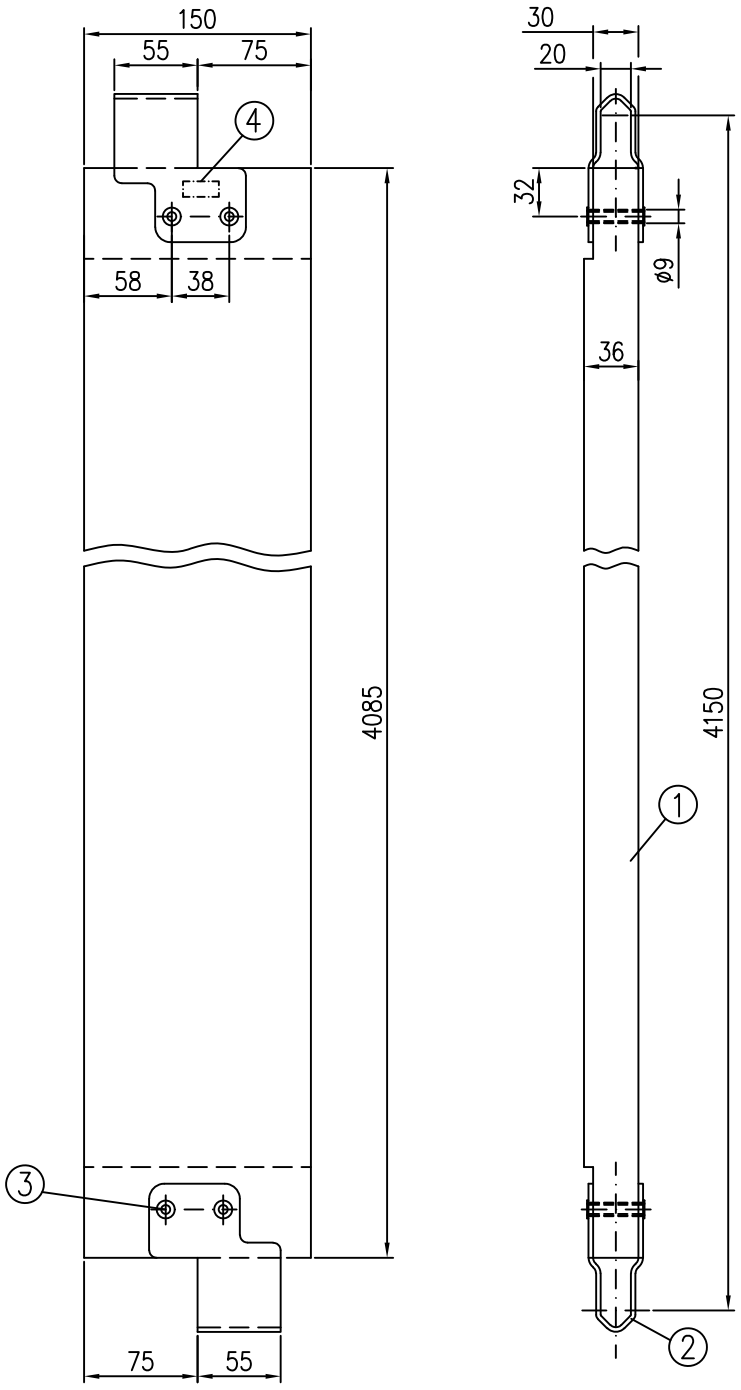
Dimens. [m]	Weight [kg]
Toeboard	
0.50	1.5
0.73	2.0
1.09	2.7
1.40	3.3
1.57	4.0
2.07	5.0
2.57	6.5
3.07	7.5
End toeboard	
0.36	1.0
0.50	1.5
0.73	1.7
1.09	2.4

ALFIX MODUL MULTI

Toeboard; End toeboard AF
in accordance with Z-8.1-862

A714-A224_AMU 08.2020

Annex B,
page 110



① Pine wooden deck visual strength grade S10		DIN 4074-1
② Slit strip 90x3	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$
alternatively:	DIN EN 10346-DX52D+Z275	$R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$
③ Tubular rivet	DIN 7340-A8x0.75x39-steel-electrogalvanized	
④ Marking		

all components made of steel – galvanised

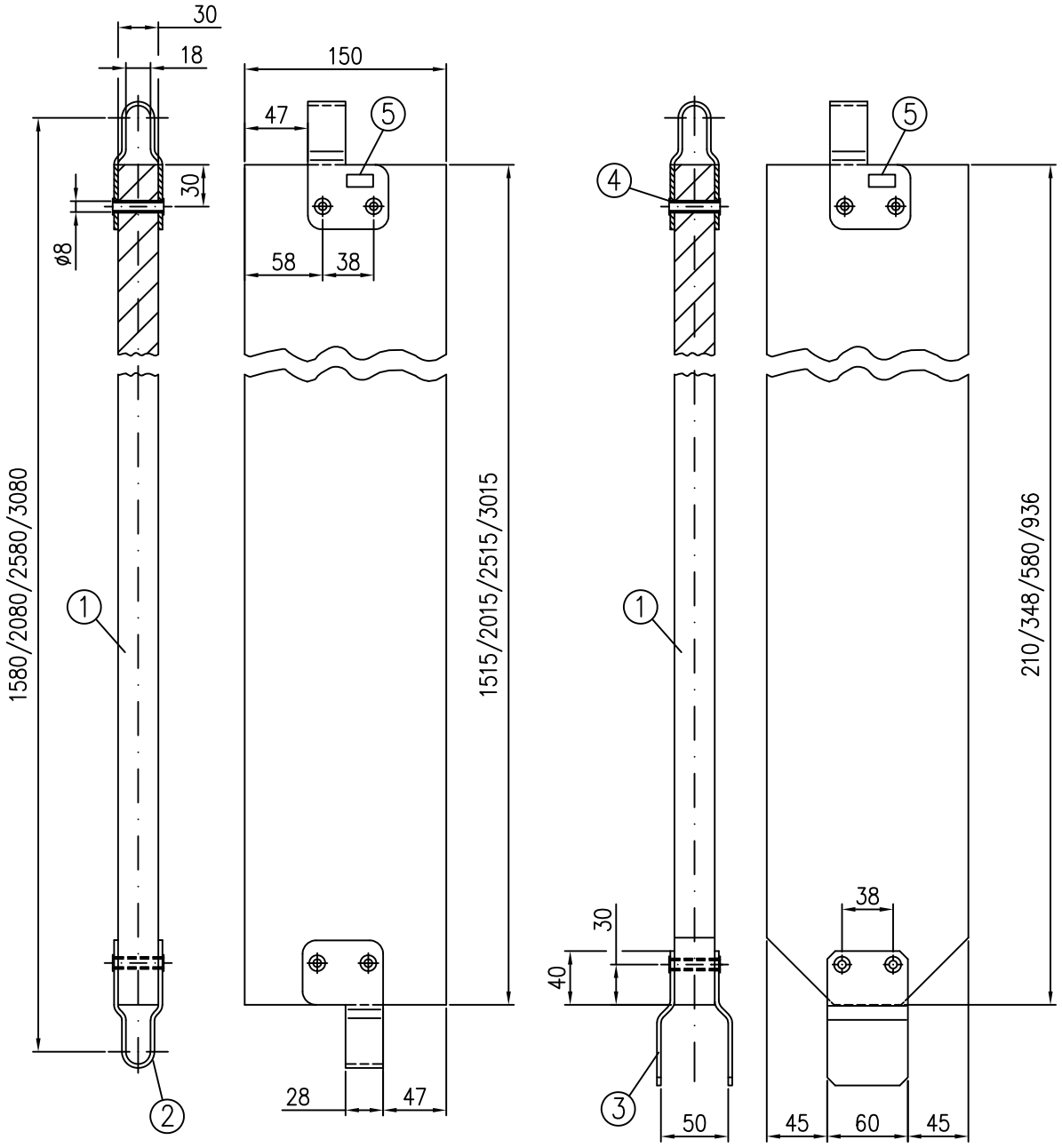
Dimens. [m]	Weight [kg]
4.14	9.0

ALFIX MODUL MULTI

Toeboard 4.14 m AF
in accordance with Z-8.1-862

A714-A225_AMU 08.2020

Annex B,
page 111



① Pine wooden deck visual strength grade S10

② Slit strip 60x3	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	
alternatively:	DIN EN 10346–DX52D+Z275	$R_{eH} \geq 240 N/mm^2$;	$R_m \geq 360 N/mm^2$
③ Slit strip 60x3	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	
alternatively:	DIN EN 10346–DX52D+Z275	$R_{eH} \geq 240 N/mm^2$;	$R_m \geq 360 N/mm^2$
④ Tubular rivet	DIN 7340–A8x0.75x39–steel–electrogalvanized		
⑤ Marking			

all components made of steel – galvnised

Component no longer manufactured
–only approved for continued use–

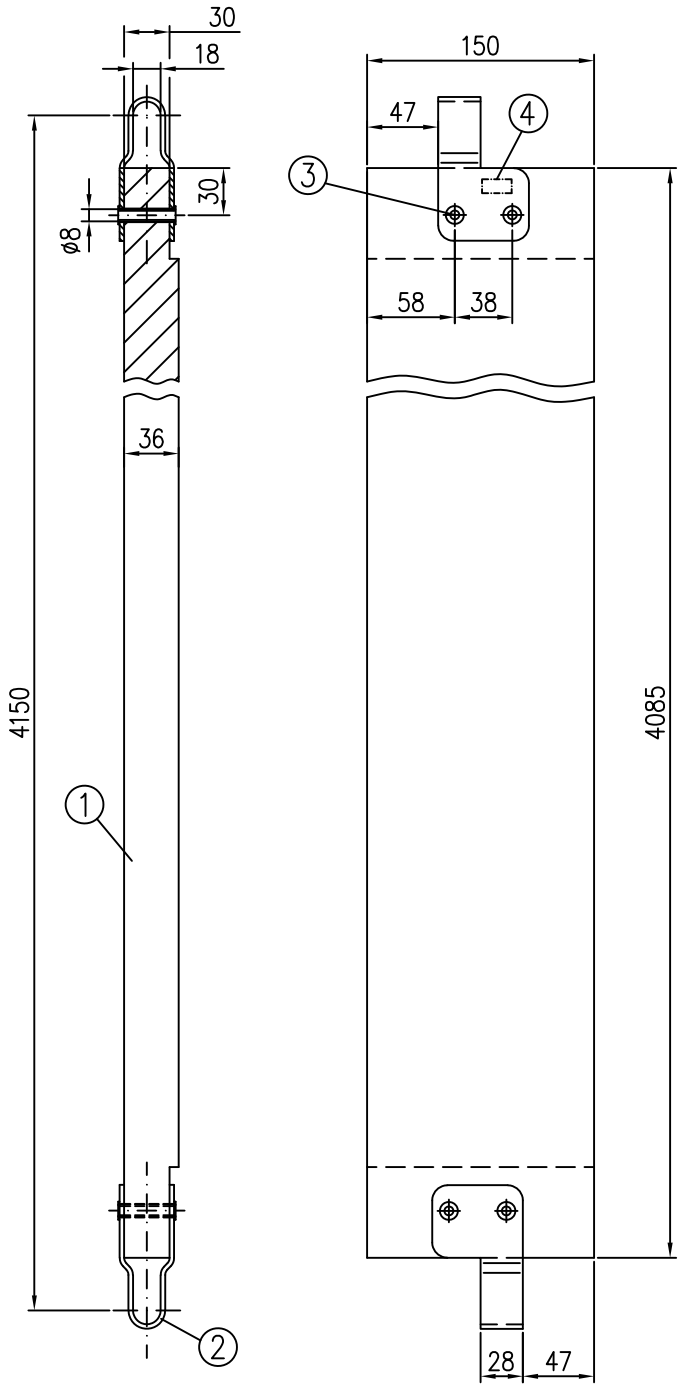
Dimens. [m]	Weight [kg]
Toeboard	
1.57	4.0
2.07	5.0
2.57	6.5
3.07	7.5
End toeboard	
0.36	0.9
0.50	1.3
0.73	1.5
1.09	2.0

ALFIX MODUL MULTI

Toeboard; End toeboard
in accordance with Z–8.1–862

A709–A137_AMU 09.2020

Annex B,
page 112



① Pine wooden deck visual strength grade S10

② Slit strip 60x3 DIN EN 10111–DD11 $R_{eH} \geq 240 N/mm^2$

alternatively: DIN EN 10346–DX52D+Z275 $R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$

③ Tubular rivet DIN 7340–A8x0.75x39–steel–electrogalvanized

④ Marking

all components made of steel – galvanised

Component no longer manufactured
–only approved for continued use–

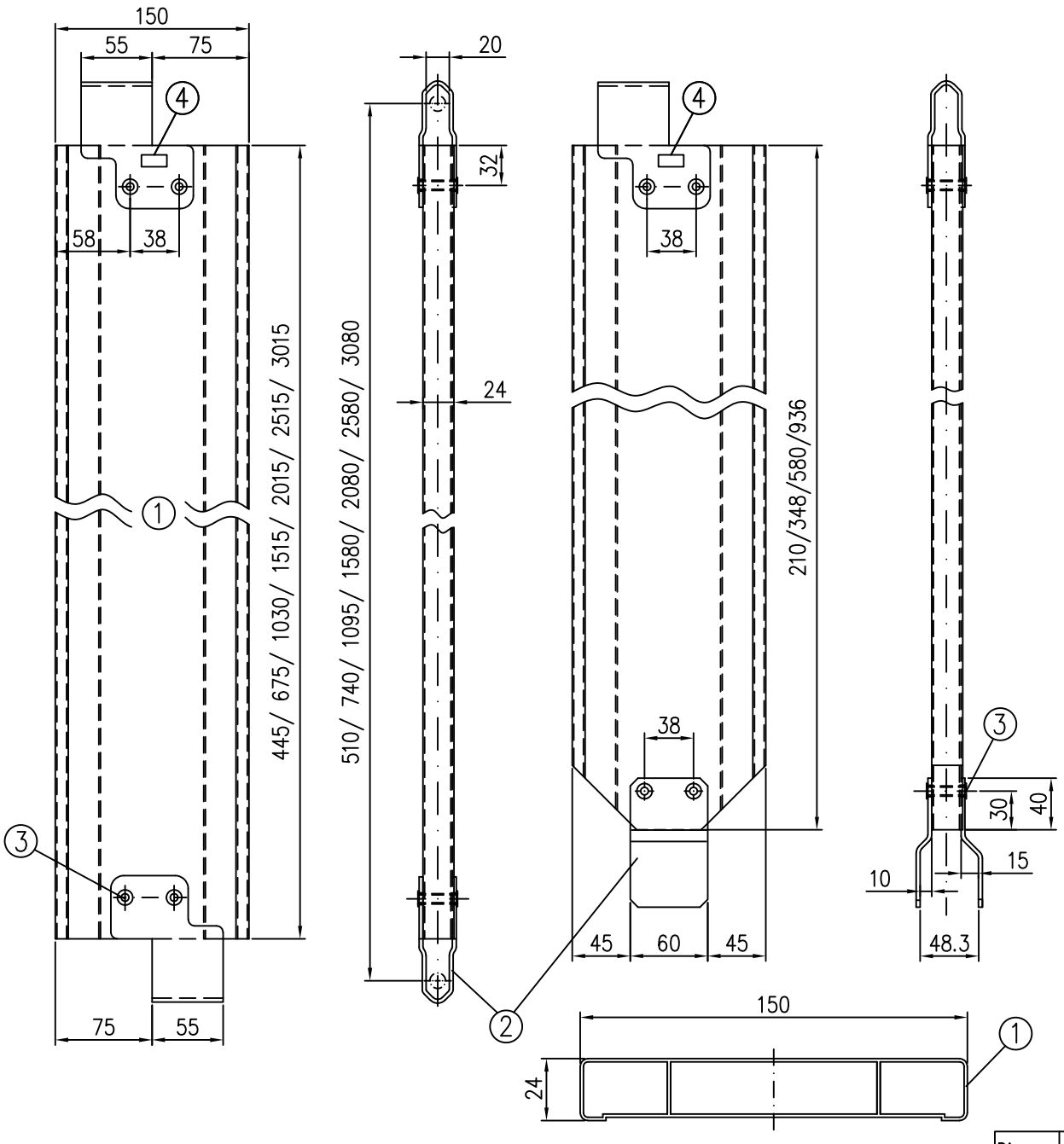
Dimens. [m]	Weight [kg]
4.14	9.0

ALFIX MODUL MULTI

Toeboard 4.14 m
in accordance with Z–8.1–862

A709–A169_AMU 09.2020

Annex B,
page 113



① Sectional view aluminium toeboard DIN EN 755-2 EN AW-6063-T66
s=1.25mm

② Slit strip 60x3 DIN EN 10111-DD11 $R_{eH} \geq 240 N/mm^2$

alternatively: DIN EN 10346-DX52D+Z275 $R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$

③ Tubular rivet DIN 7340-A8x0.75x33-steel-electrogalvanized

④ Marking

all components made of steel – galvanised

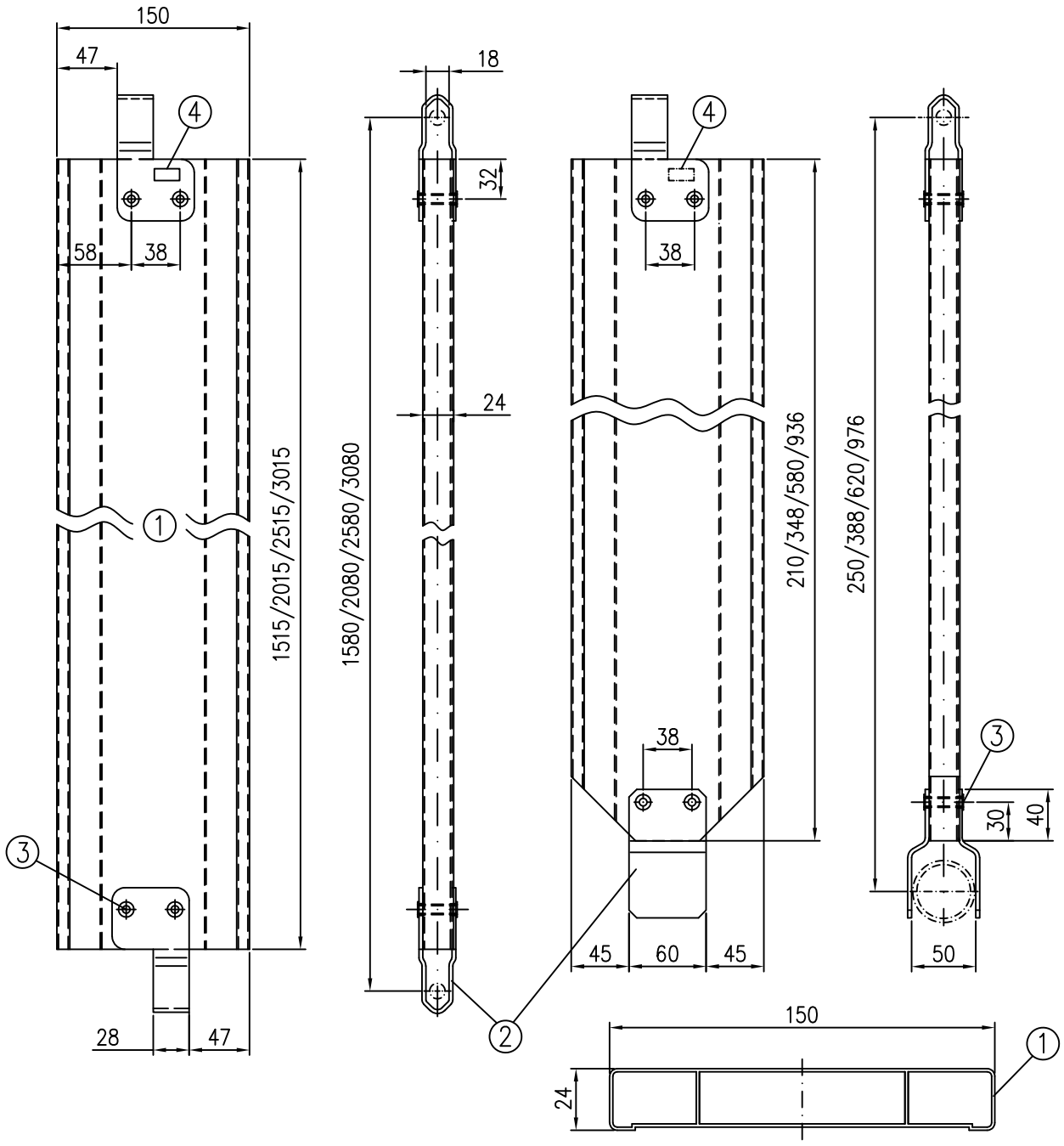
Dimens. [m]	Weight [kg]
Toeboard	
0.50	1.1
0.73	1.4
1.09	1.9
1.57	2.5
2.07	3.2
2.57	3.8
3.07	4.5
End toeboard	
0.36	0.8
0.50	0.9
0.73	1.3
1.09	1.8

ALFIX MODUL MULTI

Aluminium toeboard; Aluminium end toeboard AF
in accordance with Z-8.1-862

A714-A226_AMU 08.2020

Annex B,
page 114



① Sectional view aluminium toeboard; s=1.25mm	DIN EN 755-2	EN AW-6063-T66
② Slit strip 60x3	DIN EN 10111-DD11	$R_{eH} \geq 240 N/mm^2$
alternatively:	DIN EN 10346-DX52D+Z275	
	$R_{eH} \geq 240 N/mm^2$; $R_m \geq 360 N/mm^2$	
③ Tubular rivet	DIN 7340-A8x0.75x33-steel-electrogalvanized	
④ Marking		
all components made of steel – galvanised	Component no longer manufactured –only approved for continued use–	

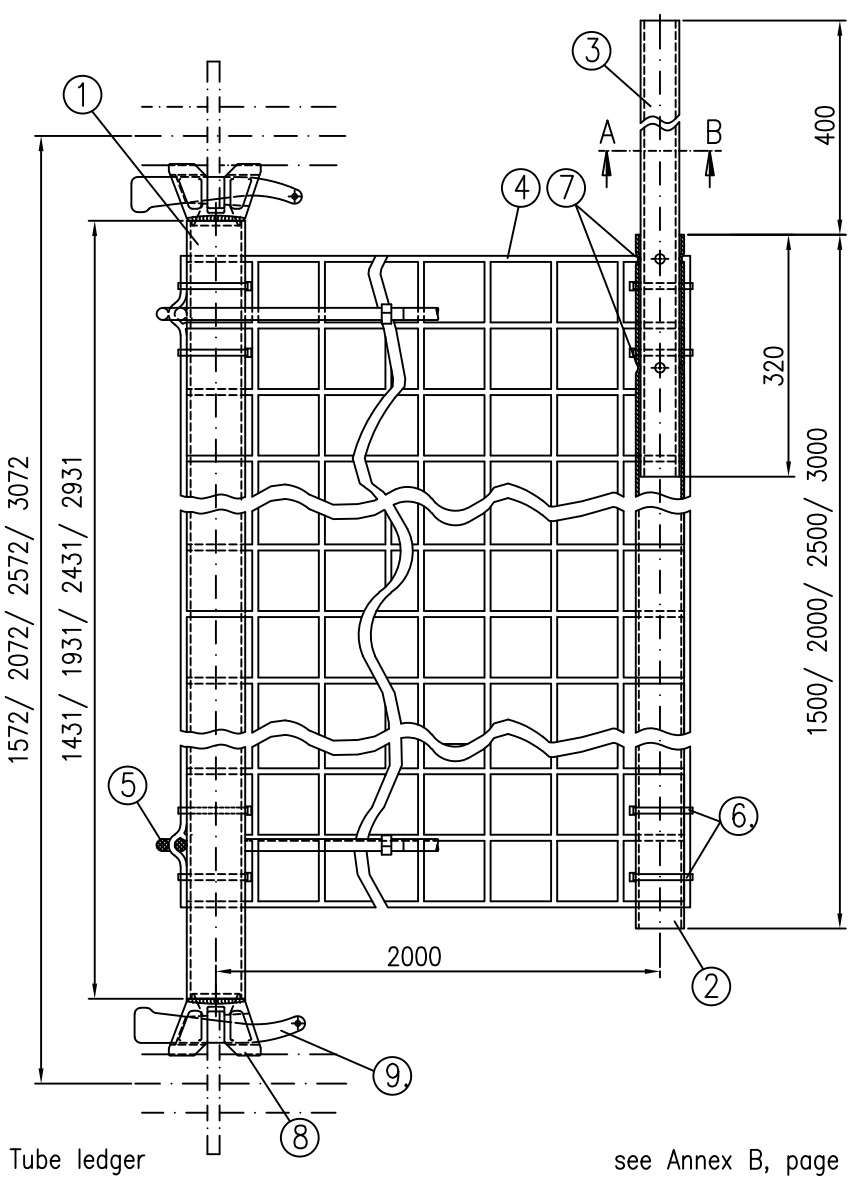
Dimens. [m]	Weight [kg]
Toeboard	
1.57	2.3
2.07	3.0
2.57	3.6
3.07	4.3
End toeboard	
0.36	0.7
0.50	0.8
0.73	1.2
1.09	1.7

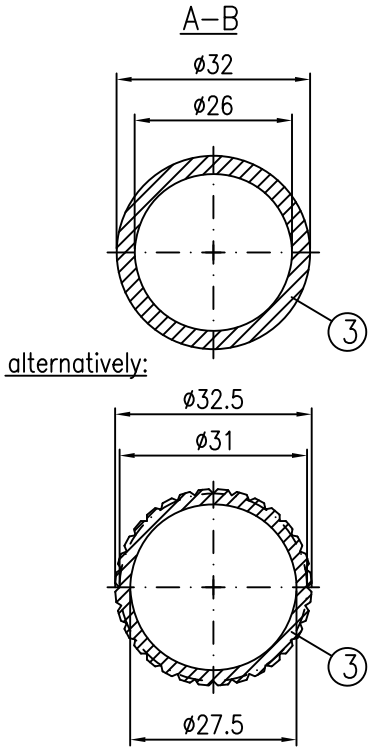
ALFIX MODUL MULTI

Aluminium toeboard; Aluminium end toeboard
in accordance with Z-8.1-862

A709-A170_AMU 09.2020

Annex B,
page 115





①	Tube ledger	see Annex B, page 25
	alternatively: Tube ledger 4.0	see Annex B, page 156
②	Circular hollow section ø40x2.5	DIN EN 755–2 EN AW–6060–T66
③	Circular hollow section ø32x3	DIN EN 755–2 EN AW–6060–T66
	alternatively: Star section 32.5	DIN EN 755–2 EN AW–6063–T66
④	Protection net	DIN EN 1263–1–U–A2–M100–Q
⑤	Rope ø8x3500	Polyamid
⑥	Cable tie 4.8x300	PE
⑦	4 pressed connections on exterior tube surface	
⑧	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
⑨	Wedge 6mm	see Annex B, page 3

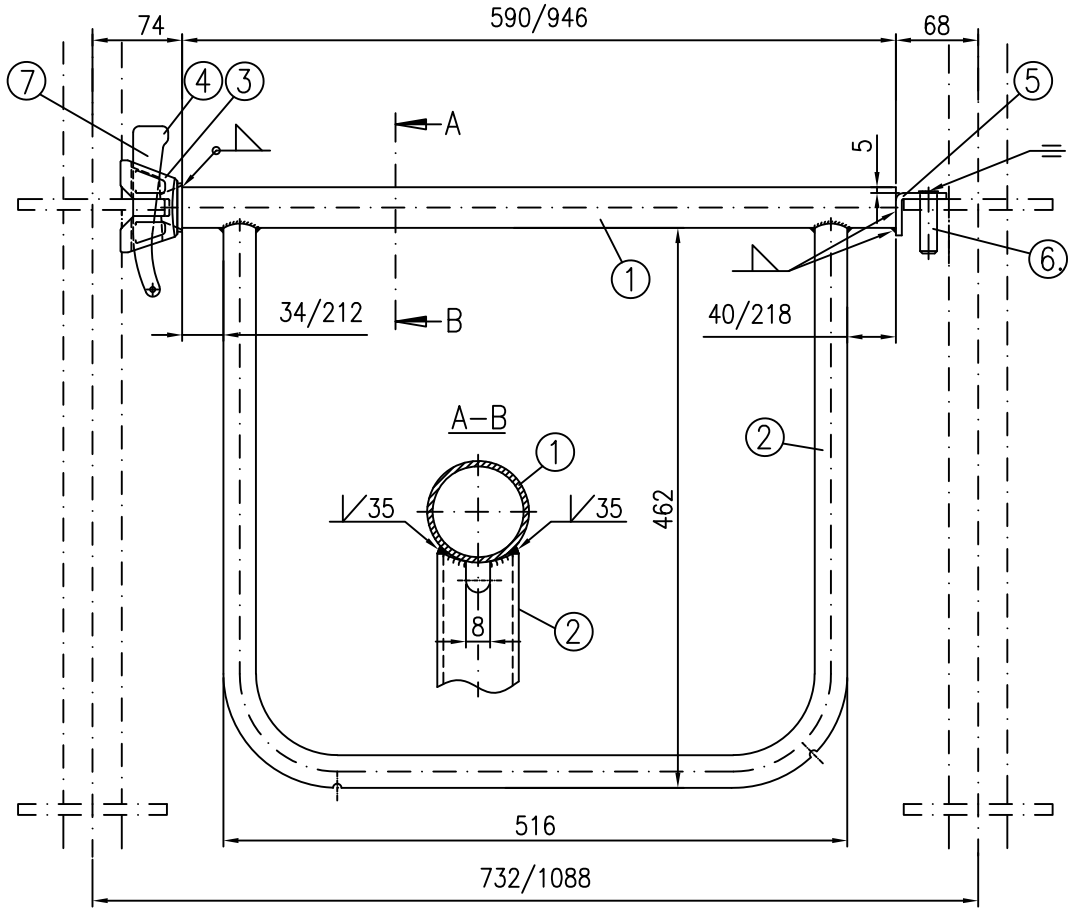
Dimension [m]	Weight [kg]
1.57x2.00	12.0
2.07x2.00	13.0
2.57x2.00	14.0
3.07x2.00	15.0

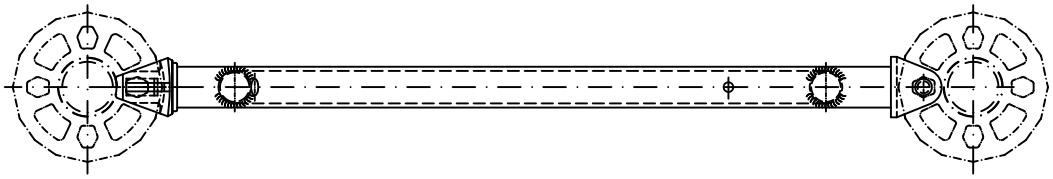
ALFIX MODUL MULTI

MODUL guard net system

M710–B128 08.2020

Annex B,
page 116





①	Circular hollow section ø33.7x1.8	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø33.7x2.0	DIN EN 10219–S235JRH
②	Circular hollow section ø26.9x2	DIN EN 10219–S235JRH
③	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
④	Wedge 6mm	see Annex B, page 3
⑤	Steel plate 50x5	DIN EN 10025–S235JR
⑥	Round ø12	DIN EN 10025–S235JR
⑦	Marking	

galvanised; all welding seams a=2.5mm

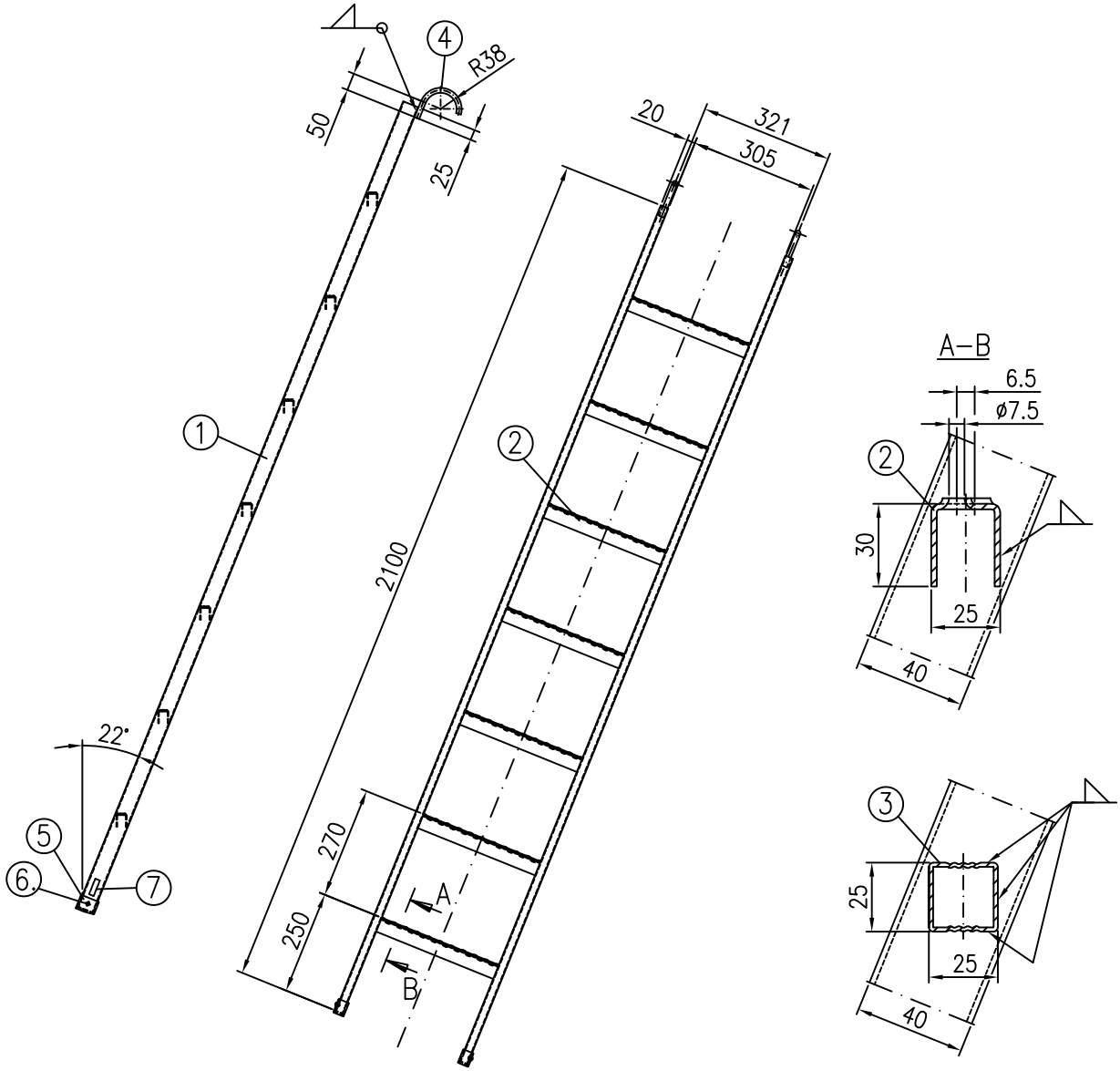
Dimens. [m]	Weight [kg]
0.73	3.5
1.09	4.2

