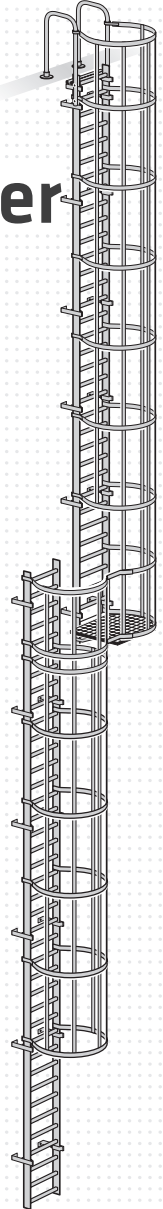


ABS Fixed Vertical Ladder

SL1-XXX





Sicherheitshinweise | Safety instructions

- DE** Montageanleitung beachten (1) und Sicherheitshinweise beachten (2).
- EN** Comply with the installation manual (1) and Comply with the safety instructions (2).
- FR** Respecter la notice de montage (1) and Respecter les consignes de sécurité (2).
- NL** Montagehandleiding in acht nemen (1) and Veiligheidsinstructies in acht nemen (2).
- BGR** Спазвайте инструкциите за монтаж (1) and Спазвайте инструкциите за безопасност (2).
- DK** Følg monteringsvejledningen (1) and Følg sikkerhedshenvisningerne (2).
- ET** Järgige paigaldusjuhendit (1) ja ohutusjuhiseid (2).
- FI** Noudata asennusohjeita (1) and Noudata turvallisuuohjeita (2).
- IT** Rispettare le istruzioni di montaggio (1) and Rispettare le istruzioni di sicurezza (2).
- PL** Przestrzegać zaleceń instrukcji montażu (1) and Przestrzegać zasad bezpieczeństwa (2).
- SK** Dodržujte návod na montáž (1) and Dodržujte bezpečnostné pokyny (2).
- SL** Sledite navodilom za namestitvev (1) and Sledite varnostnim navodilom (2).
- ES** Observar las instrucciones de montaje (1) and Observar las indicaciones de seguridad (2).
- CS** Dodržujte návod k montáži (1) and Dodržujte bezpečnostní pokyny (2).
- HU** Vegye figyelembe az összeszerelési útmutatót (1) and Vegye figyelembe a biztonsági utasításokat (2).

Für eine ordnungsgemäße Montage ist eine Dokumentation des Einbaus zwingend erforderlich!
Proper installation requires that the installation process is accordingly documented!

Kontakte | Contact persons

Vertrieb & Technische Beratung
Sales & Engineering

+49 (0) 28 32 - 972 81 - 0
vertrieb@absturzsicberung.de

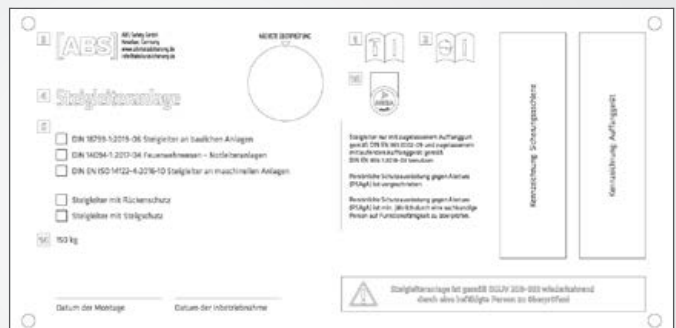
Schulung
Training

+49 (0) 28 32 - 972 81 - 148
schulung@absturzsicberung.de

Montagevorbereitung
Installation Planning

+49 (0) 28 32 - 972 81 - 260
service@absturzsicberung.de

Mustertypenschild | Sample specification plate



INHALT | CONTENTS

1. Preliminary notes	5
2. Safety instructions	6
3. Standards and regulations	7
4. Warranty and liability	7
5. System description	8
5.1. Overview system components	8
5.2. System illustrations (general requirements)	10
6. General installation instructions	12
6.1. Preliminary notes	12
6.2. Installation instructions	13
6.3. Stress diagram wall brackets	14
6.4. Stress diagram wall brackets with sub-assembly	18
7. Installation of a fixed vertical ladder	20
7.1. Different wall bracket designs	20
7.2. Ladder connector components	24
7.3. Different entry / exit units	25
7.4. Safety cage system components	29
7.5. System components	34
7.6. Basic and extension platforms	35
8. Labelling and notes	38
9. Maintenance and care	39
10. Fixed vertical ladder inspections	39

These Installation and Operating Instructions describe the installation, usage, maintenance and inspection of a fixed vertical ladder system installed using standard wall brackets.

Please make sure to read all the instructions and observe all the safety information prior to installing and using this fixed vertical ladder system.

The warranty shall be considered void in the case of damage caused as a result of non-compliance with these instructions and the respective safety information. We shall not assume liability for any consequential damage arising as a result.

The fixed vertical ladder systems described in these Installation and Operating Instructions comply with the following standards:

DIN EN ISO 14122-4, DIN 18799-1 and DIN 14094-1.

The type approval of the main components of the fixed vertical ladder systems described herein was carried out by

DEKRA Testing & Certification GmbH
Handwerkstraße 15, 70565 Stuttgart,

baumustergeprüft.

Should you have any questions or suggestions with regard to our fixed vertical ladder systems, please give us a call. We would be more than happy to assist you.

Montageschritte dokumentieren

Document assembly step



Dokumentation mit Bildern vervollständigen!
Complete your documentation using pictures!

**Dokumentation
ist Pflicht!**

Documentation is compulsory!

1. PRELIMINARY NOTES

Notes on using these Installation and Operating Instructions



You must read these Installation and Operating Instructions carefully and observe them accordingly prior to installing and using a fixed vertical ladder system.

The operator must ensure that these Installation and Operating Instructions are kept in the vicinity of each fixed vertical ladder system installed (or in a suitable place) so that they can be made available to the user at any time, if required..

Symbols are used to highlight specific text or illustrations to draw attention to particularly important content or hazardous situations.

Failure to follow these instructions may result in injury or even death.

The following symbols are used in this informational brochure:



General hazard warning



Fall hazard



General requirement



Please refer to the documentation



User personal fall protection equipment (PPE)



Tip, additional note

General rules



The German Workplaces Ordinance requires that ladders (incl. accessories) are regularly inspected by an authorised and suitably qualified individual to ensure that they are in good condition.

The inspection intervals are to be determined by the entrepreneur (operator) and depend on the operating conditions.



Operators bear full responsibility for:

- Ensuring compliance with the local, regional and national regulations,
- Observing the regulations (laws, ordinances, directives etc.) listed in these Installation and Operating Instructions to ensure that ladders are used in a safe manner,
- Ensuring that these Installation and Operating Instructions are available to the installation and operating personnel prior to installation and that the information provided herein - notes, warnings and safety regulations - is accordingly adhered to,
- Observing the different regulations that apply to fixed vertical ladder systems according to
DIN EN ISO 14122-4,
DIN 18799-1,
DIN 14094-1
during the planning and installation phases.

2. SAFETY INSTRUCTIONS

Notes on installing and using fixed vertical ladders



In the case of non-observance of the safety instructions set down on pages 6 and 7, the manufacturer's warranty shall be considered void!

Fall protection:

According to DIN 18799-1 and DIN EN ISO 14122-4, fall protection is mandatory from a fall height ≥ 3 m.

According to DIN 14094-1 "Firefighting and fire protection - escape ladder installations", fall protection devices as described in EN 353-1 may not be used in combination with a fixed vertical ladder system. Only safety cage systems are allowed.

According to DIN 18799-1 and DIN EN ISO 14122-4, only the fall protection systems described in EN 353-1 are permitted where the vertical distance is over 10 m and a single-section ladder is used.

Observing the safety information and instructions is the prerequisite for ensuring that fixed vertical ladders are handled safely and that they are installed and used correctly.

These Installation and Operating Instructions must be observed by all individuals involved in installing and using the fixed vertical ladder systems.

Furthermore, the accident prevention regulations that apply at the respective place of usage also need to be complied with.

- Prior to usage, the area directly below the user should be checked to ensure that there is adequate clearance so that in the case of a fall, the user does not hit the ground or any other obstruction.
- Prior to using the fixed vertical ladder, a visual inspection of the system must be carried out.
- The user of the fixed vertical ladder must be physically and mentally capable of using the respective system.
Should the intake of medication be necessary prior to usage, it is advisable to find out about any side effects that may impair usage of the system or cause physical harm.
- Before commencing work, the user of the fixed vertical ladder must find out from the operator if there are any special rescue measures in place - and about how to initiate and implement these should they prove necessary.

- Furthermore, in order to be in a position to identify hazards and their potential impact, the user must be made aware of any conditions specific to the location prior to usage.
- When installing and using accessories to the system, the instructions included with these accessories must be followed accordingly.
- Gloves must be worn when installing and using the fixed vertical ladder system.
- The ladder must be secured against unauthorised usage.
- The fixed vertical ladder may only be used as intended and provided that it is in perfect technical condition.
- Usage of the system or system components must be immediately stopped should there be any doubts as to their being in a safe condition.
This must be done by either the manufacturer or another suitably qualified individual.
- No modifications or additions to the equipment may be made without the explicit prior written consent of the manufacturer.
- Any necessary repairs must be carried out in accordance with the procedures specified by the manufacturer.
- During installation, maintenance or repair work, care must be taken to ensure that no scaffolding, platforms or any other objects which may represent additional hazards in the case of a fall protrude into the respective fall area.



When using a fixed vertical ladder with a safety cage system, it is not permitted to use an additional vertical lifeline system as described in EN 353-1.

Reason: Due to lack of space, it would be impossible to carry out a rescue operation.

3. STANDARDS AND REGULATIONS

DGVV 1

General regulations

DGVV 38

Construction work

DGVV 312-906

Principles for selecting, training and certifying specialists for personal fall protection equipment

DIN 18799-1

Fixed vertical ladders for building structures

DIN 14094-1

Firefighting and fire protection - escape ladder installations

DIN EN ISO 14122-4

Safety of machinery - permanent means of access to machinery - "fixed ladders"

4. WARRANTY AND LIABILITY

Observing the safety information and instructions is the prerequisite for ensuring that fixed vertical ladders are handled safely and that they are installed and used correctly. These Installation and Operating Instructions must be observed by all individuals involved in installing and using the fixed vertical ladder systems.

Furthermore, the accident prevention regulations that apply at the respective place of usage also need to be complied with.

No liability shall be accepted for damage to property or for personal injury caused as a result of the following:

- Improper installation or usage of the fixed vertical ladder system.
- Usage of the fixed vertical ladder in a manner for which it was not intended.
- Usage of the fixed vertical ladder despite safety deficiencies.
- Non-observance of these Installation and Operating Instructions or in the case where the user was not aware of them.
- Unauthorised structural modifications to the fixed vertical ladder system.*
- Use of non-original spare parts.
- Insufficiently qualified installation personnel or users.

* Structural modifications to the fixed vertical ladder system are only permitted, if the following requirements are observed:

- Shortening of the bottom end of ladder under observance of the dimensional specifications (see page 12),
- Shortening of the vertical bars under observance of the installation instructions (see pages 29/30).

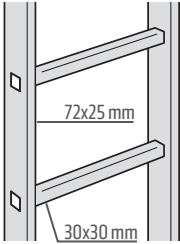
In general, one should ensure that:

- Any cut edges are free from burrs,
- In the case of galvanised steel parts, any cut surfaces need to be reworked
(DIN EN ISO 1461 - Section 6.3 "Renovation":
e.g. using a suitable zinc dust coating).

5. SYSTEM DESCRIPTION

5.1. OVERVIEW SYSTEM COMPONENTS

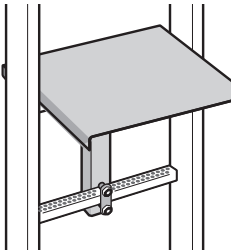
All illustrations are examples. These may deviate from the model in question.



