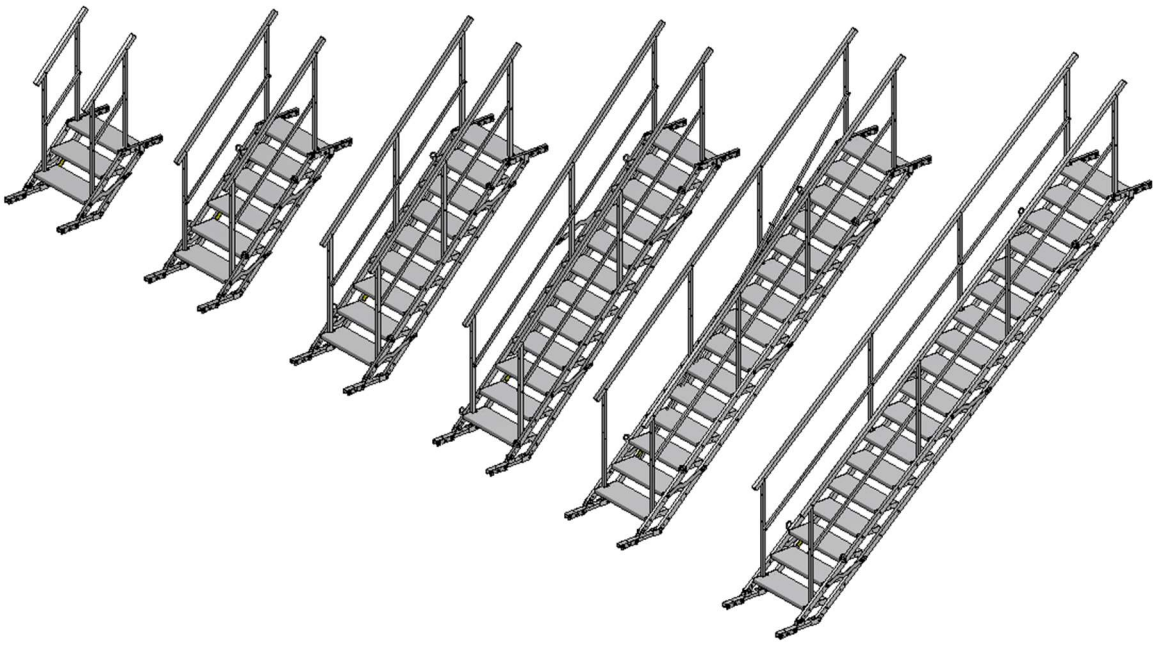
Appendix no. 1

Installation manual

TAS aluminium temporary access stairs



Robert Cieśla	Piotr Abram	Miłosz Muzyka
.....	.....	.....
(Prepared by)	(Verified by)	(Approved by)

Edition 2.0, January 2024

List of revisions

#	FULL NAME	DEPARTMENT	REVISION DATE	SCOPE OF CHANGES	COMMENTS
1	Piotr Abram	BR	25/01/2024	General update of the document	
2	Robert Cieśla	BR	01/07/2024	Graphics changed at page 5	
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14					
15					

Table of contents

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PL BNP PARIBAS
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1. General Safety Principles

The installation instructions are included as an appendix to the aluminium TAS trench stair technical documentation. The trench steps consist of components according to the specifications attached to the delivery.

Read this manual before starting installation and use. Incorrect installation or use can lead to a risk to health or life.

Due to the considerable size and weight of the individual components, special care must be taken during transport, installation and use of the staircase.

Keep this manual as a source of information for users of the staircase and its service personnel.

1. Installation or use of the staircase which is not in accordance with the contents of these instructions may adversely affect the performance of the product and/or be a source of danger.
2. The manufacturer is not responsible for any damage caused by incorrect installation of the product or its misuse.
3. No modifications to the construction of the staircase components are permitted.
4. The staircase is designed for use in an industrial environment, i.e. for use by adults who comply with health and safety regulations, are trained and are not under the influence of alcohol.
5. It is not permitted to be under the stairs while they are being used by others.
6. Do not allow the simultaneous use of the staircase by a number of persons having more weight than the permitted load of the staircase.
7. Stairs are used to move people to reach the lower levels of deep excavations as well as in the opposite direction. Staying on the steps as well as placing objects that are not stair equipment in these areas is against the operating rules.
8. Do not use the stairs to transport objects other than tools, instruments, etc.
9. Since in most cases the support for the staircase is unpaved ground, the possibility of the ground slipping and becoming wet must be taken into account, which can disturb the stability of the staircase.
10. If there is a risk of falling from height, a safety harness should always be used during assembly and disassembly.

2. Components

TLC Sp. z o.o., zarejestrowana w: XII Wydział Gospodarczy Krajowego Rejestru Sądowego w Sądzie Rejonowym dla Krakowa Śródmieścia; kapitał zakładowy: 613 332,00 PLN wpłacony w całości.

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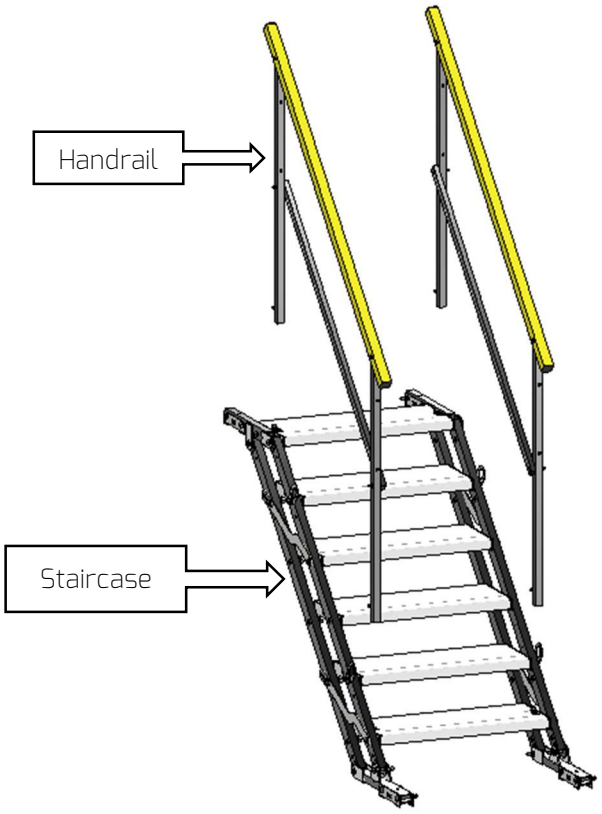
The basic elements of the TAS staircase for excavation are the steps together with the railings. These staircases, are available in versions with 3, 6, 9, 12, 15 and 18 steps and in widths of 710 mm and 1000 mm.

It is possible to join the individual sets, using special connectors, and supports are required when joining long ones. Stairs with 3, 6, 9, 12 steps can be used as a footbridge over a trench.

It is possible to install in systems based on a circular section with a diameter of 48.3 mm, in which case the bottom and top feet must be replaced with dedicated ones.