ALFIX MODUL MULTI

MODUL double end guardrail

M711–B208 08.2020

Annex B,
page 117



① Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$	
② Rung section 25x30x2 with openings	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
③ alternatively: Rung section 25x25x1.5	DIN EN 10111–DD11	$R_{eH} \geq 240 N/mm^2$	$R_m \geq 360 N/mm^2$
④ Round ø12	DIN EN 10025–S235JR		
⑤ Slider	Plastic		
⑥ Blind rivet 4,8x16 aluminium/steel	DIN EN ISO 15983		
⑦ Marking			

galvanised; all welding seams a=2mm

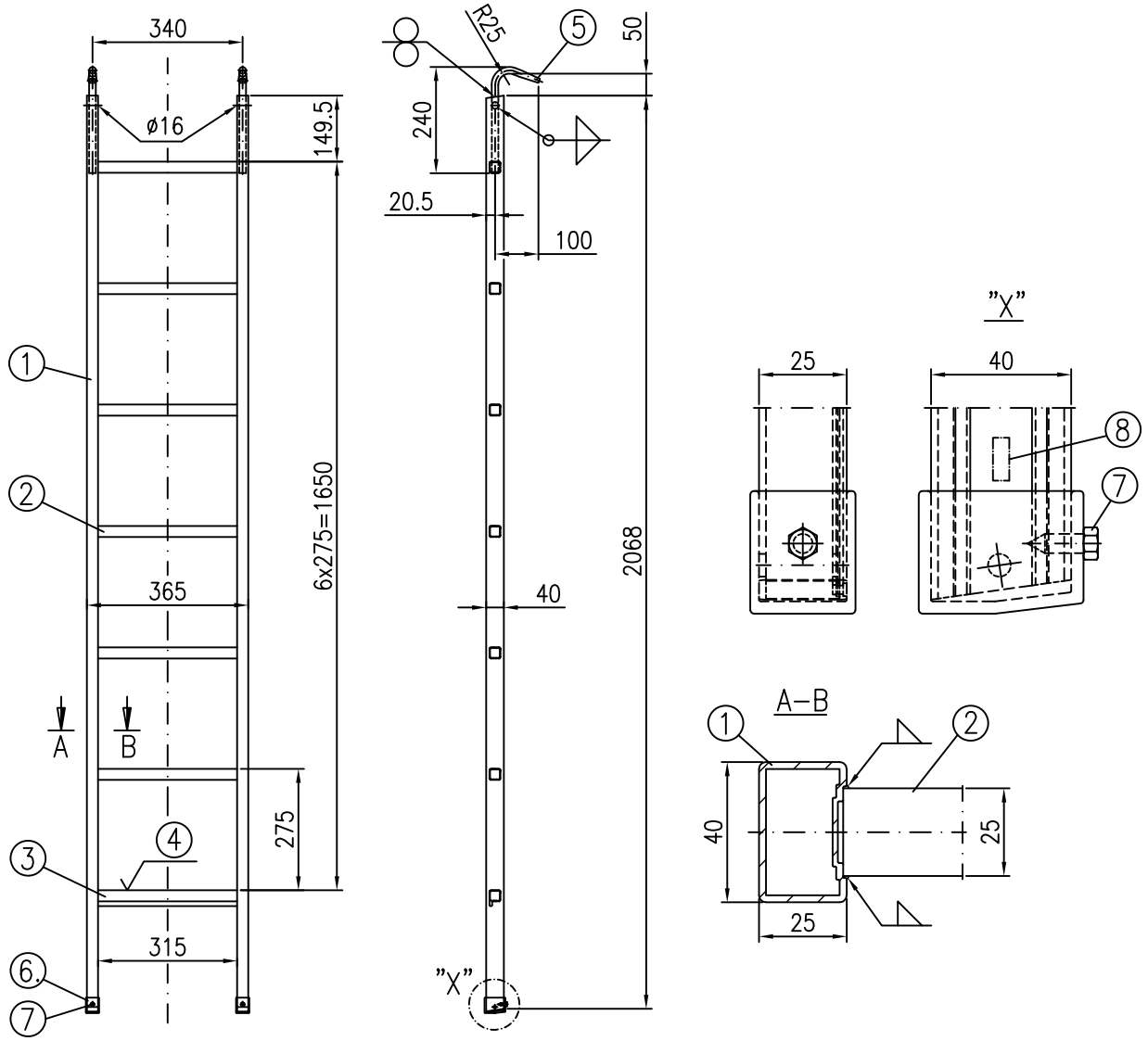
Dimension [m]	Weight [kg]
2.00x0.40	8.1

ALFIX MODUL MULTI

Storey ladder 2.00 x 0.40 m, steel
in accordance with Z–8.1–847

U716–A247_AMU 08.2020

Annex B,
page 118



①	Rail profile 25x40x2	DIN EN 755–2 EN AW–6063–T66
②	Rung section 25x25x1.5	DIN EN 755–2 EN AW–6063–T66
③	Locking rung section 25x25x1.5	DIN EN 755–2 EN AW–6063–T66
④	Ribbed profile	
⑤	Round ø15	DIN EN 755–2 EN AW–6060–T66
⑥	Slider	Plastic
⑦	Selfdrilling screw	DIN EN ISO 15480–ST5.5x16–K–steel–galvanised
⑧	Marking	
	all welding seams a=3mm	131–MIG: Type 4 (EC9) filler material

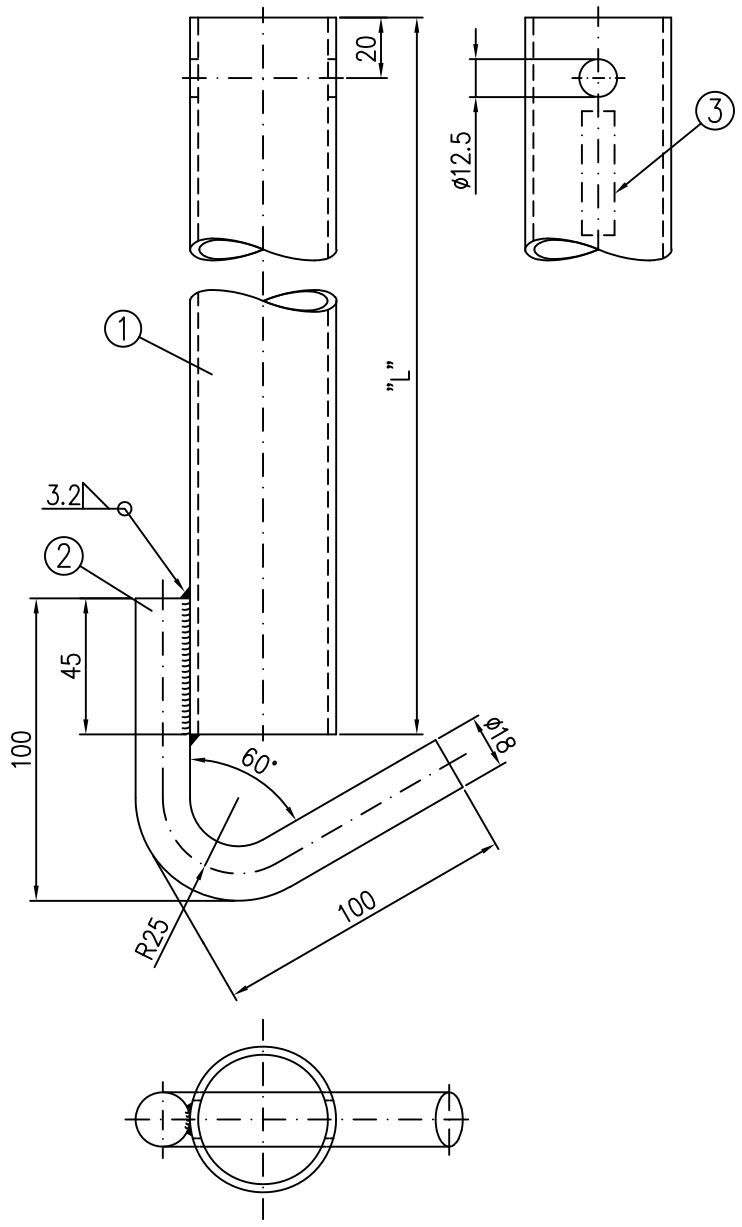
Dimension [m]	Weight [kg]
2.00x0.40	3.7

ALFIX MODUL MULTI

Storey ladder 2.00 x 0.40 m, aluminium
in accordance with Z–8.1–847

U716–A248_AMU 08.2020

Annex B,
page 119



"L" [m]	Weight [kg]
0.15	0.8
0.20	0.9
0.25	1.0
0.30	1.2
0.40	1.5
0.50	1.8
0.60	2.1
0.65	2.3
0.70	2.4
0.80	2.7
1.00	3.3
1.30	4.2
1.50	4.8
2.00	6.2

① Circular hollow section ø48.3xt DIN EN 10219-S235JRH $R_{eH} \geq 320 N/mm^2$
t=2.7mm; alternatively: 3.2mm
② Round ø18 DIN EN 10025-S355J2
③ Marking

galvanised

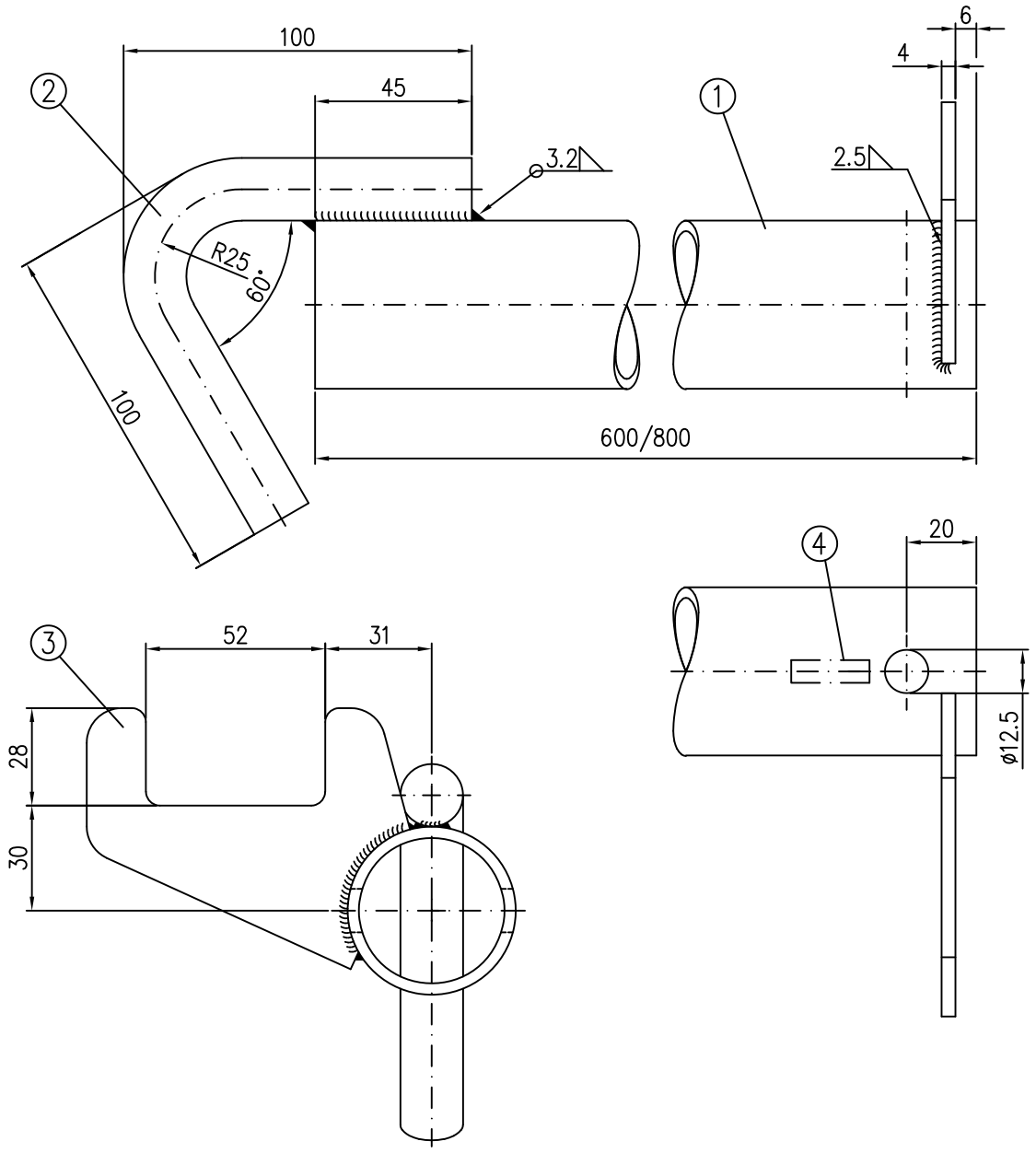
ALFIX MODUL MULTI

Scaffold retainer / wall tie
in accordance with Z-8.1-862

A709-A129_AMU 08.2020

Annex B,
page 120

[Seal Deutsches Institut für Bautechnik]



① Circular hollow section ø48.3xt t=2.7mm; alternatively: 3.2mm	DIN EN 10219-S235JRH	$R_{eH} \geq 320 N/mm^2$
② Round ø18	DIN EN 10025-S355J2	
③ Steel metal 4	DIN EN 10025-S235JR	
④ Marking		
galvanised		

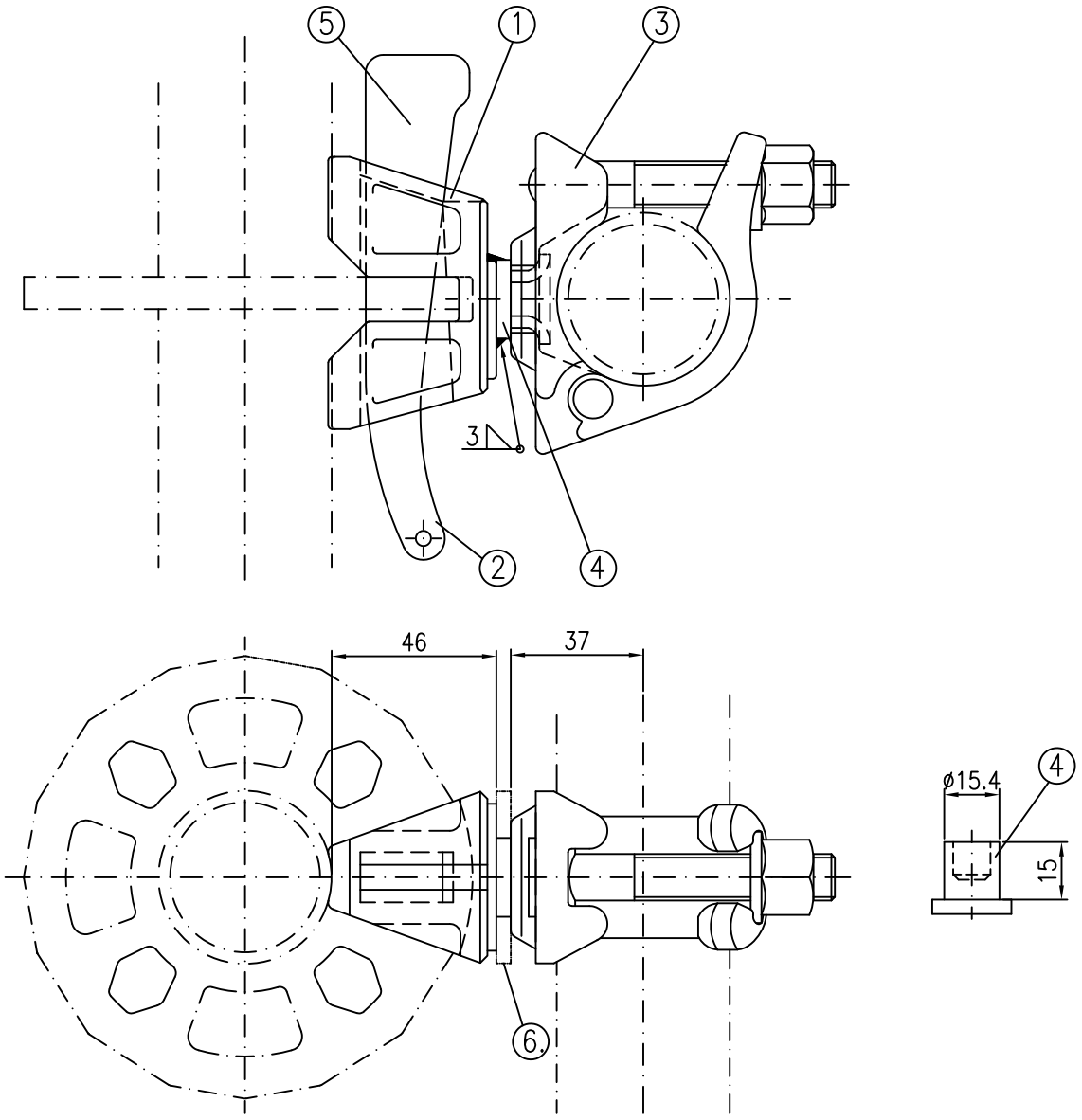
Dimens. [m]	Weight [kg]
0.65	2.3
0.80	2.8

ALFIX MODUL MULTI

Quick-release wall tie
in accordance with Z-8.1-862

A709-A130 08.2020

Annex B,
page 121



①	Connecting head U-ledger PLUS, new connector design	see Annex B, page 139
②	Wedge 6mm	see Annex B, page 3
③	Halfcoupler, class B	DIN EN 74-2
④	Rivet wedge-head coupler	DIN EN 10263-1/2-C10C+C
	alternatively:	DIN EN 10263-3-C10E2C
⑤	Marking	
⑥	optionally: disc ø17/52x3	DIN EN 10025-S235JR

Dimens. [m]	Weight [kg]
–	1.0

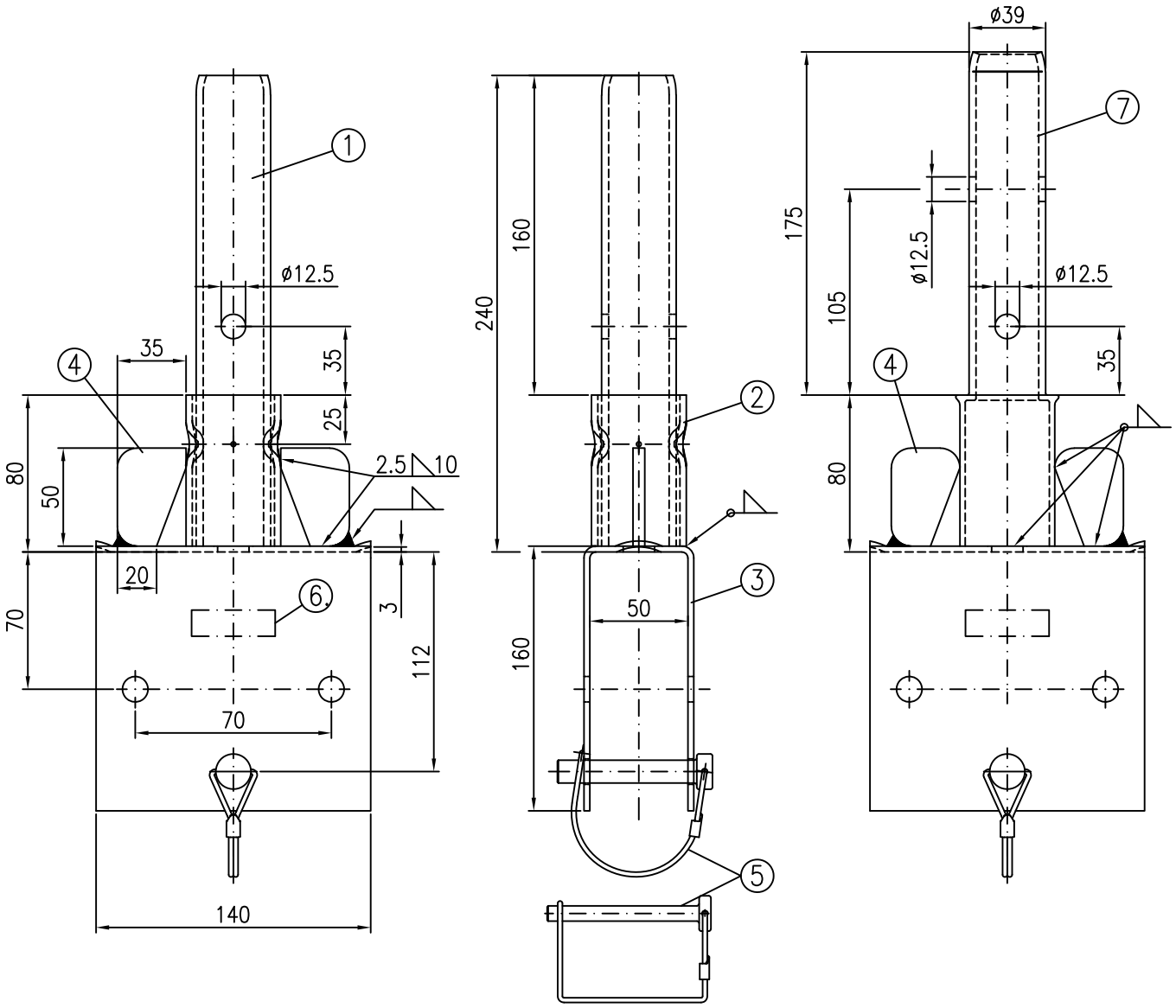
galvanised — Only for connecting the protective wall post

ALFIX MODUL MULTI

Wedge-head coupler, swivel

M710-B129 10.2020

Annex B,
page 122



① Circular hollow section ø38x3.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Steel metal 3	DIN EN 10025–S235JR	
④ Steel plate 50x6	DIN EN 10025–S235JR	
⑤ Tube linchpin RK 112 12/8x70/80 with snap–on lock		
Pin	DIN EN 10025–S355J2	
Ring	DIN 17223 B Spring steel	
⑥ Marking		
⑦ alternatively: Circular hollow section ø48.3x2.7 without ①	DIN EN 10219–S460MH	
galvanised; all welding seams a=2.5mm		

Dimens. [m]	Weight [kg]
0.40	2.1

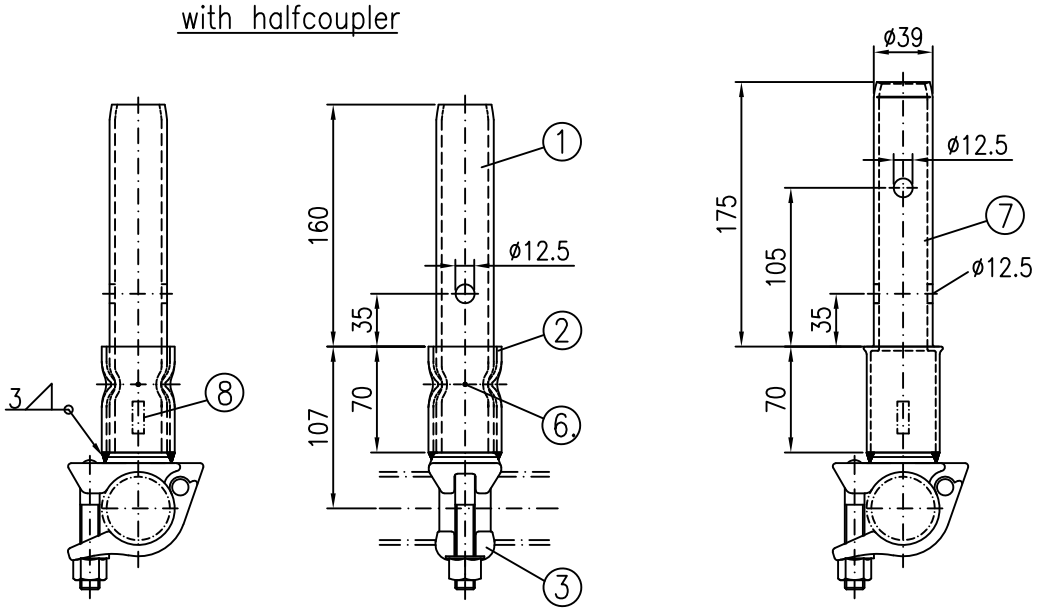
ALFIX MODUL MULTI

MODUL U–tube connector

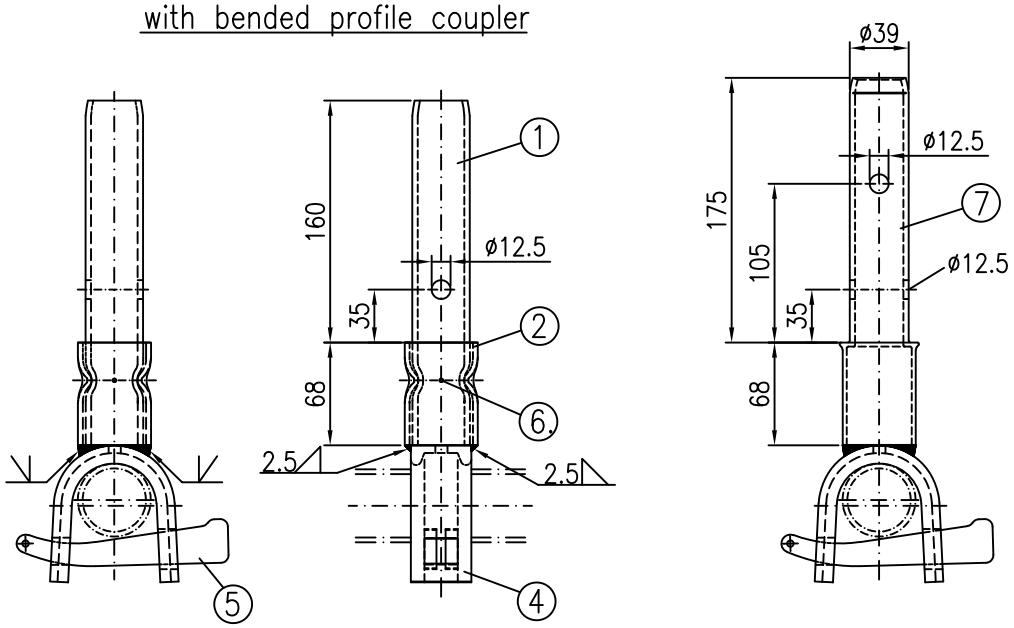
M709–B137 08.2020

Annex B,
page 123

with halfcoupler



with bended profile coupler



① Circular hollow section ø38x3.6	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø48.3x3.2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
③ Halfcoupler, class B	DIN EN 74–2	
④ Bended profile section 40x13x5x6.5	DIN EN 10025–S235JR	
⑤ Wedge 6mm	see Annex B, page 3	
⑥ 4 point–joint pressed connections	alternatively: 2 x spot–weld 12	
⑦ alternatively: Circular hollow section 48.3x2.7 without ①	DIN EN 10219–S460MH	
⑧ Marking		

galvanised

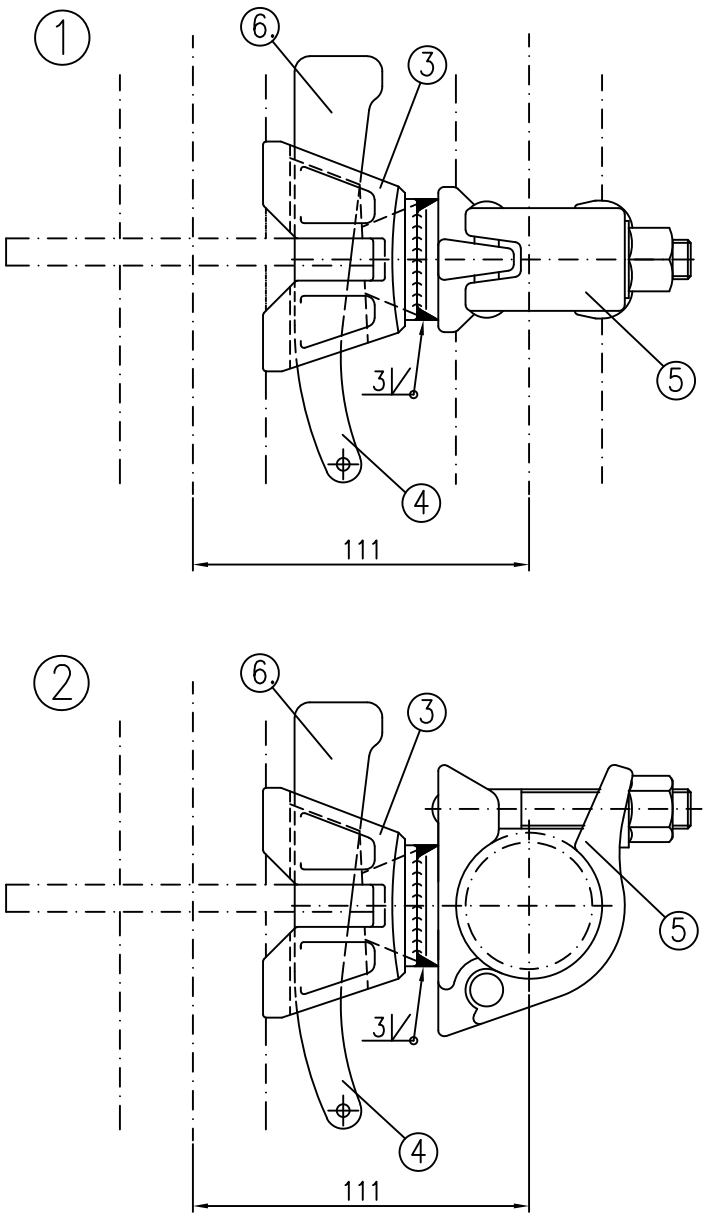
	Dimens. [m]	Weight [kg]
with halfcoupler	0.30	1.6
with bended profile coupler	0.30	1.5

ALFIX MODUL MULTI

MODUL tube connector

M709–B140 08.2020

Annex B,
page 124



① Parallel, rigid Wedge-head coupler
② Right angle, rigid Wedge-head coupler
③ Connection of tube ledger — see Annex B, page 4
alternatively: Connection of tube ledger 4.0 — see Annex B, page 152
④ Wedge 6mm — see Annex B, page 3
⑤ Halfcoupler, class B — DIN EN 74-2
⑥ Marking
galvanised

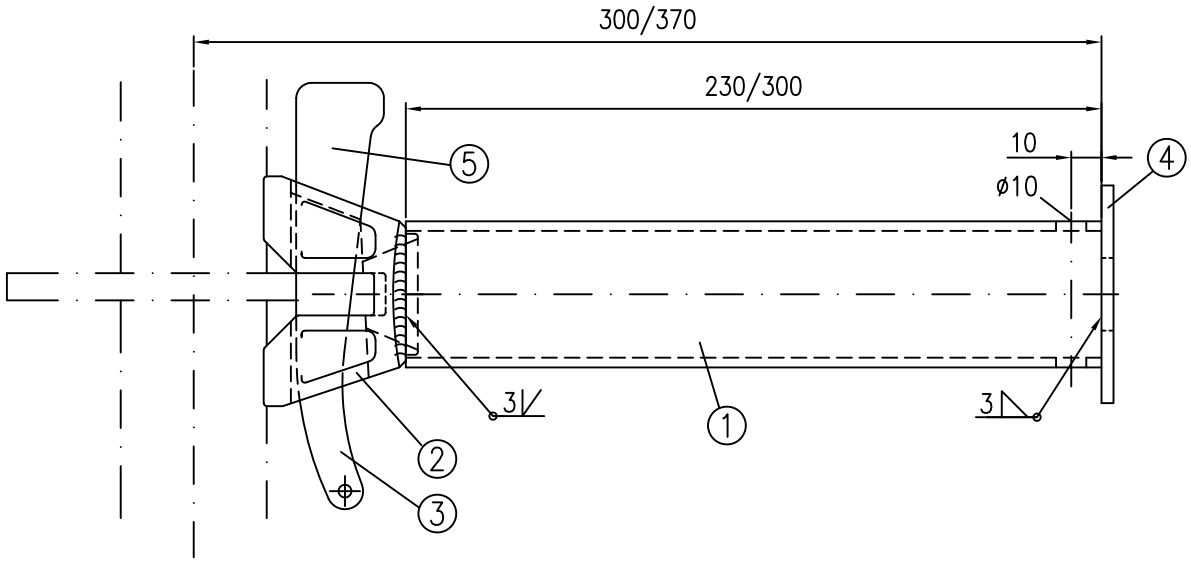
Dimens. [m]	Weight [kg]
–	1.0

ALFIX MODUL MULTI

Wedge-head coupler, rigid

M710-B150 08.2020

Annex B,
page 125



① Rectangular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
alternatively: Rectangular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH	
② Connection of tube ledger (I)	see Annex B, page 4	
alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152	
③ Wedge 6mm	see Annex B, page 3	
④ Steel metal s=4mm	DIN EN 10025–S235JR	
alternatively: Disc	DIN EN ISO 7093–1–26x70x4–steel	
⑤ Marking		
galvanised		

allowed combination		
	III	IV
I	x	x
II	–	x

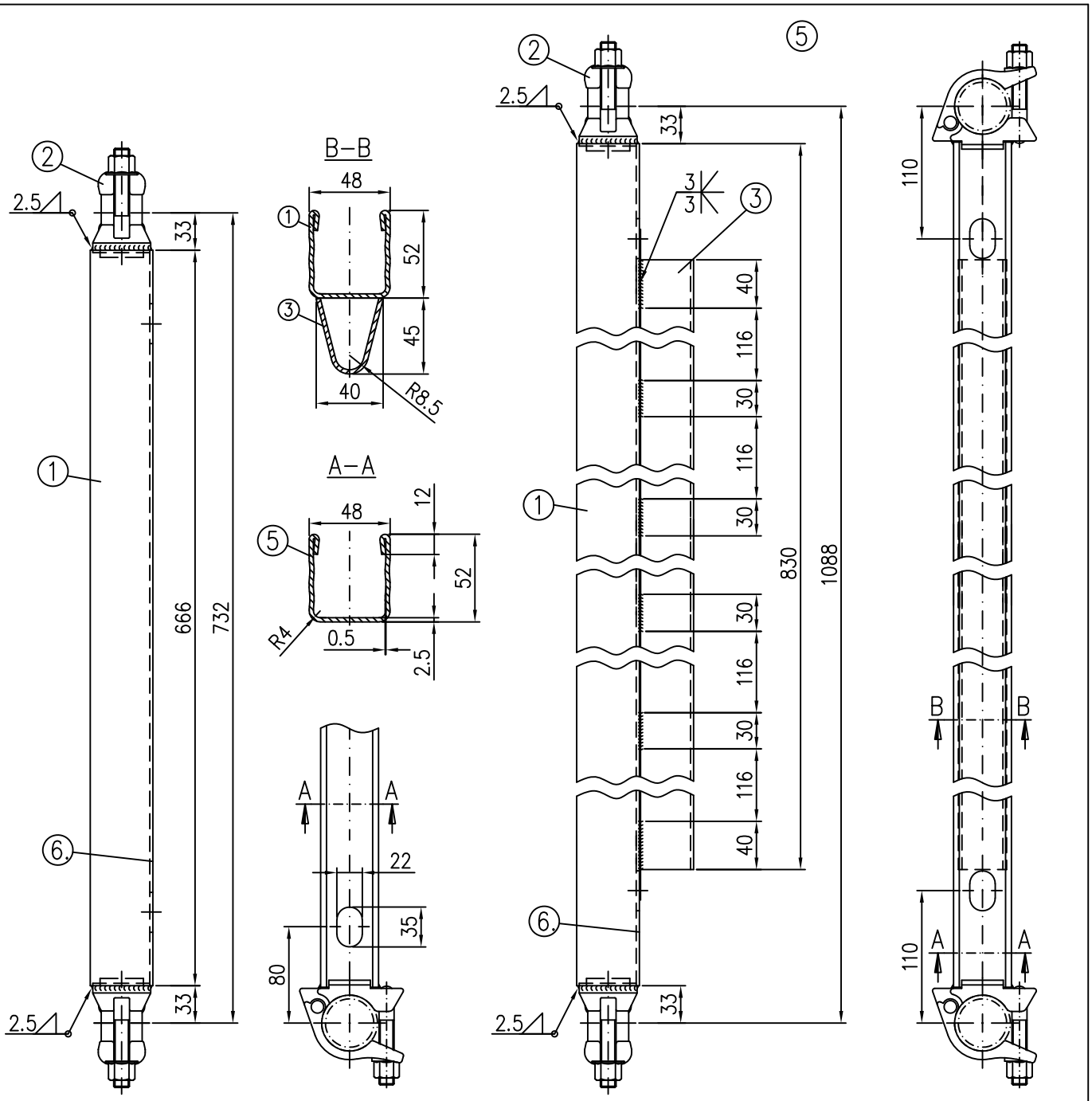
Dimens. [m]	Weight [kg]
0.29	1.4
0.36	1.7