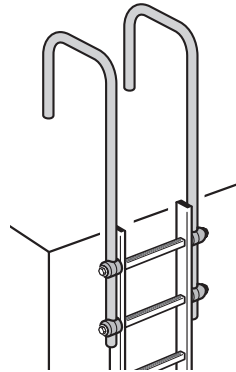
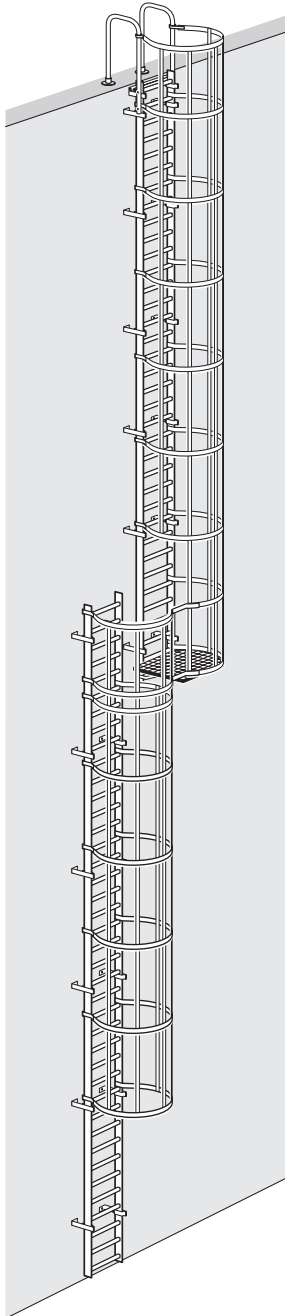
Fixed aluminium vertical ladder



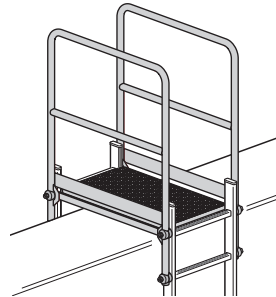
Ladder connector (inner connector)
Fixed aluminium vertical ladder



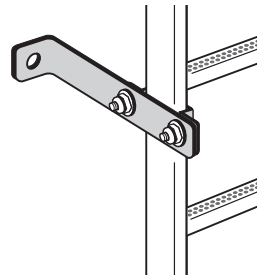
Resting platform



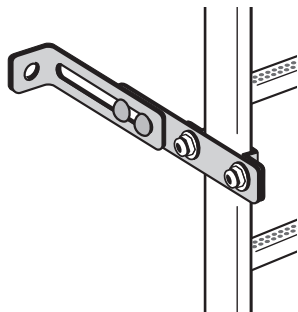
Exit rails (different models)



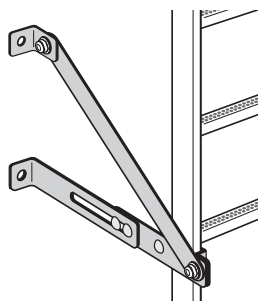
Stepover unit



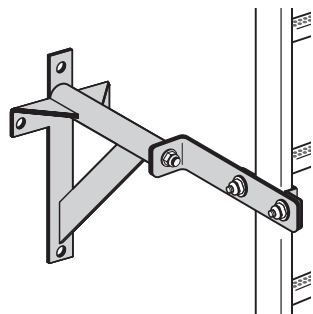
Standard wall bracket



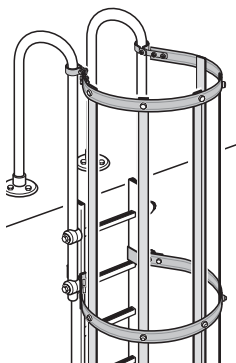
Adjustable wall bracket



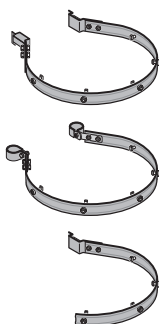
Special wall bracket with suspension bar



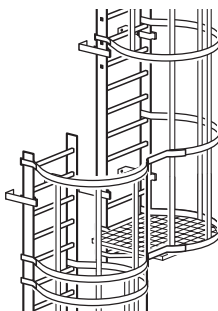
Wall bracket with sub-assembly



Safety cage system



Rear guard



Safety cage system (system components)

5.2. SYSTEM ILLUSTRATIONS (GENERAL REQUIREMENTS)

- According to DIN 18799-1 and DIN 14094-1, fixed vertical ladders need to be set at an angle of inclination of between 75° to 90° to the horizontal.
- According to DIN 18799-1 and DIN EN ISO 14122-4, fall protection is mandatory from a fall height ≥ 3 m.
- According to DIN 14094-1, only safety cages are allowed.
- The uppermost wall bracket must not be more than 560 mm below the exit point (which corresponds to 3 rungs).

A) Single-section fixed vertical ladder, basic ladder without a safety cage

- DIN 18799-1
- DIN EN ISO 14122-4

B) Single-section fixed vertical ladder, basic ladder with a safety cage system

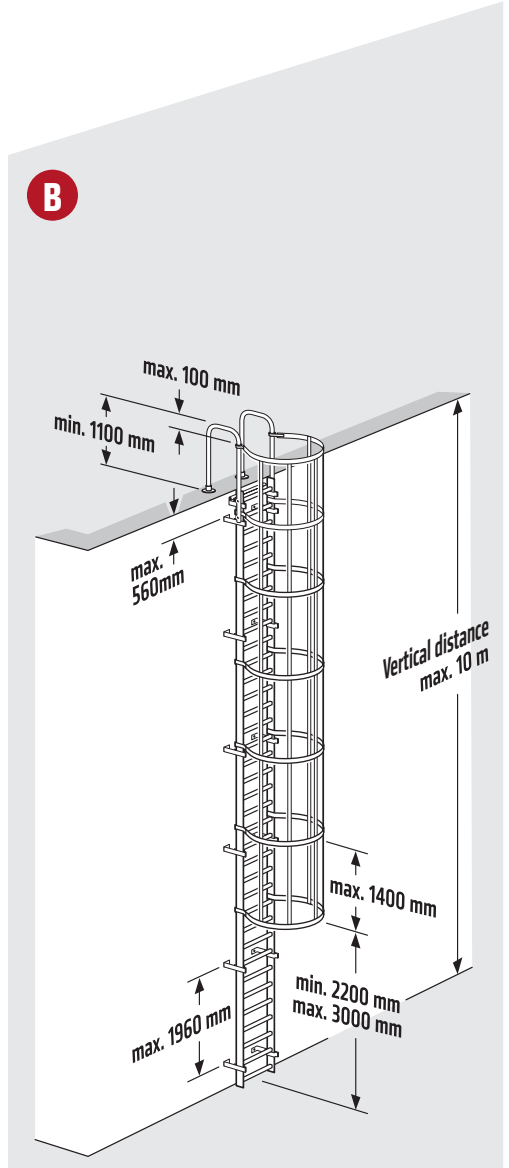
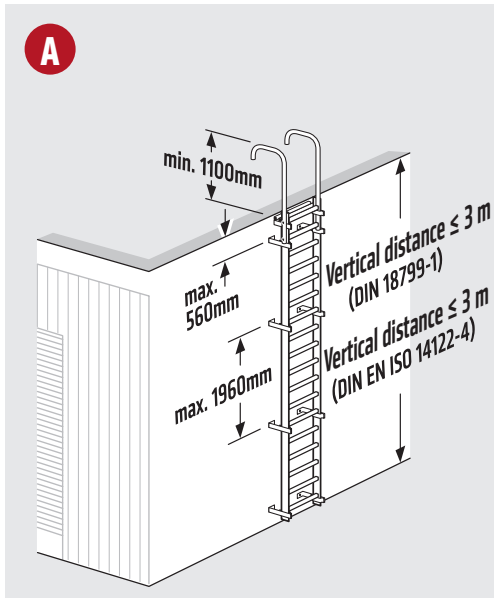
- DIN 18799-1
- DIN EN ISO 14122-4
- DIN 14094-1

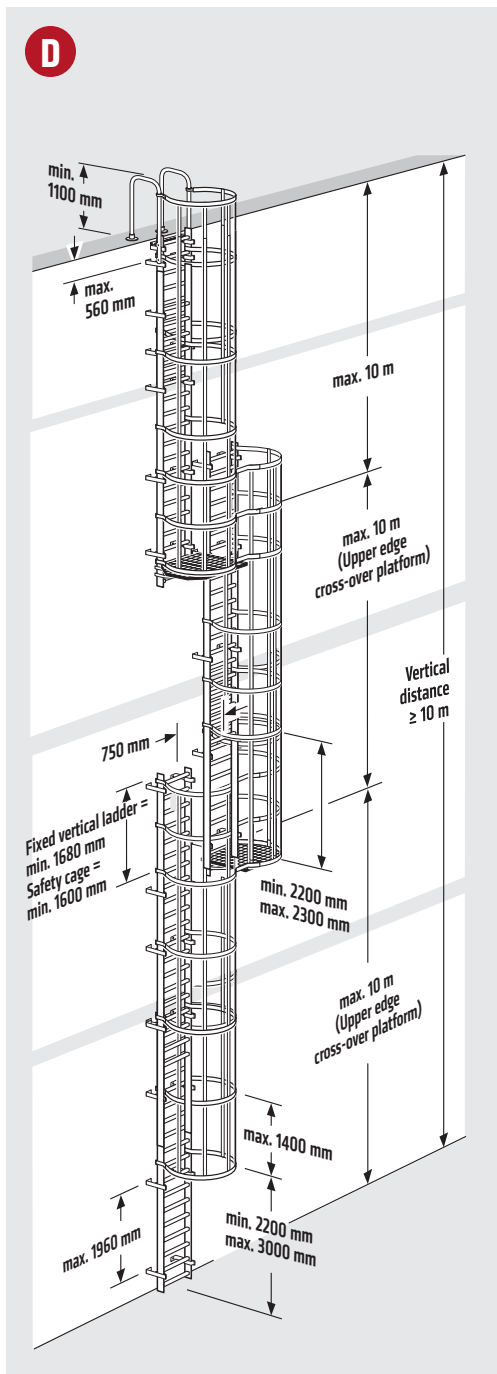
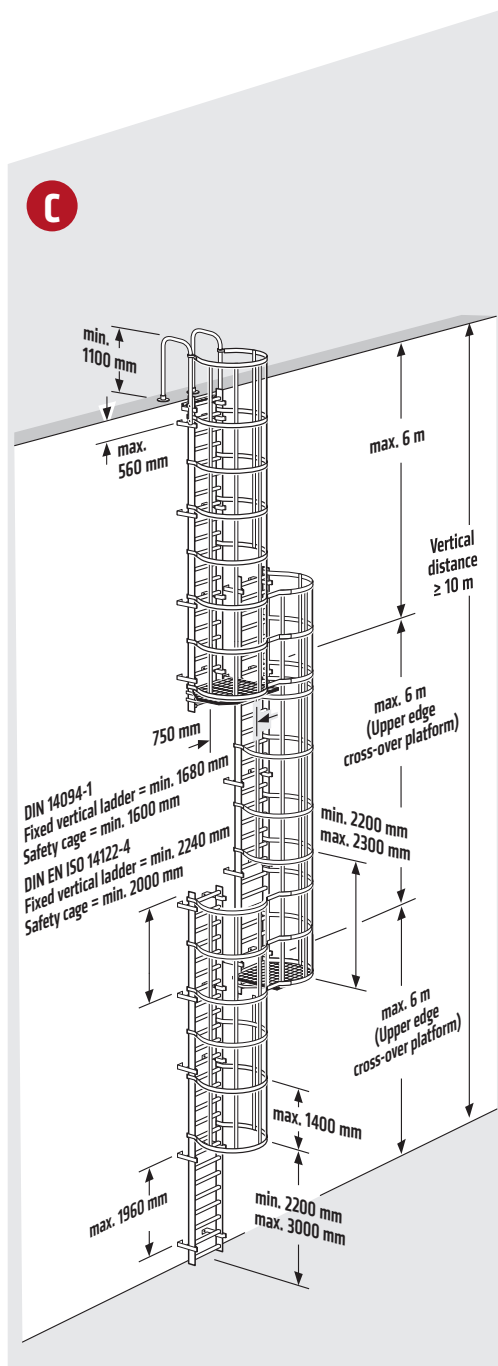
C) Multi-section fixed vertical ladder with a safety cage system

- DIN EN ISO 14122-4
- DIN 14094-1

D) Multi-section fixed vertical ladder with a safety cage system

- DIN 18799-1





6. GENERAL INSTALLATION INSTRUCTIONS

6.1. PRELIMINARY NOTES

- Prior to starting the installation, steps must be taken to ensure that the ensuing load can be absorbed by the structure.
- If no corresponding information (documents) is available, it is essential to have an expert opinion drawn up by a static engineer that takes the required load-bearing capacity into account. Proof of existence of this expert opinion must also be provided.
- If special wall brackets are used, these must be installed in accordance with the requirements contained in the corresponding drawings, resp. static or other specifications. The load specifications on pages 14 - 19 only apply to standard wall brackets.
- Should the required proof (confirming that the force can be safely absorbed by the building structure) fail to be provided, liability on the part of the manufacturer may be excluded in the event of damage. Liability shall then pass on to the operator.