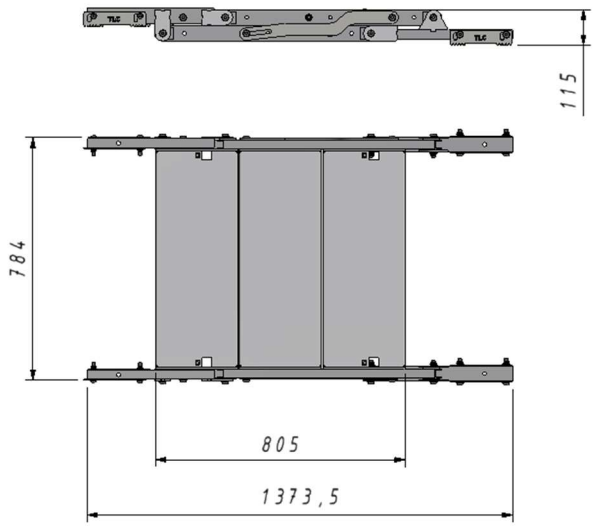
Rys. 1. Components

#	Diagram designation	Description
1	TAS-3C	Stairs with 3 steps aluminium width 710 mm
2	TAS-6C	Stairs with 6 steps width 710 mm
3	TAS-9C	Stairs with 9 steps width 710 mm
4	TAS-12C	Stairs with 12 steps width 710 mm
5	TAS-15C	Stairs with 15 steps width 710 mm
6	TAS-18C	Stairs with 18 steps width 710 mm

Tab 1. Stair marking (sets include stair cases with handrails)

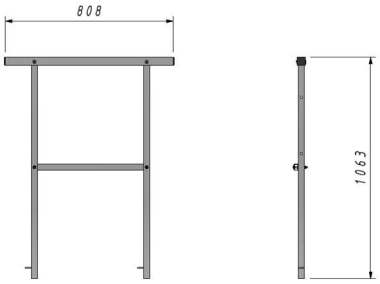
System components:

TAS-S3C



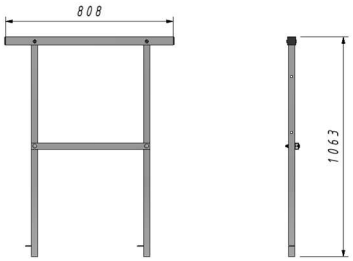
Weight: 19.4 kg

TAS-BP3C



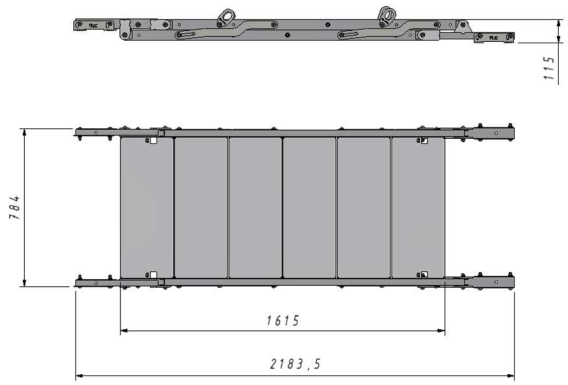
Weight: 3.2 kg

TAS-BL3C



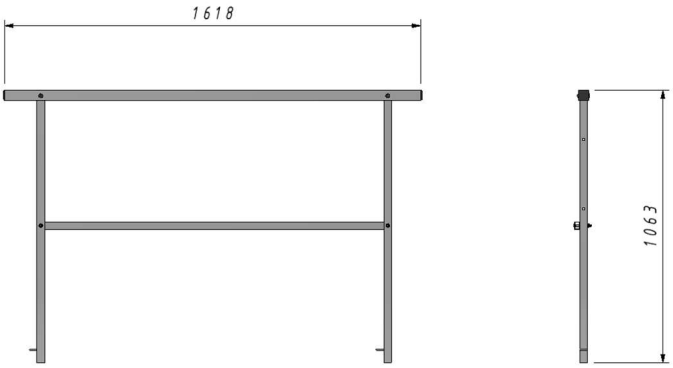
Weight: 3.2 kg

TAS-S6C



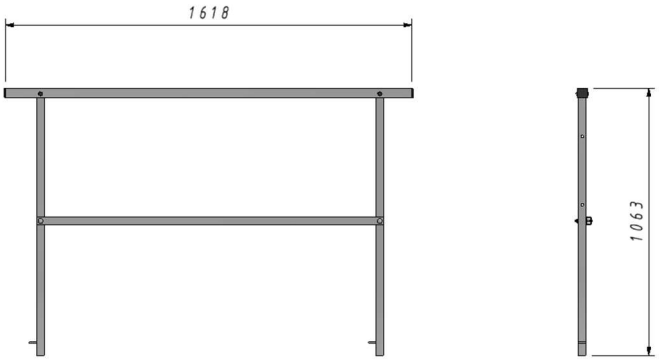
Weight: 33.1 kg

TAS-BL6C



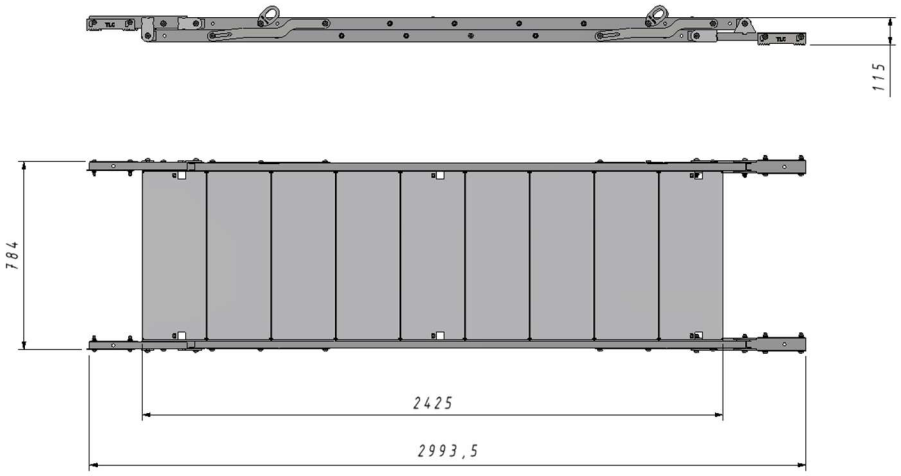
Weight: 4.6 kg

TAS-BP6C



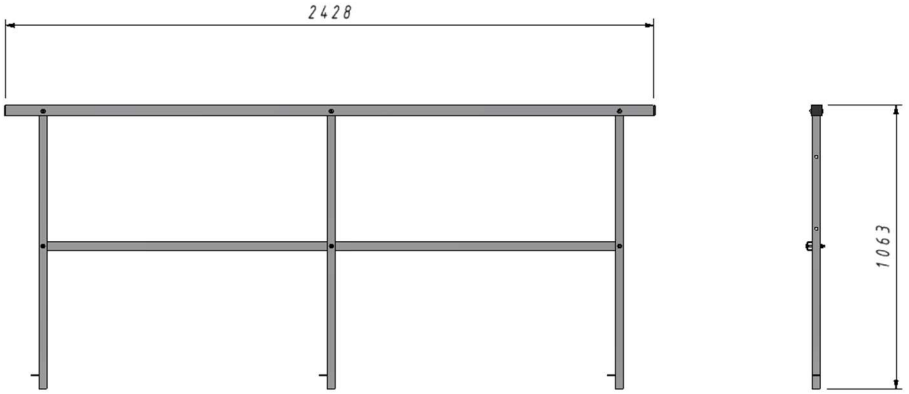
Weight: 4.6 kg

TAS-S9C



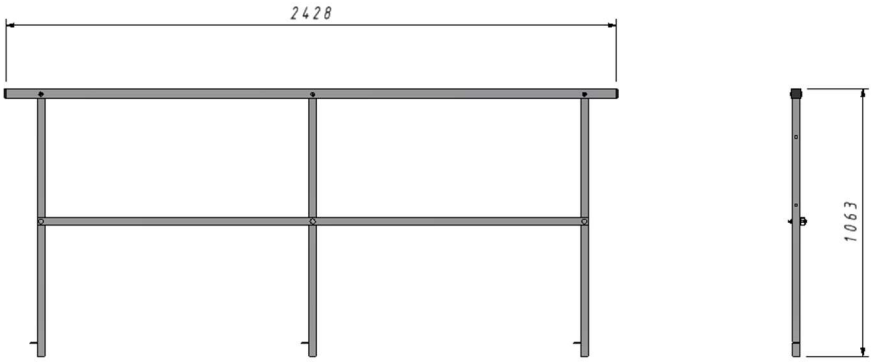
Weight: 45.1 kg

TAS-BL9C



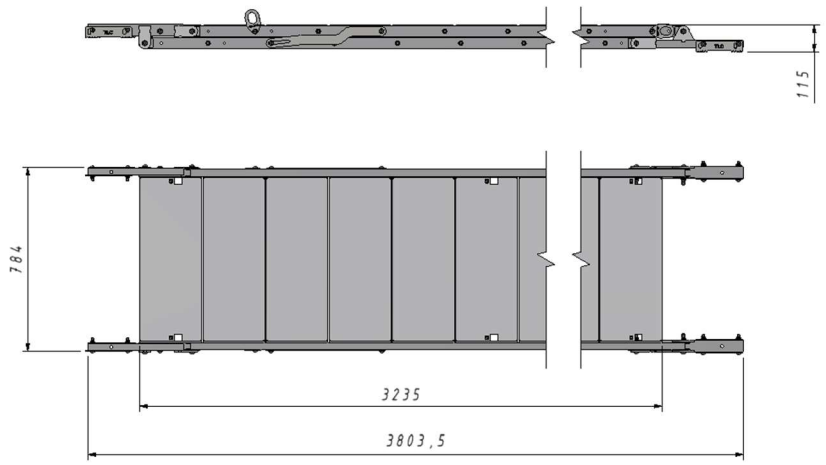
Weight: 6.95 kg

TAS-BP9C



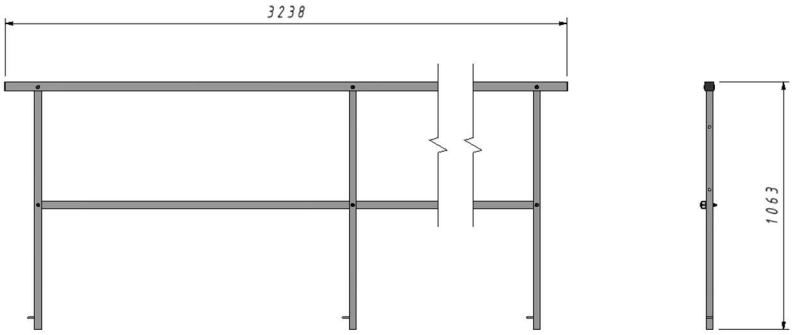
Weight: 6.95 kg

TAS-S12C



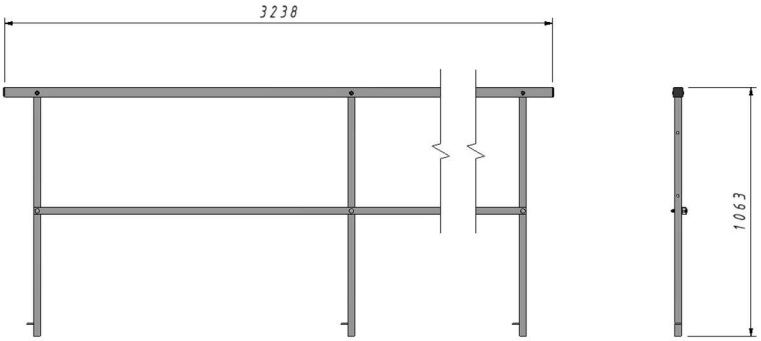
Weight: 56.1 kg

TAS-BL12C



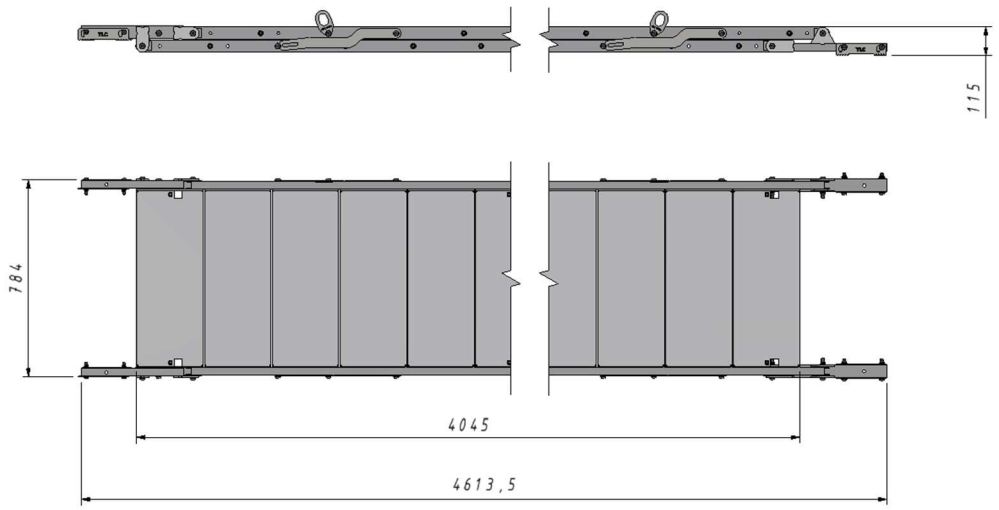
Weight: 8.4 kg

TAS-BP12C



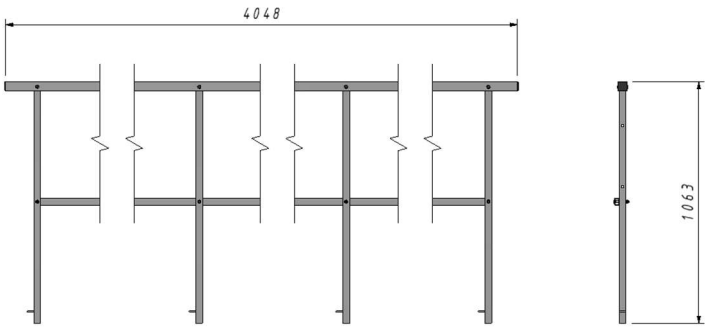
Weight: 8.4 kg

TAS-S15C



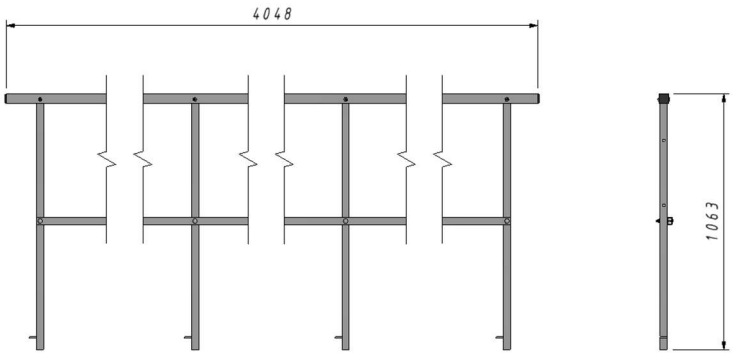
Weight: 70 kg

TAS-BL15C



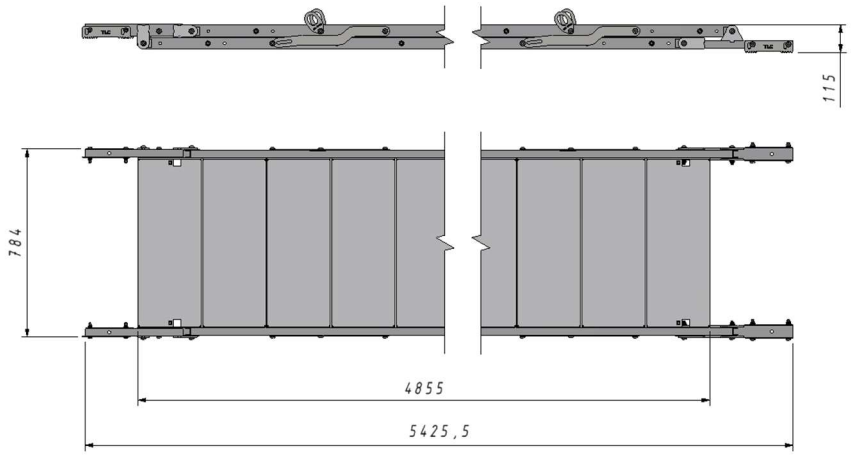
Weight: 10.7 kg

TAS-BP15C



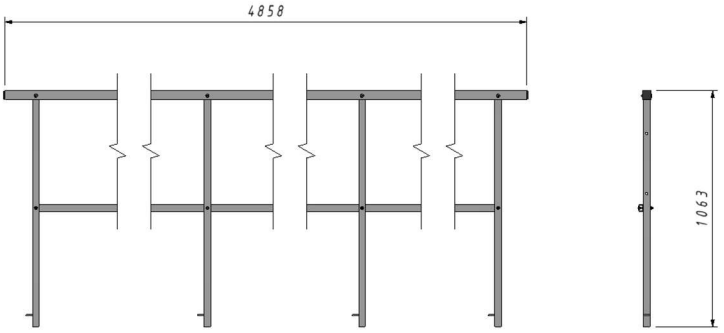
Weight: 10.7 kg

TAS-S18C



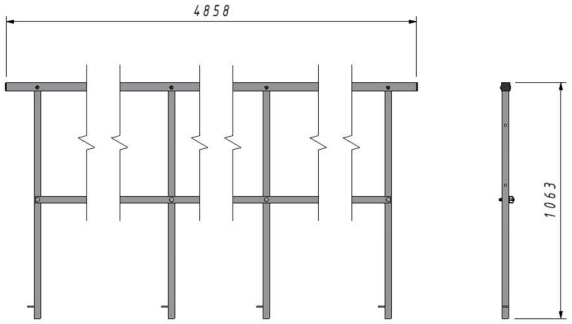
Weight: 81.6 kg

TAS-BL18C



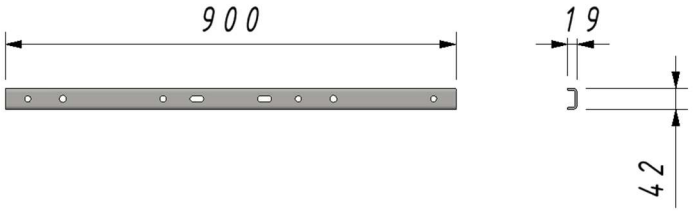
Weight: 12.1 kg

TAS-BP18



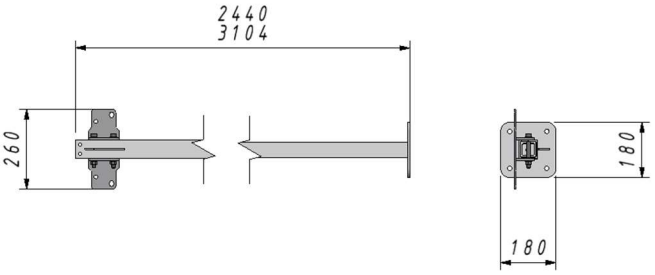
Weight: 24.81 kg

TAS-L7



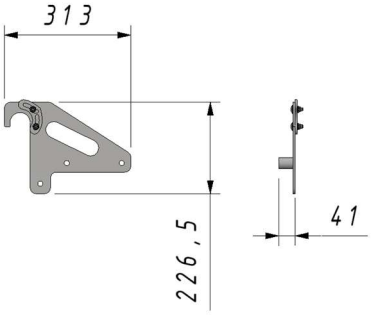
Weight: 1.9 kg

TAS-PR6



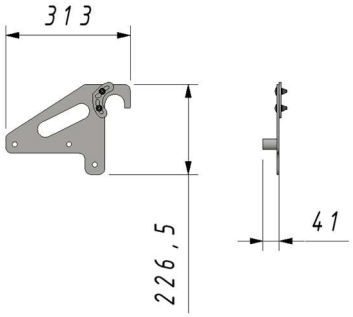
Weight: 9.76 kg

TAS-SGLH4



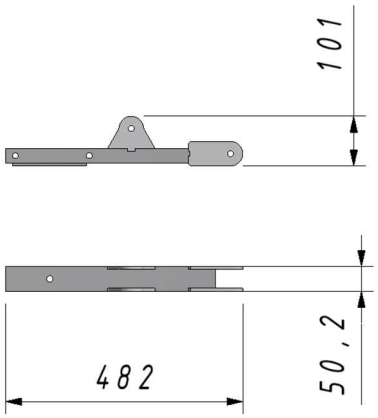
Weight: 1.54 kg