ALFIX MODUL MULTI

Support ledger

M711–B203 10.2021

Annex B,
page 126



①	U–profile 48x52x2.5 made of steel metal 169x2.5	DIN EN 10025–S235JR see Annex B, page 32
②	Halfcoupler, class B	DIN EN 74–2
③	Steel metal 3	DIN EN 10025–S235JR
④	U–profile 48x52x2.5	DIN EN 10025–S460MC
⑤	alternatively: for 1.09m U–profile 48x52x2.5 without ③	DIN EN 10149–2–S460MC
⑥	Marking	
	galvanised	

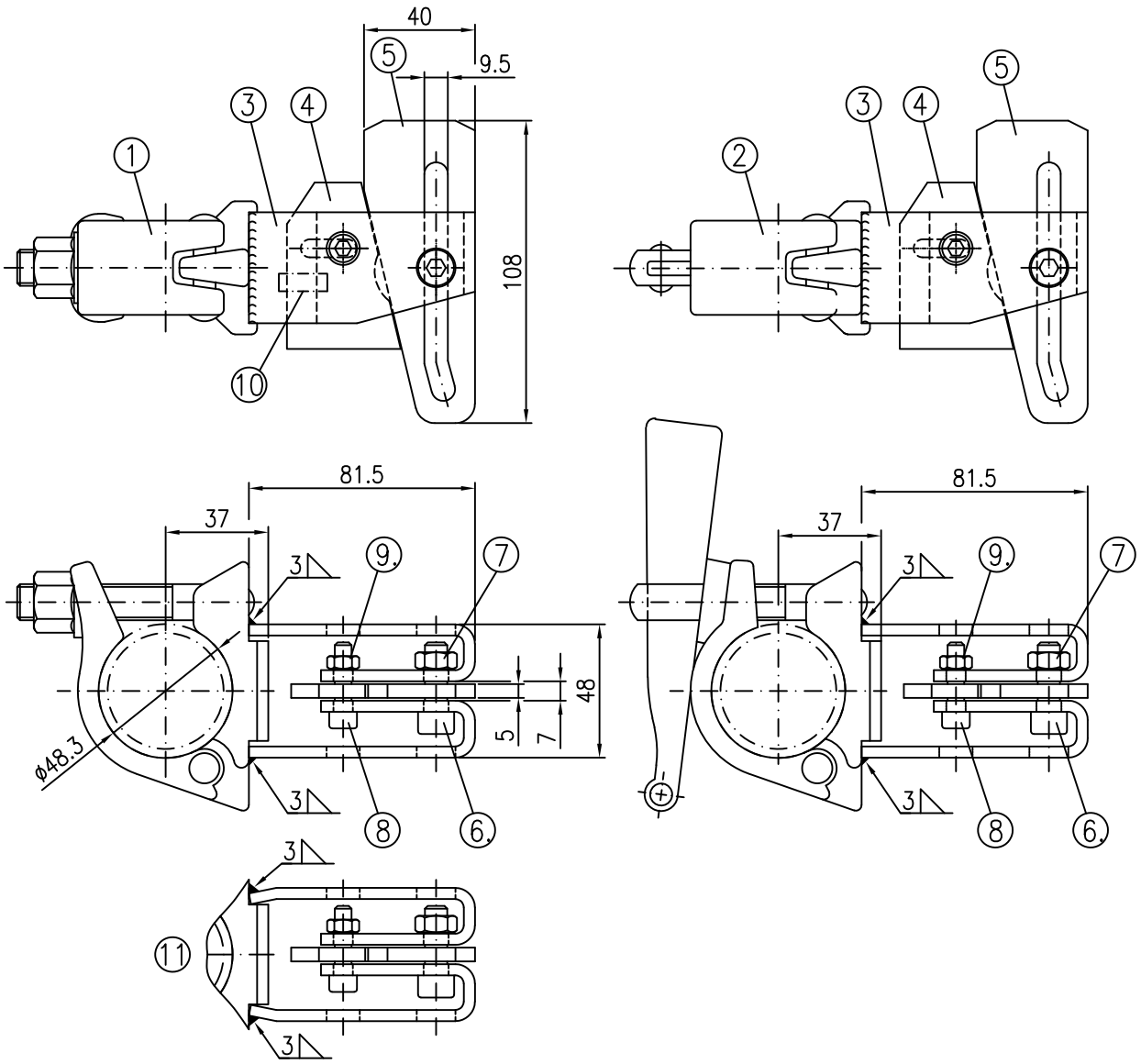
Dimens. [m]	Weight [kg]
0.73	2.8
1.09	5.4

ALFIX MODUL MULTI

Transom 0.73 m; 1.09 m
in accordance with Z–8.1–862

A713–A154_AMU 09.2020

Annex B,
page 127



①	Halfcoupler, class B	DIN EN 74–2
②	alternatively: Wedge coupler	DIN EN 74–2
③	Steel plate 320x4	DIN EN 10111–DD13
④	Steel plate 70x5	DIN EN 10025–S235JR
⑤	Steel plate 80x5	DIN EN 10025–S235JR
⑥	Cylinder head screw with hexagon socket	DIN EN ISO 4762–M8x25–8.8–galvanised
⑦	Hexagon nut, self–locking	DIN EN ISO 10511–M8–8–galvanised
⑧	Cylinder head screw with hexagon socket	DIN EN ISO 4762–M6x25–8.8–galvanised
⑨	Hexagon nut, self–locking	DIN EN ISO 10511–M6–8–galvanised
⑩	Marking	
⑪	alternatively	

galvanised

Dimens. [m]	Weight [kg]
–	1.3

ALFIX MODUL MULTI

Guardrail coupler AF
in accordance with Z–8.1–862

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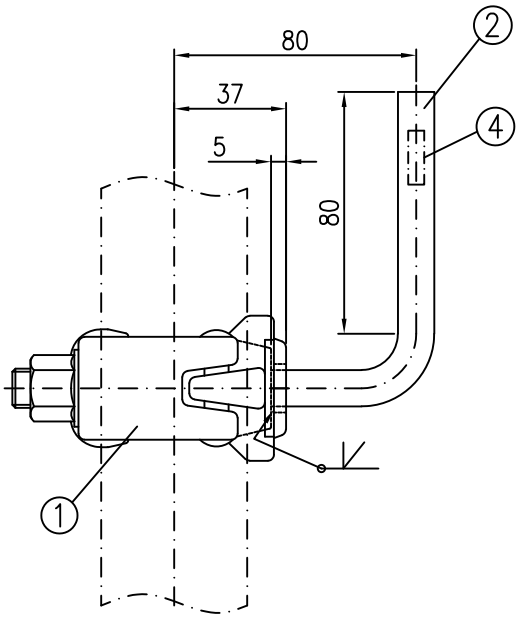
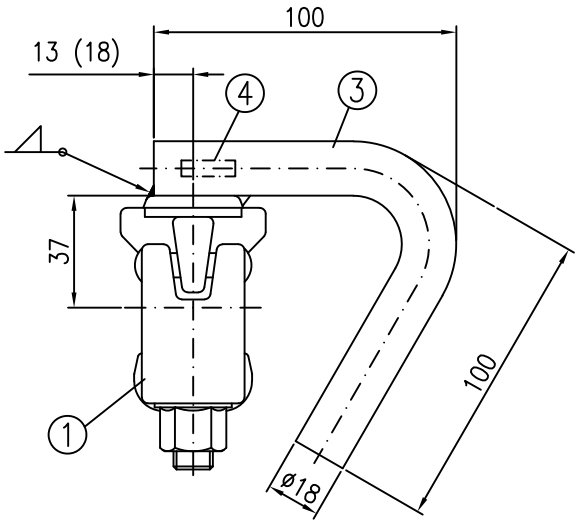
Annex B,
page 128

Toeboard coupler



Halfcoupler with hook



①	Halfcoupler, class B	DIN EN 74-2
②	Round ø12	DIN EN 10025-S235JR
③	Round ø18	DIN EN 10025-S355J2
④	Making	

galvanised; all welding seams a=3mm ( ) = discontinued design

Designation	Weight [kg]
Toeboard coupler	0.6
Halfcoupler with hook	0.9

ALFIX MODUL MULTI

Toeboard coupler; Halfcoupler with hook
in accordance with Z-8.1-862

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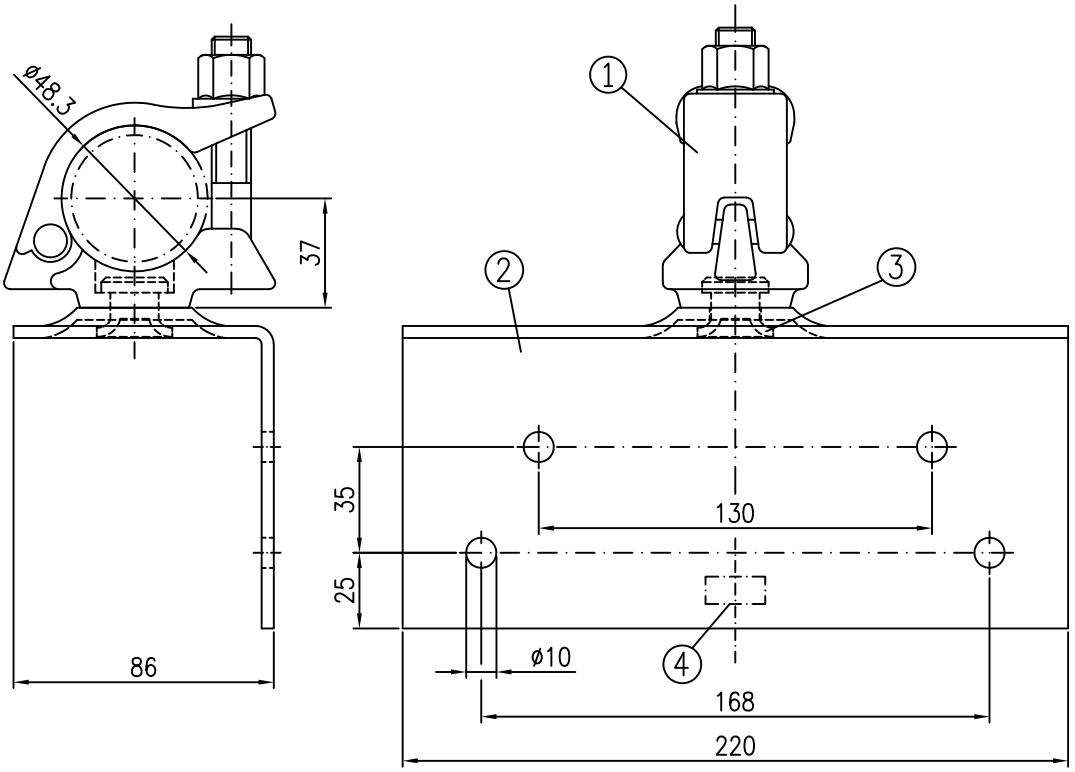
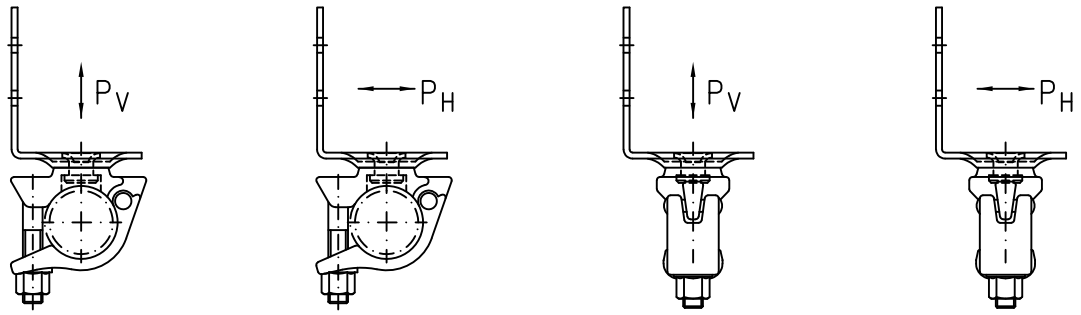
Annex B,
page 129





maximum allowable P_V = 2kN
maximum allowable P_H = 1kN

①	Halfcoupler, class B	DIN EN 74-2
②	Steel metal 4	DIN EN 10025-S235JR
③	Rivet squared timber coupler ø16	DIN EN 10263-1/2-C10C+C
	alternatively:	DIN EN 10263-3-C10E2C
④	Marking	
	galvanised	

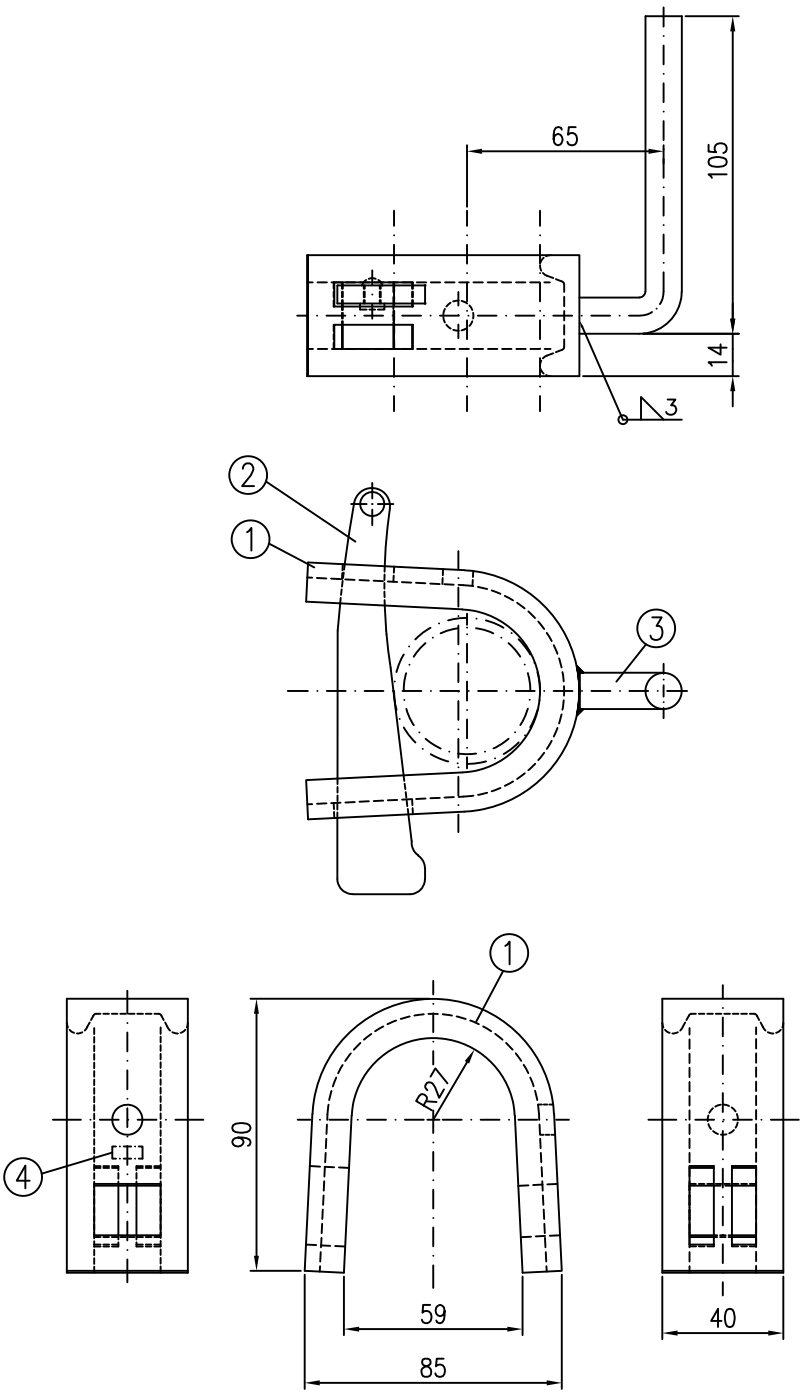
Dimens. [m]	Weight [kg]
–	1.8

ALFIX MODUL MULTI

Squared timber coupler
in accordnace with Z-8.1-862

A709-A192_AMU 08.2020

Annex B,
page 130



①	Bended profile section 40x13x5x6.5	DIN EN 10025-S235JR
②	Wedge 6mm	see Annex B, page 3
③	Round ø12	DIN EN 10025-S235JR
④	Marking	

galvanised

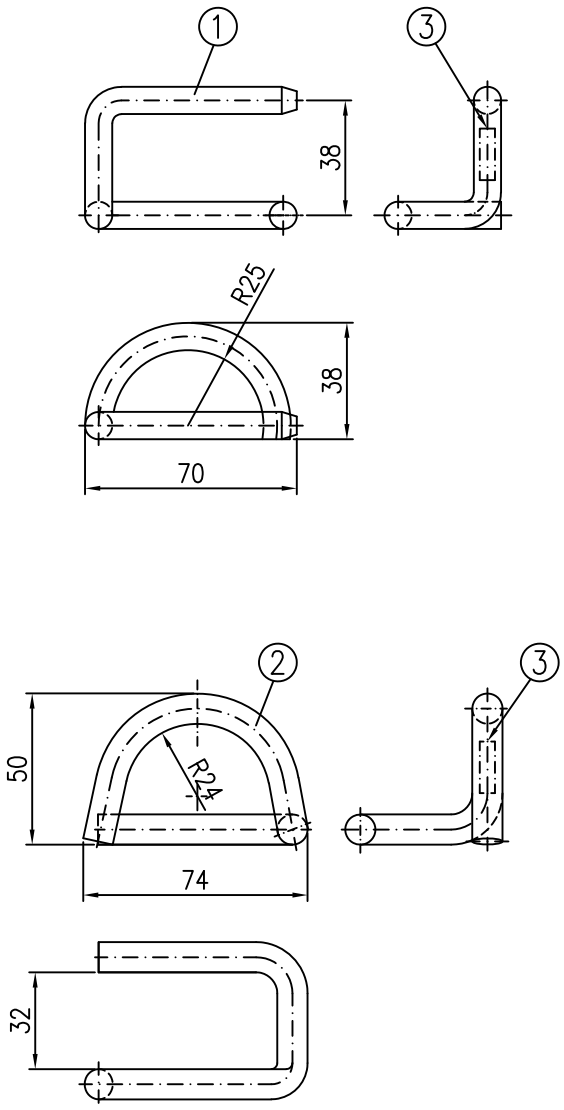
Dimens. [m]	Weight [kg]
–	0.8

ALFIX MODUL MULTI

Toeboard support
in accordance with Z-8.1-862

A709-A194_AMU 08.2020

Annex B,
page 131



① Round ø9 DIN EN 10025–S235JR
② alternative design: Round ø10 DIN EN 10025–S235JR
③ Marking

galvanised

Dimens. [m]	Weight [kg]
–	0.13

ALFIX MODUL MULTI

Locking pin
in accordance with Z–8.1–862

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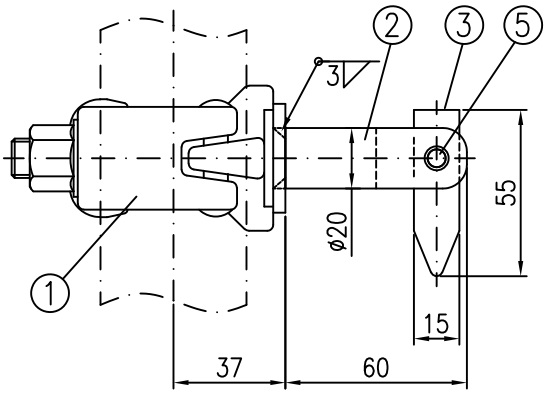
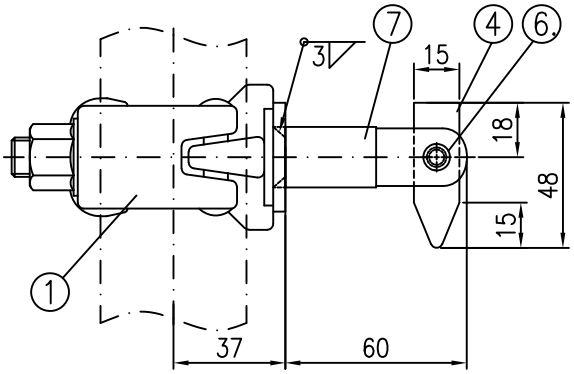
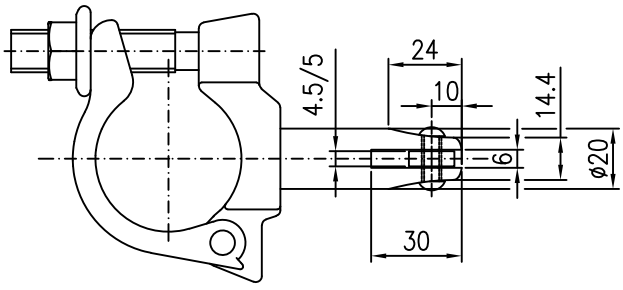
Annex B,
page 132



alternatively





① Halfcoupler, class B	DIN EN 74-2	
② Tilting pin ø20x60 alternatively: changed design ⑦	DIN EN 10025-S235JR	
③④ Locking lug; s=4mm; hot-dip galvanised alternatively: s=4.5mm/5mm	DIN EN 10025-S235JR	
⑤ Clamping sleeve	DIN EN ISO 8752-6x18-steel-galvnised	
⑥ Blind rivet 6x18 aluminium/steel	ISO 15983	

Dimens. [m]	Weight [kg]
–	0.6

galvanised

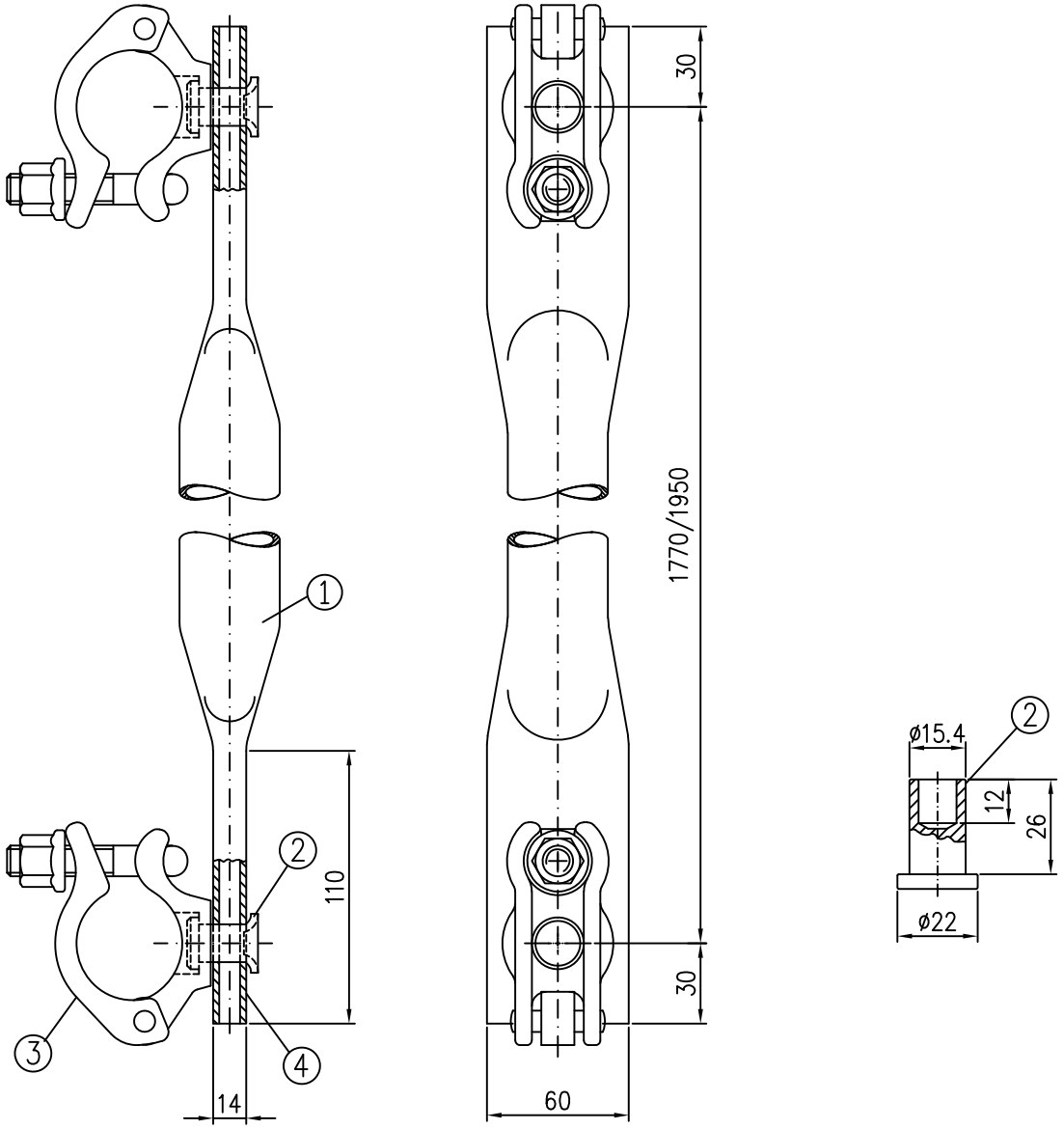
Only for accommodating side protection components

ALFIX MODUL MULTI

Putlog coupler
in accordance with Z-8.1-862

A709-A196_AMU 09.2020

Annex B,
page 133



①	Circular hollow section ø42.4x2	DIN EN 10219–S235JRH
②	Rivet for diagonal brace	DIN EN 10263–1/2–C10C+C
	alternatively:	DIN EN 10263–3–C10E2C
③	Halfcoupler, class B	DIN EN 74–2
④	Marking	
	galvanised	

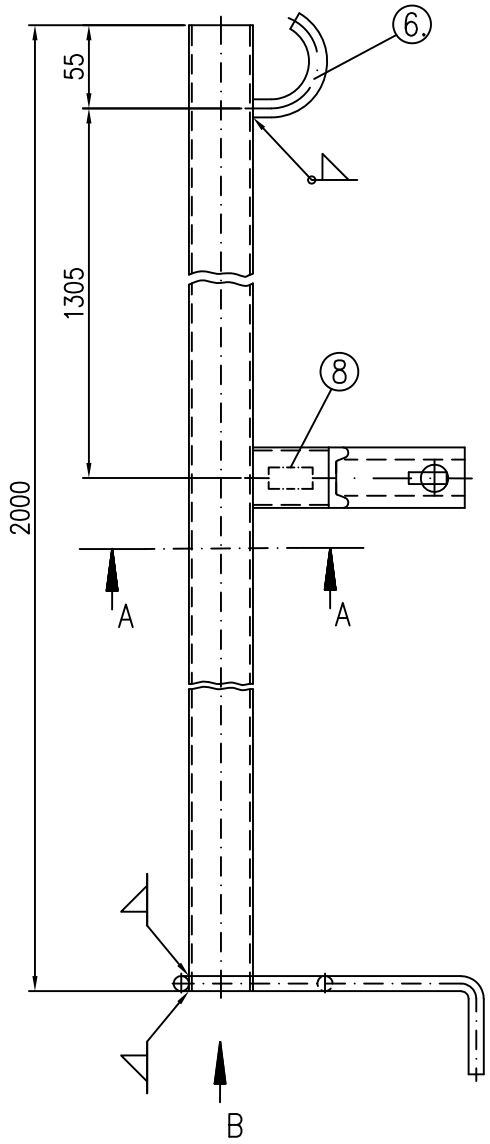
Dimens. [m]	Weight [kg]
1.77	4.8
1.95	5.2

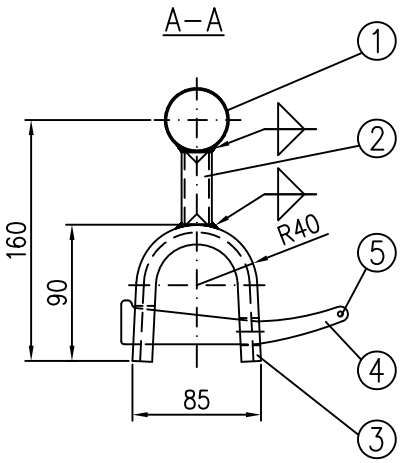
ALFIX MODUL MULTI

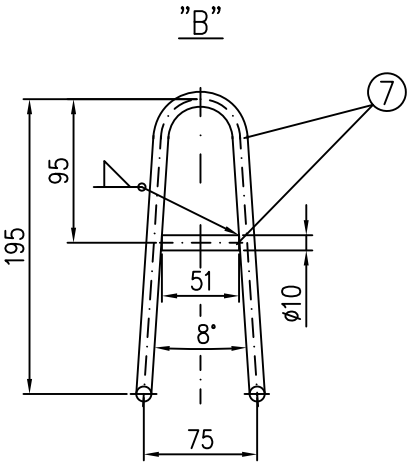
Diagonal cross brace
in accordance with Z–8.1–862

A709–A198_AMU 11.2020

Annex B,
page 134







① Tube 42.4x2	S235JRG2	
② Square section 40x20x2	S235JRH	
③ Bended profile section 40x12x5x7	S235JRH	Component no longer manufactured
④ Wedge plus II	S550MC	–only approved for continued use–
⑤ Round head rivet ø5x10	QSt 32–2 DIN 660 elctrogalvanized, with rivet head of rivet ø4	
⑥ Round ø12	S235JRG2	
⑦ Round ø10	S235JRG2	
⑧ Marking		

galavnised; all welding seams a=2mm

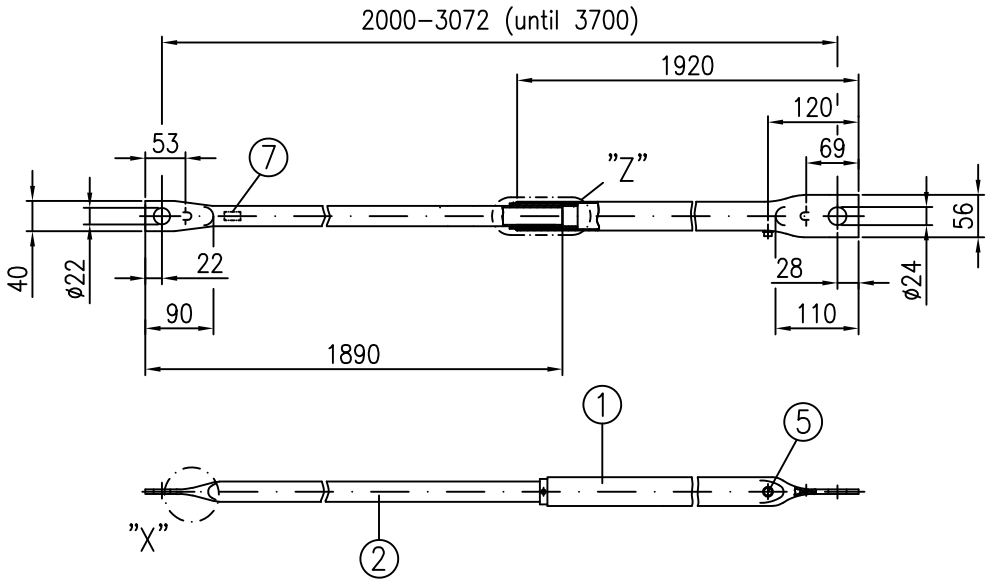
Dimens. [m]	Weight [kg]
2.00	6.2

ALFIX MODUL MULTI

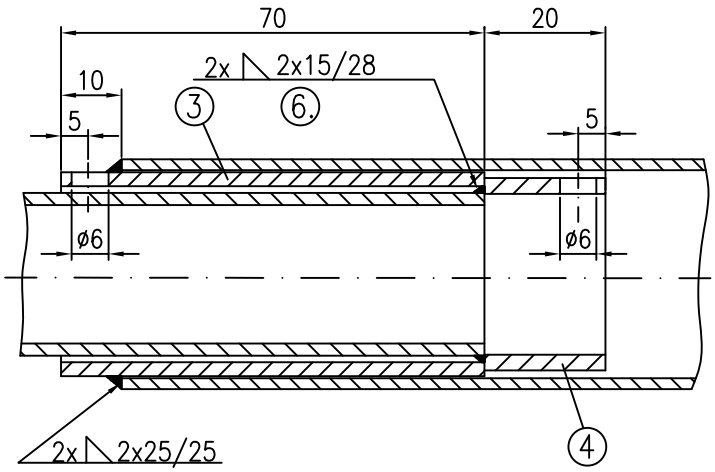
Advanced guardrail post 2.00 m
in accordance with Z–8.1–862

A705–A035_AMU 09.2020

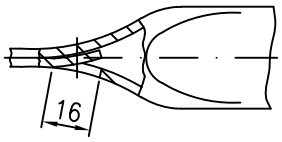
Annex B,
page 135



"Z"



"X"