Installation personnel

- The personnel tasked with installing the fixed vertical ladder system must be appropriately qualified and authorised. The manufacturer may be required to carry out training with a view to using the required installation materials.
- The installation personnel must not be secured by attachment to the system under construction.
- An approved anchorage point in accordance with EN 795 must be used on the building or alternative structure.

Installation process

- Only use clean and undamaged system components.
- Damaged parts must be replaced with new ones.

Installation log

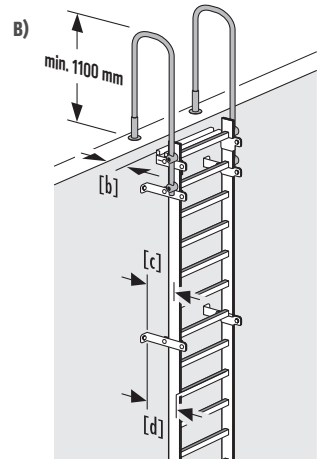
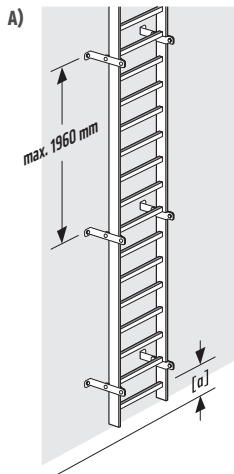
- The whole installation process for the fixed vertical ladder system must be documented by the installation manager of the installation company concerned.



Caution: Danger of falling!

During installation, please use a fall arrest system in accordance with EN 363.

Installation of the fixed vertical ladder (dimensional specifications)



The following specifications apply to the spacing dimensions [a]:

DIN EN ISO 14122-4 and DIN 18799-1

DIN 14094-1:

[a] = max. 400 mm, min. 100 mm.

The top ladder rung and the exit extension must be at the same height as the exit point.

[b] = The gap between the exit extension and the wall must not exceed 75 mm.

[c] = The gap between the ladder (centre of the rung) and the installation surface must be at least 185 mm.

[d] = The gap between the ladder (front edge of the rung) and the installation surface must be at least 200 mm.
(DIN EN ISO 14122-4, DIN 18799-1, DIN 14094-1).

6.2. INSTALLATION INSTRUCTIONS

Notes on attachment to the building structure:

- The anchors and connectors (brackets, installation materials) must be capable of bearing the respective loads.
- When dimensioning the ladder brackets and anchors, a load of at least 3 kN per upright, resp. 6 kN per ladder, must be taken into account. This load must be transferred into the building structure via at least 4 anchors per ladder. This corresponds to 1.5 kN per anchor.
- The vertical distance between the anchors must not exceed 1960 mm (this corresponds to 7 rungs where the rung spacing equals 280 mm).
- The anchors must always be arranged in pairs at one level - one to the left and one to the right of the ladder.
- The subsurface of the building structure where the anchors are installed must be sufficiently dimensioned and suitable for the loads mentioned above.
- Suitable subsurfaces include:
 - Steel structures
 - with screw sockets, min. M12 (see illustration A)
 - Through bolt connections, concrete structures
 - Anchor dowel installation on a concrete structure (see illustration B).

Installation on concrete structures:

- Only dowels with national technical approval may be used for concrete structures.
- The quality of the concrete when using a safety cage must be at least B20/25, resp. C30/37 when using a vertical lifeline (see illustration B).

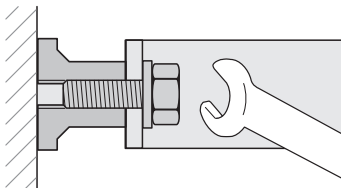
Installation on masonry:

- Only dowels with national technical approval may be used for masonry.
- In the case of an undefined subsurface, the installation system must be designed in consultation with the structural engineer.
- A through bolt anchor system using a counter plate is also conceivable. This must be coordinated with the construction engineer and verified accordingly.

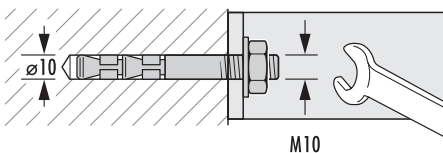


Before installing the fixed vertical ladder, steps must be taken to ensure that the ensuing force can be safely transferred into the building structure (coordination with the structural engineer)! Please observe the installation instructions provided by the dowel manufacturer! Montageanleitung des Dübelherstellers beachten!

A) Example: Installation of a fixed vertical ladder using a screw socket



B) Anchor dowel installation in concrete



Bolt tightening torques*

- Bolted connection using steel bolts:

max. tightening torque M_A (Nm) with a total friction coefficient $\mu = 0.08$
($\mu = 0.08$ corresponds to a galvanised, unoiled, dry surface)

Strength class 8.8:	Strength class 10.9:
M8= 17.9 Nm	M8= 26.2 Nm
M10= 36.0 Nm	M10= 53.0 Nm
M12= 61.0 Nm	M12= 90.0 Nm
M16= 147.0 Nm	M16= 216.0 Nm
M20= 297.0 Nm	M20= 423.0 Nm

- Bolted connection using A2 + A4 stainless steel bolts:

max. tightening torque M_A (Nm) with a total friction coefficient $\mu = 0.10$
($\mu = 0.10$ corresponds to an uncoiled, dry surface).

Strength class 70:
M8 = 14.5Nm
M10= 30.0Nm
M12= 50.0Nm
M16= 121.0Nm
M20= 244.0Nm

*The bolt tightening torques given above refer exclusively to solid substrates exclusively to solid substrates such as concrete or masonry!

Strength class 70 corresponds to a cold worked product with a nominal length of up to $8 \times d$ and yield strength $R_p 0.2 = 90\%$.

6.3. STRESS DIAGRAM WALL BRACKETS

F_1 = Assumption: 4 individuals on the ladder at the same time, each with a man load of 1.5kN.

F_2 = Eccentric man load.

The following conditions apply to the extraction forces specified:

1. For any length of ladder and max. 5 individuals at least 6 metres apart on the ladder .

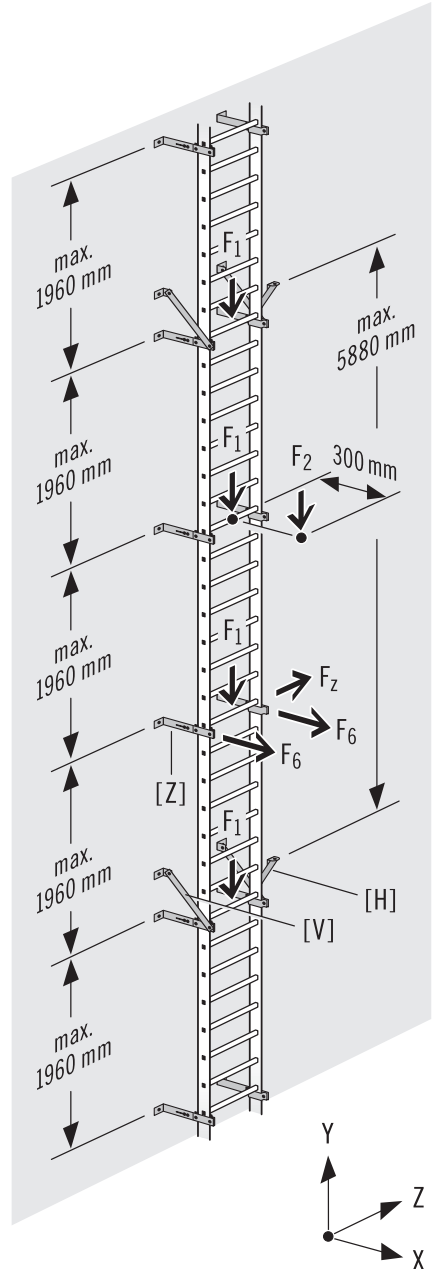
Ladder fitted with a safety cage system:

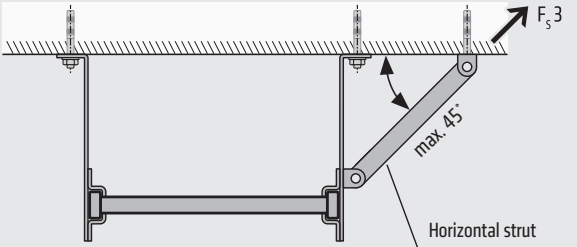
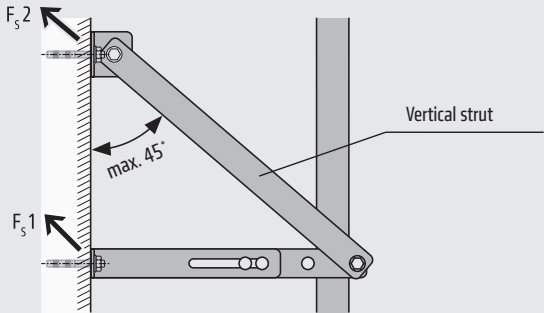
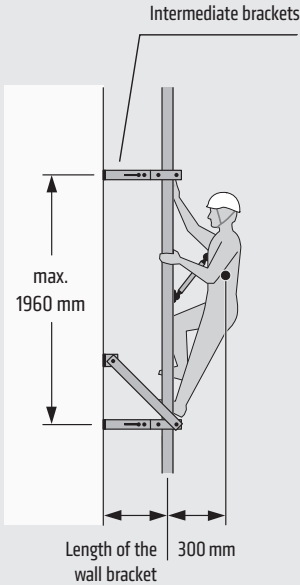
For a ladder length of 10 metres with individuals spaced 2 metres apart on the ladder.

2. Where the gap to the wall > 215 mm, a wall bracket with a vertical strut [V] is required every 5880 mm.

Where the gap to the wall > 300 mm, a wall bracket with both a vertical strut [V] and horizontal [H] strut is required every 5880 mm.

Intermediate brackets [Z] (max. 1960 mm apart) do not require vertical or horizontal struts.

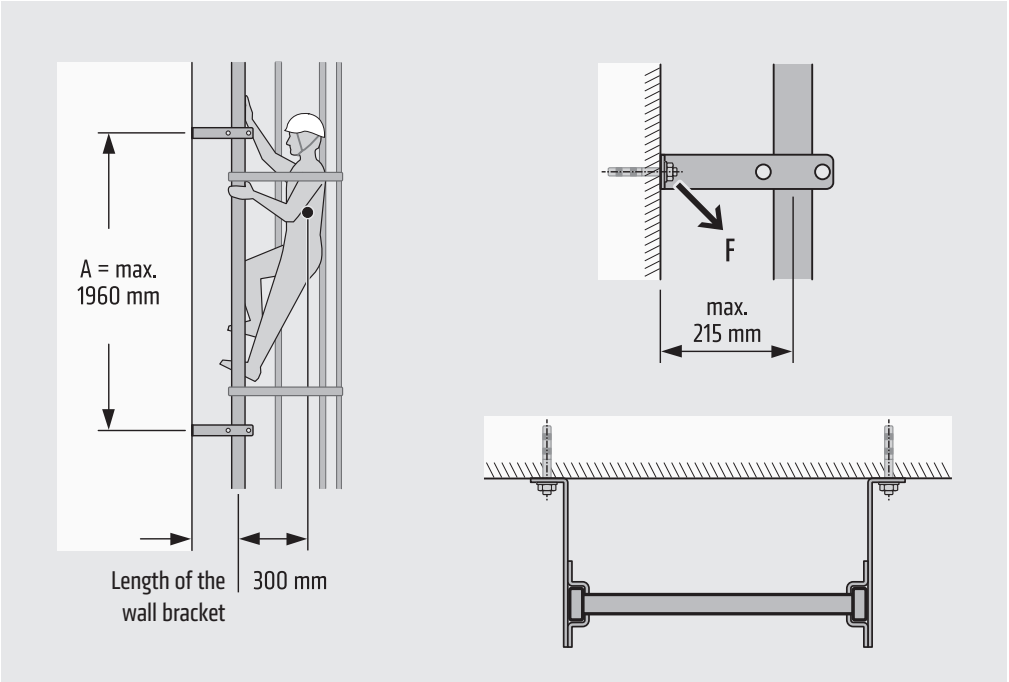




Load specifications
(typical values in kN per anchor)