TAS-SGPH4



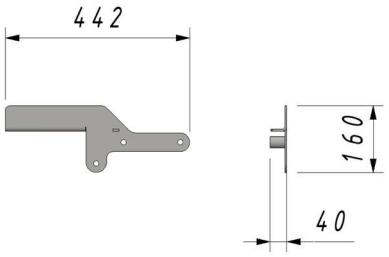
Weight: 1.54 kg

TAS-SDAL1



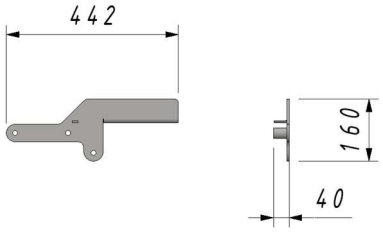
Weight: 0.84 kg

TAS-SGLH3



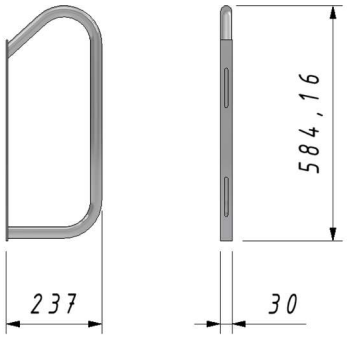
Weight: 1.5 kg

TAS-SGPH3



Weight: 1.5 kg

TAS-UB-CH



Weight: 0.5 kg

#	Connectors	TAS-3C	TAS-6C	TAS-9C	TAS-12C	TAS-15C	TAS-18C
		quantity					
1	Lock screw DIN 603 – M8 × 65 A2	4	4	6	6	8	8
2	Bolt ISO 7380 A4 M12 × 80	8	8	8	8	8	8
3	Bolt ISO 7380 A4 M12 × 70	10	18	18	18	22	22
4	Bolt ISO 7380 A2 M8 × 35	4	4	6	6	8	8
5	Bolt ISO 7380 A2 M10 × 60	4	4	4	4	4	4
6	Bolt ISO 4762 A2 – M12 × 30	4	8	20	32	40	52
7	Bolt ISO 4762 A2 – M10 × 25	4	4	6	6	8	8
8	ISO 7089 washer A2-8 – 200 HV	4	4	6	6	8	8
9	ISO 7089 washer A2-12 – 200 HV	26	34	34	34	38	38
10	ISO 7089 washer A2-10 – 200 HV	12	12	14	14	16	16
11	Nut ISO 10511 A2 – M8	4	4	6	6	8	8
12	Nut ISO 10511 A2 – M12	22	34	46	58	70	82
11	Nut ISO 10511 A2 – M10	4	4	4	4	4	4
12	Crown nut M8	4	4	6	6	8	8

Tab 2. List of connectors

#	Connectors	TAS-L7
1	ISO 4762 bolt – M12 × 30	6
2	ISO 7089 washer 8-ZO-12 – 200 HV	6
3	ISO nut 10511 ZN – M12	6

Tab 3. List of accessory fasteners

#	Connectors	TAS-PR6
1	ISO 7089 washer A2-12 – 200 HV	4
2	Bolt ISO 4762 A2 – M12 × 100	2
3	Nut ISO 4032 A2 – M12	2

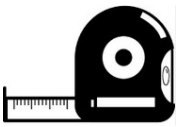
Tab 4. List of accessory fasteners

Diameter	Momentum in Nm
M8	23
M10	46
M12	79

Approximate tightening torques for coarse threaded stud bolts for a friction factor of μc = 0.15