①	Tube 38x2	S235JRH
②	Tube 26.9x2.6	S235JRH
③	Tube 33.7x2.3	S235JRH
④	Tube 31.8x2.6	S235JRH
⑤	Self–drilling screw ST6.3x16	DIN 7504–K–steel–galvanised
⑥	Pos. 2 and 4: finish after welding	
⑦	Marking	

galvanised

Component no longer manufactured
–only approved for continued use–

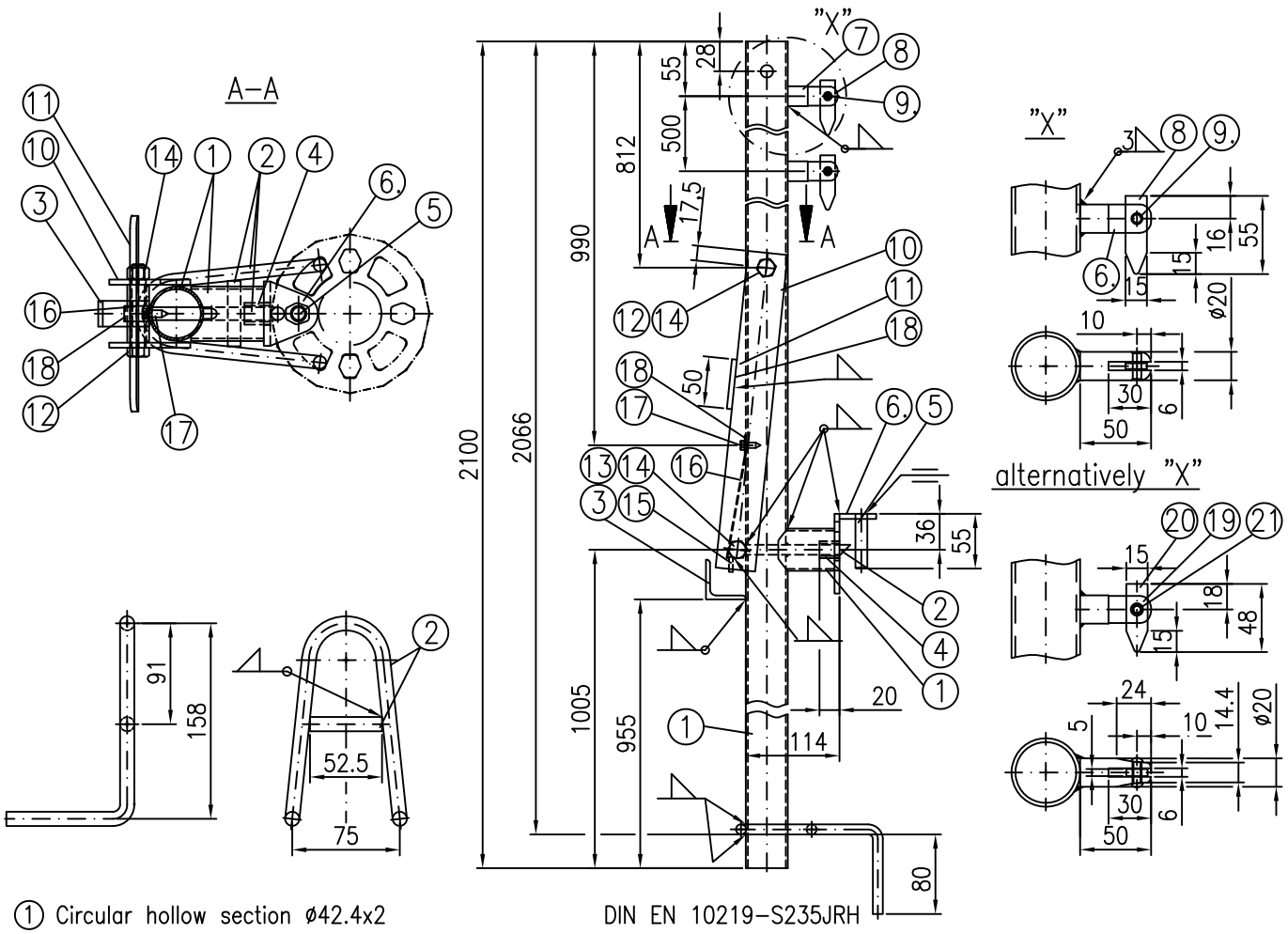
Dimension [m]	Weight [kg]
2.00–3.07	6.8

ALFIX MODUL MULTI

Telescopic guardrail 2.00 – 3.07 m
in accordance with Z–8.1–862

A709–A036_AMU 09.2020

Annex B,
page 136



①	Circular hollow section ø42.4x2	DIN EN 10219–S235JRH
②	Round ø10	DIN EN 10025–S235JR
③	L–profile 40x40x4	DIN EN 10056–2–S235JR
④	Circular hollow section ø17.2x2.3	DIN EN 10219–S235JRH
⑤	Round ø12	DIN EN 10025–S235JR
⑥	Steel plate 120x5	DIN EN 10025–S235JR
⑦	Tilting pin ø20x50 alternatively: ⑲	DIN EN 10025–S235JR
⑧	Locking lug t=4; alternatively: s=5mm ⑳	DIN EN 10025–S235JR
⑨	Thread pin	DIN EN ISO–M6x18–steel–galvanised
	alternatively: Blind rivet A 6x18 aluminium/steel ㉑	DIN EN ISO–M6x18–steel–galvanised
⑩	Flat 40x4	DIN EN 10025–S235JR
⑪	Steel plate 50x5	DIN EN 10025–S235JR
⑫	Hexagon bolt	DIN EN ISO 4014–M10x70–8.8–galvanised
⑬	Hexagon bolt	DIN EN ISO 4014–M10x70–8.8–galvanised
⑭	Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised
⑮	Flat 15x4	DIN EN 10025–S235JR
⑯	Leaf spring 12x1	Spring steel strip 1.4310 X10CrNi18–8
⑰	Tapping screw	ISO 1479–ST 5.5x16–K–steel–galvanised
⑱	Marking	
	galvanised; all welding seams a=2mm	

Dimens. [m]	Weight [kg]
2.00	6.8

ALFIX MODUL MULTI

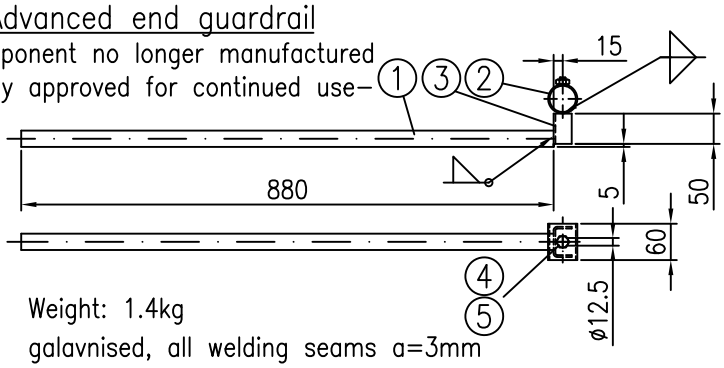
MODUL advanced guardrail post

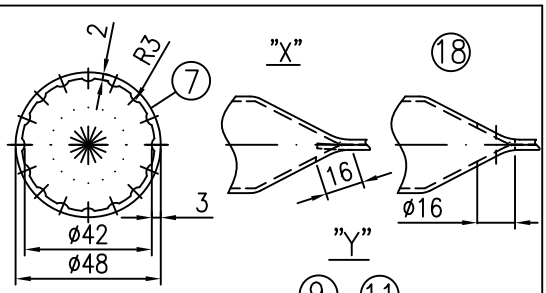
M716–B211 08.2020

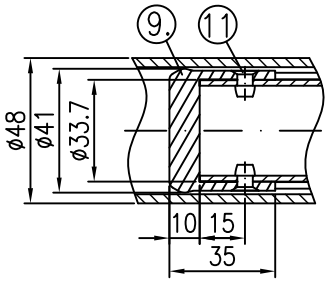
Annex B,
page 137

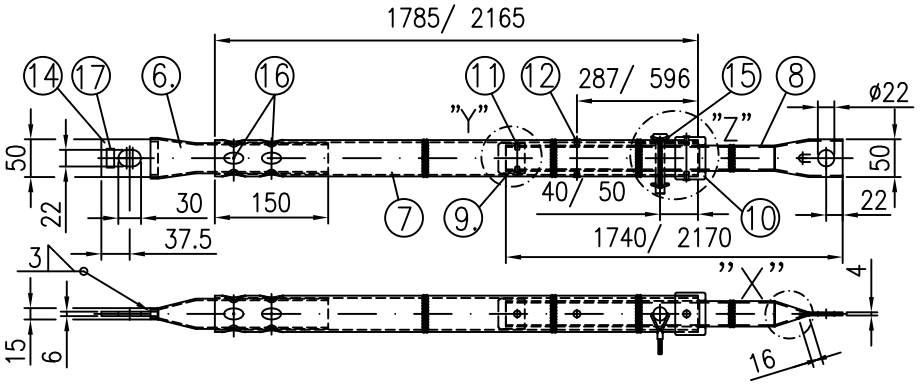
Advanced end guardrail

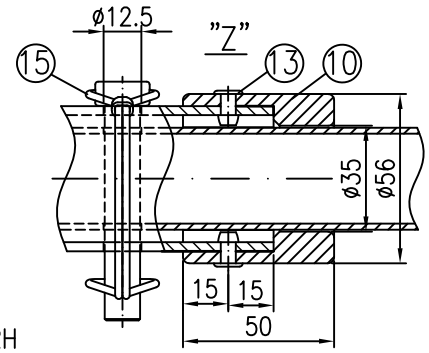
Component no longer manufactured
–only approved for continued use–











①	Circular hollow section ø26.9x2.6	DIN EN 10219–S235JRH
②	Circular hollow section ø48.3x2.3	DIN EN 10219–S235JRH
③	U–profile 50x30x3	DIN EN 10025–2–S235JR
	alternatively: U–profile 47x30x3	DIN EN 10025–2–S235JR
④	Hexagon bolt	DIN EN ISO 4014–M10x60–8.8–galvanised
⑤	Hexagon nut, self–locking	DIN EN ISO 10511–M10–8–galvanised
⑥	Circular hollow section 40x2	DIN EN 755–2 EN AW–6060–T66
⑦	Circular hollow section, special section ø48 2/3	DIN EN 755–2 EN AW–6063–T66
⑧	Circular hollow section ø33.7x2	DIN EN 10219–S235JRH
⑨	Sleeve ø41x35	PA6
⑩	Sleeve ø56x50	PA6
⑪	Blind rivet, stainless steel A2/A2 5x10	DIN EN ISO 15984
⑫	Blind rivet A 5x8	DIN EN ISO 15979 aluminium/steel
⑬	Blind rivet A 5x12	DIN EN ISO 15979 aluminium/steel
⑭	Flat 50x6	DIN EN 755–2 EN AW–6060–T66
⑮	Tube linchpin RK 11 10x50	Transport security
	alternatively: Tube linchpin RK 12 10x60	
⑯	4 point–joint pressed connections	
⑰	Marking	
⑱	alternatively	131–MIG: Type 4 (EC9) filler material
	all components made of steel, galvanised	

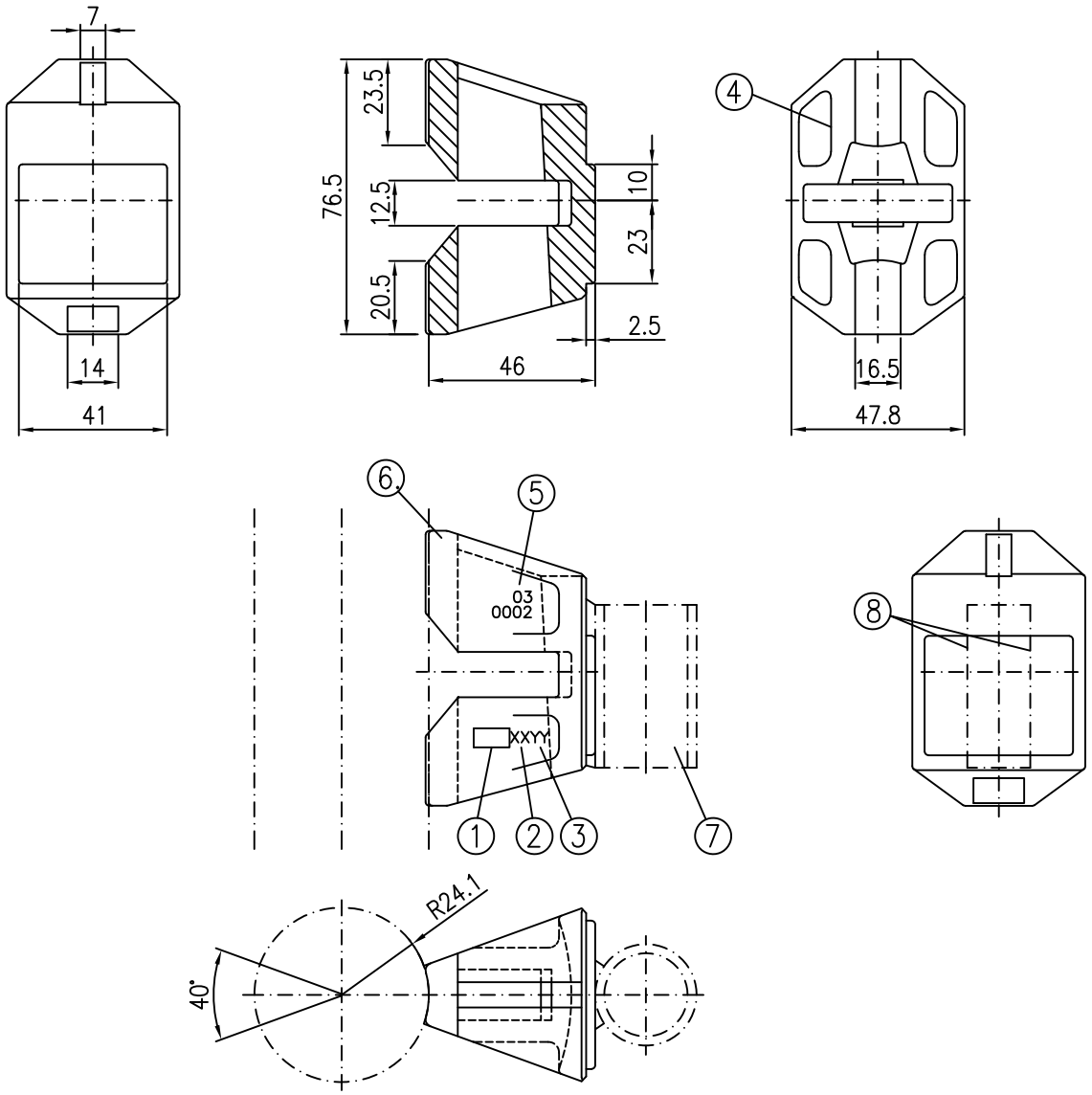
Dimension [m]	Weight [kg]
2.00–2.57	4.7
2.50–3.07	6.0

ALFIX MODUL MULTI

Advanced end guardrail/ aluminium telescopic guardrail
in accordance with Z–8.1–862

A709–A136_AMU 10.2020

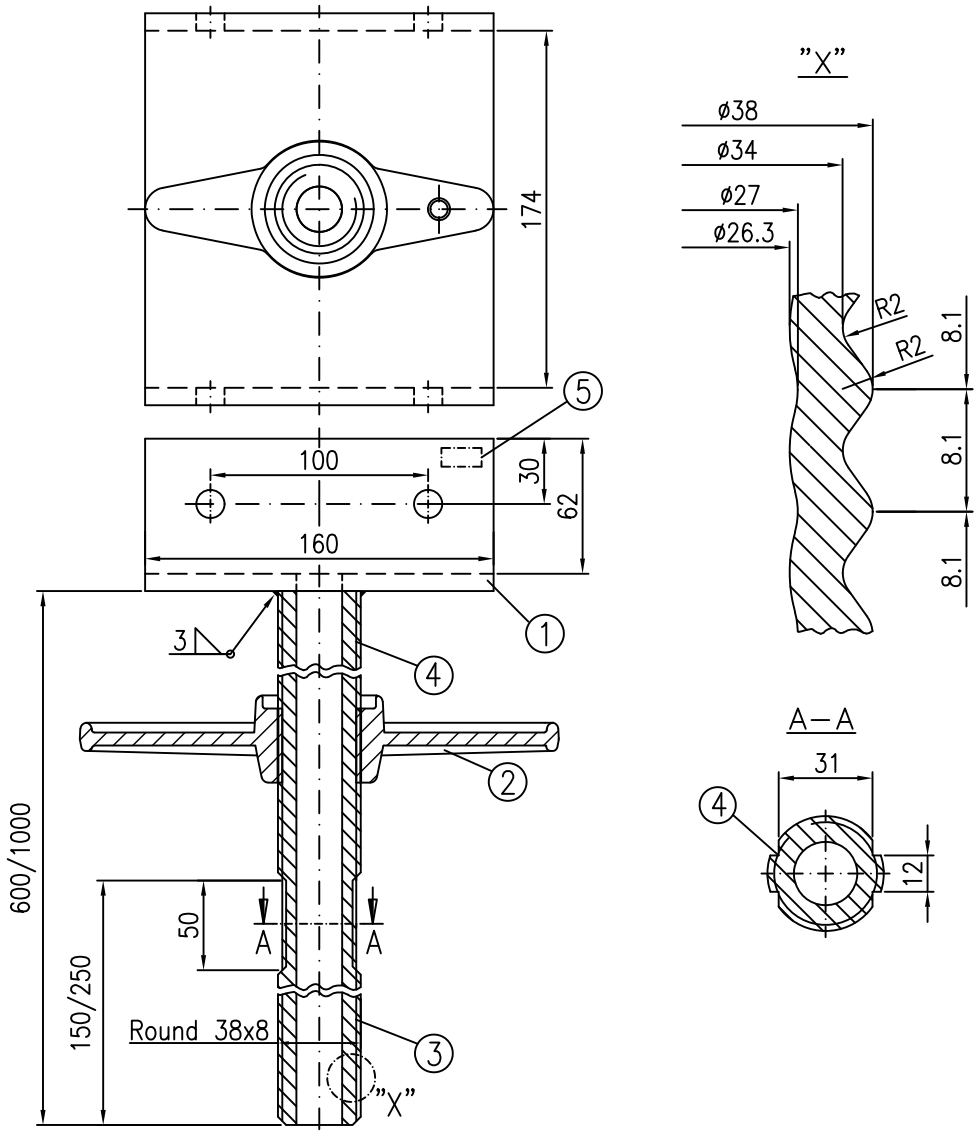
Annex B,
page 138



① ▭ = Company logo of foundry
② XX = Calendar week and
③ YY = Year of manufacturing (e.g. 4016=CW40/2016)
④ ⩘ = ALFIX manufacturer's logo
⑤ 03 0002 = Approval number
⑥ Cast steel — Material in accordance with the documents filed at DIBt
⑦ Circular hollow section 28x2.5 — Material in accordance with the documents filed at DIBt
⑧ Welding section

Only for use in connection with the components listed in the Annexes, pages 102 and 122

ALFIX MODUL MULTI	
Connecting head U–ledger PLUS, new connector design	Annex B, page 139
M716–B219 08.2018	



①	Steel metal t=8mm	DIN EN 10025–S235JR
②	Wing nut	EN 1562–EN GJMW–400–S EN 1562–EN–GJMB–450–6 EN 1563–EN–GJS–400–15 EN 10293–GE240+N EN 1562–EN–GJMW–360–12 EN 10025–S235JR
③	Thread rolled onto circular hollow section ø38x4.5	DIN EN 10219–S235JRH
④	Thread with notches to limit collar nut travel	
⑤	Marking galvanised	

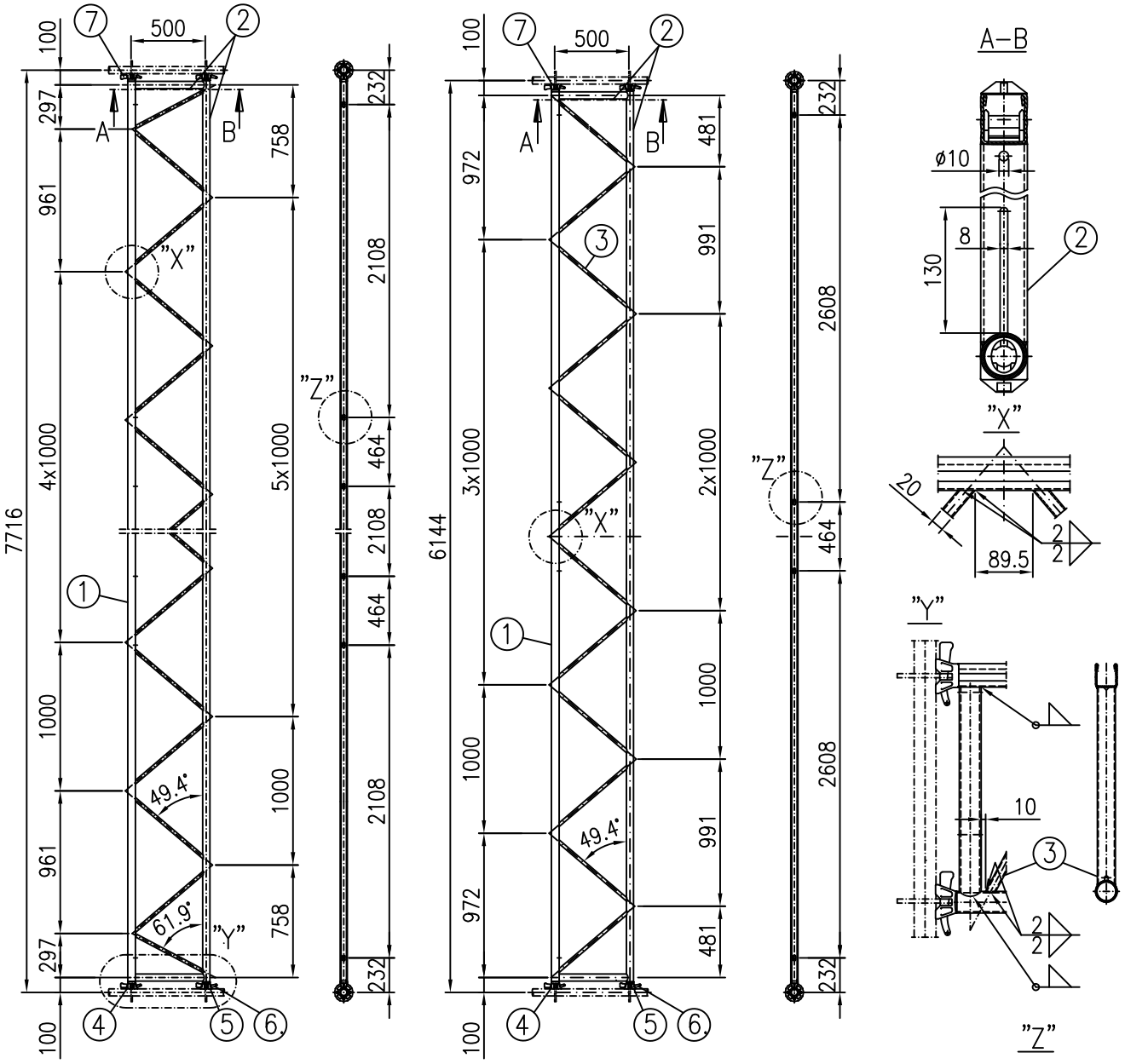
Dimens. [m]	Weight [kg]
0.60	6.0
1.00	8.0

ALFIX MODUL MULTI

AB U–head jack

M717–B221 08.2020

Annex B,
page 140



①	U–profile 48x52x2.5 (III) alternatively: U–profile 48x52x2.5 (IV)	see Annex B, page 32 see Annex B, page 147
②	Circular hollow section ø48.3x3.2 (III) alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$ DIN EN 10219–S460MH
③	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
④	Connection of U–ledger (I) alternatively: Connection of U–ledger 4.0 (II)	see Annex B, page 5 see Annex B, page 153
⑤	Connection of tube ledger (I) alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 4 see Annex B, page 152
⑥	Wedge 6mm	see Annex B, page 3
⑦	Marking	

galvanised; all welding seams a=3mm

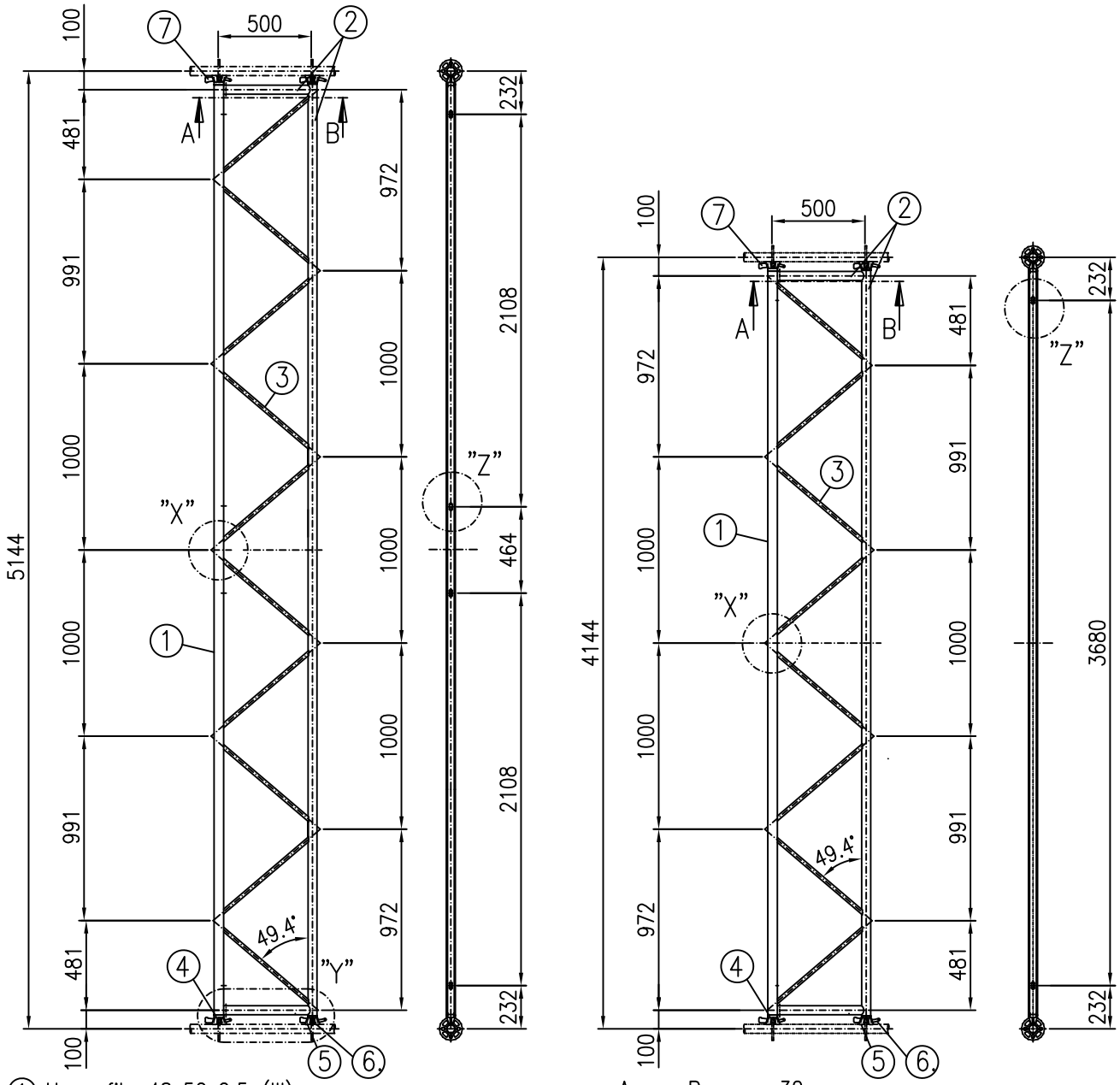
allowed combination			Dimens. [m]	Weight [kg]
	III	IV		
I	x	x	6.14	61.1
II	–	x	7.71	75.9

ALFIX MODUL MULTI

MODUL U–lattice girder 6.14 m; 7.71 m

M717–B222 10.2021

Annex B,
page 141



①	U–profile 48x52x2.5 (III)	see Annex B, page 32	
	alternatively: U–profile 48x52x2.5 (IV)	see Annex B, page 147	
②	Circular hollow section ø48.3x3.2 (III)	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
	alternatively: Circular hollow section ø48.3x2.7 (IV)	DIN EN 10219–S460MH	
③	Rectangular hollow section 40x20x2	DIN EN 10219–S235JRH	$R_{eH} \geq 320 N/mm^2$
④	Connection of U–ledger (I)	see Annex B, page 5	
	alternatively: Connection of U–ledger 4.0 (II)	see Annex B, page 153	
⑤	Connection of tube ledger (I)	see Annex B, page 4	
	alternatively: Connection of tube ledger 4.0 (II)	see Annex B, page 152	
⑥	Wedge 6mm	see Annex B, page 3	
⑦	Marking		
	galvanised; all welding seams a=3mm	for details see Annex B, page 141	

allowed combination		
	III	IV
I	x	x
II	–	x

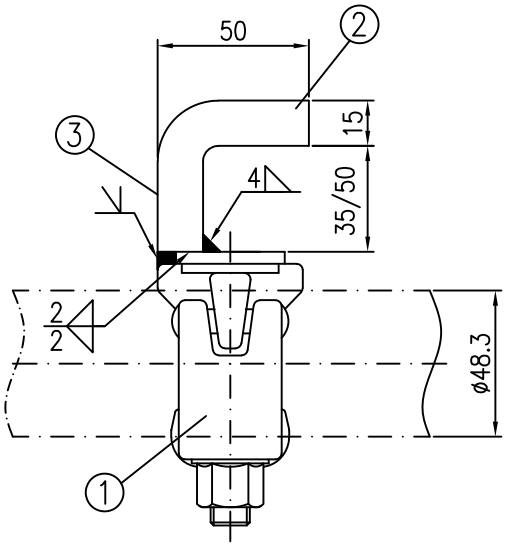
Dimens. [m]	Weight [kg]
4.14	40.5
5.15	50.9

ALFIX MODUL MULTI

MODUL U–lattice girder 4.14 m; 5.14 m

M717–B223 10.2021

Annex B,
page 142



① Halfcoupler, class B — DIN EN 74-2
② Flat 40x15 — DIN EN 10025-S235JR
③ Marking

galvanised

Clearance [mm]	Weight [kg]
35	0.9
50	1.0

ALFIX MODUL MULTI

Claw coupler

M718-B246 08.2020

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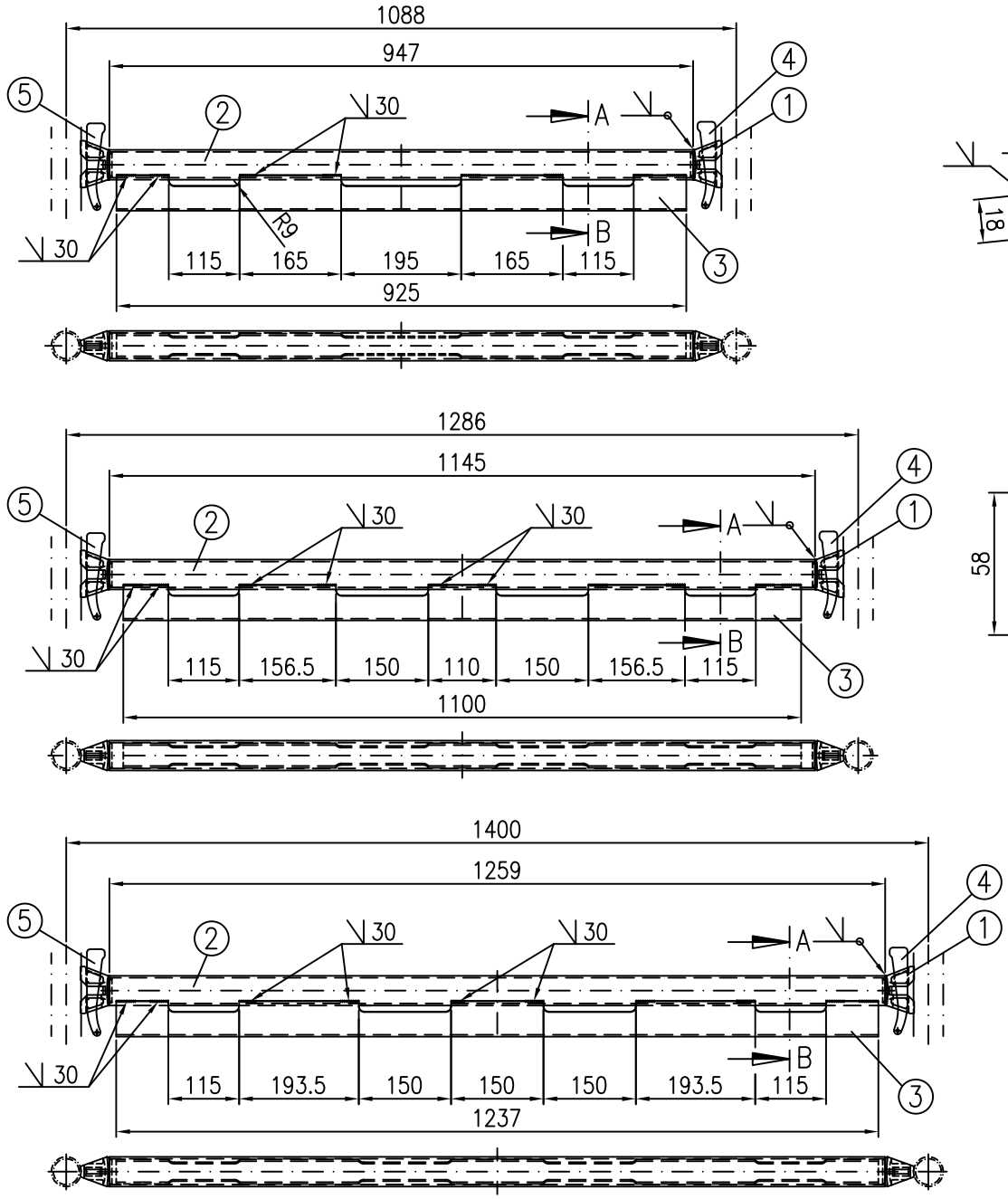
page 143