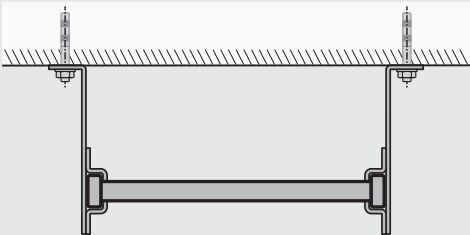
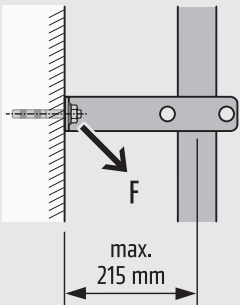
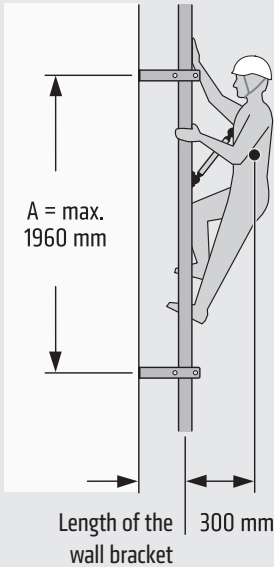
Adjustable wall bracket Max. distance between the wall brackets = 5880 mm	Total diagonal tensile load of the wall bracket F_{s1}	Total diagonal tensile load V-struts F_{s2}	Total diagonal tensile load H-struts F_{s3}
Adjustable wall bracket 185 - 300 mm (with vertical struts)	0.96 kN * 1.41 kN **	3.16 kN * 4.08 kN **	no H struts
Adjustable wall bracket 300 - 430 mm (with vertical and horizontal struts)	0.92 kN * 1.35 kN **	3.16 kN * 4.08 kN **	0.87 kN

* = with a safety cage system
** = with a vertical lifeline system



Fixed vertical ladder with a safety cage system

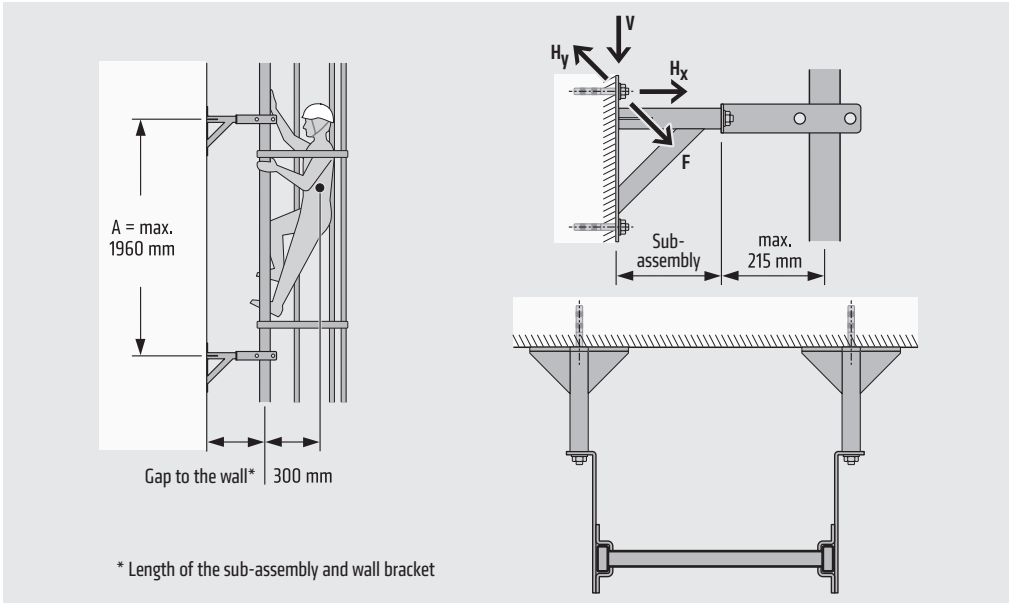
			Load specifications (typical values in kN per anchor)
Adjustable wall bracket Max. vertical interval 1960 mm			Total diagonal tensile load of the wall bracket F
Standard wall bracket	185 mm		3.40 kN
Adjustable wall bracket	185 - 215 mm	(75 mm wide)	2.82 kN
Adjustable wall bracket	185 - 300 mm		0.96 kN
Adjustable wall bracket	300 - 430 mm		0.92 kN
(only to be used as an intermediate bracket where the adjustable wall bracket is fitted with a horizontal and/or vertical strut)			



Fixed vertical ladder fitted with a vertical lifeline system

			Load specifications (typical values in kN per anchor)
Adjustable wall bracket Max. vertical interval 1960 mm			Total diagonal tensile load of the wall bracket F
Standard wall bracket	185 mm	(75 mm breit)	4.99 kN
Adjustable wall bracket	185 - 215 mm		4.14 kN
Adjustable wall bracket	185 - 300 mm	300 - 430 mm	1.41 kN
Adjustable wall bracket	300 - 430 mm		1.35 kN
(only to be used as an intermediate bracket where the adjustable wall bracket is fitted with a horizontal and/or vertical strut)			

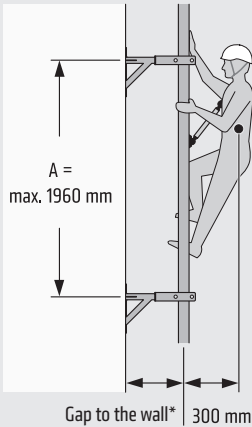
6.4. BELASTUNGSSCHEMA WANDHALTER MIT UNTERKONSTRUKTION



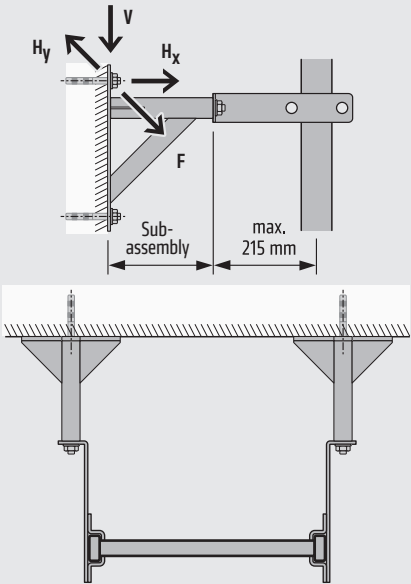
Fixed vertical ladder with a safety cage system

Load specifications				
maximum pull-out load of the anchor bolt subjected to the highest load per ladder bracket, Ladder length = max. 10 m				
Sub-assembly (all lengths) A = Distance between the wall brackets	Total diagonal tensile load of the wall bracket F	V	Hx	Hy
A = 1960 mm	1.14 kN	0.45 kN	1.14 kN	0.15 kN
A = 1680 mm	1.02 kN	0.41 kN	1.02 kN	0.13 kN
A = 1400 mm	0.98 kN	0.38 kN	0.98 kN	0.11 kN
A = 1120 mm	0.97 kN	0.36 kN	0.97 kN	0.08 kN
A = 840 mm	0.97 kN	0.34 kN	0.97 kN	0.06 kN

Minimum number of brackets per ladder = 8 brackets (4 brackets per ladder upright, arranged in pairs).



* Length of the sub-assembly and wall bracket



Fixed vertical ladder with a vertical lifeline system

Load specifications				
maximum pull-out load of the anchor bolt subjected to the highest load per ladder bracket, Ladder length = no restrictions				
Sub-assembly (all lengths) A = Distance between the wall brackets	Total diagonal tensile load of the wall bracket F	V	Hx	Hy
A = 1960 mm	1.51 kN	0.47 kN	1.43 kN	0.15 kN

Minimum number of brackets per ladder = 8 brackets (4 brackets per ladder upright, arranged in pairs).

7. INSTALLATION OF A FIXED VERTICAL LADDER

7.1. DIFFERENT WALL BRACKET DESIGNS

Please observe the minimum exit depth:
The gap between the ladder (front edge of the rung) and the installation surface must be at least 200 mm.
(DIN EN ISO 14122-4, DIN 18799-1, DIN 14094-1).

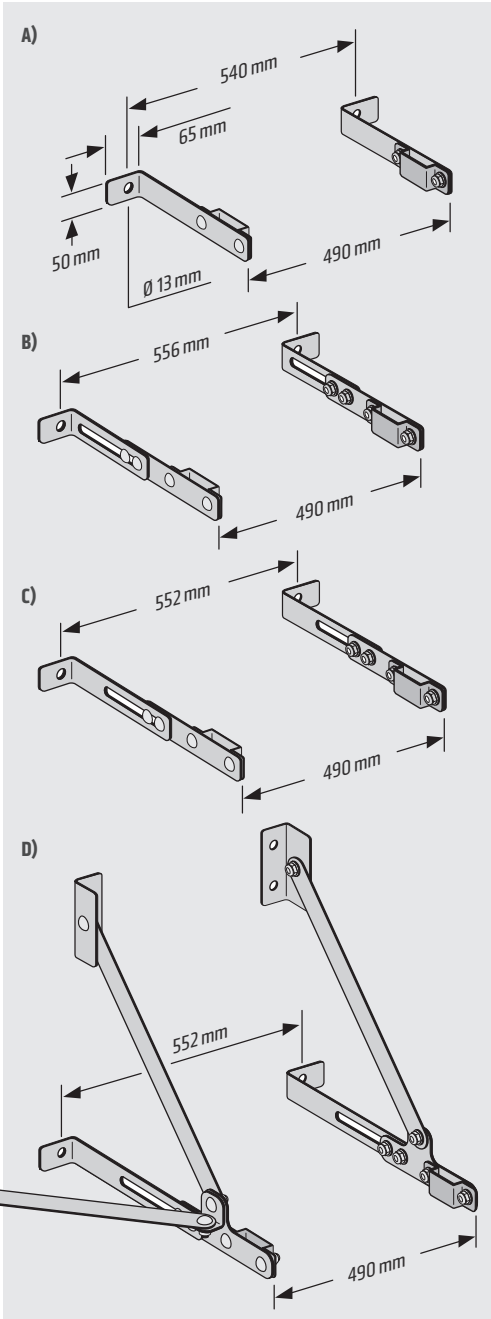
- A) Installation of a fixed vertical ladder using standard wall brackets and upright clamps.
- B) Installation of a fixed vertical ladder using adjustable wall brackets (185 - 215 mm) and upright clamps.
- C) Installation of a fixed vertical ladder using adjustable wall brackets (185 - 300 mm) and upright clamps.
- D) Installation of a fixed vertical ladder using a tension rod set designed for wall brackets (300 - 430 mm) and upright clamps as well as additional lateral support.

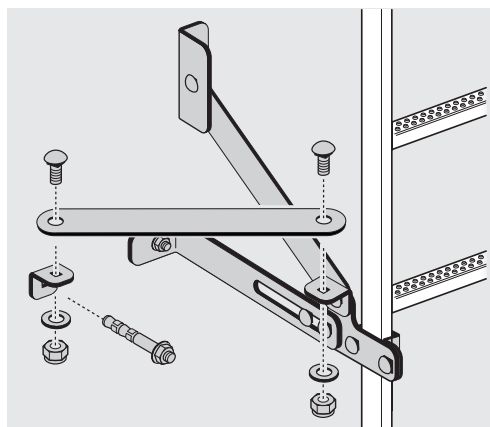
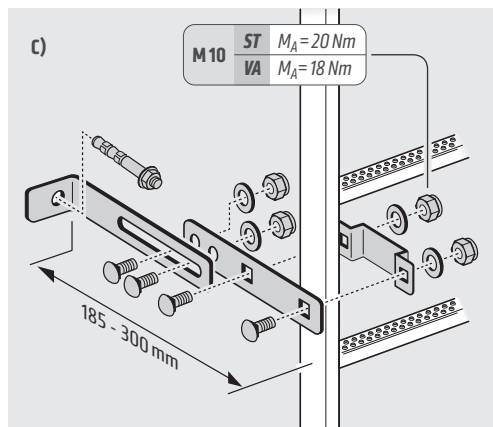
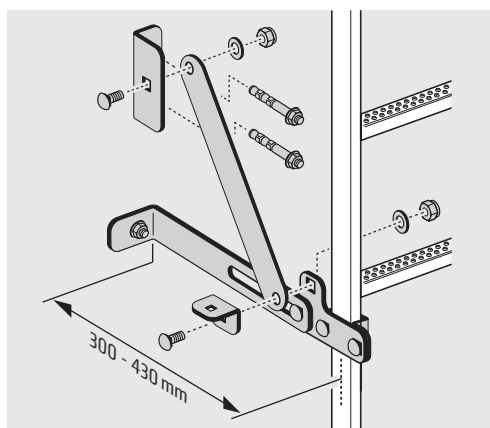
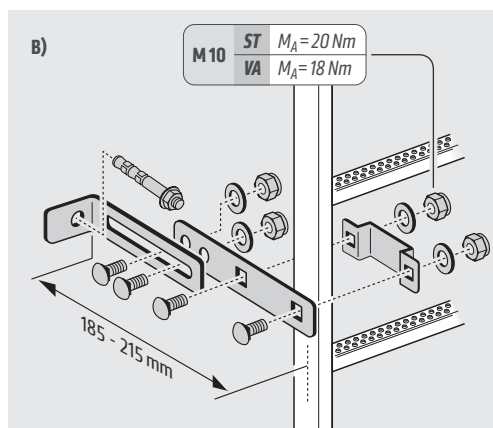
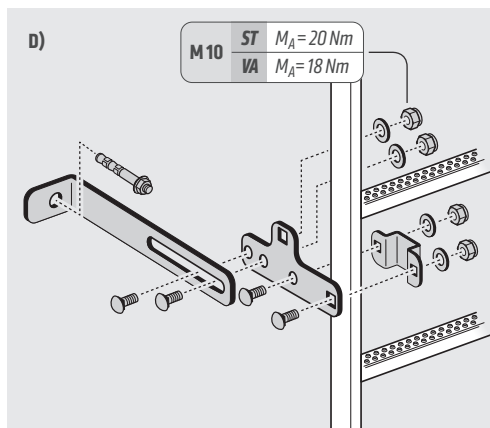
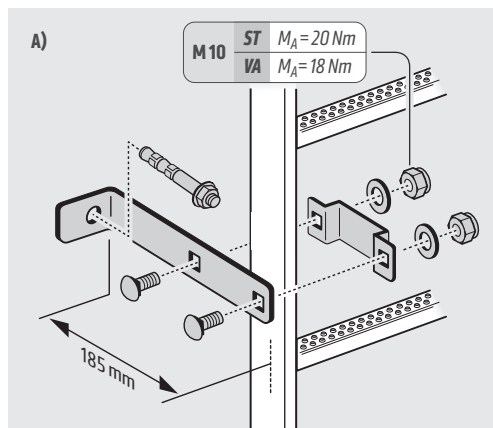
For gaps between the rungs and the building structure ≥ 300 mm, additional tension rods (arranged to the left and right of the ladder) are required. These must be installed with a vertical interval of max. 5880 mm.