Tab 5. Tightening torques MA for class 8.8 bolts

3. List of tools needed for installation of TAS staircase.

	Wrenches: 13, 16,18
	Wrenches: 5, 8, 10
	Spirit level
	Measuring tape
	Lifting device with a lifting capacity of min. 1 t when assembling long sets

Tab 6. List of tools

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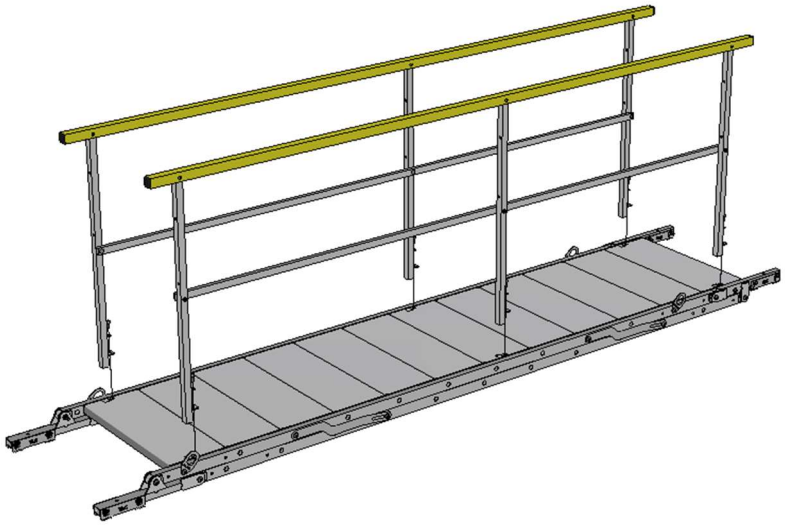
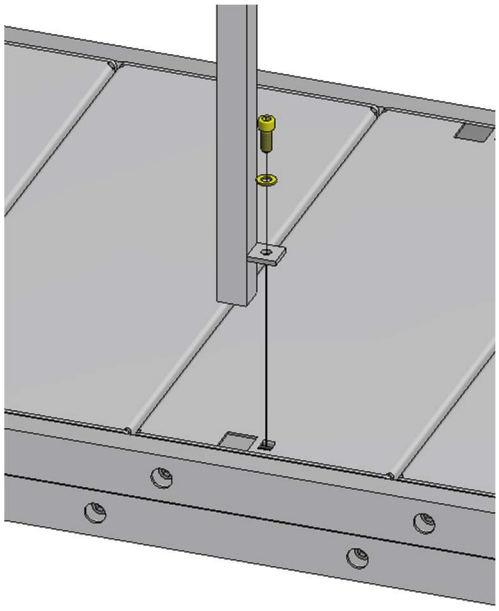
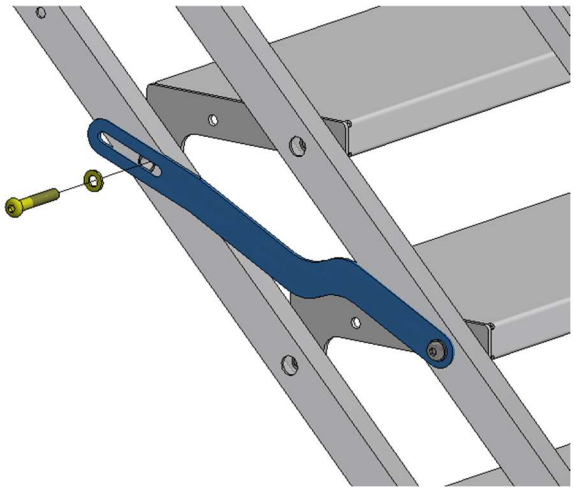
16 1600 1462 1817 5044 2000 0001

4. TAS staircase assembly operations

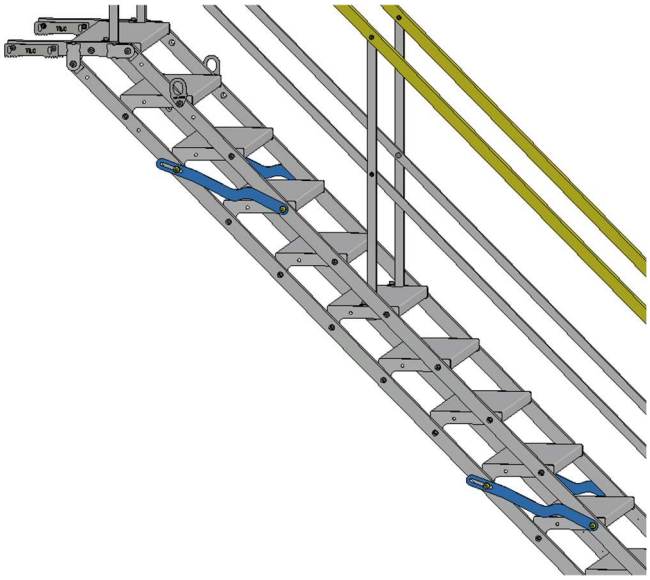
The following shows the method and sequence of installation of the TAS staircase

4.1. Installing the handrails to the staircases – slide the handrail posts into the sockets in the steps.

4.2. Tighten the handrail locks – tighten the screws in the step sockets


4.3. For the 15, 18 step stairs, the locking device, which is unscrewed for transport, must be fitted back in place. Remove the bolt together with the washer, put through the other side of the lock (oval hole), tighten.

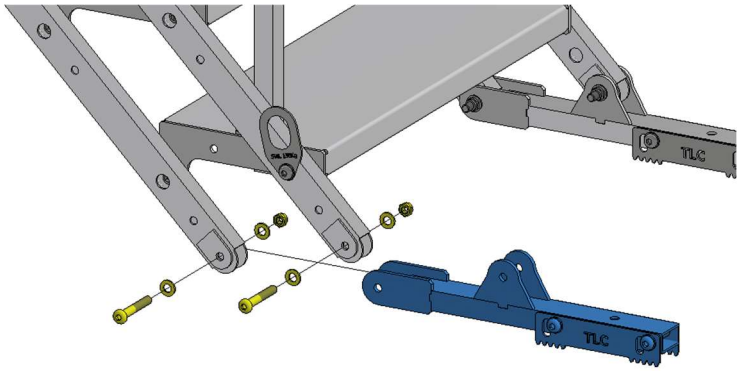


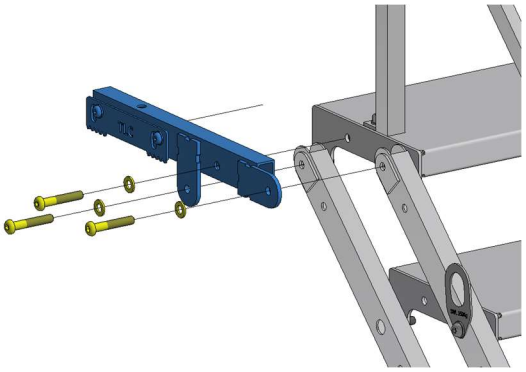
4.4. In order to ensure the rigidity of the staircase, the bolts securing all locks must be tightened. Tighten connections with approximately 60% of the tightening torque prescribed for the diameter and class of connector, see Table 5.



4.5. Joining the stairs

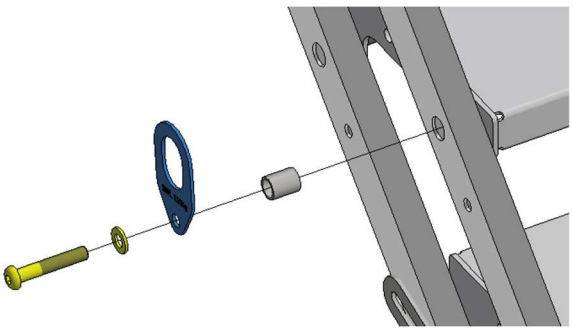
4.5.1. Removing of the staircase foot – unscrew bolted connections the stair steps are bolted to the stringers with. Remove the bottom feet in one staircase and the top feet in the other.