①	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
②	Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH
③	Steel metal 2.5	DIN EN 10149–2–S460MC
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	

galvanised; all welding seams a=3mm

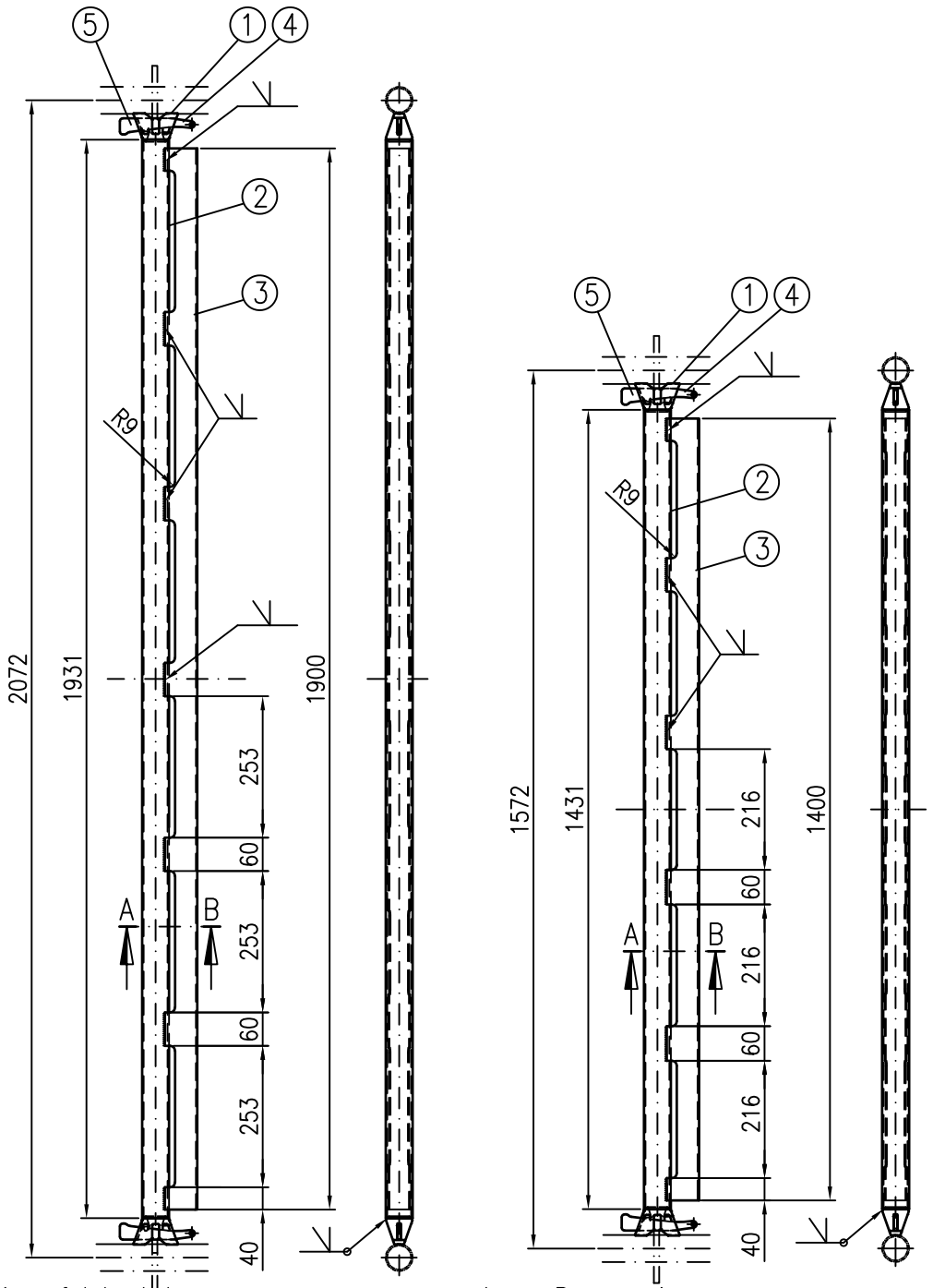
Dimens. [m]	Weight [kg]
1.09	5.9
1.29	6.0
1.40	7.6

ALFIX MODUL MULTI

Tube ledger 1.09 m, 1.29 m, 1.40 m, reinforced

M717–B231 08.2020

Annex B,
page 144



①	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
②	Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH
③	Steel metal 2.5	see Annex B, page 144
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	

galvanised; all welding seams a=3mm for sectional views A–B see Annex B, page 144

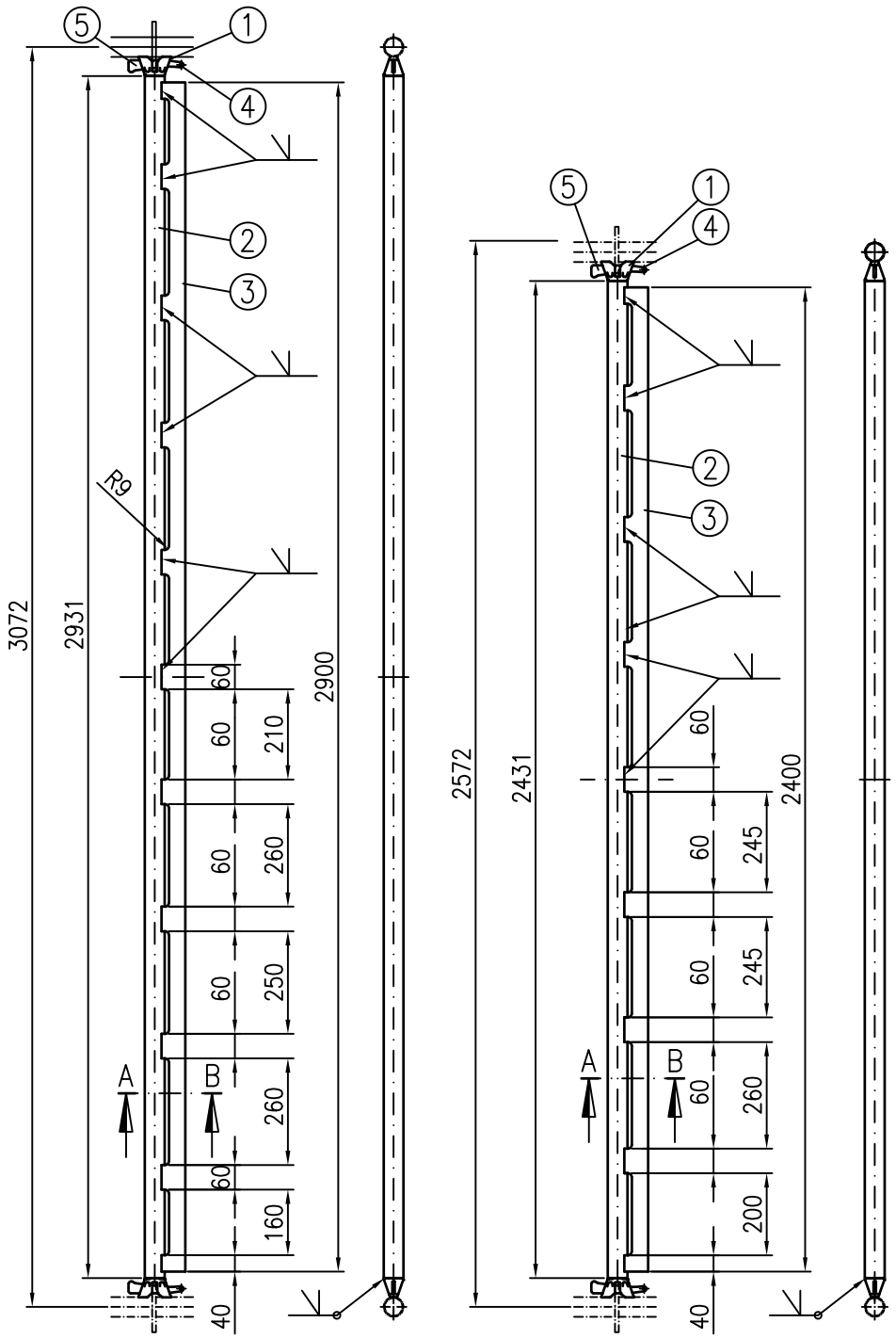
Dimens. [m]	Weight [kg]
1.57	8.1
2.07	10.6

ALFIX MODUL MULTI

Tube ledger 1.57 m, 2.07 m, reinforced

M717–B232 08.2020

Annex B,
page 145



①	Connection of tube ledger	see Annex B, page 4
	alternatively: Connection of tube ledger 4.0	see Annex B, page 152
②	Circular hollow section ø48.3x2.7	DIN EN 10219–S460MH
③	Steel metal 2.5	see Annex B, page 144
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	

galvanised; all welding seams a=3mm

for sectional views A–B see Annex B, page 144

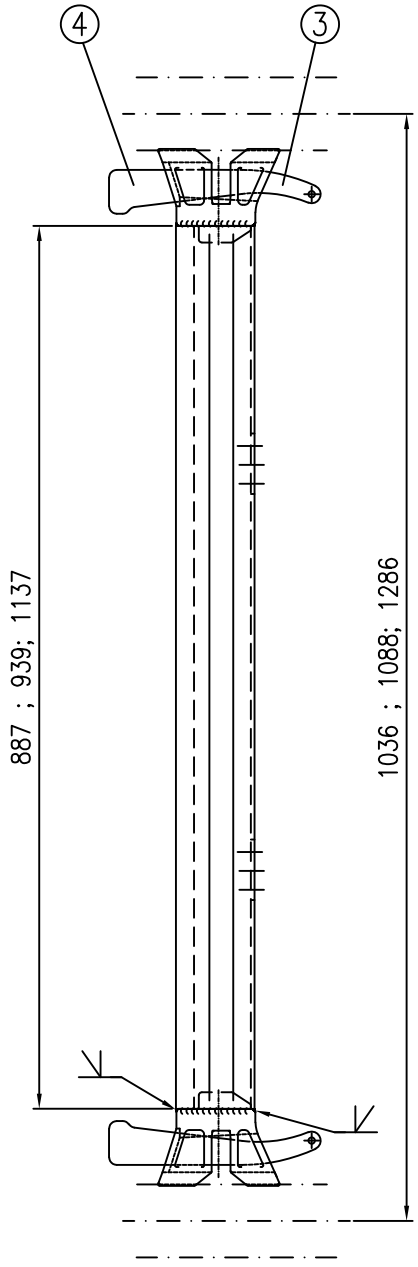
Dimens. [m]	Weight [kg]
2.57	13.1
3.07	15.6

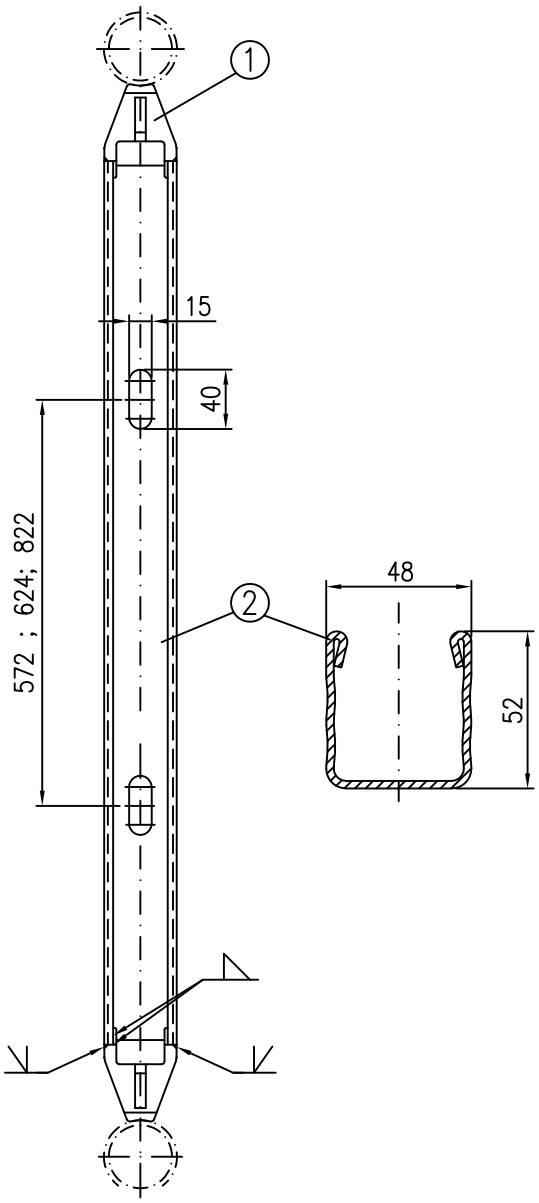
ALFIX MODUL MULTI

Tube ledger 2.57 m, 3.07 m, reinforced

M717–B233 08.2020

Annex B,
page 146





①	Connection of U–ledger	see Annex B, page 5
	alternatively: Connection of U–ledger 4.0	see Annex B, page 153
②	U–profile 48x52x2.5	DIN EN 10149–2–S460MC
③	Wedge 6mm	see Annex B, page 3
④	Marking	
	galvanised; all welding seams a=3mm	

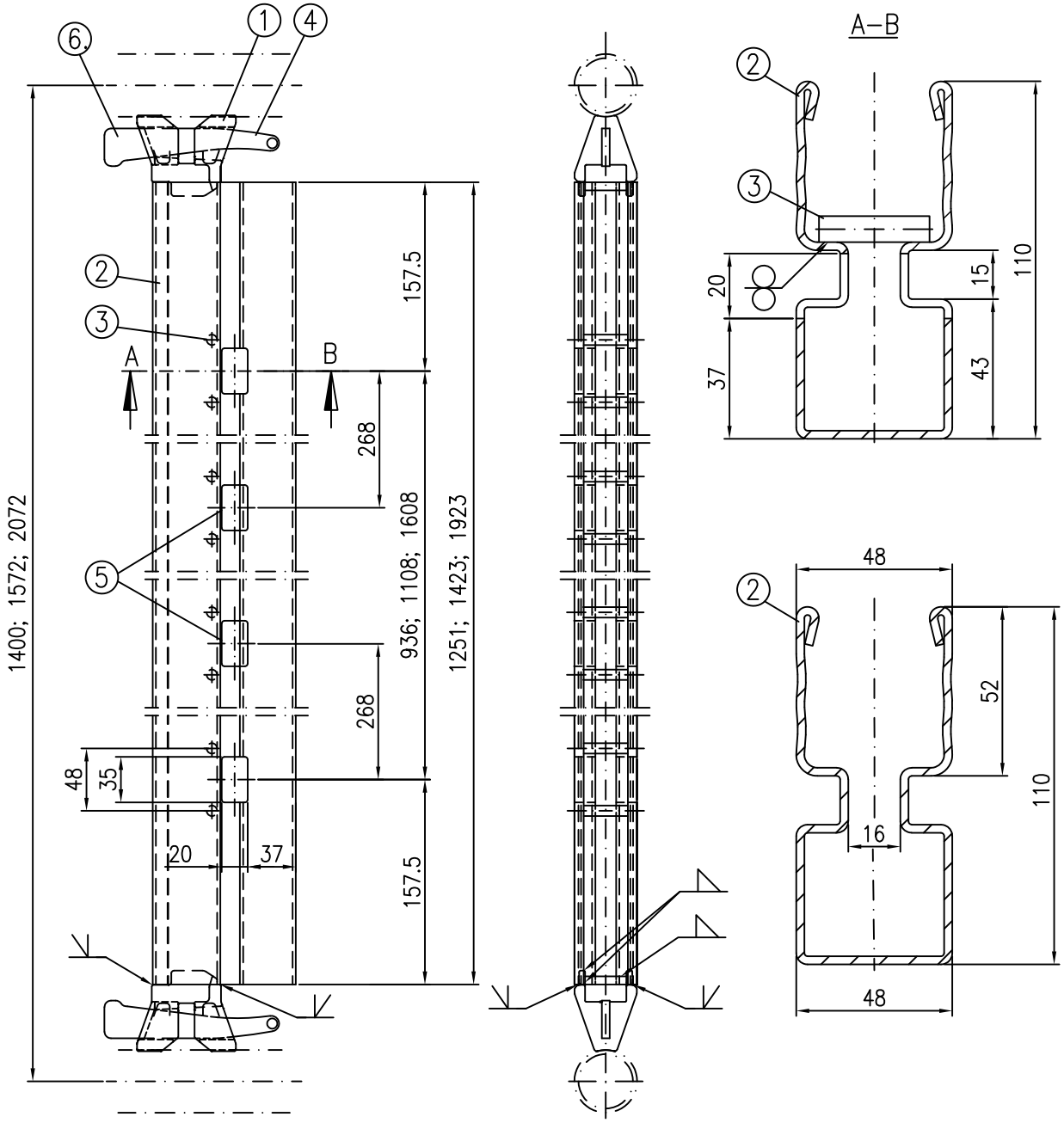
Dimens. [m]	Weight [kg]
1.04	4.2
1.09	4.4
1.29	5.1

ALFIX MODUL MULTI

U–ledger 1.04 m; 1.09 m; 1.29 m

M717–B236 08.2020

Annex B,
page 147



①	Connection of U–ledger	see Annex B, page 5
	alternatively: Connection of U–ledger 4.0	see Annex B, page 153
②	Transom profile with integrated main beam	DIN EN 10149–2–S460MC
③	Round ø8	DIN EN 10025–S235JRC+C
④	Wedge 6mm	see Annex B, page 3
⑤	only for 1.40 m	
⑥	Marking	

galvanised; all welding seams a=3mm

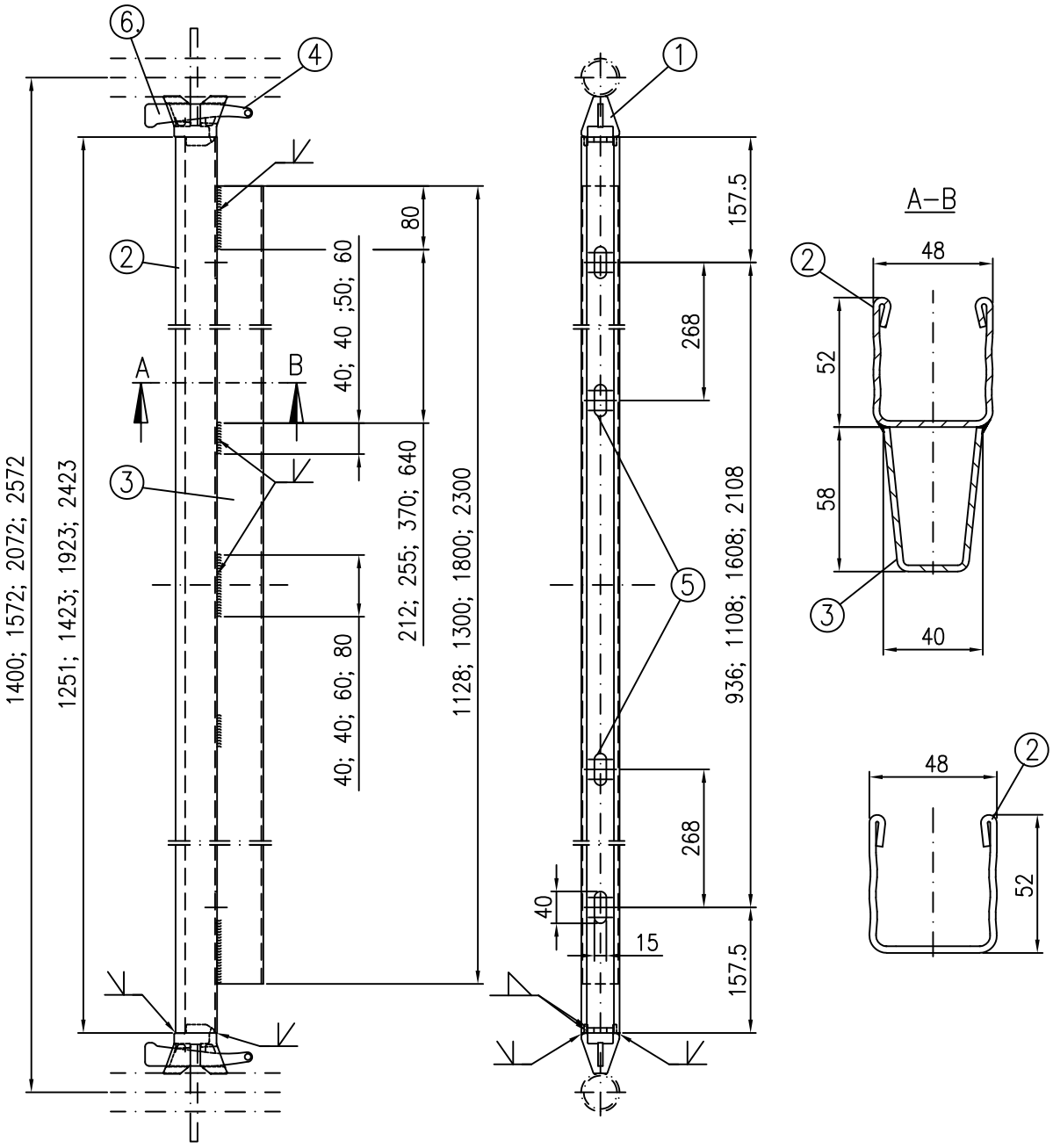
Dimens. [m]	Weight [kg]
1.40	8.8
1.57	9.9
2.07	13.0

ALFIX MODUL MULTI

U–ledger with integrated main beam 1.40 m – 2.07 m

M717–B237 08.2020

Annex B,
page 148



①	Connection of U–ledger	see Annex B, page 5
	alternatively: Connection of U–ledger 4.0	see Annex B, page 153
②	U–profile 48x52x2.5	see Annex B, page 147
③	Steel plate 137x2.5	see Annex B, page 144
④	Wedge 6mm	see Annex B, page 3
⑤	only for 1.40 m	
⑥	Marking	

galvanised; all welding seams a=3mm

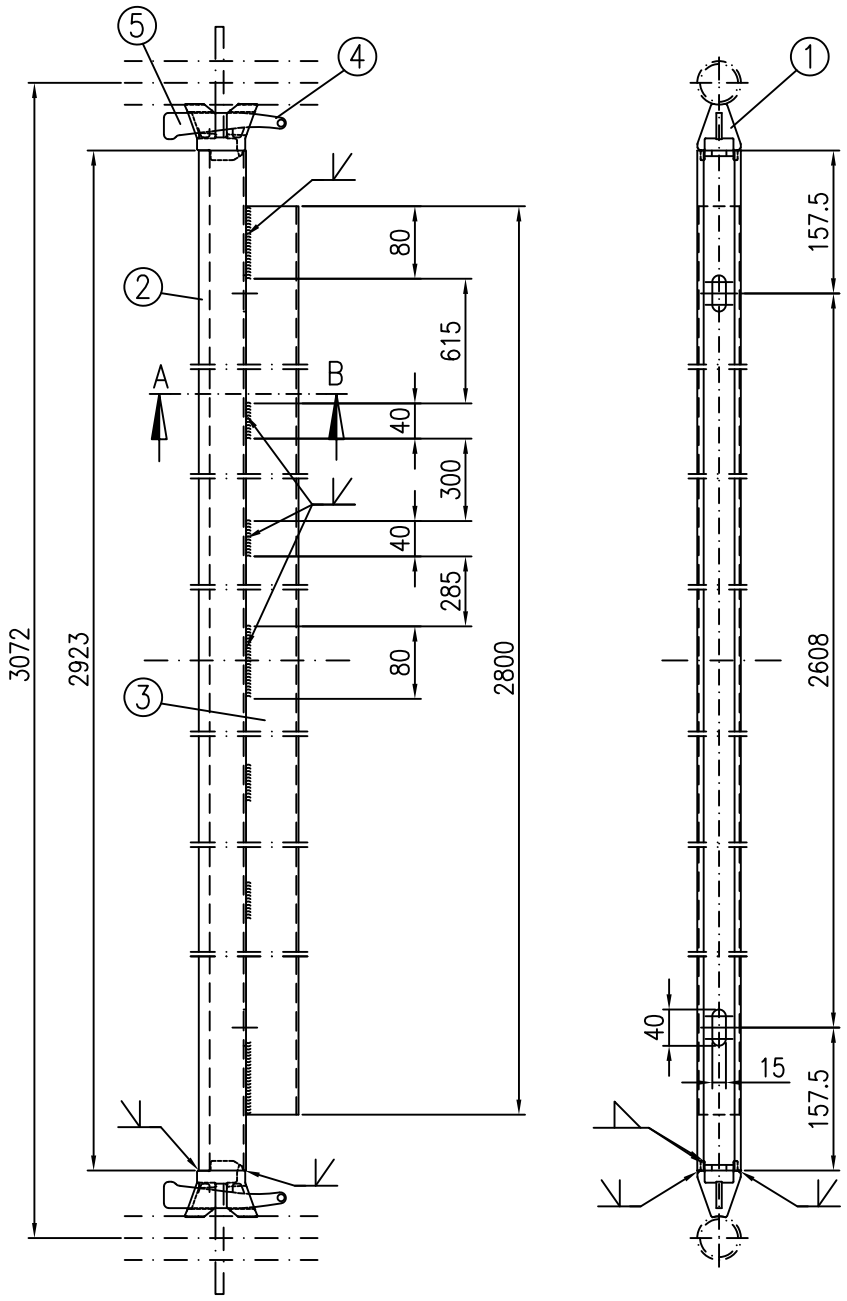
Dimens. [m]	Weight [kg]
1.40	8.8
1.57	9.2
2.07	12.4
2.57	15.1

ALFIX MODUL MULTI

U–ledger 1.40 m – 2.57 m, reinforced

M717–B238 10.2021

Annex B,
page 149



①	Connection of U-ledger	see Annex B, page 5
	alternatively: Connection of U-ledgers 4.0	see Annex B, page 153
②	U-profile 48x52x2.5	see Annex B, page 147
③	Steel metal 137x2.5	see Annex B, page 144
④	Wedge 6mm	see Annex B, page 3
⑤	Marking	
	galvanised; all welding seams a=3mm	for sectional views A-B see Annex B, page 149

Dimens. [m]	Weight [kg]
3.07	18.1

ALFIX MODUL MULTI

U-ledger 3.07 m, reinforced

M717-B239 10.2021

Annex B,
page 150

Product marking code key

XX Ü 906/932 AF XX

XX = Supplier number

Ü = Mark of conformity Ü

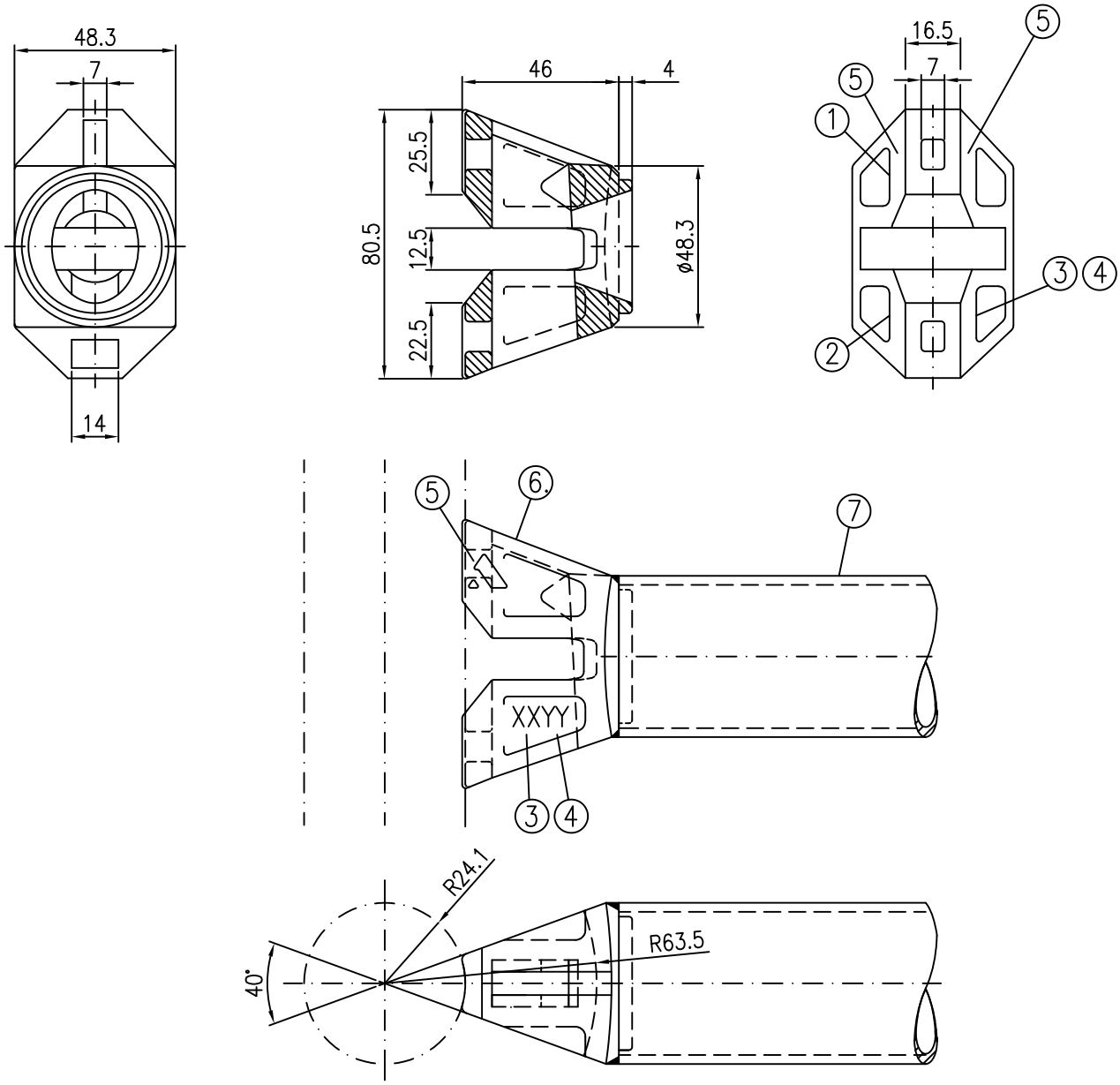
906/932 = Abbreviated approval number

AF = ALFIX manufacturer's logo

XX = Year of manufacturing

Year	XX
2015	15
2016	16
2017	17
2018	18
2019	19
2020	20
etc.	etc.

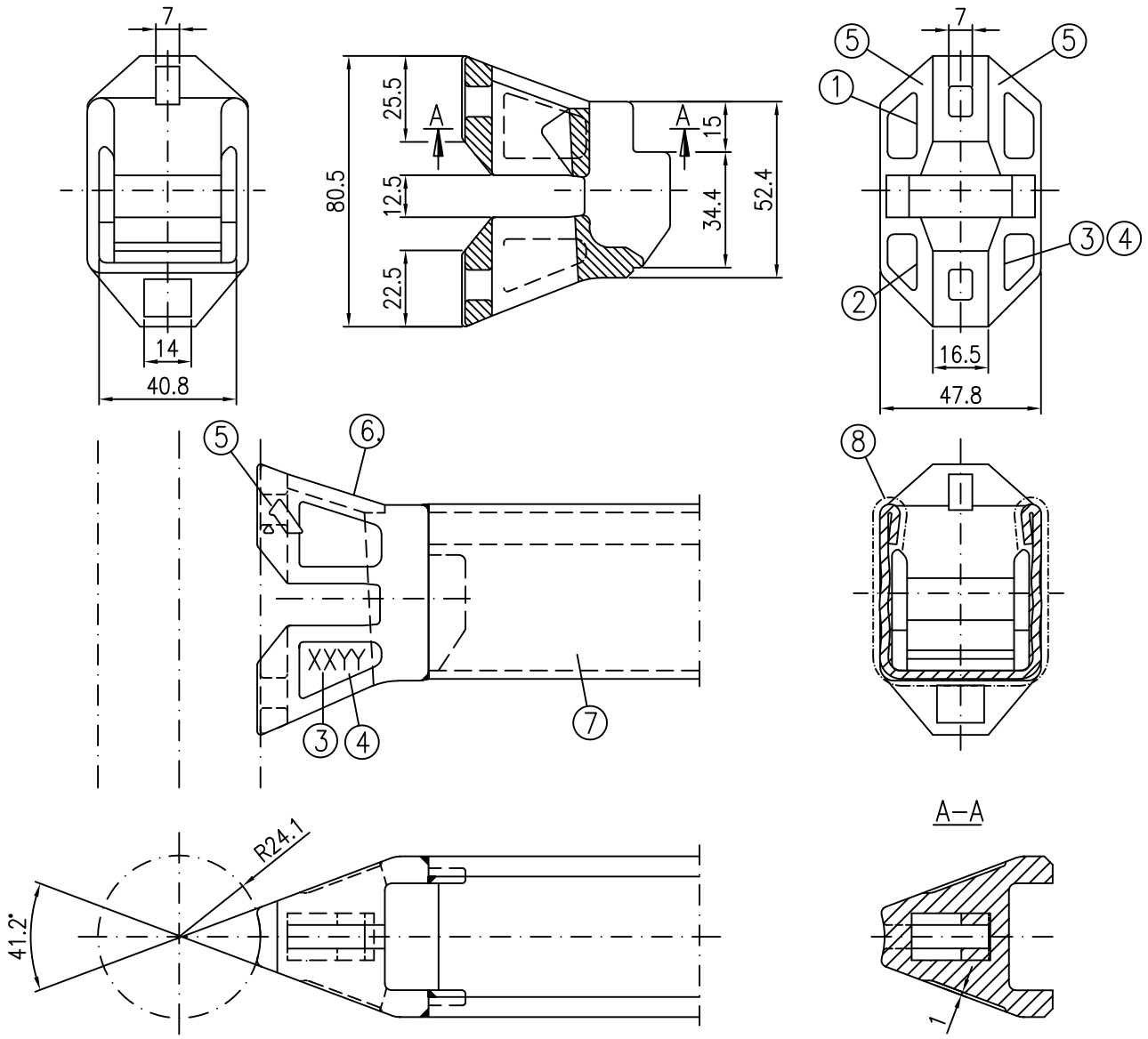
for further marking codes, please refer to Annexes B, page 2, 4–7, 152, 153



① ZZZ = Abbreviated approval number
② ▭ = Company logo of foundry
③ XX = Calendar week and
④ YY = Year of manufacturing (e.g.4020=CW40/2020)
⑤ ◬ = ALFIX manufacturer's logo
⑥ Cast steel
⑦ Circular hollow section ø48.3x2.7