All illustrations are examples. These may deviate from the model in question.

M 10	ST	$M_A = 20 \text{ Nm}$
	VA	$M_A = 18 \text{ Nm}$

Installation note:
M = Metric thread, \varnothing
ST = Steel
VA = Stainless steel
MA = Tightening torque (Nm)





E) Sub-assemblies for wall brackets

Application:

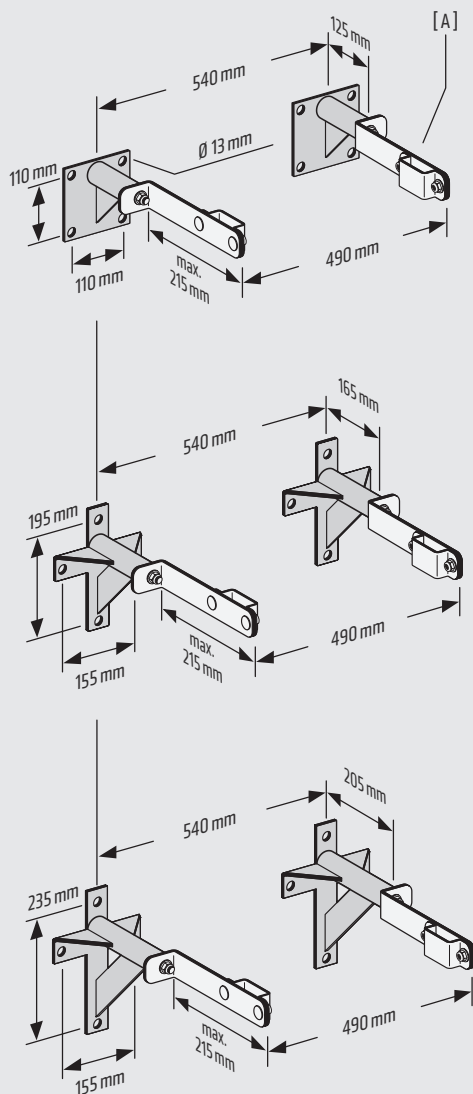
- For thermal insulation composite systems on facades
- For larger gaps between the building structure/facility and the fixed vertical ladder

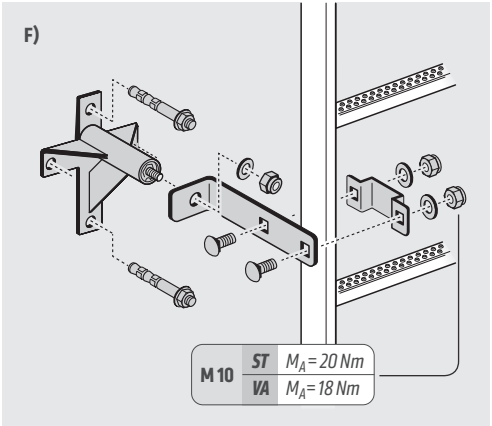
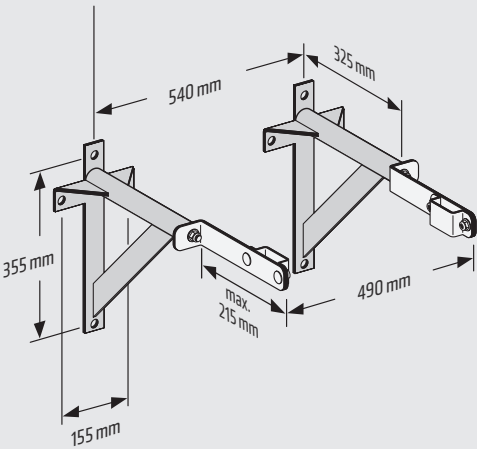
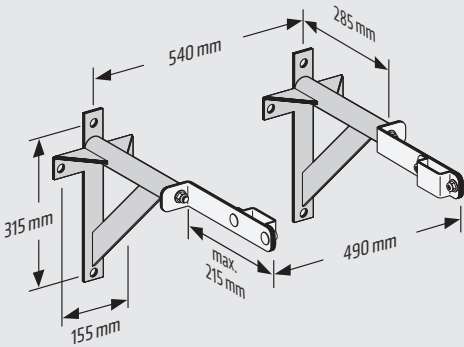
A standard wall bracket (185 mm) with an upright clamp [A] is used as an example in the adjacent illustrations.

F) Installation of a fixed vertical ladder using wall bracket sub-assemblies in combination with standard wall brackets and upright clamps.

Max. length of a standard wall bracket = 215 mm.

E)

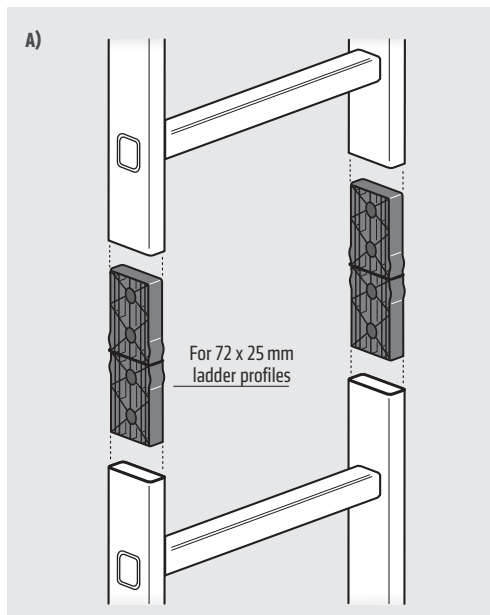




7.2. LADDER CONNECTOR COMPONENTS

A) Inner upright connectors

Material: Plastic, can be inserted into 72 x 25 mm uprights. The depth to which the connector can be inserted is limited by a central bar. The uprights are clamped onto the outer surfaces of the inner upright connectors for a perfect fit. This prevents the inner upright connectors from falling out of the ladder uprights.



7.3. DIFFERENT ENTRY / EXIT UNITS

Entry / exit units are usually used to guarantee stepover protection at the top of a building / at the beginning of the ascent.

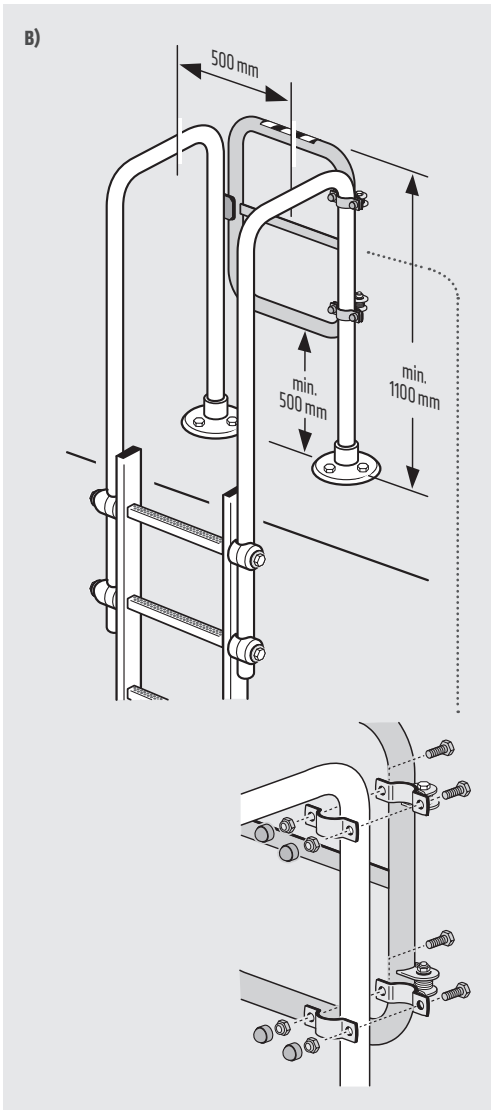
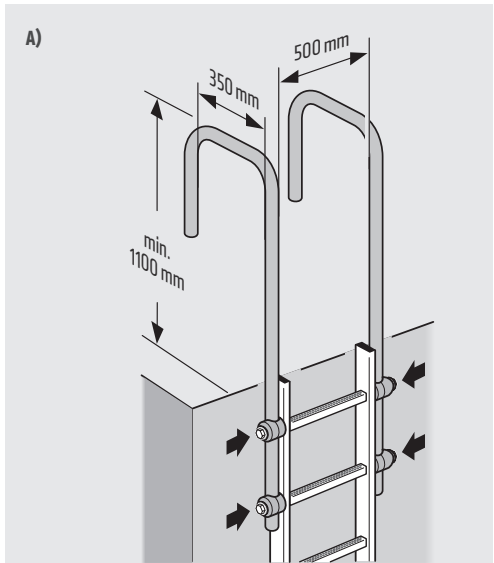
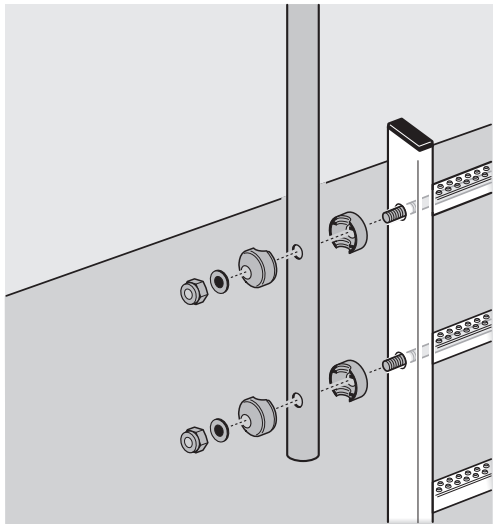
A) Exit rails - short

Material: Galvanised steel

B) No entry barrier model

with knee rail, 500 mm

Exit rails with no entry barrier



C) Exit unit

Exit extension: (max. distance to the wall = 75 mm).

For a ladder width of 490 mm (outer edges)

Material: Galvanised steel

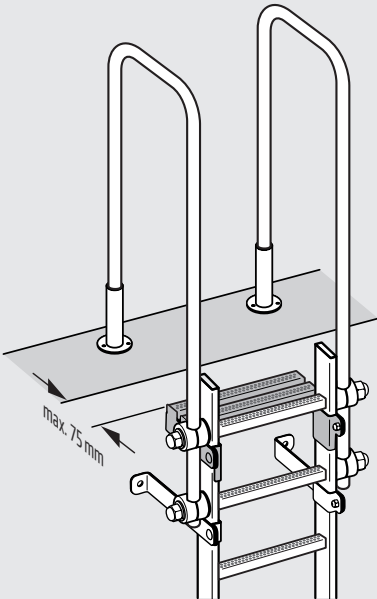
D) Stepmover unit

Material: Galvanised steel

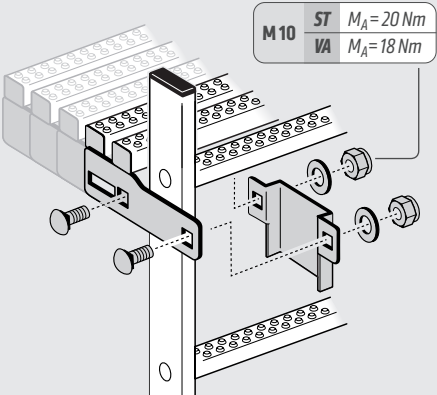
Depth: 500 mm, 750 mm, 1000 mm, 1200 mm.