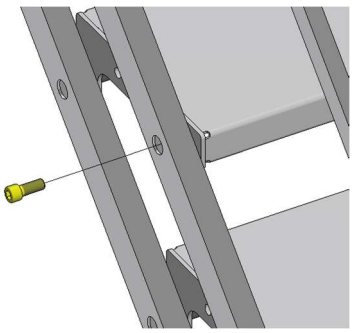




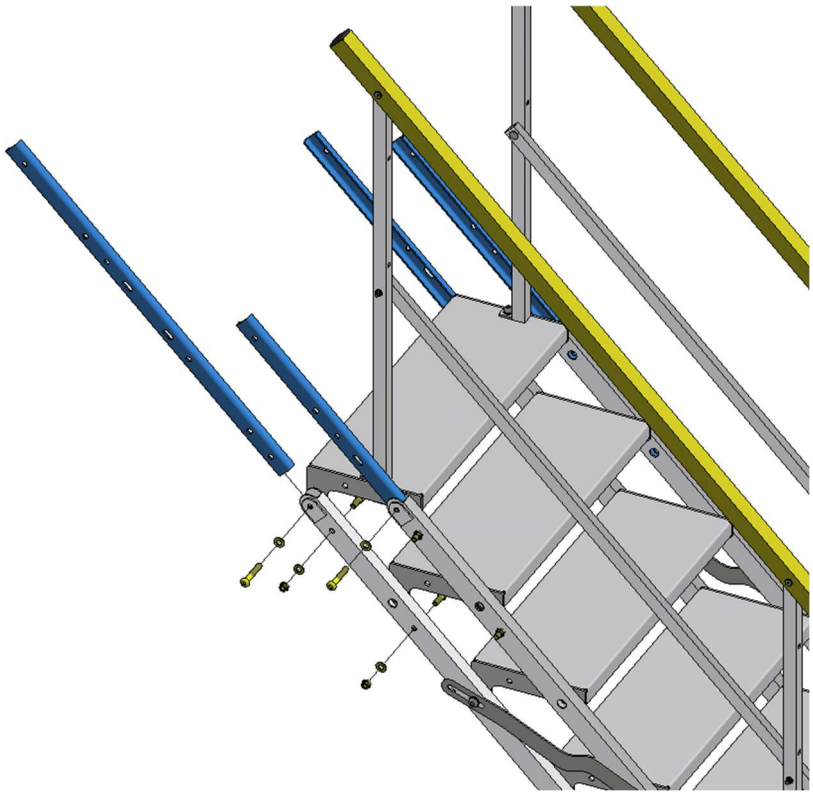
4.5.2. Removing the L30 handle connector, unscrew the bolt fixing the handle, pull off the handle, pull out the sleeve, screw in the bolt

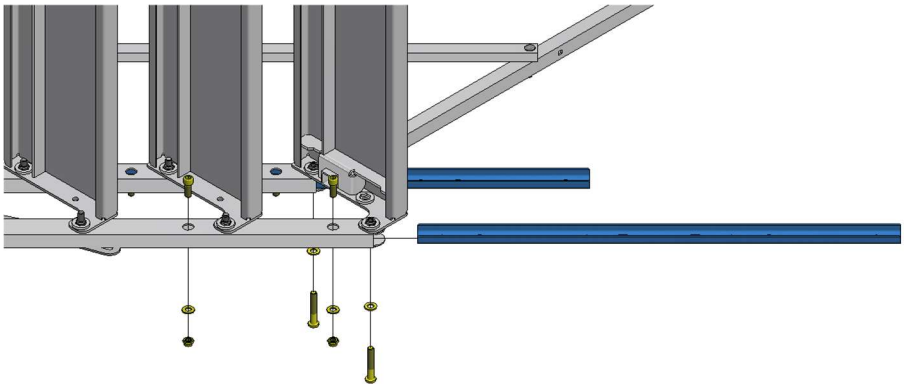
Note: bot screwing in required



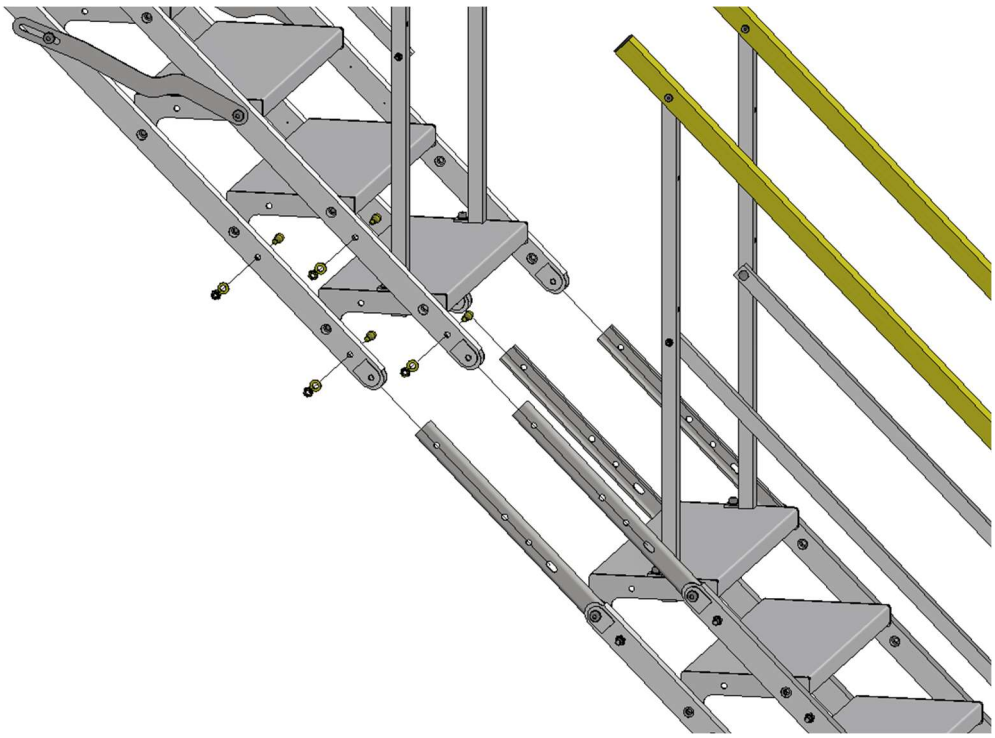


4.5.3. Installing the L7 connector – for the staircase in its unfolded state, remove the upper feet then slide the connector into the centre of the cheek beam and fasten with bolts