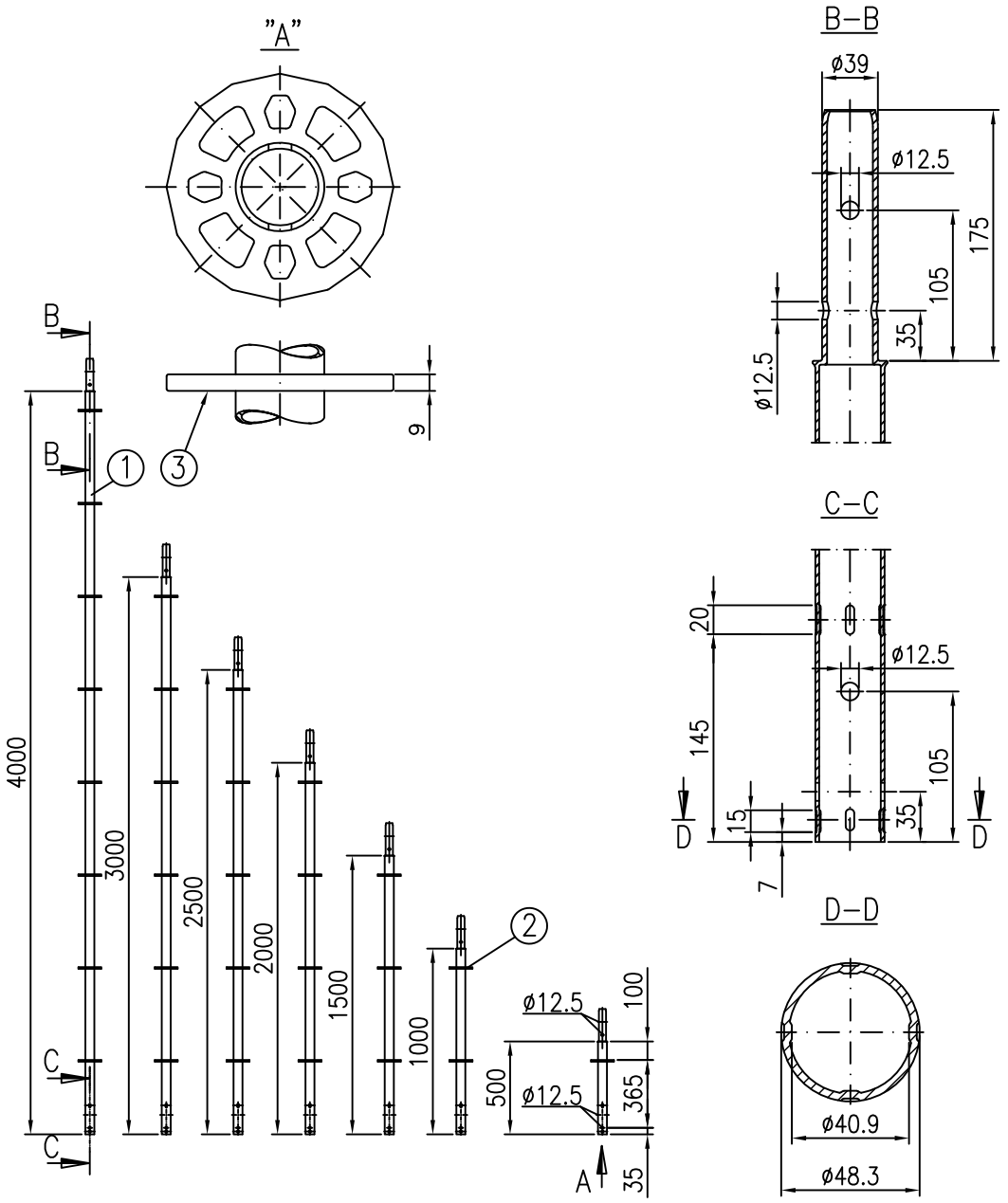
Material in accordance with the documents filed at DIBt
see Annex B, page 156

ALFIX MODUL MULTI	Annex B, page 152
Connection of tube ledger 4.0	
M717–B224 09.2021	



① ZZZ = Abbreviated approval number
② ▭ = Company logo of foundry
③ XX = Calendar week and
④ YY = Year of manufacturing (e.g.4020=CW40/2020)
⑤ = ALFIX manufacturer's logo
⑥ Cast steel — Material in accordance with the documents filed at DIBt
⑦ U–profile 48x52x2.5 — Material in accordance with the documents filed at DIBt
⑧ Welding section

ALFIX MODUL MULTI	
Connection of U–ledger 4.0	Annex B, page 153
M717–B225 10.2021	



Dimens. [m]	Weight [kg]
0.50	1.8
1.00	4.6
1.50	6.6
2.00	8.7
2.50	10.7
3.00	12.8
4.00	16.0

① Circular hollow section ø48.3x2.9 DIN EN 10219–S460MH
② Connector disc see Annex B, page 2
③ Marking

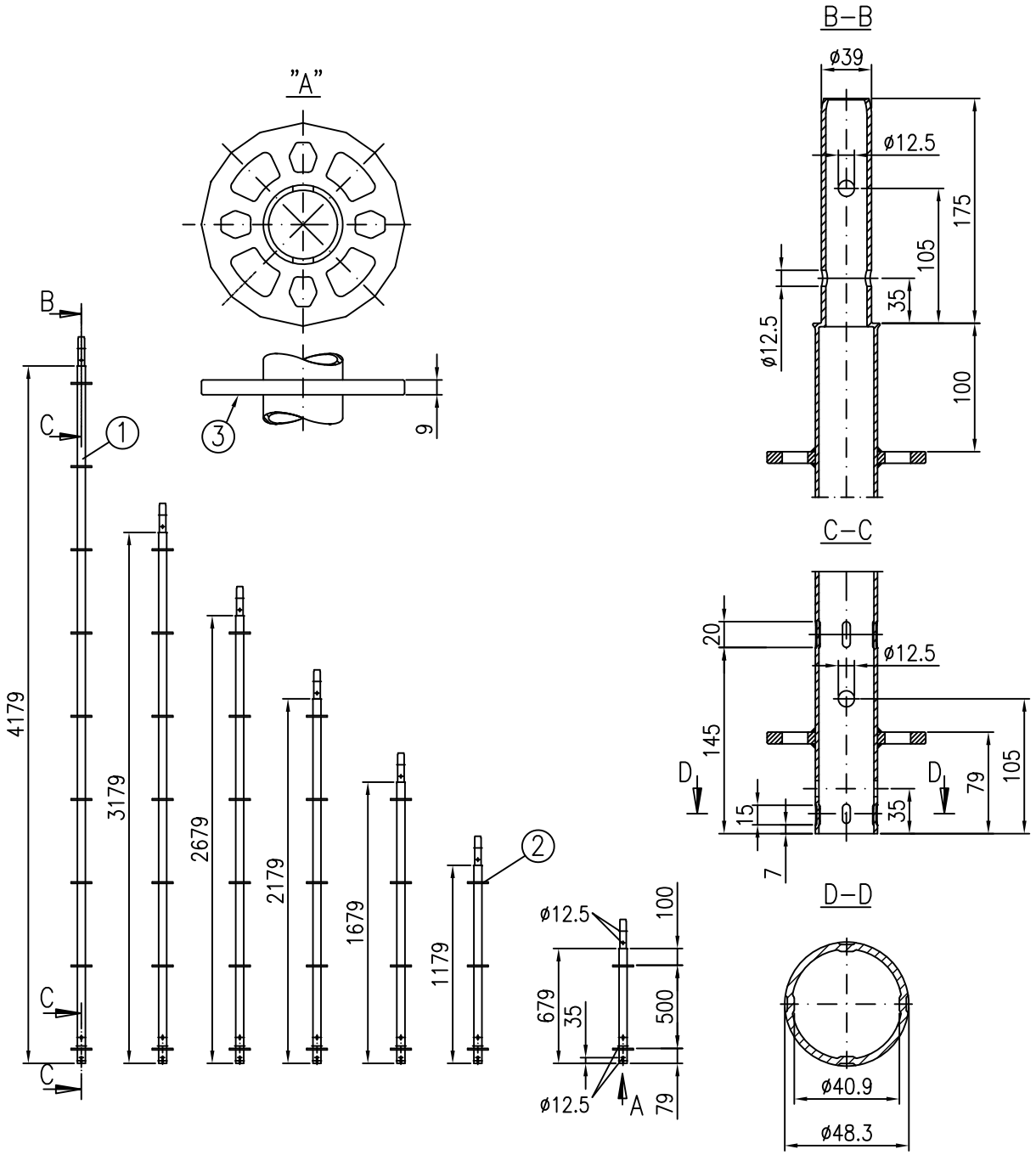
galvanised Material in accordance with the documents filed at DIBt

ALFIX MODUL MULTI

Standard 4.0

M717–B226 01.2021

Annex B,
page 154



Dimens. [m]	Weight [kg]
0.66	3.5
1.16	5.6
1.66	7.2
2.16	9.2
2.66	10.5
3.16	12.8
4.16	15.9

① Circular hollow section ø48.3x2.9 DIN EN 10219–S460MH
② Connector disc see Annex B, page 2
③ Marking

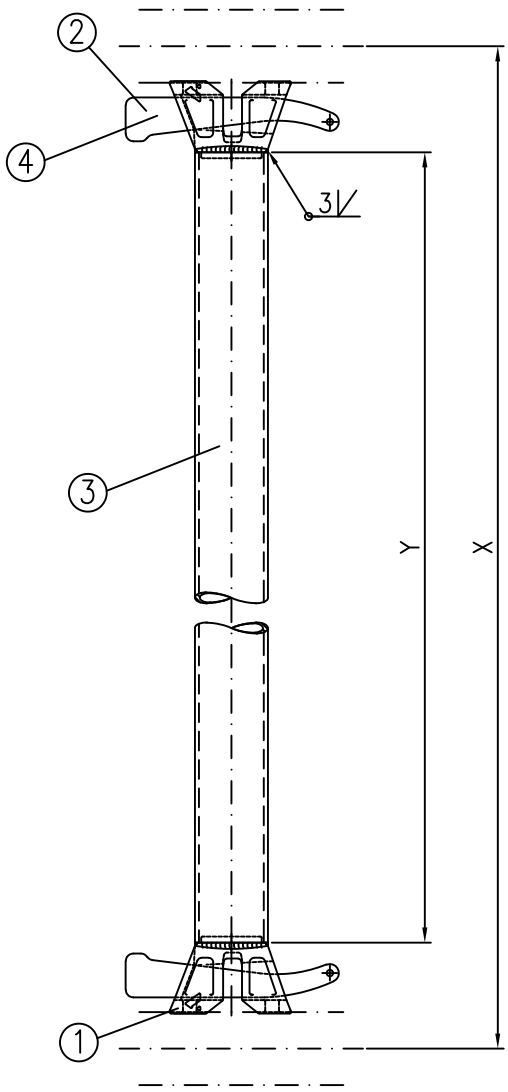
galvanised Material in accordance with the documents filed at DIBt

ALFIX MODUL MULTI

Vertical starter standard 4.0

M717–B227 01.2021

Annex B,
page 155



"X" [m]	"X" [mm]	"Y" [mm]	Weight [kg]
0.36	356	215	1.4
0.37	366	225	1.6
0.39	390	249	1.7
0.45	450	309	1.9
0.73	732	591	2.7
1.04	1036	895	3.6
1.09	1088	947	3.7
1.29	1286	1145	4.4
1.40	1400	1259	4.7
1.57	1572	1431	5.2
2.07	2072	1931	6.7
2.57	2572	2431	8.1
3.07	3072	2931	9.7
4.14	4144	4003	12.8

① Connection of tube ledger 4.0 — see Annex B, page 152
② Wedge 6mm — see Annex B, page 3
③ Circular hollow section ø48.3x2.7 — DIN EN 10219–S460MH
④ Marking

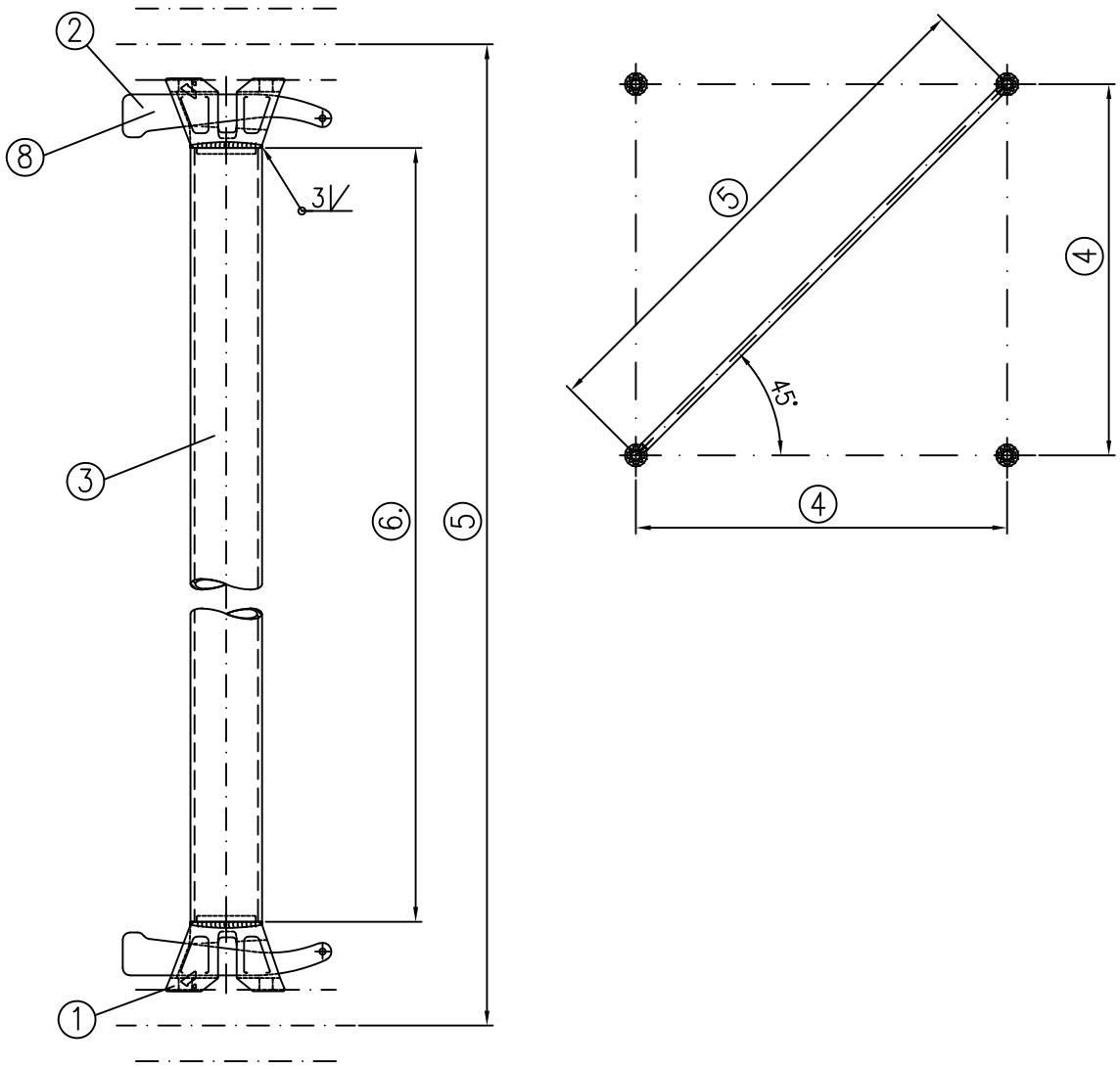
galvanised

ALFIX MODUL MULTI

Tube ledger 4.0

M717–B229 08.2020

Annex B,
page 156



①	Connection of tube ledger 4.0	see Annex B, page 152
②	Wedge 6mm	see Annex B, page 3
③	Circular hollow section ø48.3x2.7	DIN EN 10219-S460MH
④	Bay width	
⑤	Bay-diagonal brace	
⑥	Length pos. 3	
⑦	Weight	
⑧	Marking	

galvanised

④ [m]	④ [mm]	⑤ [mm]	⑥ [mm]	⑦ [kg]
0.73	732	1035	894	3.6
1.09	1088	1539	1398	5.1
1.29	1286	1819	1678	5.9
1.40	1400	1980	1839	6.4
1.57	1572	2223	2082	7.1
2.07	2072	2930	2789	9.2
2.57	2572	3637	3496	11.3
3.07	3072	4344	4203	13.4

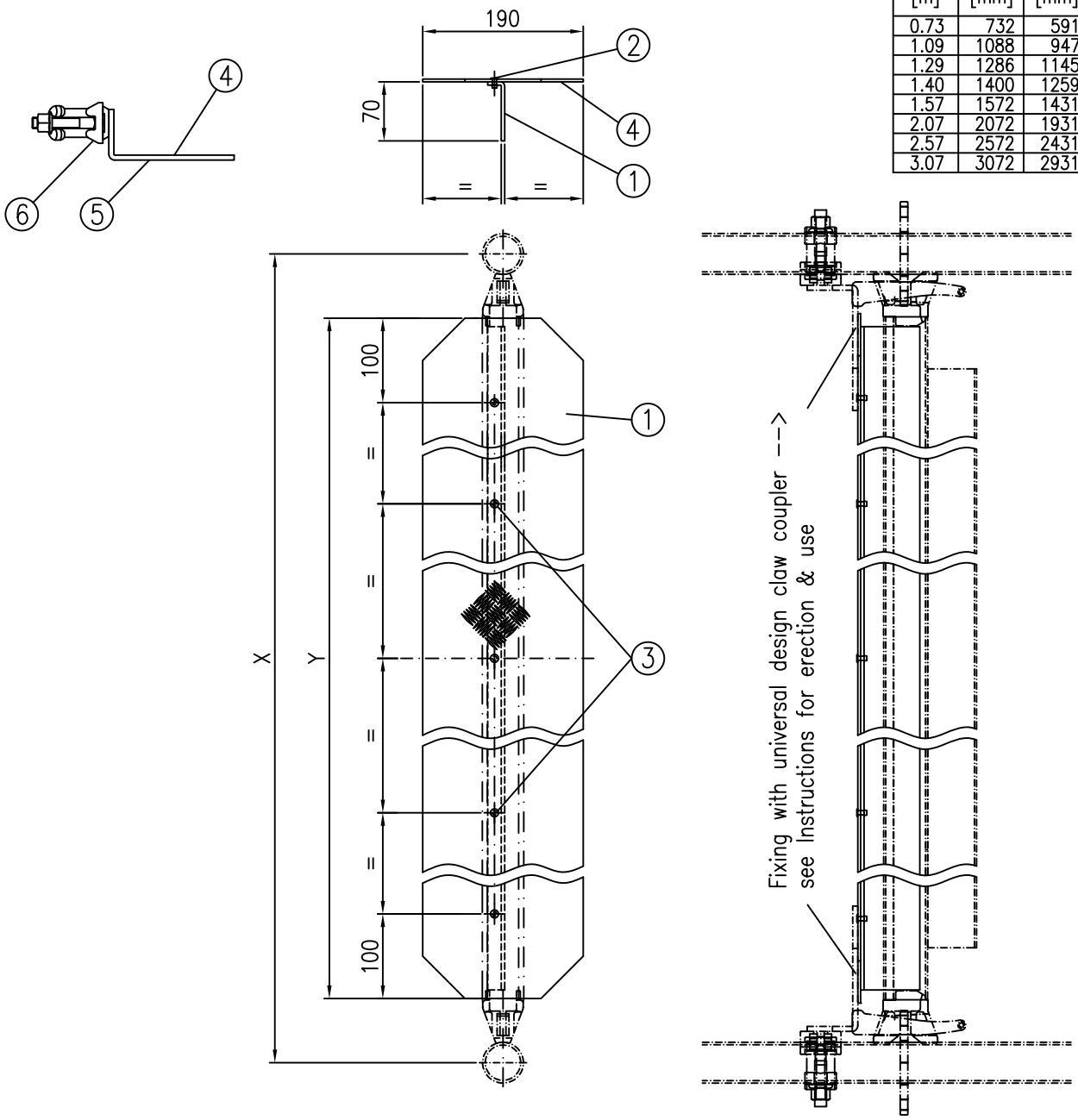
ALFIX MODUL MULTI

Horizontal diagonal ledger 4.0

M717-B230 08.2020

Annex B,
page 157

X [m]	X [mm]	Y [mm]	Weight [kg]
0.73	732	591	1.2
1.09	1088	947	2.0
1.29	1286	1145	2.4
1.40	1400	1259	2.6
1.57	1572	1431	3.0
2.07	2072	1931	4.0
2.57	2572	2431	5.0
3.07	3072	2931	6.0



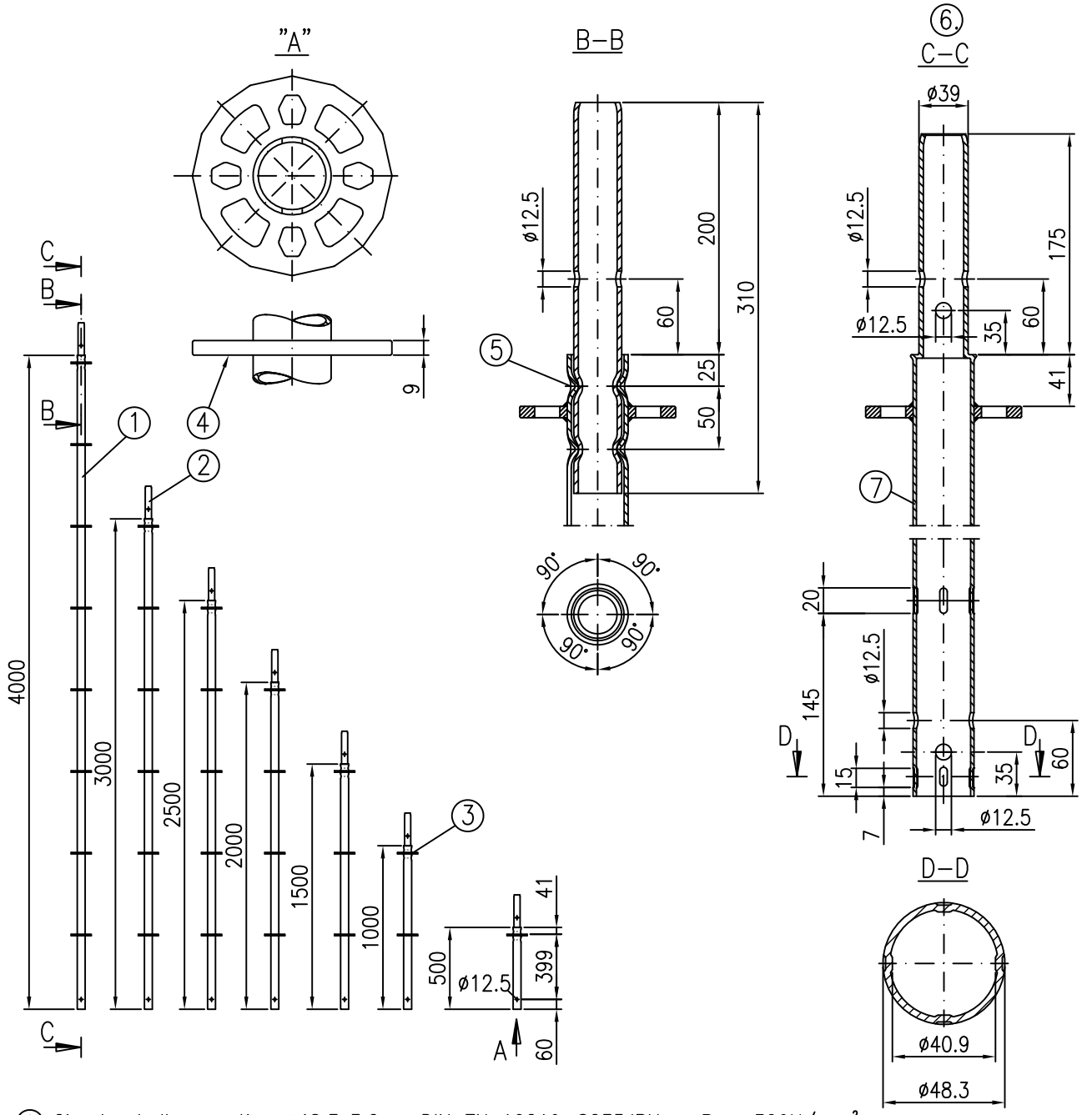
①	Chequer plate with 5 bar pattern 2.5/3.3x190	DIN EN 1386 EN AW-5083 H224
	alternatively: Chequer plate with 5 bar pattern 2.5/4.0x190	DIN EN 1386 EN AW-5754 H111/ H114
②	Blind rivet	DIN EN ISO 15979-A5x12 EN AW-5754 H112
③	only for bay length 2.57m and 3.07m	
④	Marking	
⑤	Flat 50x6x 200 lg.	DIN EN 10025 – S235 JR
⑥	Halfcoupler, class B	DIN EN 74-2

ALFIX MODUL MULTI

MODUL gap cover, T-shaped and universal design claw coupler

M719-B247 09.2021

Annex B,
page 158



① Circular hollow section ø48.3x3.2 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
② Circular hollow section ø38x3.6 DIN EN 10219–S235JRH $R_{eH} \geq 320 N/mm^2$
③ Connector disc see Annex B, page 2
④ Marking
⑤ 4 point–joint pressed connections
⑥ alternatively
⑦ Circular hollow section ø48.3x2.9 DIN EN 10219–S460MH
galvanised Material in accordance with the documents filed at DIBt

Dimens. [m]	Weight [kg]
0.50	3.2
1.00	5.5
1.50	7.7
2.00	10.1
2.50	12.3
3.00	14.6
4.00	19.2

ALFIX MODUL MULTI

Standard with tube connector 200 45/5

Annex B,
page 159

M720–B248 01.2021

C.1 General provisions

In its standard assembly configuration, the scaffolding system may be used as working scaffold of load classes ≤ 3 with system width *b = 0.732 m* and bay widths *l ≤ 3.07 m* in accordance with DIN EN 12811-1:2004-03, and as protection scaffold and roof edge protection scaffold in accordance with the regulations stipulated in Section C.2.

The topmost horizontal level (working level) must not exceed 24 m above ground level, not including the spindle extension length. The standard assembly configuration of the scaffolding system is designed for use on a scaffold level in accordance with the regulations of the DIN EN 12811-1:2004-03 standard, Section 6.2.9.2 in front of a "partially open" facade with an open proportion of no more than 60%, and in front of closed facades. When determining the wind load, a statistical factor of

χ = 0.7, assuming a maximum service life of 2 years, has been taken into account.

Structural analysis for scaffold cladding with tarpaulins has not been provided in the standard assembly configuration. Structural analysis for scaffold cladding with nets has only been provided in the standard assembly configuration in front of closed facades. Structural analysis for net-covered scaffoldings applies to scaffolds with an aerodynamic force coefficient of the entire structure (net and scaffolding) that is no greater than $c_{f,\perp,total} = 0.6$

Without any further structural proof, the standard assembly configuration 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 configuration of the "ALFIX MODUL MULTI" scaffolding system, the following designation in accordance with DIN EN 12810-1:2004-03 shall be used:

Scaffolding EN 12810 – 3D – SW06/307 – H2 – A – LA

The assembly variants of the standard assembly configuration are listed in Table C.4.

C.2 Protection scaffold and roof edge protection scaffold

In its standard assembly configuration, the scaffolding system may be used as a protection scaffold and roof edge protection scaffold with a top fall arresting layer of class FL 1 and as a roof edge protection scaffold with protective walls of class SWD 1 according to DIN 4420:2004-03.

Access decks must not be fitted into brackets.

The protective wall is to be installed in accordance with Annex D, page 7.

Use protective nets in accordance with DIN EN 1263-1:2015-03 with a mesh size of no more than 100 mm.

C.3 Components

In addition to these components, other components may be used: steel tubes ø 48.3 · 3.2 mm and couplers as well as standard couplers for the connection of the wall ties and V-type wall ties to the standards in accordance with DIN EN 12811-1:2004-03.

C.4 Bracing

Horizontal scaffolding levels are to be braced by continuously installing the following members at vertical intervals of 2 m

tube ledgers 0.73 m with

one aluminium frame platform with tube fixture	in accordance with Annex B, page 51 or 52	or
two steel decks with tube fixture	in accordance with Annex B, page 64	or
two steel decks AF with tube fixture	in accordance with Annex B, page 61	

or

U-ledger 0.73 m and

one aluminium frame platform with plywood	in accordance with Annex B, page 66 or 67	or
one aluminium deck with plywood	in accordance with Annex B, page 72, 73, 78 or 79	or
two steel decks	in accordance with Annex B, page 85	or
two steel decks AF	in accordance with Annex B, page 84	or
one aluminium lightweight frame platform	in accordance with Annex B, page 90	

each.

When installing ladder accesses, the following members must be used instead of platforms and decks: aluminium access frame platforms (with tube fixture) when using tube ledgers or aluminium frame platform with internal hatch with ladder when using U-ledgers.

Secure the platforms, decks and hatches against unintentional lift-off.

The outer vertical planes are to be braced by means of tube ledgers used as guardrails (1 m above deck level) continuously for each scaffolding bay.

Vertical starter pieces are to be installed directly above the base jacks (scaffolding spindles) and connected by means of longitudinal ledgers in the inner and outer plane parallel to the facade and by means of transoms at right angles to the facade.

C.5 Anchoring

Anchoring is to be provided using wall ties in accordance with Annex B, page 120.

Wall ties are to be installed as anchor pairs at an angle of 90° (V-type wall tie) or as “short” wall ties only to the inner vertical frame standard using standard couplers. Depending on the assembly configuration, the node points that are anchored by means of V-type anchors are to be connected on the inner plane parallel to the facade with the adjacent standard section by means of tube ledgers (longitudinal ledgers).

The V-type anchors and wall ties are to be installed in the immediate vicinity of the node points of the standard tubes and transoms.

The anchor forces listed in Table C.2 were determined with the characteristic values of the actions ($\gamma_F = 1.0$). For the design analysis of the anchorage and the load transfer, the values given must be multiplied by the respective partial safety factor γ_F (generally $\gamma_F = 1{,}5$).

Each frame section is anchored at vertical intervals of 8 m; anchoring points of neighbouring vertical frame sections must be arranged with a vertical offset of half the spacing. Frame sections at the edge of a scaffolding must be anchored at a vertical interval of 4 m. On the topmost and second working level, each standard section must be anchored.

C.6 Foundation loads

Depending on the assembly variation, the foundation loads listed in Table C.3 must be absorbed and transferred in the supporting surface.

The foundation loads are given as characteristic values.

For the structural analysis of transfer of loads in the supporting surface, the values given must be multiplied by the partial safety factor γ_F (generally $\gamma_F = 1.5$).

C.7 Bridging construction

The bridging girders may be used at a height of 4m to bridge gate entrances or similar openings when the working levels underneath the bridging part are omitted.

The bridging girders are to be anchored in the supporting and centre section and are to be braced additionally by means of a horizontal bracing unit comprised of tubes and couplers or by means of additional anchorage (see also Annex D, pages 3, 4 and 8).

Modular scaffolding system "ALFIX MODUL MULTI"	Annex C, page 2
Standard assembly configuration Load Class 3 / SW06 / l ≤ 3.07 m - General provisions	

C.8 Ladder access

When installing internal ladder accesses, aluminium access frame platforms (with tube fixture) must be installed when using tube ledgers, or aluminium frame platforms with internal hatch or aluminium access frame platforms with ladder must be installed when using U-ledgers.

C.9 Widening bracket

Only use brackets 0.39 m on the inner face of the scaffolding on all working levels.