Other designs / sizes (customer-specific) are possible.

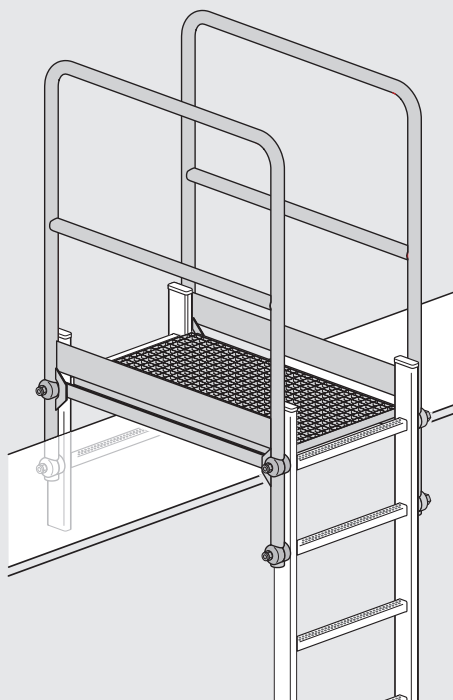
c)



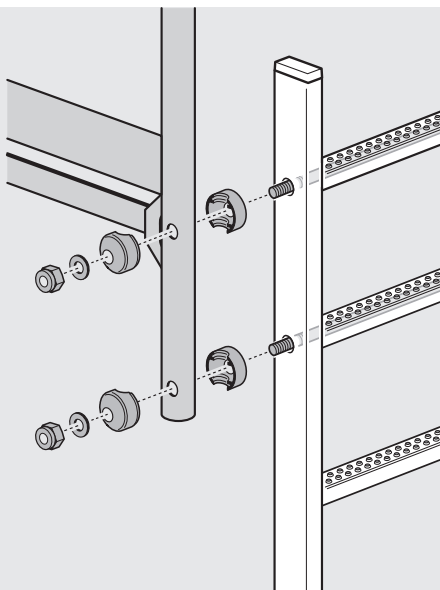
Wall bracket Spacing dimensions	Exit unit Number of rungs
185 - 215 mm	2
215 - 290 mm	3
290 - 365 mm	4
365 - 440 mm	5



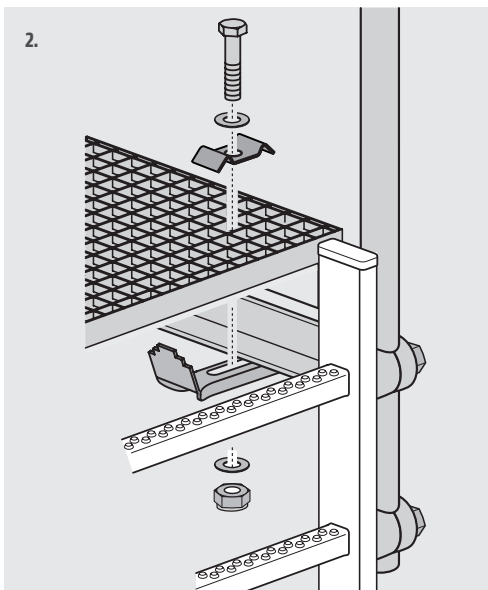
D)

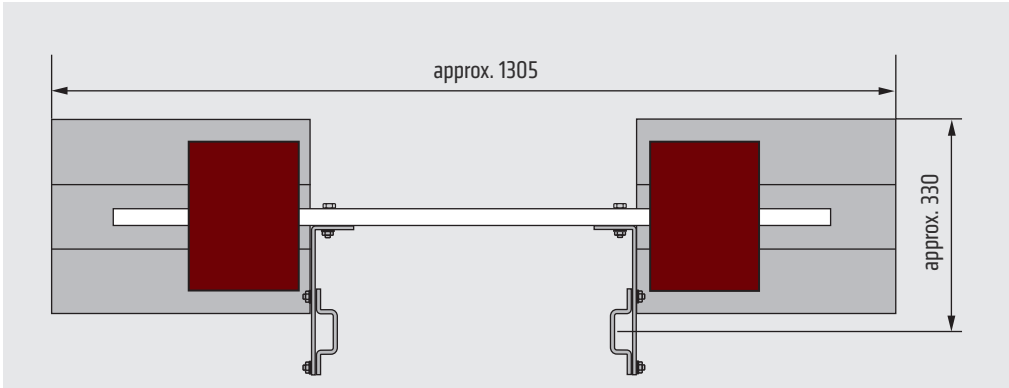
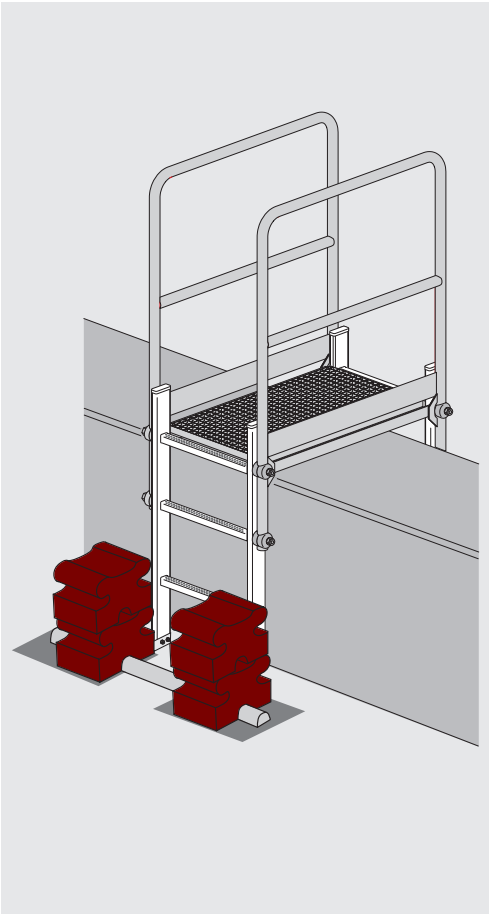
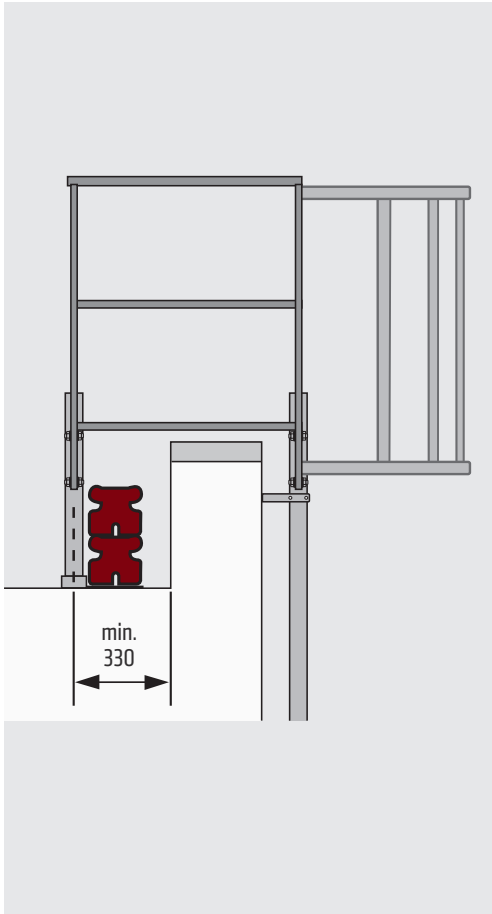


1.



2.





7.4. SAFETY CAGE SYSTEM COMPONENTS

A safety cage is required in cases where the user needs to climb to a height of over 3000 mm using a fixed vertical ladder.

Material: Aluminium

Installation of the basic safety cage components

A) Installing the rear guards

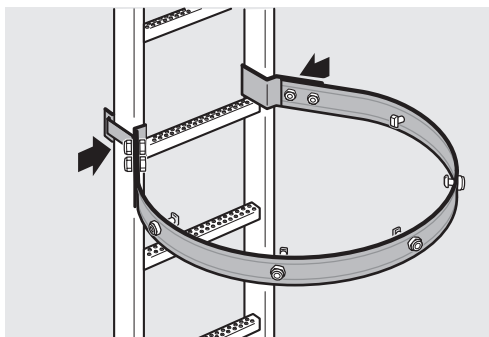
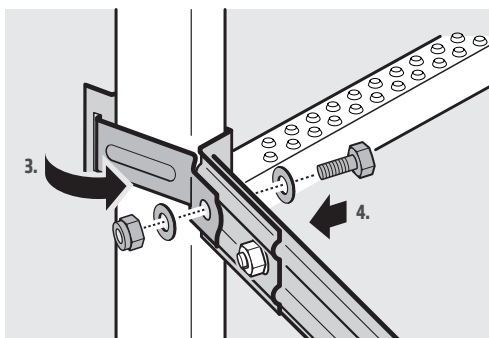
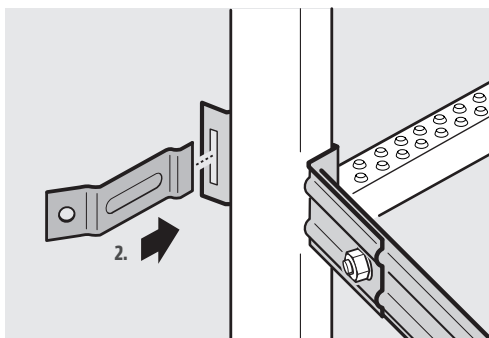
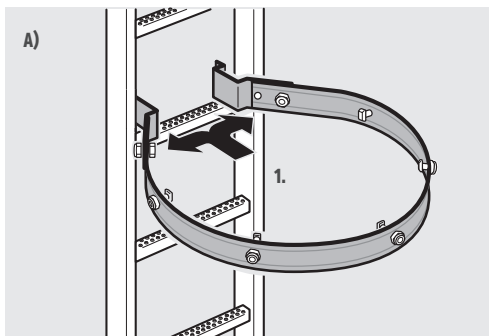
Attach the rear guards to the ladder uprights. Max. distance between the individual rear guards attached to the fixed vertical ladder system = 1400 mm.

B) Installing the vertical bars

1. Attach the vertical bars to the rear guards.
2. When bolting the hammer-head bolts onto the rear guards, please make sure that the grooves (x) on the bolts are correctly aligned!

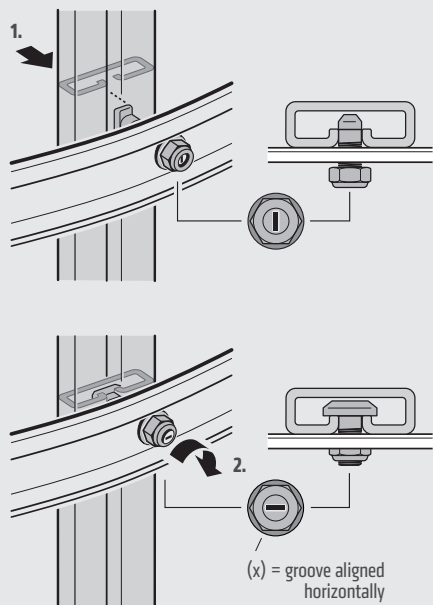
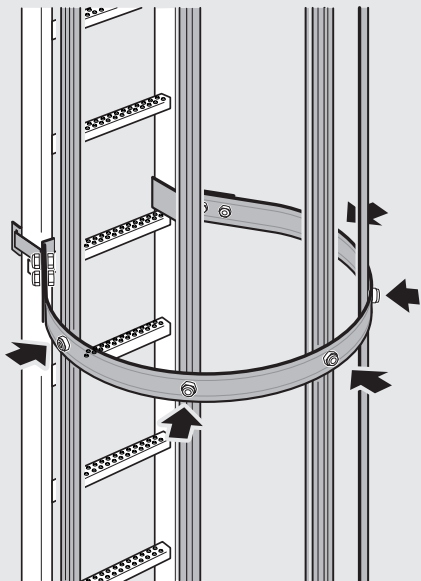
C) Installing the vertical bar connectors

1. The vertical bars are joined together using vertical bar connectors.
2. When installing the hammer-head bolts, please make sure that the grooves (x) on the bolts are correctly aligned!