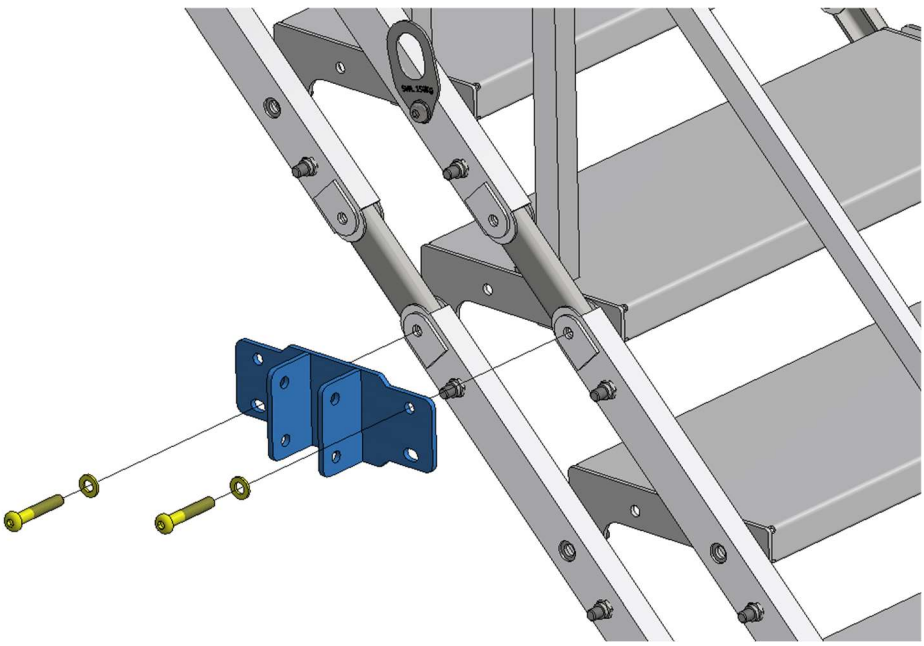


4.5.4. Slide the stairs with the dismantled base feet onto the stairs with the fastened L7 connectors and bolt in place

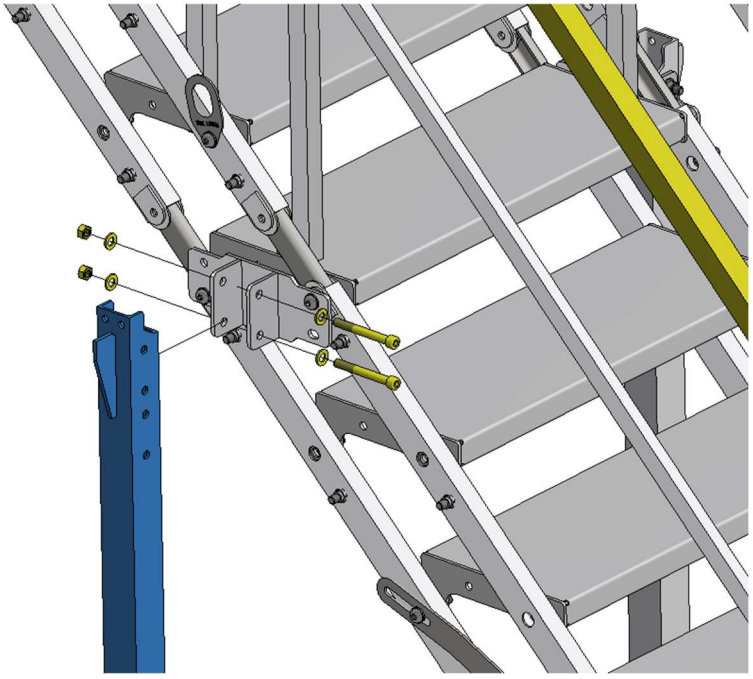


4.6. Assembly of PR6 supports – if a set of steps has to be supported

4.6.1. Unscrew the bolt connections securing the step, insert the fixing bracket for the PR7 supports, put the bolt and washer through the bracket and tighten with the nut

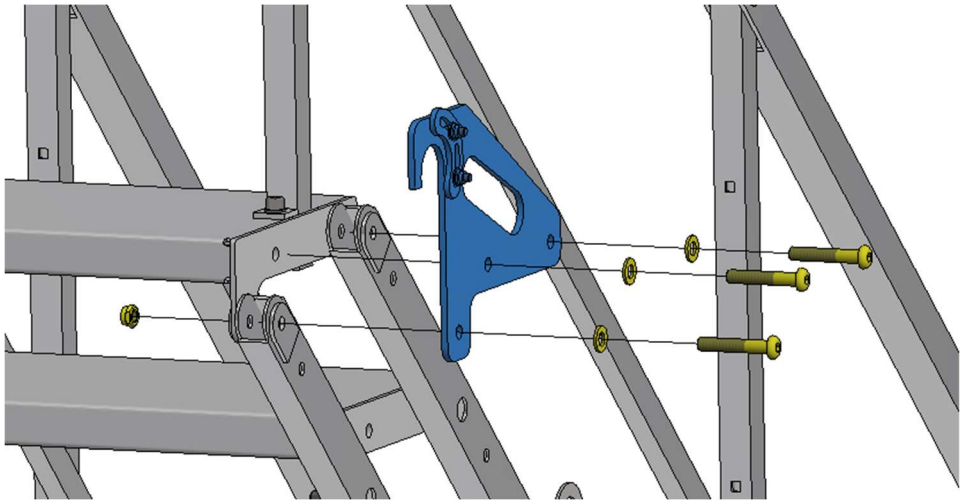


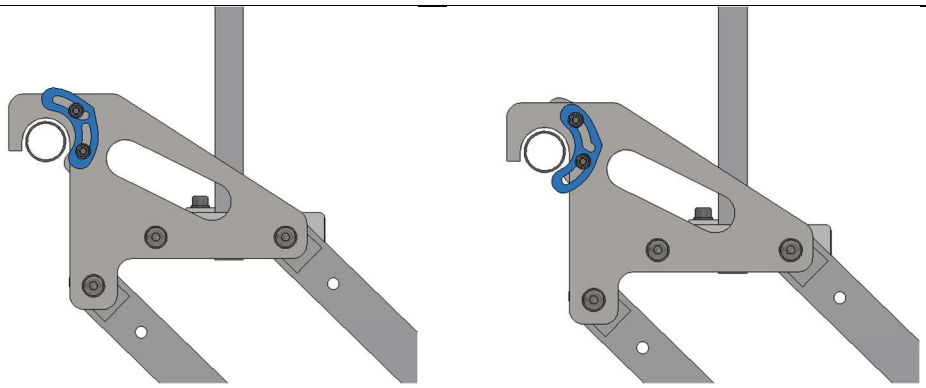
4.6.2. Push the post onto the PR7 and screw it in place



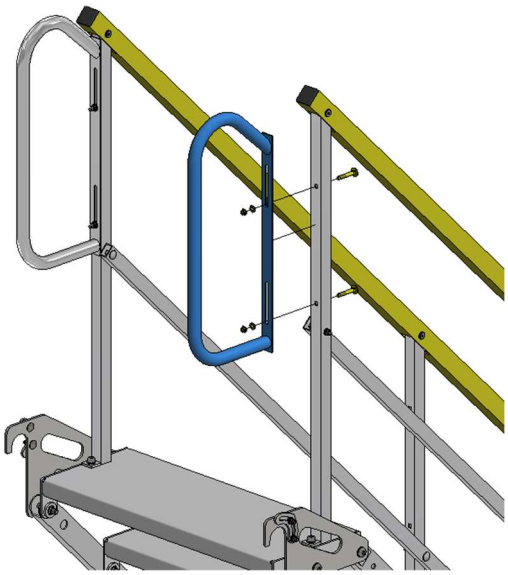
4.7. Installation of the tube bracket

4.7.1. Installing the top bracket: remove the top foot according to p. 4.5.1., use the same set of bolts to attach the TAS-SGLH4/TAS-SGPH4 bracket. Before mounting on the round section, release the bolts holding the locking mechanism, move it to the upper position, place the bracket and secure it by moving the locking mechanism to the lower position and tighten the bolts.