Table C.1: Components of the standard assembly configuration

Designation	Annex B, page
Vertical starter piece	10
Standard with tube connector 200	11
Base jack	17
AB Base jack	18
Tube ledger l ≤ 3.07 m	25
U-ledger 0.73 m	32
U-transom lattice girder 0.73 m V	44
Tube-transom lattice girder 0.73 m V	45
MODUL lattice girder 6.14 m	46
MODUL lattice girder 4.14 m / 5.14 m	47
MODUL lattice girder with tube fixture 6.14 m	48
MODUL lattice girder with tube fixture 4.14 m / 5.14 m	49
MODUL lift-off preventer	50
Aluminium frame platform with tube fixture 1.57 m; 2.07 m	51
Aluminium frame platform with tube fixture 2,57 m; 3,07 m	52
Aluminium access frame platform with tube fixture 3.07 m	54
Aluminium access frame platform with tube fixture 2.57 m	55
Aluminium access frame platform with tube fixture 1.57 m – 3.07 m without ladder	57
Aluminium access frame platform with tube fixture 2.57 m – 3.07 m with aluminium chequer plate	58
Steel deck AF with tube fixture 0.32 m	61
Steel deck with tube fixture	64
Aluminium frame platform with plywood 1.57 m; 2.07 m	66
Aluminium frame platform with plywood 2.57 m; 3.07 m	67
Aluminium frame platform with internal hatch 2.57 m; 3.07 m	69
Aluminium deck with plywood 2.57 m; 3.07 m	72
Aluminium deck with plywood 1.57 m; 2.07 m	73
Aluminium access frame platform 3.07 m with ladder	75
Aluminium access frame platform 2.57 m with ladder	76
Aluminium deck with plywood 3.07 m	78
Aluminium deck with plywood 1.57 m, 2.07 m, 2.57 m	79
Aluminium access deck with ladder 3.07 m	81
Aluminium access deck with ladder 2.57 m	82
Steel deck AF 0.32 m	84
Steel deck	85
Lightweight aluminium deck 0.60 m	90

Table C.1: (continued)

Designation	Annex B, page
MODUL gap cover $\ell \leq 3.07$ m	94
MODUL gap cover with tube fixture $\ell \leq 3.07$ m	95
Gap cover $\ell \leq 3.07$ m	96
Bracket 0.39 m with tube fixture	103
MODUL bracket 0.39 m	104
MODUL toeboard	107
MODUL toeboard, aluminium	109
Toeboard; end toeboard AF	110
Toeboard; end toeboard	112
Aluminium toeboard; aluminium end toeboard AF	114
Aluminium toeboard; aluminium end toeboard	115
MODUL guard net system	116
MODUL double end guardrail 0.73 m	117
Storey ladder 2.00 x 0.40 m, steel	118
Storey ladder 2.00 x 0.40 m, aluminium	119
Scaffold retainer / wall tie	120
Wedge-head swivel coupler	122
MODUL U-tube connector	123
MODUL tube connector	124
Wedge-head coupler, rigid	125
Standard 4.0	154
Vertical starter piece 4.0	155
Tube ledger 4.0 $\ell \leq 3.07$ m	156
MODUL gap cover, T-shaped and universal design claw coupler	158

Table C.2: Characteristic anchor forces

Variant / configuration	**Annex D, page**	**Bay length**	**partially open facade**			**closed facade**		
			GH	DRH		GH	DRH	
		[m]	$A_{\perp}$ [kN]	$A_{//}$ [kN]	$A_{\perp}$ [kN]	$A_{\perp}$ [kN]	$A_{//}$ [kN]	$A_{\perp}$ [kN]
without inner bracket	1, 3	3.07	3.6	2.4	2.4	1.2	2.4	2.4
		2.57	3.0	2.4	2.4	1.0	2.4	2.4
without inner bracket	2, 4	3.07	3.6	3.0	3.0	1.2	3.0	3.0
		2.57	3.0	3.0	3.0	1.0	3.0	3.0

(-) Tension
(+) Compression
GH wall tie (single tube attachment)
DRH V-type wall tie

Table C.3: characteristic foundation loads

Standard force for	Fittings	Bay length [m]	Structural height 24 m [kN]	16 m [kN]	8 m [kN]
Inner standard basic scaffolding F_{IS}	without inner brackets	3.07	7.9	6.3	4.8
		2.57	6.6	5.3	4.0
	with inner brackets	3.07	17.2	13.9	10.6
		2.57	14.4	11.6	8.9
Outer standard basic scaffolding F_{AS}	with / without inner brackets	3.07	11.5	8.7	6.0
		2.57	9.6	7.3	5.0
	additional loads				
	protective wall	3.07	+ 0.5		
		2.57	+ 0.4		
	add-on access bay	3.07	4.2	2.9	1.6
		2.57	3.5	2.4	1.3
Outer standard access bay $F_{AS,T}$	without	3.07	10.6	9.3	8.1
		2.57	8.9	7.8	6.8
Special configuration	bridging construction $F_{Ü}$	all	Inner standard: $1.5 \cdot F_{IS}$		
			Outer standard: $1.5 \cdot F_{AS}$		

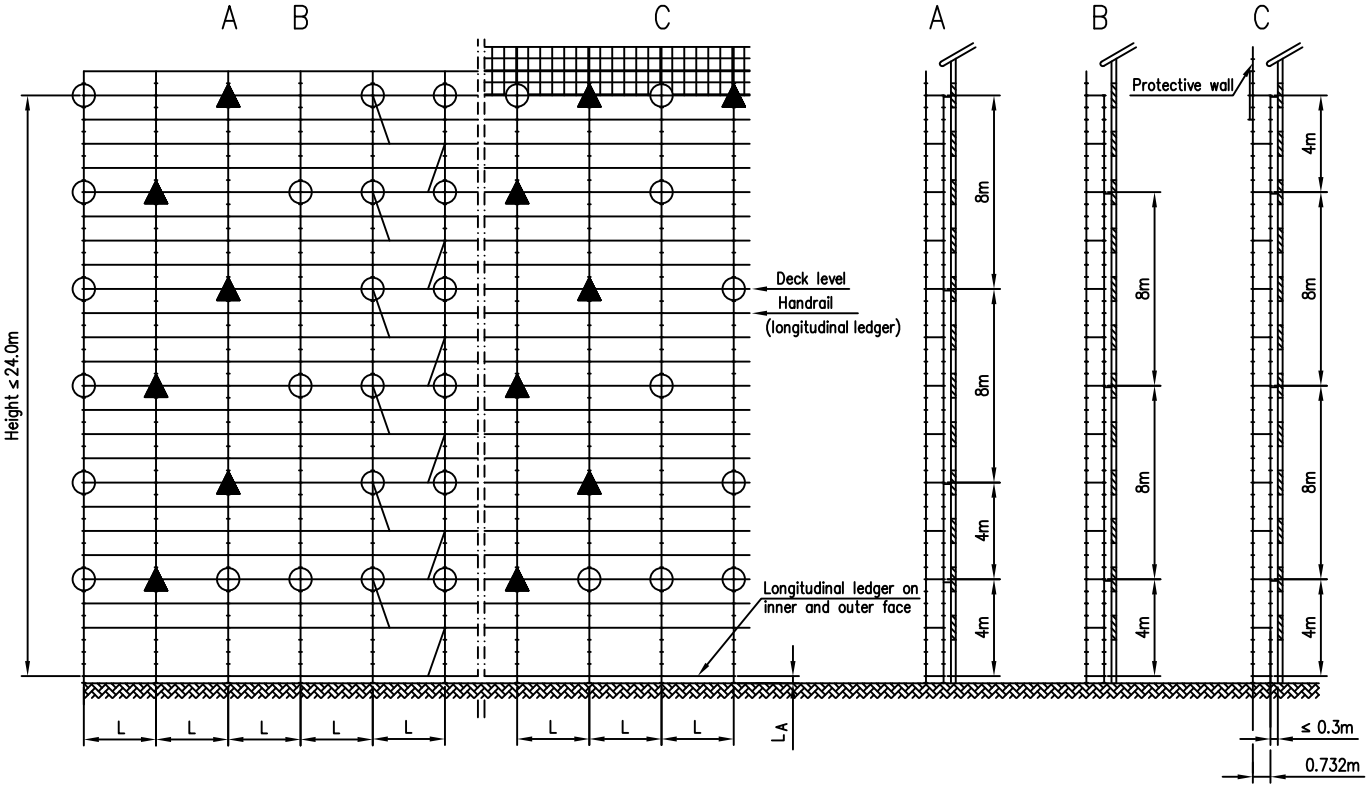
Table C.4: Assembly variants of the standard assembly configuration

Cladding	Fittings	without inner brackets	with Inner brackets
uncladded / partially open facade uncladded / closed facade net cladding / closed facade	no supplementary components	Annex D, page 1	Annex D, page 2
	protective wall		
	Bridging girder	Annex D, page 3	Annex D, page 4

Modular scaffolding system "ALFIX MODUL MULTI"	Annex C, page 5
Standard assembly configuration Load Class 3 / SW06 / l ≤ 3.07 m - General provisions	

Standard assembly configuration without inner bracket – Bay length L ≤ 3.07m

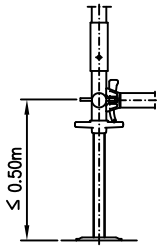
① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Scaffold retainer/wall tie
V-type wall tie

Anchor configuration:
- 8m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- continuous row of anchorage at H=4.00m
- protective wall position: continuous row of anchorage with 2 V-type wall ties per 5 bays

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)



Bracing:
- handrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00m

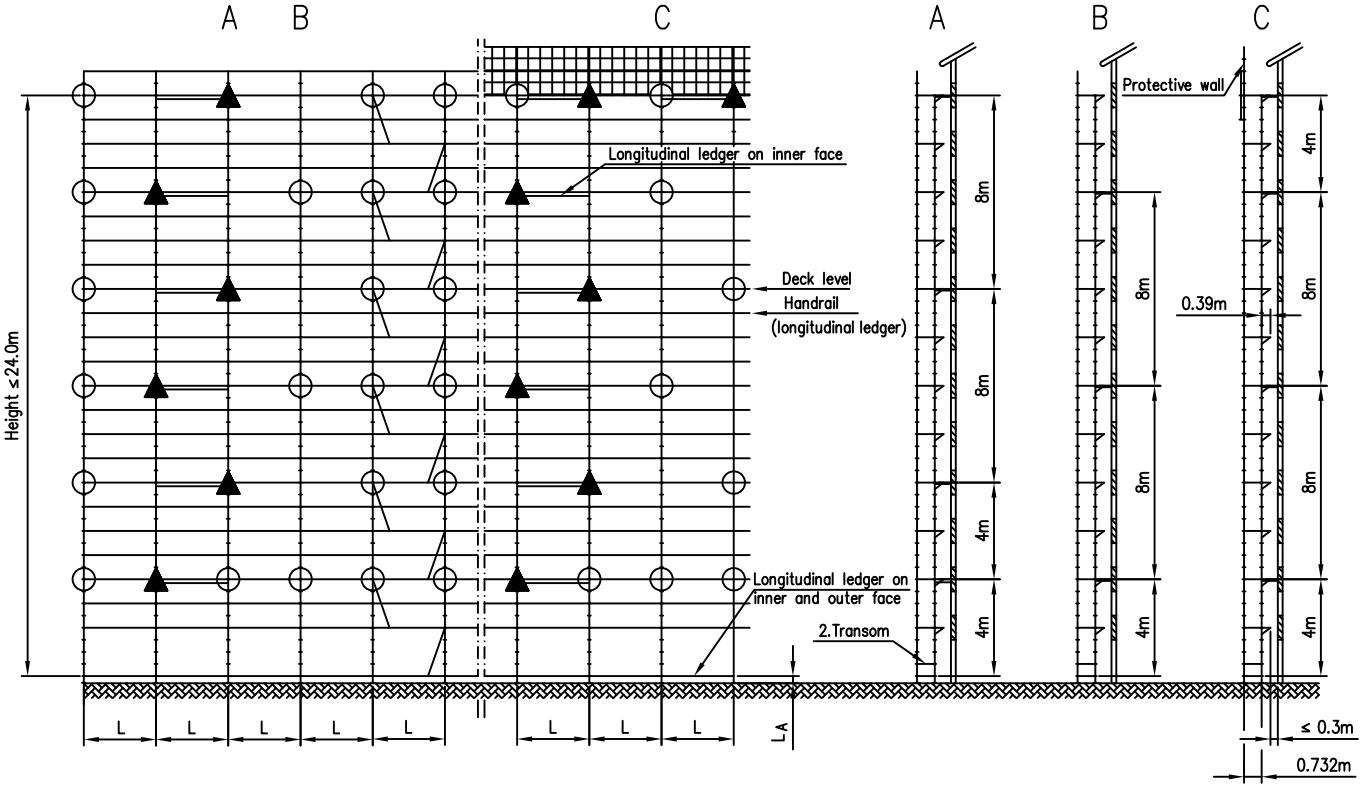
Supplementary components:
- protective wall (for details see Annex D, page 7)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI	
Standard assembly configuration without inner bracket	Annex D, page 1
MU716-D001 11.2016	

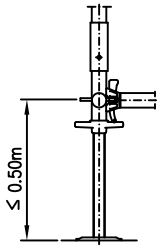
Standard assembly configuration with inner bracket – Bay length L ≤ 3.07m

① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 8m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- continuous row of anchorage at H=4.00m
- protective wall position: continuous row of anchorage with 2 V-type wall ties per 5 bays

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)



Bracing:
- handrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00m
- 2. Transom at a height of 0.50m from the floor line
- longitudinal ledger, inner face attached to V-type wall tie

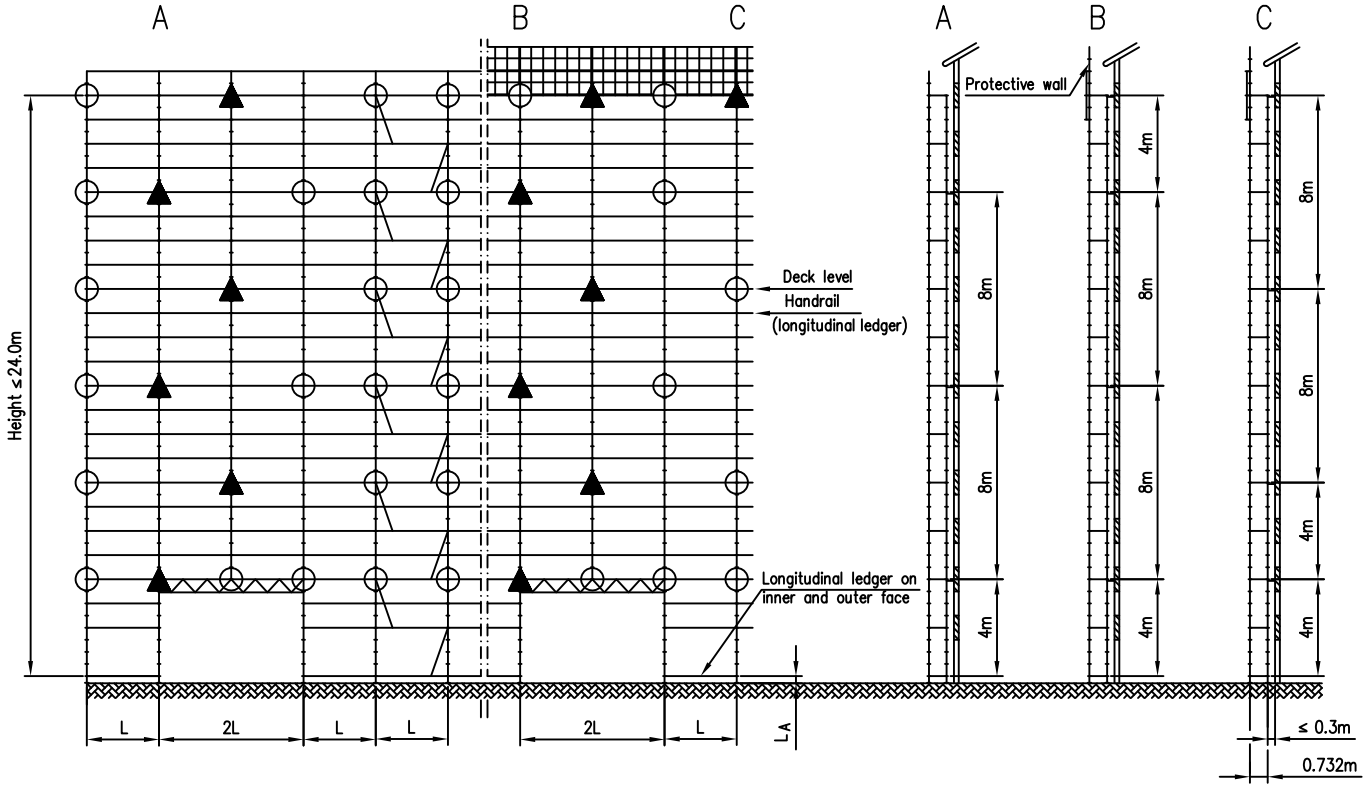
Supplementary components:
- protective wall (for details see Annex D, page 7)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI	
Standard assembly configuration with inner bracket	Annex D, page 2
MU716-D002 11.2016	

Standard assembly configuration without inner bracket with bridging girder – Bay length L ≤ 3.07m

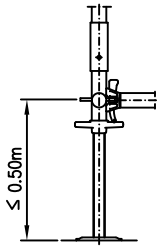
① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 8m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- continuous row of anchorage at H=4.00m
- protective wall position: continuous row of anchorage with 2 V-type wall ties per 5 bays

Scaffold retainer/wall tie
V-type wall tie

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)



Bracing:
- handrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00m

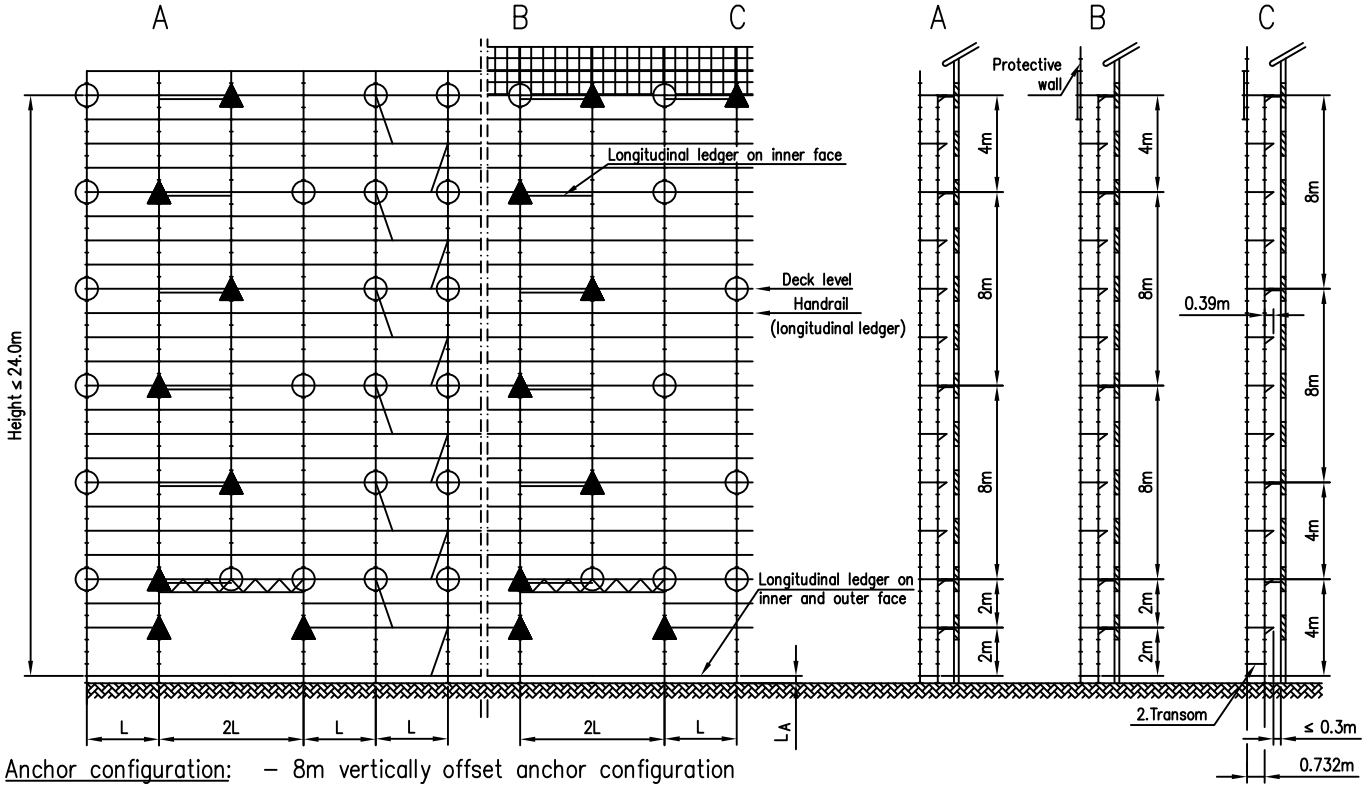
Supplementary components:
- protective wall (for details see Annex D, page 7)
- bridging girder (for details see Annex D, page 8)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI	
Standard assembly configuration without inner bracket with bridging girder	Annex D, page 3
MU716-D003 11.2016	

Standard assembly configuration with inner bracket with bridging girder – Bay length L ≤ 3.07m

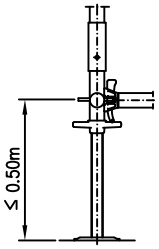
① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 8m vertically offset anchor configuration
- at least 1 V–type wall tie per 5 bays
- continuous row of anchorage at H=4.00m
- protective wall position: continuous row of anchorage with 2 V–type wall ties per 5 bays
- bridging girder: 2 V–type wall ties attached to inner standard at H=2.00m

Scaffold retainer/wall tie
V–type wall tie

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)



Bracing:
- handrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00m
- 2. Transom at a height of 0.50m from the floor line (mandatory at standard bridging girder)
- longitudinal ledger, inner face attached to V–type wall tie

Supplementary components:
- protective wall (for details see Annex D, page 7)
- bridging girder (for details see Annex D, page 8)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI

Standard assembly configuration with inner bracket with bridging girder

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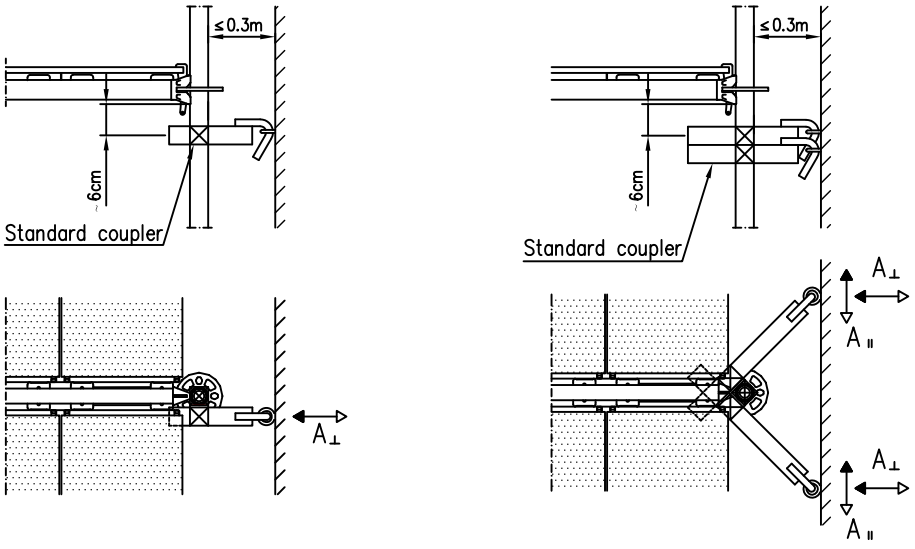
Standard assembly configuration: Detailed view – Anchorage 1 – scaffolding without inner bracket



Symbol — Scaffold retainer/wall tie

Symbol — V-type wall tie

Anchor forces $A_{\perp}$ and $A_{\parallel}$ see Annex C, Table C.2

ALFIX MODUL MULTI	
Standard assembly configuration: Detailed view – Anchorage 1 – scaffolding without inner bracket	Annex D, page 5
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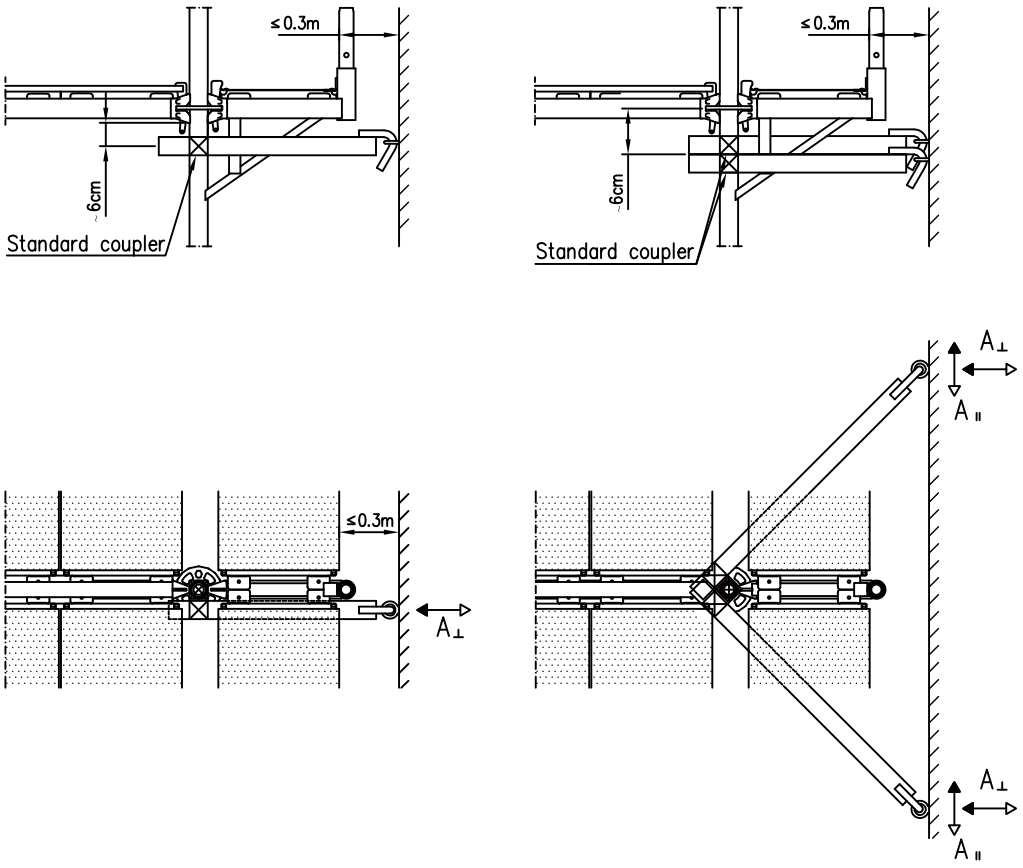
Standard assembly configuration: Detailed view – Anchorage 2 – scaffolding with inner bracket



Symbol — Scaffold retainer/wall tie

Symbol — V-type wall tie

Anchor forces $A_{\perp}$ and $A_{\parallel}$ see Annex C, Table C.2

ALFIX MODUL MULTI	
Standard assembly configuration: Detailed view – Anchorage 2 – scaffolding with inner bracket	Annex D, page 6
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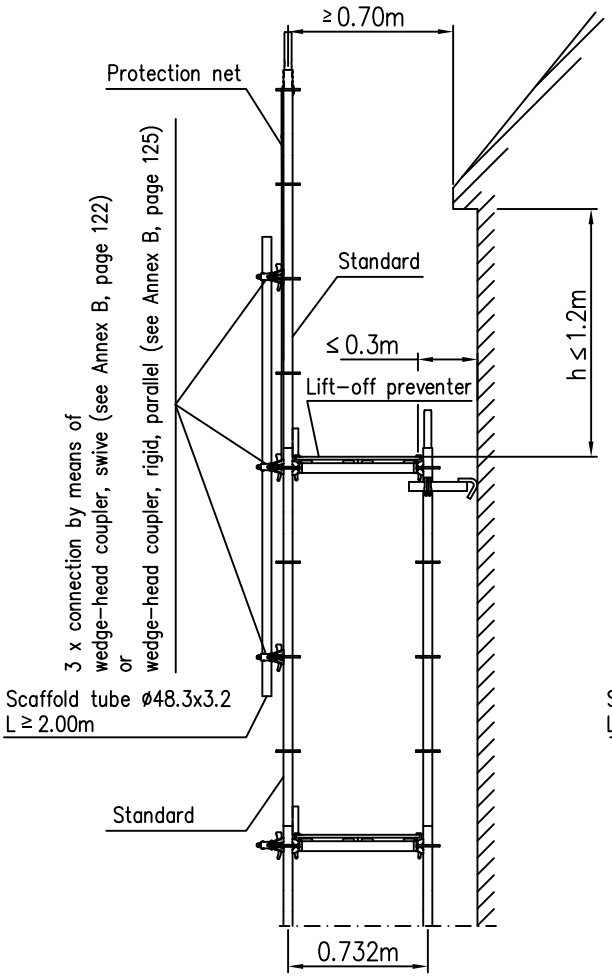
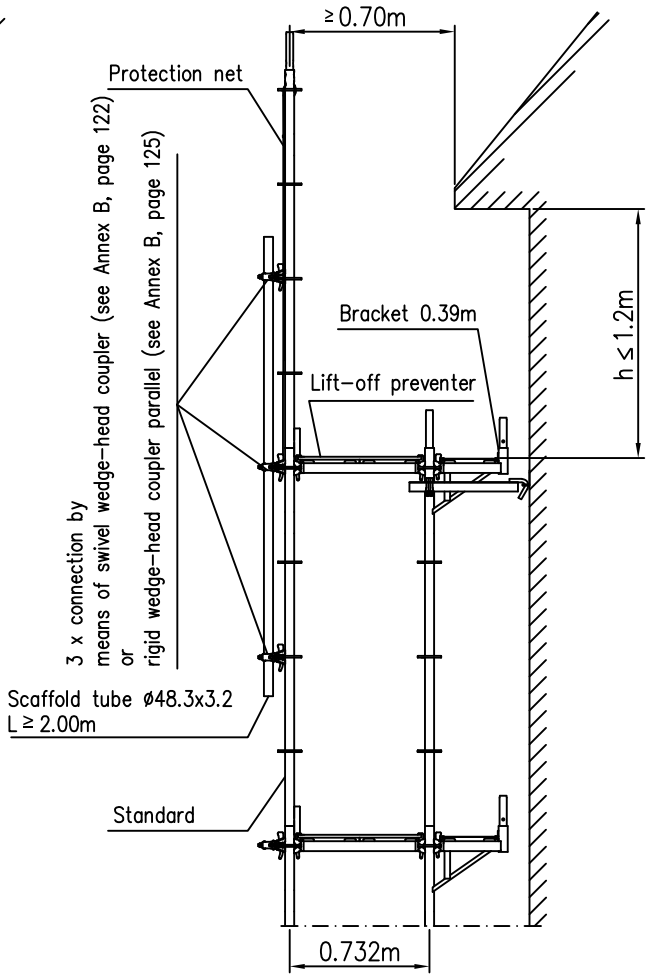
Standard assembly configuration: Detailed view – protective wall

Protective wall without inner bracket



Protective wall with inner bracket



ALFIX MODUL MULTI

Standard assembly configuration: Detailed view – protective wall

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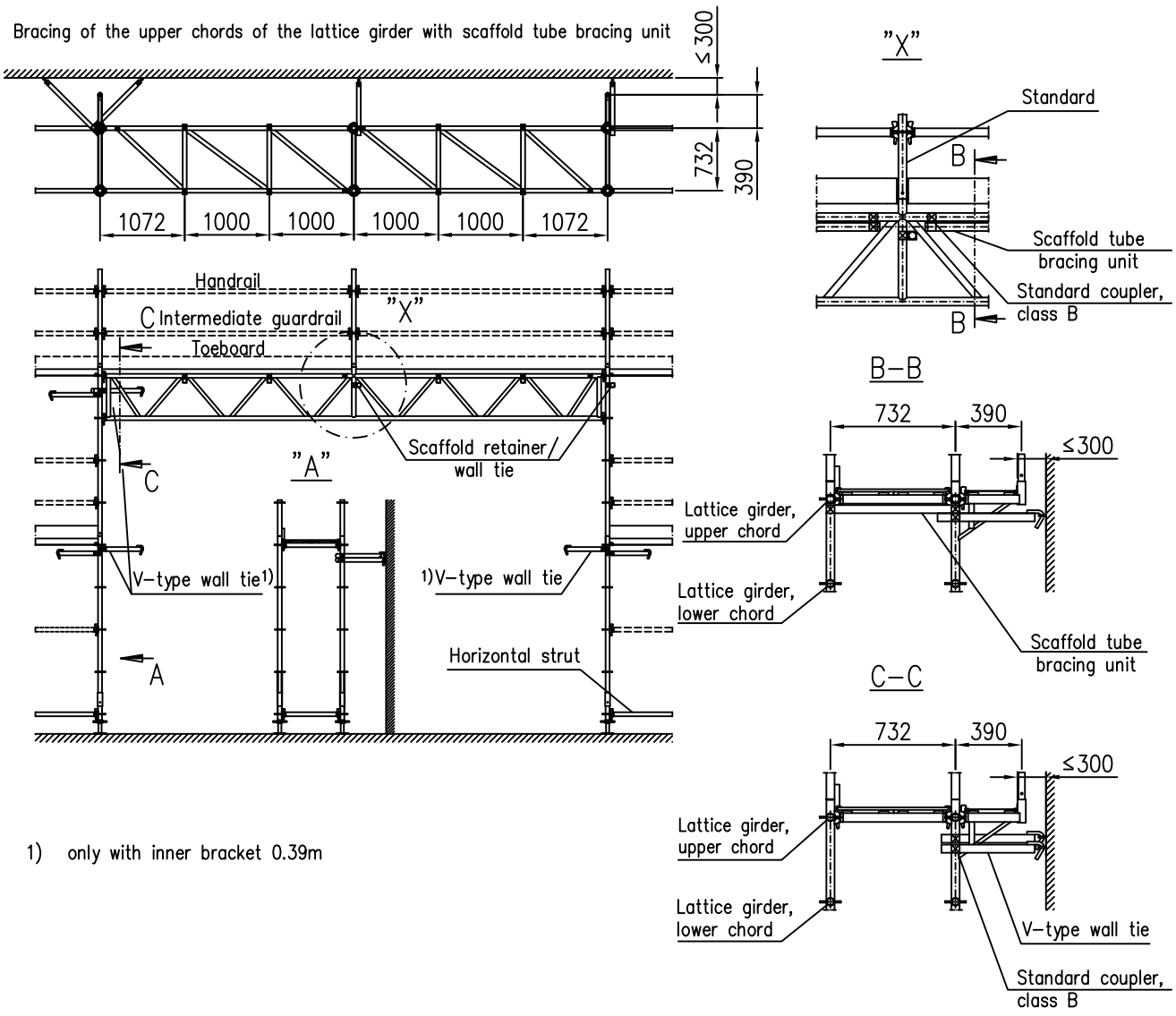
Standard assembly configuration: Detailed view – bridging girder



1) only with inner bracket 0.39m

ALFIX MODUL MULTI

Standard assembly configuration: Detailed view – bridging girder

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page 8

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E.1 General Instructions

In its standard assembly configuration, the scaffolding system may be used as working scaffold of load classes ≤ 4 with system width $b = 1.09\ m$ and bay widths $\ell \leq 2.57\ m$ in accordance with DIN EN 12811-1:2004-03, and as protection scaffold and roof edge protection scaffold in accordance with the regulations stipulated in Section E.2.

The topmost horizontal level (working level) must not exceed 24 m above ground level, not including the spindle extension length. The standard assembly configuration of the scaffolding system is designed for use on a scaffold level in accordance with the regulations of the DIN EN 12811-1:2004-03 standard, Section 6.2.9.2 in front of a "partially open" facade with an open proportion of no more than 60%, and in front of closed facades. When determining the wind load, a statistical factor of $\chi = 0{,}7$, assuming a maximum service life of 2 years, has been taken into account.

Structural analysis for scaffold cladding with tarpaulins has not been provided in the standard assembly configuration. Structural analysis for scaffold cladding with nets has only been provided in the standard assembly configuration for cladding in front of closed facades. Structural analysis for net-covered scaffoldings applies to scaffolds with an aerodynamic force coefficient of the entire structure (net and scaffolding) that is no greater than $c_{f,\perp,total} = 0.6$.

Without any further structural proof, the standard assembly configuration shall only be used if the loads of 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 configuration of the modular scaffolding system" ALFIX MODUL MULTI", the following designation in accordance with DIN EN 12810-1:2004-03 shall be used:

Scaffolding EN 12810 – 4D- SW09/257- H2- A- LA

The assembly variants of the standard assembly configuration are listed in Table E.4.

E.2 Proetction scaffold and roof edge protection scaffold

In its standard assembly configuration the scaffolding system may be used as a protection scaffold and roof edge protection scaffold with a top fall arresting layer of class FL 1 and as a roof edge protection scaffold with protective walls of class SWD 1 according to DIN 4420:2004-03. Access decks must not be fitted into brackets.

The protective wall is to be installed in accordance with Annex F, page 7.

Use protective nets in accordance with DIN EN 1263-1:2015-03 with a mesh size of no more than 100 mm.

E.3 Components

The components intended for use are listed in Table E.1. In addition to these components, other components may also be used: steel tubes $\varnothing 48.3 \cdot 3.2\ mm$ and couplers for the protective wall and the horizontal bracing of the bridging girders as well as standard couplers for the connection of the wall ties and V-type wall ties to the standards in accordance with DIN EN 12811-1:2004-03.

E.4 Bracing

Horizontal scaffolding levels are to be braced by continuously installing the following members at vertical intervals of 2 m tube ledger 1.09 m with

three steel decks with tube fixture	in accordance with Annex B, page 64	or
three steel decks AF with tube fixture	in accordance with Annex B, page 61	or
U-ledger 1.09 m and		
three steel decks	in accordance with Annex B, page 85	or
three steel decks AF	in accordance with Annex B, page 84	

each.

Modular scaffolding system "ALFIX MODUL MULTI"	Annex E, page 1
Standard assembly configuration Load Class 4 / SW09 / l ≤ 2.57 m - General provisions	

The steel decks are to be secured against unintentional lift-off using deck lift-off preventers.

The outer vertical planes are to be braced depending on the assembly configuration with tube ledgers used as handrails (1 m above deck surface) and as intermediate guardrail (0.5 m above deck surface) continuously in each scaffold bay as well as vertical diagonal braces.

Vertical starter pieces are to be installed directly above the base jacks (scaffolding spindles) and connected by means of longitudinal ledgers in the inner and outer plane parallel to the facade and by means of transoms at right angles to the facade. Additionally, depending on the assembly configuration diagonal cross braces are to be installed up to the first working level.

E.5 Anchoring

Anchoring is to be provided using wall ties in accordance with Annex B, page 120.

Wall ties are to be installed as anchor pairs at an angle of 90° (V-type wall tie) or as “short” wall ties only to the inner vertical frame standard using standard couplers. Depending on the assembly configuration, the node points that are anchored by means of V-type anchors are to be connected on the inner plane parallel to the facade with the adjacent standard section by means of tube ledgers (longitudinal ledgers).

The V-type anchors and wall ties are to be installed in the immediate vicinity of the node points of the standard tubes and transoms.

The anchor forces listed in Table C.2 were determined with the characteristic values of the actions ($\gamma_F = 1.0$). For the design analysis of the anchorage and the load transfer, the values given must be multiplied by the respective partial safety factor γ_F (generally. $\gamma_F = 1.5$).

Each frame section is anchored at vertical intervals of 4 m. On the topmost working level, each standard section must be anchored.