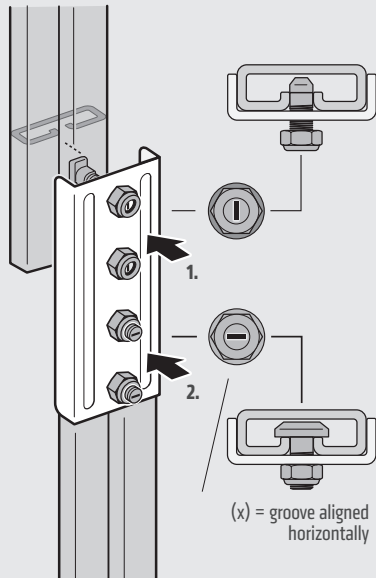
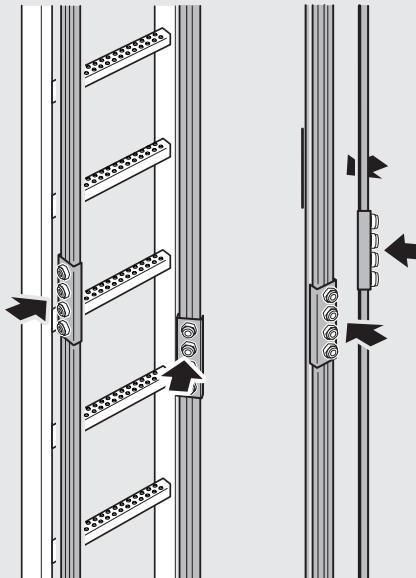


During installation, the hammer-head bolts must be screwed firmly into the rear guard bars. This is the only way of ensuring secure connections. Check that the grooves (x) of the hammer-head bolts are aligned horizontally!

B)



C)



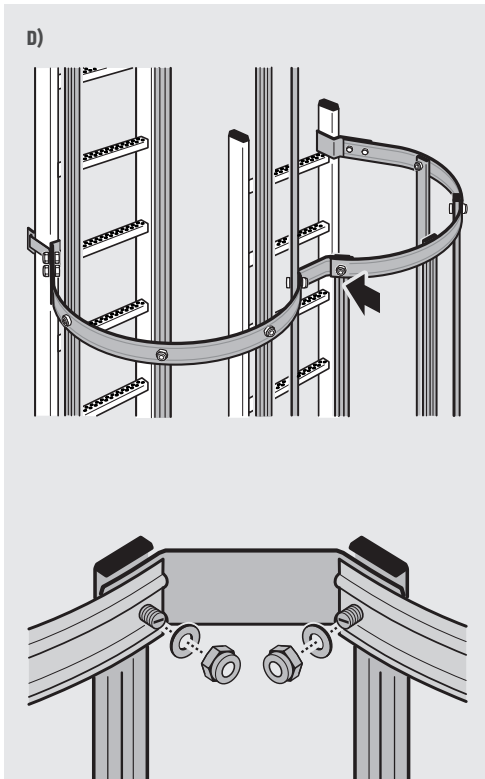
**Installing entry and exit components /
Installing components to cross from one section of a multi-section fixed vertical ladder to another**

D) Cross-over components

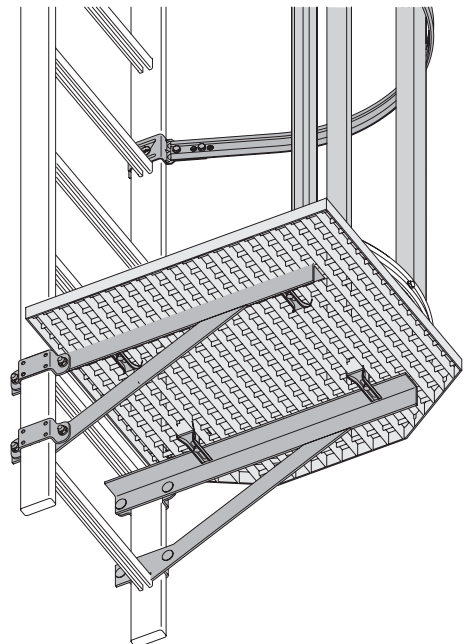
Installation of the two 3/4 rear guards of the cross-over unit.

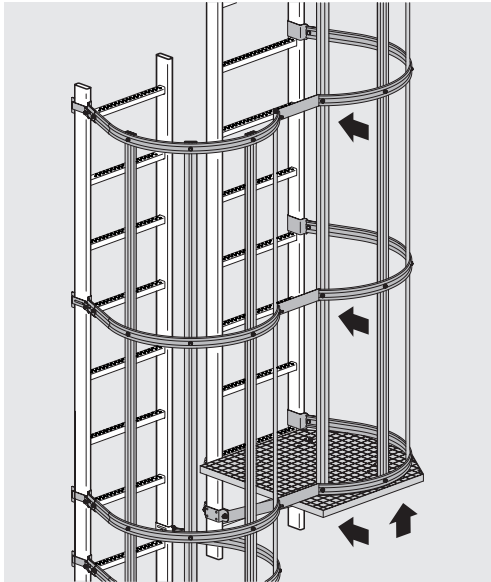
E) Installing a cross-over platform

1. Attach the supporting brackets to the ladder uprights.
2. Attach the cross-over platform to the supporting brackets.

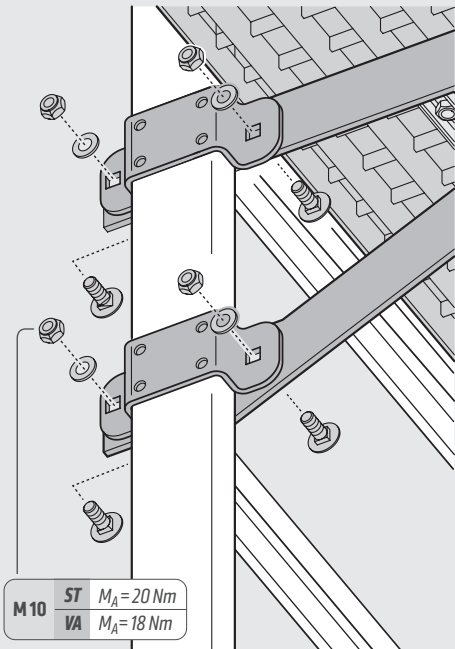


E)

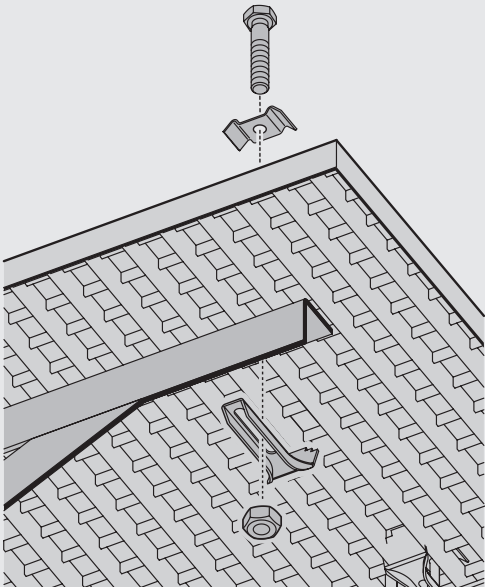




1.



2.



Installing entry and exit components

Installing components to cross from one section of a multi-section fixed vertical ladder to another

F) Entry / Exit:

First, install the exit rails (pls. refer to 7.3 Different entry / exit units), then attach the rear guard to the exit rails.

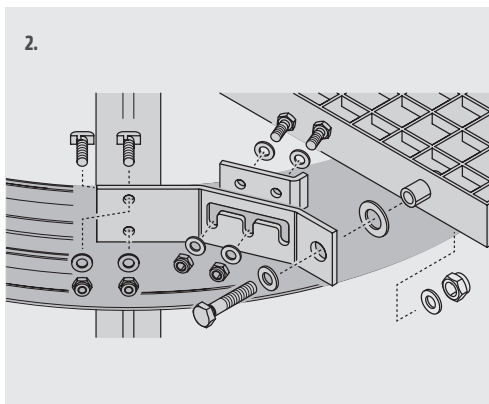
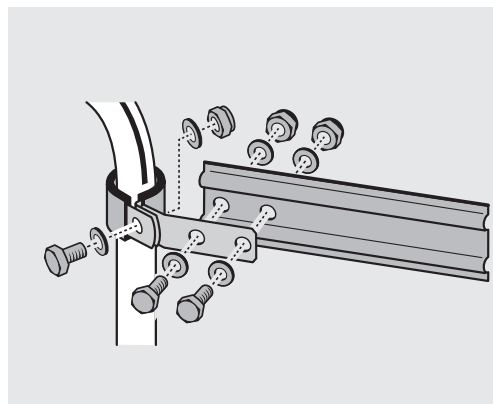
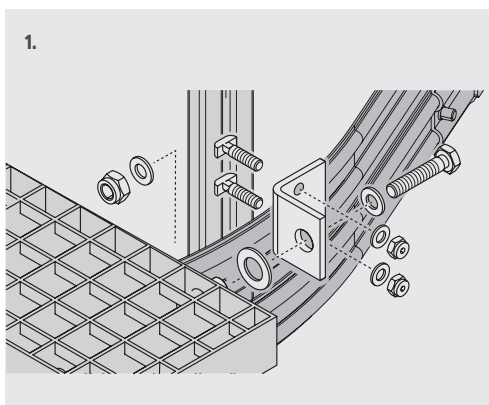
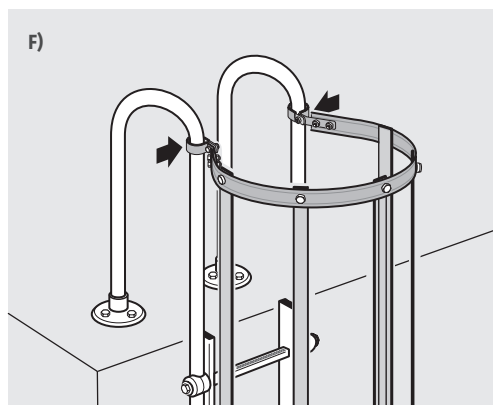
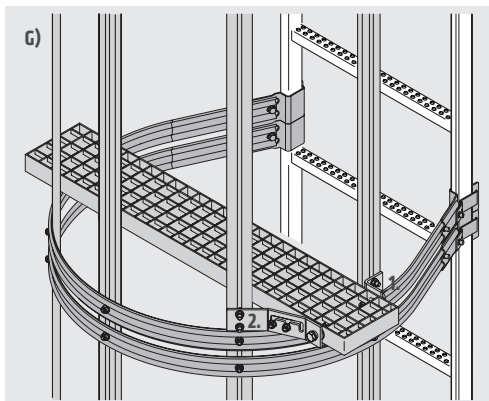
G) Fold-up resting seat

Please observe the installation instructions on pages 29/30 (rear guards and vertical bars).

1. First, attach the rear guard to the ladder uprights.

2. Then attach the resting seat to the vertical bars.

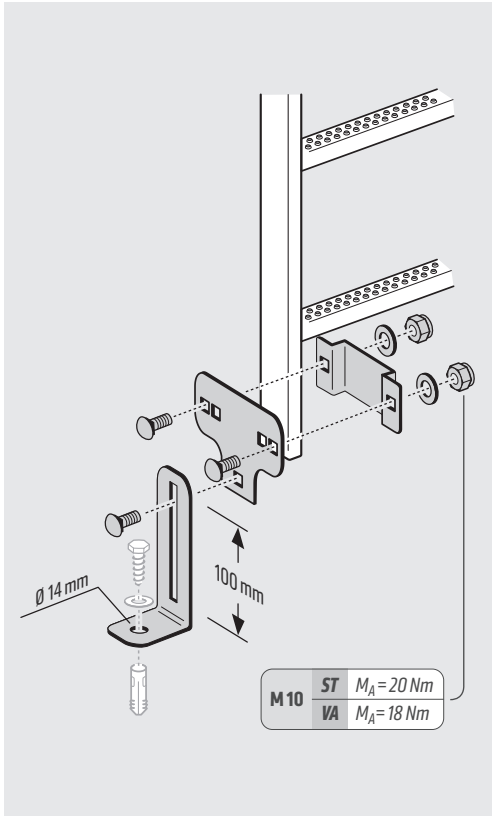
Once it has been installed, the resting seat must lie firmly on the rear guard when set to the resting position (the seat grating has been folded down).