4.7.2. Assembly of the complementary handrail: slide the handrail on and fasten with the bolt washer nut kit



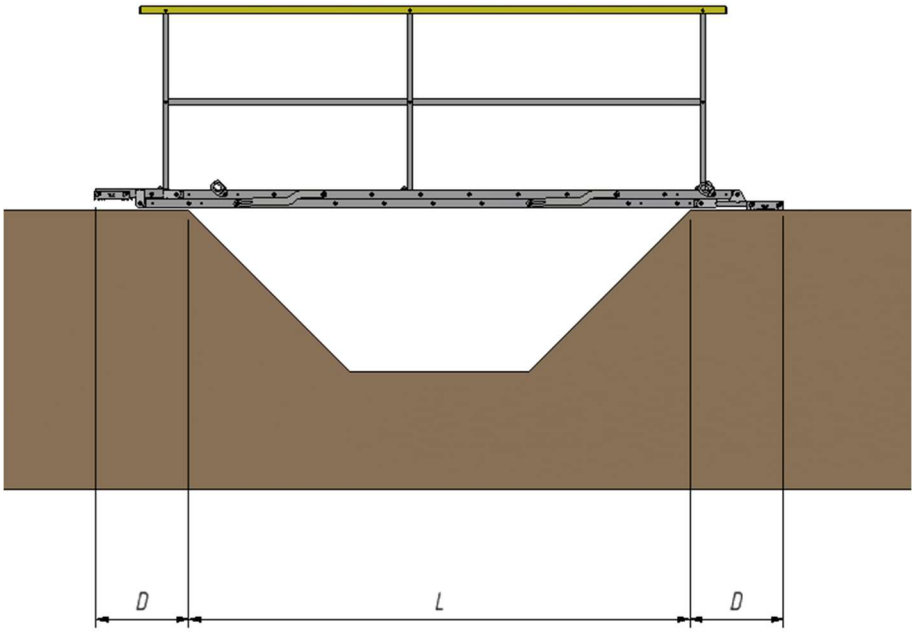
5. Staircase assembly

Assembly should take place on a pre-prepared substrate that is level and provides a stable support for the staircase throughout its service life, Due to the temporary use of the staircase, assembly on reinforced concrete slabs, concrete blocks or wooden blocks is permitted. If timber blocks and blocks are used, it is a prerequisite that they are set into a hardened gravel bed with an effective drainage system in a secure and stable manner. When installing on the ground, an effective drainage system is required. In addition, the staircase must be anchored using the holes in the base feet; if the staircase is installed on the ground, the minimum anchor length is 40 cm.

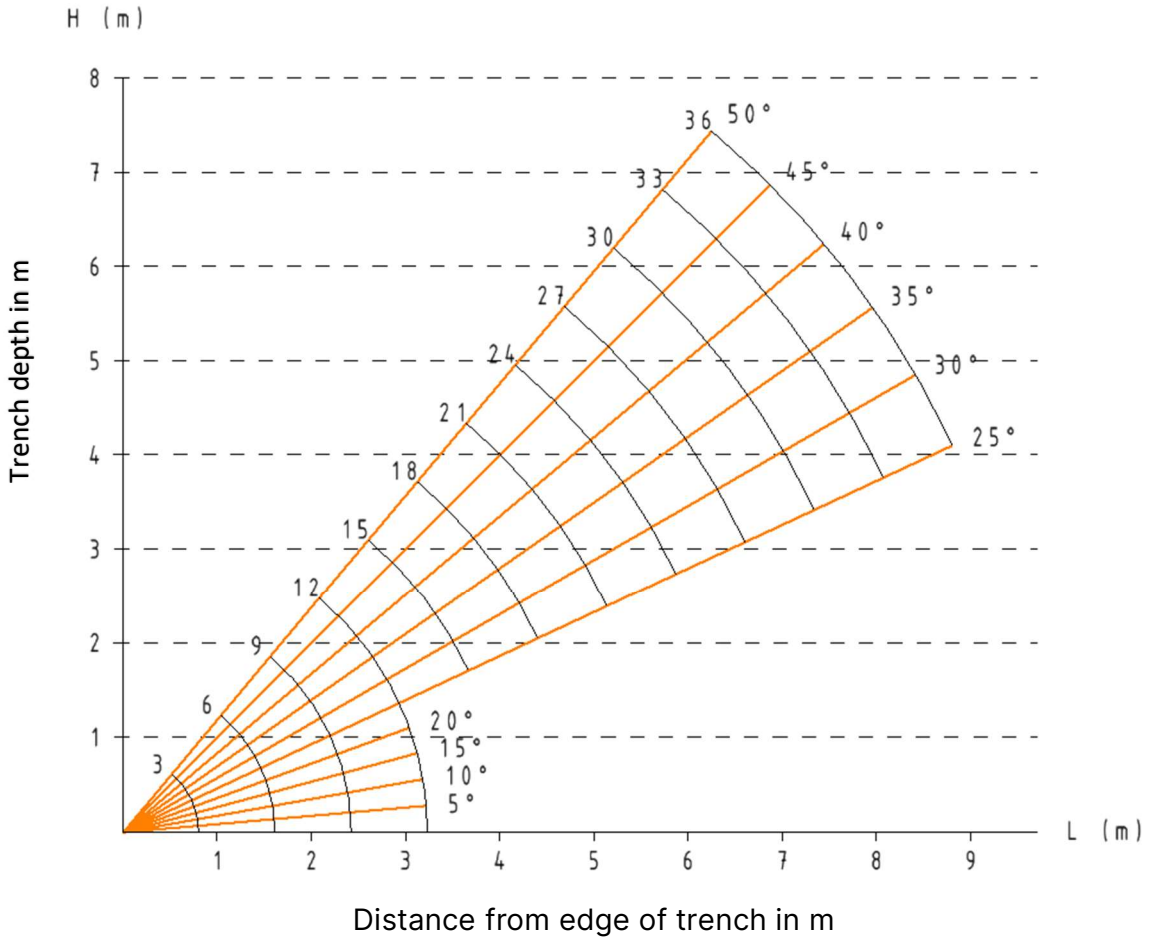
It is possible to combine stairs to create a circulation route leading to the building floors. In this case, a combination of two staircases with a maximum of 24 steps in a flight is permitted. E.G. 12+12=24, 18+6=24. It is necessary to support the flight halfway along its length; two PR6 supports should be used for this purpose.

The distance from the edge of the excavation and the angle of the stairs are shown in Figure 3.

Stairs of 3, 6, 9, 12 steps can be used as a footbridge over the excavation, the minimum distance at which the footbridge must support the edge of the excavation on one side and the other side is D = min 500 mm. In addition, the footbridge must be anchored to the ground.



Rys. 2. Footbridge over the trench.



Rys. 3. Angle of inclination and distance from the edge.

The stairs must be installed in the excavation with at least two skilled workers and a crane.

1. Prior to installation, the installation zone must be demarcated so that it does not interfere with ongoing construction work and does not create a hazard.
2. Determine the location of the foundation of the stairs so that they do not interfere with the construction work being carried out and do not create a hazard.
3. Prepare the location of the stairs
4. Lift the stairs using a lifting device and place in the excavation on the prepared ground
5. Rest the whole against the top edge of the trench.
6. Immobilise by anchoring and tightening the locks.

For staircases with 15 and 18 steps, it is recommended to set the angle of the staircase in advance and to tighten all bolt connections to approximately 60% of the tightening torque prescribed for the respective diameter and class of connector, see Table 5.

6. Operating conditions

The basis for the proper use of the staircase is its correct positioning. This mainly concerns the proper levelling of the substrate on which the stairs will be placed. Too much deviation from the horizontal will cause all the steps to be misaligned, which can cause operational difficulties and the danger of an accident. Therefore, the staircase should be checked periodically to ensure that the substrate on which it stands has not moved, which could cause the staircase to deviate from the horizontal, and the threaded connections should also be checked to ensure that they are tight.

To ensure proper operation when using the staircase, the following steps must be taken when assembling the individual components.

- restrain the lower part of the staircase to prevent sliding and rising
- restrain the top of the staircase by ensuring that it is supported by a stable edge in the form of a concrete block or wooden block.
- Tighten the lock

Adjustment and setting activities also include checking and possibly tightening bolt connections.

7. Dismantling

Before dismantling, a safety zone must be defined. Removal of the footbridge involves pulling it down from above the excavation using a lifting device after first ensuring that it is not restrained to either edge of the excavation. The dismantling of the staircase must be carried out in the reverse order to the installation. The operation should be carried out by at least two qualified personnel.

8. Disposal

Store, manage or dispose of packaging and used equipment in accordance with the current recommendations and requirements set out in the Waste Act of 27.04.2001 (J.L. 2001 No. 62 item 628) as amended.

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