E.6 Foundation loads

Depending on the assembly variation, the foundation loads listed in Table E.3 must be absorbed and transferred in the supporting surface. The foundation loads are given as characteristic values. For the structural analysis of transfer of loads in the supporting surface, the values given must be multiplied by the partial safety factor γ_F (generally $\gamma_F = 1.5$).

E.7 Bridging construction

The bridging girders may be used at a height of 4 m to bridge gate entrances or similar openings when the working levels underneath the bridging part are omitted.

The bridging girders are to be anchored in the supporting and centre section and are to be braced additionally by means of a horizontal bracing unit comprised of tubes and couplers or by means of additional anchorage (see also Annex F, pages 3 and 8).

E.8 Add-on access bay

When installing the add-on access bay in load class 3, aluminium access frame platforms (with tube fixture) must be installed when using tube ledgers, or aluminium frame platforms with internal hatch or aluminium access frame platforms with ladder must be installed when using U-ledgers. The add-on access bay is to be braced at vertical intervals of 4 m by means of horizontal diagonal braces. The outer vertical planes are to be braced with tube ledgers used as handrails (1 m above deck surface) and as intermediate guardrail (0.5 m above deck surface) continuously in each scaffold bay. Additionally, a longitudinal ledger is to be installed at the outer face of the access bay directly above the scaffolding spindle. (see Annex F, page 4).

E.9 Widening bracket

Only use brackets 0.39 m on the inner face of the scaffolding on all working levels.

Modular scaffolding system "ALFIX MODUL MULTI"	Annex E, page 2
Standard assembly configuration Load Class 4 / SW09 / l ≤ 2.57 m - General provisions	

Table E.1: Components of the standard assembly configuration

Designation	Annex B, page
Vertical diagonals braces 0.73 m – 2.57 m x 2.00 m	8
Horizontal diagonal braces 0.73 m – 2.57 m x 1.09 m	9
Vertical starter piece	10
Standard with tube connector 200	11
Base jack	17
AB Base jack	18
Tube ledger $\ell \leq 2.57$ m	25
Tube ledger reinforced 1.09 m	27
U-ledger 0.73 m *)	32
U-transom reinforced 1.09 m	33
U-transom lattice girder 1.09 m V	44
Tube-transom lattice girder 1.09 m V	45
MODUL lattice girder 4.14 m / 5.14 m	47
MODUL lattice girder with tube connector 4.14 m / 5.14 m	49
MODUL lift-off preventer 0.73 m, 1.09 m	50
Aluminium access frame platform with tube fixture 2.57 m *)	54
Aluminium access frame platform with tube fixture 1.57 m – 2.57 m without ladder *)	57
Aluminium access frame platform with tube fixture 2.57 m – 2.57 m with aluminium chequer plate *)	58
Steel deck AF with tube fixture 0.32 m $\ell \leq 2.57$ m	61
Steel deck with tube fixture $\ell \leq 2.57$ m	64
Aluminium frame platform with internal hatch 2.57 m *)	69
Aluminium access deck with ladder 2.57 m *)	76
Aluminium access deck with ladder 2.57 m *)	82
Steel deck AF 0.32 m $\ell \leq 2.57$ m	84
Steel deck $\ell \leq 2.57$ m	85
MODUL gap cover 0.73 m, 1.09 m	94
MODUL gap cover with tube fixture	95
Gap cover $\ell \leq 2.57$ m	96
MODUL swing gate	102
Bracket 0.39 m with tube fixture	103
MODUL bracket 0.39 m	104
MODUL toeboard $\ell \leq 2.57$ m	107
MODUL aluminium toeboard $\ell \leq 2.57$ m	109
Toeboard $\ell \leq 2.57$ m, end toeboard AF	110
Toeboard $\ell \leq 2.57$ m, end toeboard	112
Aluminium toeboard $\ell \leq 2.57$ m; Aluminium end toeboard AF	114
Aluminium toeboard $\ell \leq 2.57$ m; Aluminium end toeboard	115
MODUL guard net system $\ell \leq 2.57$ m	116
MODUL double end guardrail	117
Storey ladder 2.00 x 0.40 m, steel	118

Table E.1: (continued)

Designation	Annex B, page
Storey ladder 2.00 x 0.40 m, aluminium	119
Scaffold retainer / wall tie	120
Wedge head swivel coupler	122
MODUL U-tube connector	123
MODUL tube connector	124
Wedge-head coupler, rigid	125
Diagonal cross brace	134
Tube ledger reinforced 1.09 m	144
U-ledger 1.09 m	147
Standard 4.0	154
Vertical starter piece 4.0	155
Tube ledger 4.0 $\ell \leq$ 2.57 m	156
MODUL gap cover, T-shaped and universal claw coupler $\ell \leq$ 2.57 m	158
*) only on the add-on access bay 3	

Table E.2: characteristic anchor forces

Variant / configuration	**Annex F, page**	**Bay length**	**partially open facade**			**closed facade**		
			GH	DRH		GH	DRH	
		[m]	$A_{\perp}$ [kN]	$A_{//}$ [kN]	$A_{\perp}$ [kN]	$A_{\perp}$ [kN]	$A_{//}$ [kN]	$A_{\perp}$ [kN]
without inner bracket	1	2.57	1.6	2.9	2.9	0.5	2.9	2.9
		2.07	1.3	2.9	2.9	0.4	2.9	2.9
with inner bracket	2, 3	2.57	1.6	3.5	3.5	0.5	3.5	3.5
		2.07	1.3	3.5	3.5	0.4	3.5	3.5

(-) Tension
(+) Compression
GH wall tie (single tube attachment)
DRH V-type wall tie

Table E.3: characteristic foundation loads

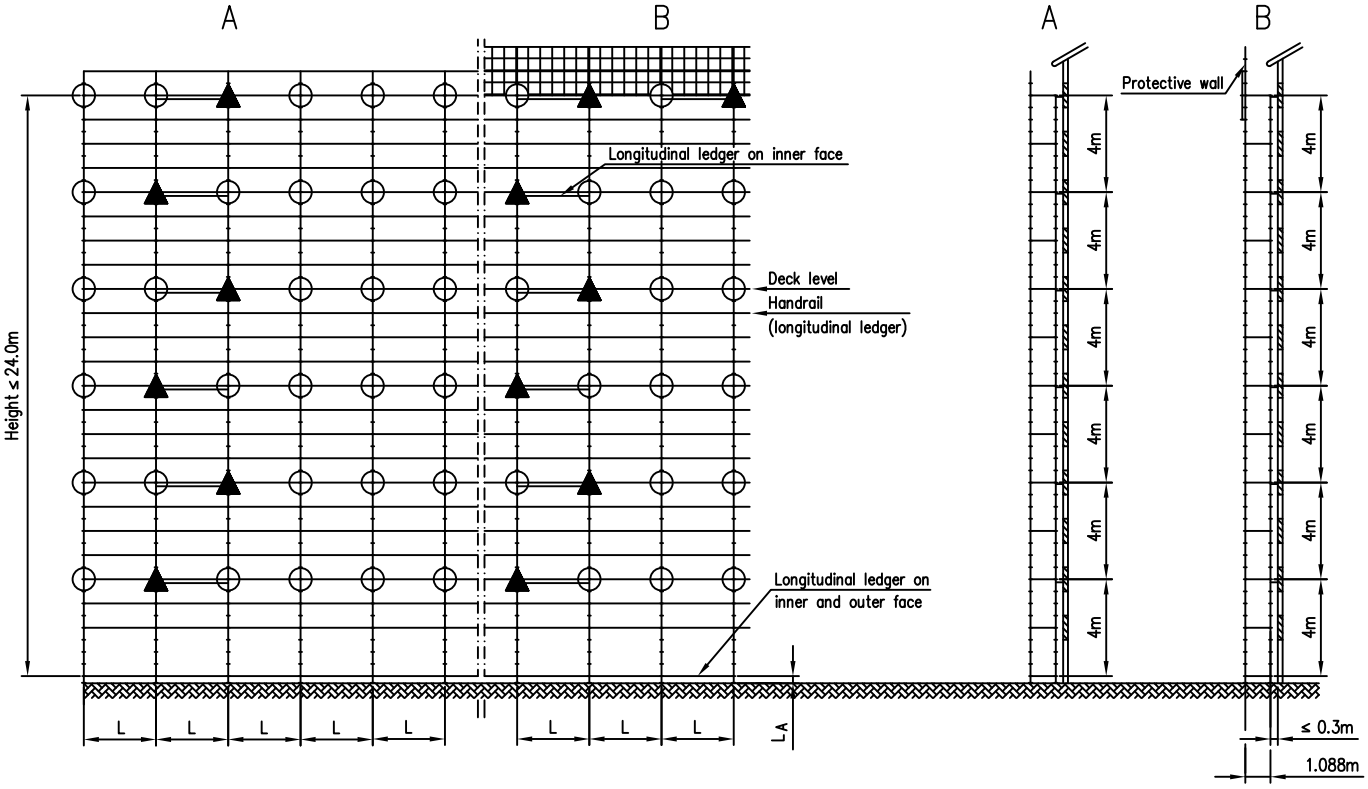
Standard force	Fittings	Bay length [m]	Structural height 24 m [kN]	16 m [kN]	8 m [kN]
Inner standard basic scaffolding F_{IS}	without inner brackets	2.57	11.4	9.5	7.6
		2.07	9.2	7.7	6.1
	with inner brackets	2.57	21.3	17.9	14.5
		2.07	17.2	14.4	11.7
Outer standard basic scaffolding F_{AS}	with / without inner brackets	2.57	14.8	11.9	9.0
		2.07	11.9	9.6	7.2
	additional loads				
	protective wall	2.57	+ 0.5		
		2.07	+ 0.4		
	add-on access bay	2.57	3.5	2.4	1.3
Outer standard access bay $F_{AS,T}$	without	2.57	8.9	7.8	6.8
Special configuration	Bridging construction $F_{Ü}$	all	Inner standard: $1.5 \cdot F_{IS}$		
			Outer standard: $1.5 \cdot F_{AS}$		

Table E.4: Assembly variants of the standard assembly variants

Cladding	Fittings	without inner brackets	with inner brackets
uncladded / partially open facade uncladded / closed facade net cladding / closed facade	no supplementary components	Annex F, page 1	Annex F, page 2
	protective wall		
	Bridging girder	---	Annex F, page 3
	Add-on access bay	Annex F, page 4	

Standard assembly configuration without inner bracket – Bay length L ≤ 2.57m

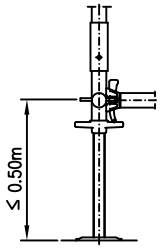
① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 4m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- protective wall position: 2 V-type wall ties per 5 bays

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)

Bracing:
- handrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00
- longitudinal ledger, inner face attached to V-type wall tie



Supplementary components:
- protective wall (details see Annex F, page 7)
- add-on access bay (details see Annex F, page 4)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI	
Standard assembly configuration without inner bracket	Annex F, page 1
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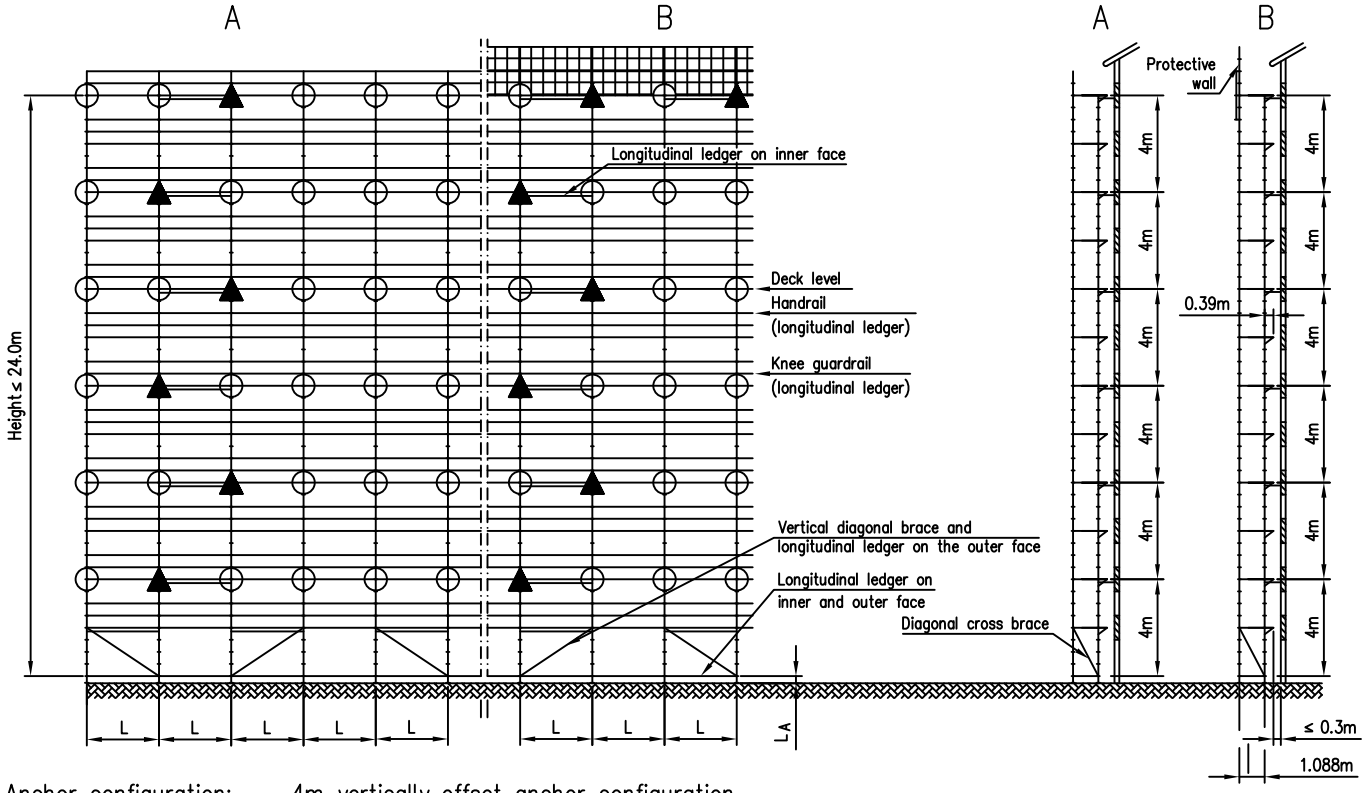
Standard assembly configuration with inner bracket – Bay length L ≤ 2.57m

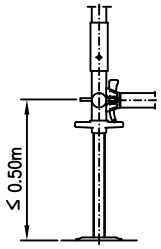
① uncladded scaffolding in front of partially open facade
② uncladded scaffolding in front of closed facade
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 4m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- protective wall position: 2 V-type wall ties per 5 bays

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)

Bracing:
- handrail and knee guardrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00
- longitudinal ledger, inner face attached to V-type wall tie
- diagonal cross brace in lowermost frame
- vertical diagonal brace and longitudinal ledger on the outer face at H=2.00m on every second bay



Supplementary components:
- protective wall (details see Annex F, page 7)
- add-on access bay (details see Annex F, page 4)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

ALFIX MODUL MULTI	
Standard assembly configuration with inner bracket	Annex F, page 2
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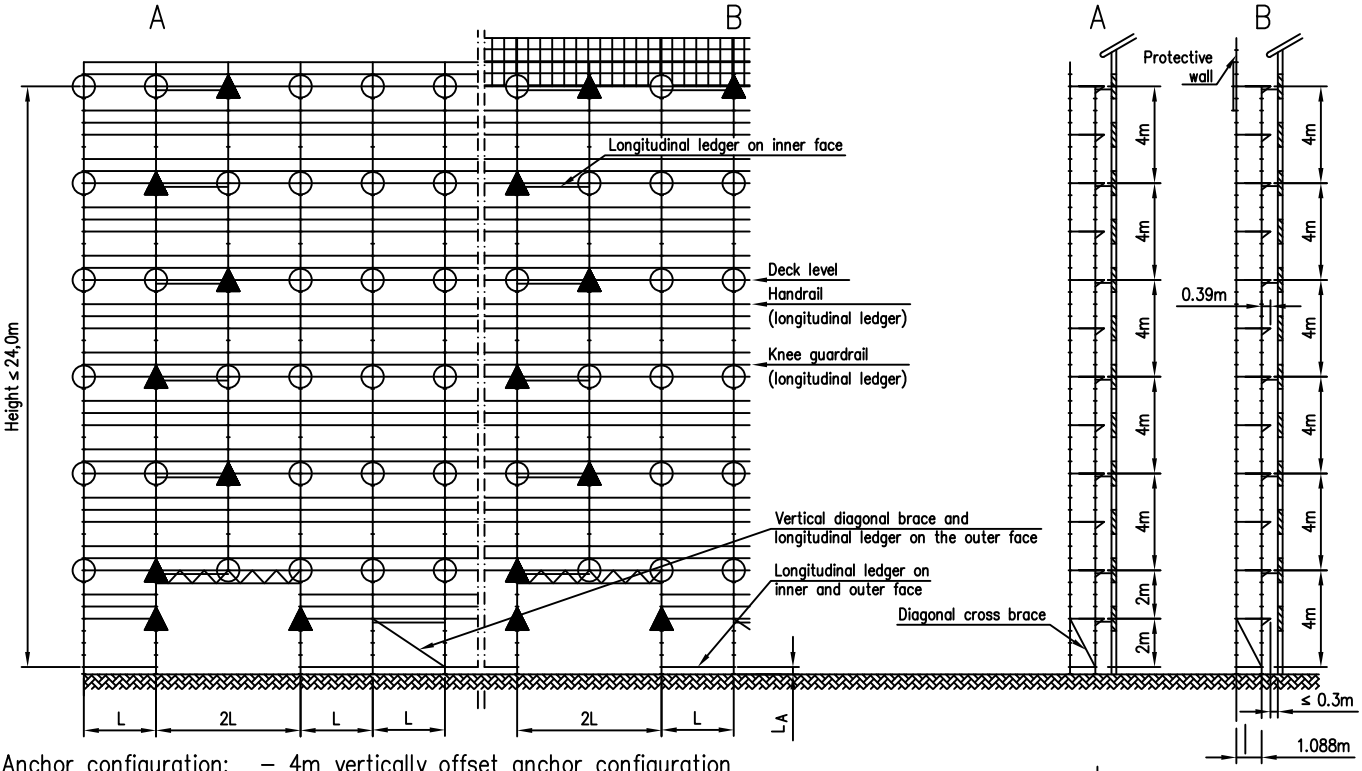
Standard assembly configuration with inner bracket with bridging girder – Bay length L ≤ 2.57m

① uncladded scaffolding in front of partially open facade

② uncladded scaffolding in front of closed facade

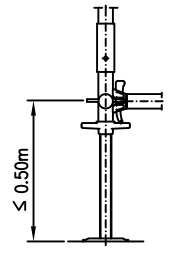
③ Scaffolding with net cladding in front of closed facade



Anchor configuration:
- 4m vertically offset anchor configuration
- at least 1 V-type wall tie per 5 bays
- protective wall position: 2 V-type wall ties per 5 bays
- bridging girder: 2 V-type wall ties attached to inner standard at H=2.00m

Spindle extension:
- L_A ≤ 50cm (Distance to foot level)

Bracing:
- handrail and knee guardrail as longitudinal ledger on each working level
- longitudinal ledger on inner and outer face on foot level at H=0.00
- longitudinal ledger, inner face attached to V-type wall tie
- diagonal cross brace in lowermost frame (mandatory at standard bridging girder)
- vertical diagonal brace and longitudinal ledger on the outer face at H=2.00m on every second bay



Supplementary components:
- protective wall (details see Annex F, page 7)
- add-on access bay (details see Annex F, page 4)
- bridging girder (details see Annex D, page 8)

Note: Side protection components (handrail, knee guardrail, longitudinal ledger) are only shown when they are required for the structural stability

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Standard assembly configuration with inner bracket with bridging girder	Annex F, page 3
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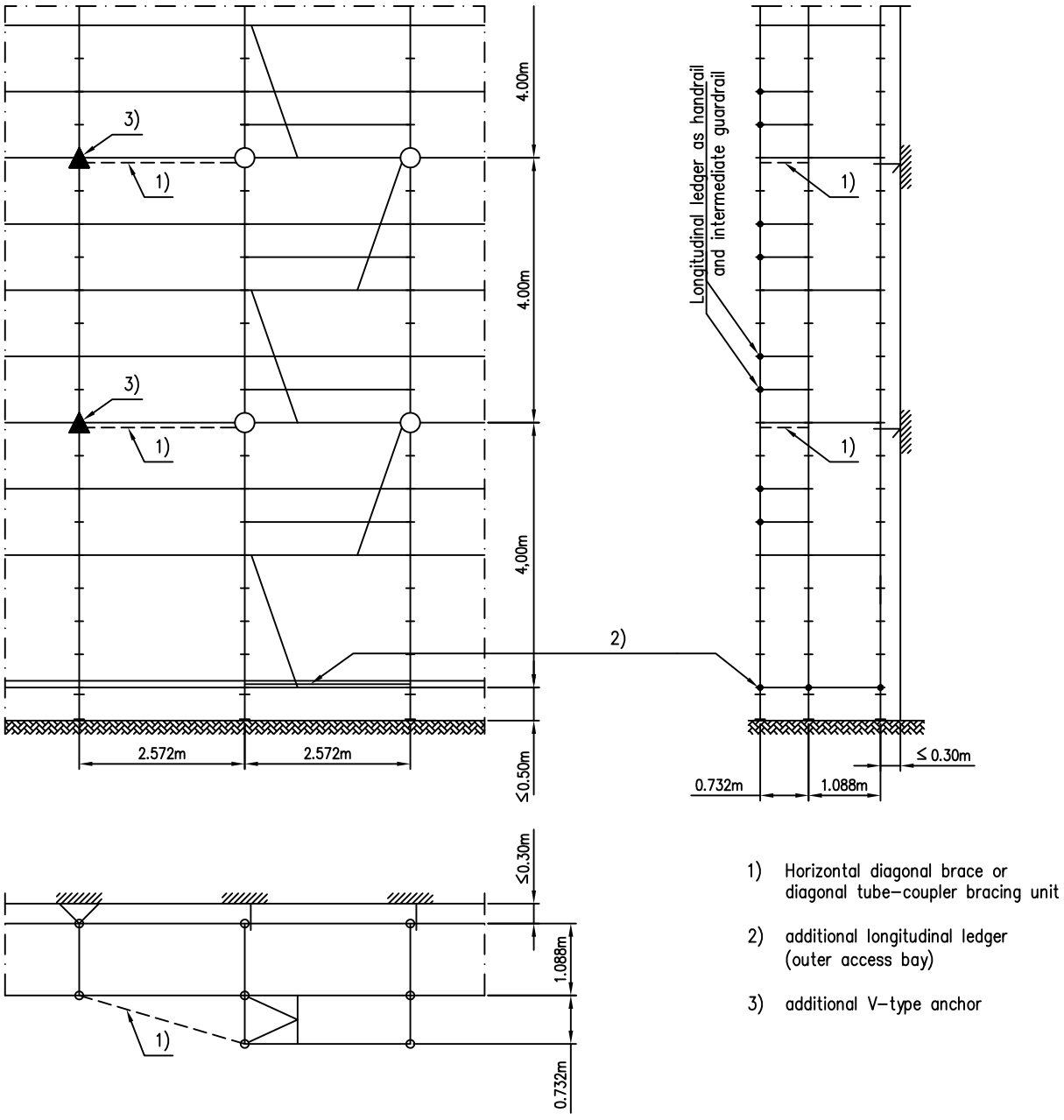
Standard assembly configuration: Add-on access bay

The figure shows the access bay in front of the facade scaffolding without inner bracket



1) Horizontal diagonal brace or diagonal tube-coupler bracing unit

2) additional longitudinal ledger (outer access bay)

3) additional V-type anchor

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Standard assembly configuration: Add-on access bay

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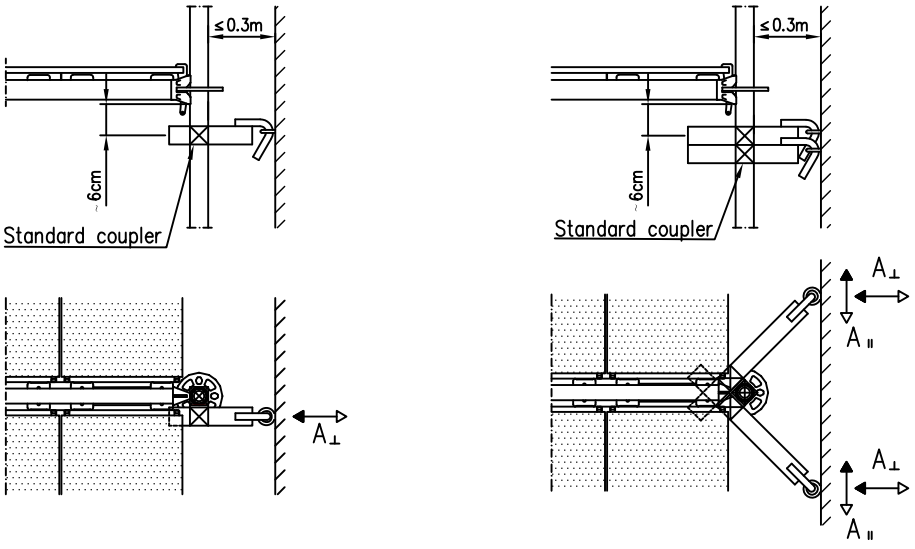
Standard assembly configuration: Detailed view – Anchorage 1 – scaffolding without inner bracket



Symbol — Scaffold retainer/wall tie

Symbol — V-type wall tie

Anchor forces $A_{\perp}$ and $A_{\parallel}$ see Annex E, Table E.2

ALFIX MODUL MULTI	
Standard assembly configuration: Detailed view – Anchorage 1 – scaffolding without inner bracket	Annex F, page 5
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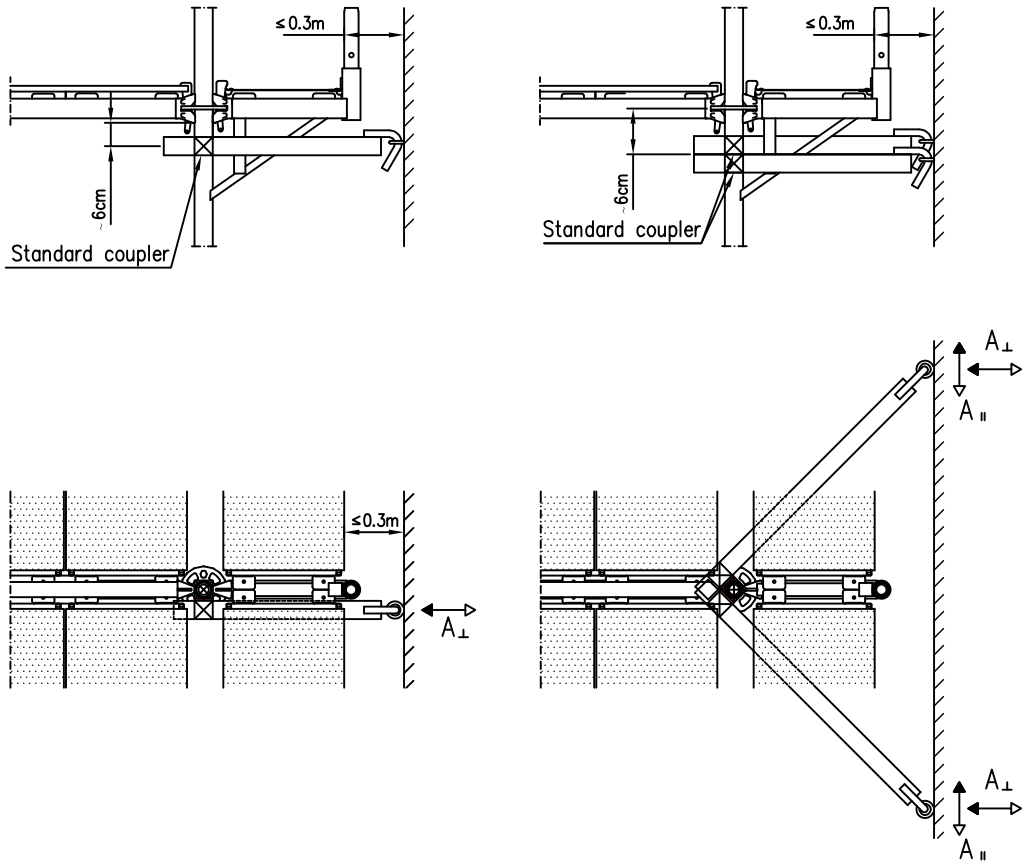
Standard assembly configuration: Detailed view – Anchorage 2 – scaffolding with inner bracket



Anchor forces $A_{\perp}$ and $A_{\parallel}$ see Annex E, Table E.2

ALFIX MODUL MULTI

Standard assembly configuration: Detailed view – Anchorage 2 scaffolding with inner bracket

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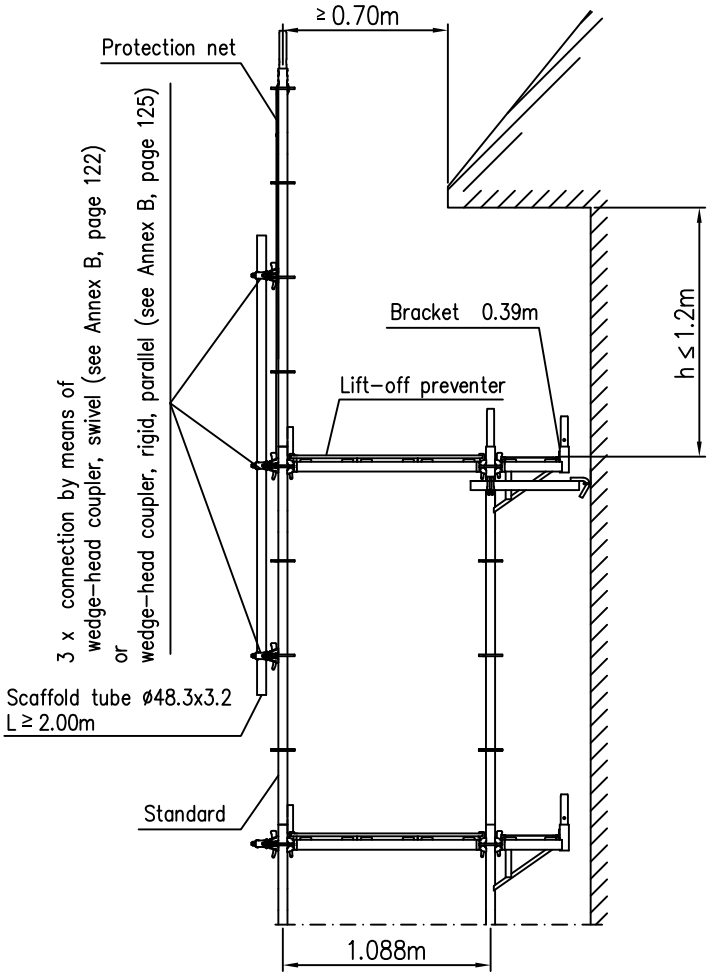
Standard assembly configuration: Detailed view – protective wall



ALFIX MODUL MULTI

Standard assembly configuration: Detailed view – protective wall

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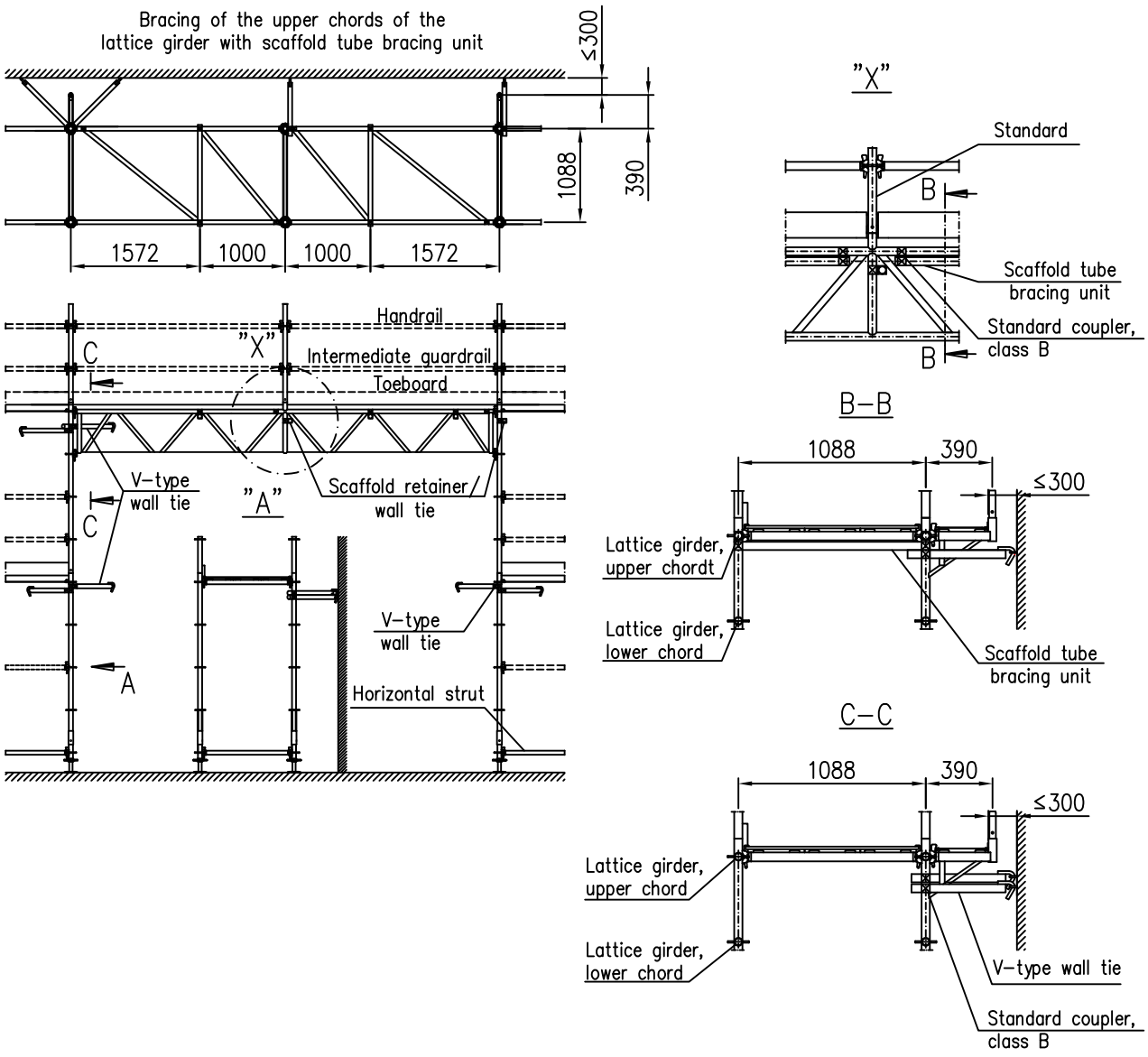
page 7

Standard assembly configuration: Detailed view – bridging girder



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Standard assembly configuration: Detailed view – bridging girder	Annex F, page 8
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