7.5. SYSTEM COMPONENTS

A) Height-adjustable ground attachment brackets

Material: Galvanised steel



7.6. BASIC AND EXTENSION PLATFORMS

Basic and extension platforms

(DIN EN ISO 14122-4, DIN 18799-1, DIN 14094)

Material: Galvanised steel or aluminium.

The platforms are suitable for providing access to escape routes and emergency ladders, as well as for working or resting on.

The sub-assembly is made of solid section steel with sloping supports and a robust grating; the safety rails are equipped with knee and foot rails all round.

A basic platform can be extended using any desired number of extension platforms.

Basic platforms - dimensions (width x depth):

1000 mm x 1200 mm	800 mm x 1000 mm
1000 mm x 1000 mm	800 mm x 800 mm
1000 mm x 800 mm	

Extension platforms - dimensions (width x depth):

1000 mm x 1200 mm	800 mm x 1200 mm
1000 mm x 1000 mm	800 mm x 1000 mm
1000 mm x 800 mm	800 mm x 800 mm

600 mm x 1200 mm

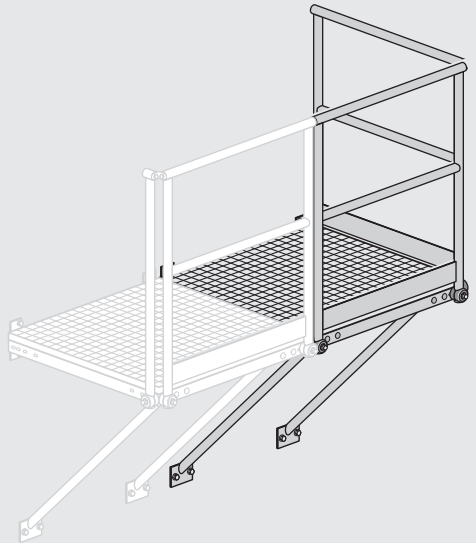
600 mm x 1000 mm

600 mm x 800 mm

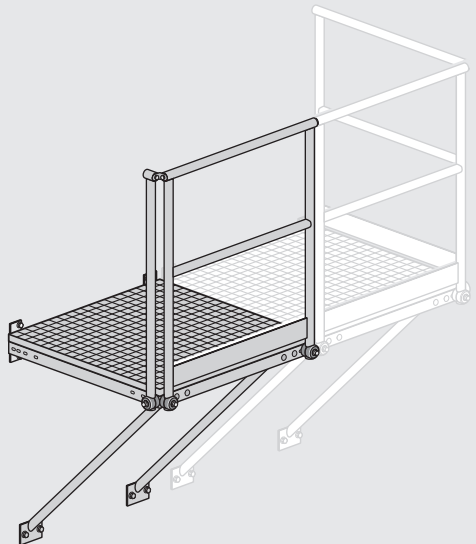
Installation of basic and extension platforms:

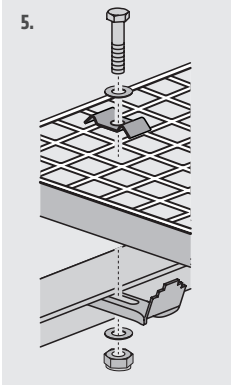
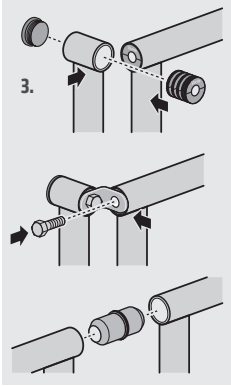
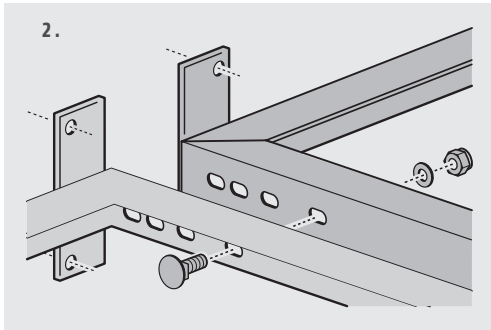
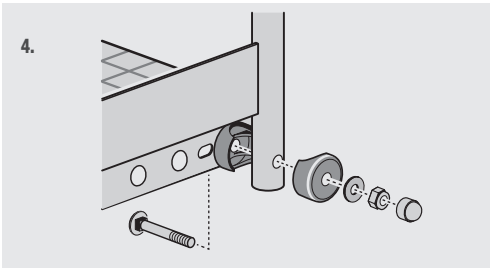
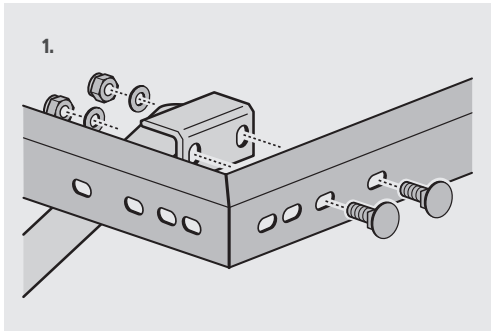
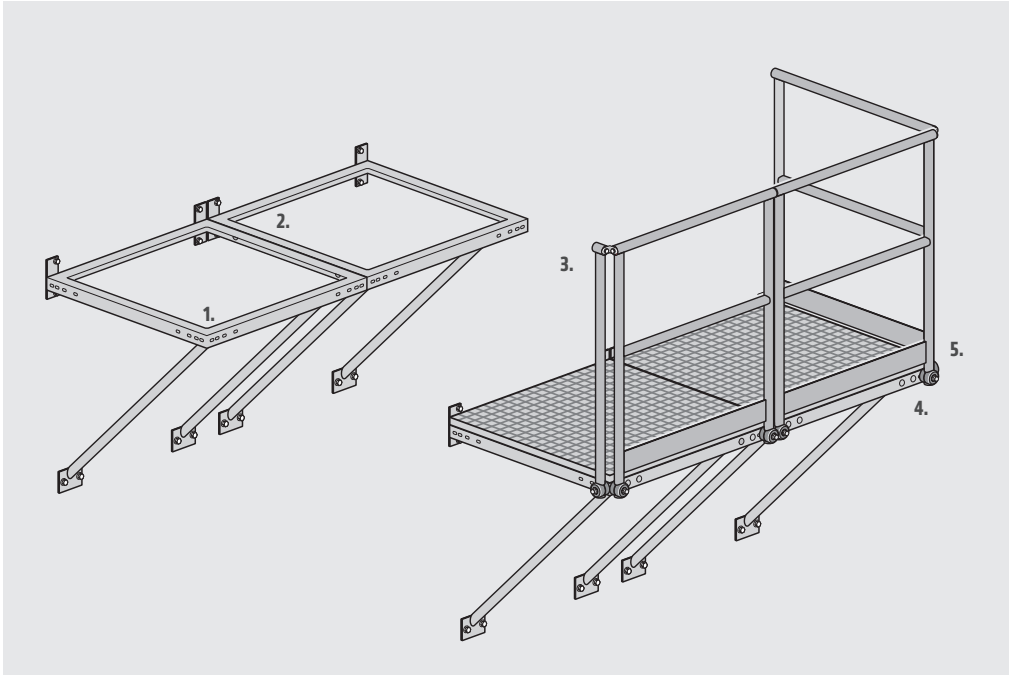
1. Attach the supports to the substructure.
2. Screw the basic and extension platforms together.
3. Attach the safety rails to the sub-assembly by screwing them together.
4. Screw the grating onto the sub-assembly using clamping elements.

Basic platform



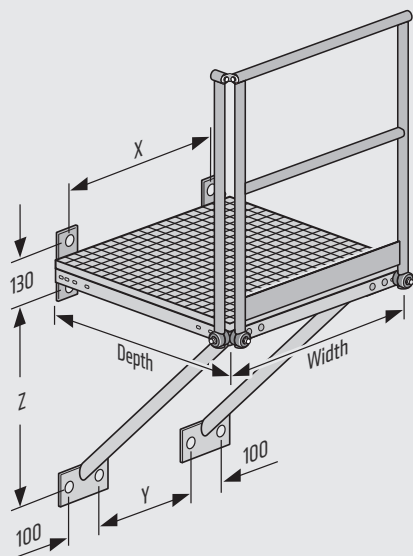
Extension platform





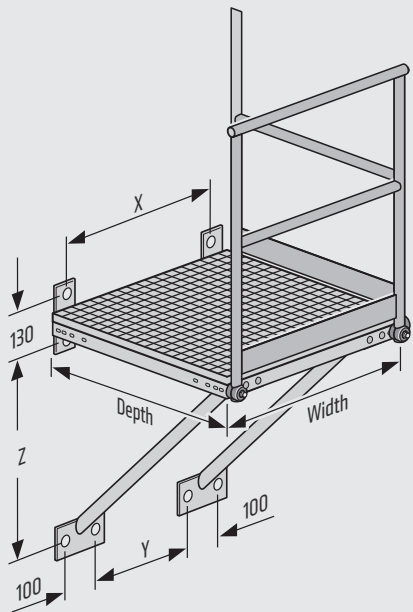
Basic and extension platforms with 45° supports

Extension platform



Width	X	Y
1000 mm	885 mm	610 mm
800 mm	685 mm	410 mm
600 mm	485 mm	210 mm
Depth	Z	
1200 mm	1115 mm	
1000 mm	915 mm	
800 mm	715 mm	

Basic platform



Width	X	Y
1000 mm	885 mm	610 mm
800 mm	685 mm	410 mm
Depth	Z	
1200 mm	1115 mm	
1000 mm	915 mm	
800 mm	715 mm	

8. LABELLING AND NOTES

Labels on the fixed vertical ladder system

A) Fixed vertical ladder specification plate

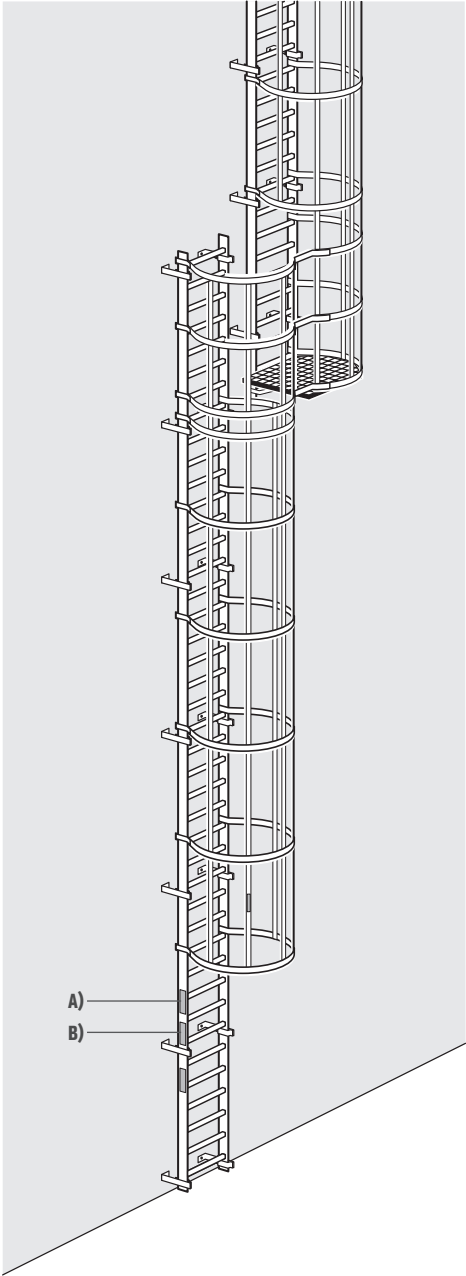
Year of manufacture, material and dimensions, as well as notes on the respective ladder loads.

B) Ladder inspections

The fixed vertical ladder system must be inspected by an specialist at least once a year which must be documented using a respective inspection sticker.



Other customer-specific safety instructions and information may also be implemented but which are not described or illustrated in these notes.



9. MAINTENANCE AND CARE

Maintenance

- Appropriate maintenance measures should be carried out at an early stage in order to avoid increased risks due to unfavourable weather conditions, e.g. through the formation of ice.
- If necessary, moving parts should be lightly oiled and occasionally checked to ensure friction-free movement.
- Damaged surfaces must be sealed using a suitable corrosion protection agent.

Cleaning

- Dirt should be removed using a gentle cleaning agent.
Do not use acids or alkalis.

10. FIXED VERTICAL LADDER INSPECTIONS

Normative reference:

DIN 18799-1, DIN 14094-1, DIN EN ISO 14122-4.

Inspection intervals:

- The inspection intervals must be observed in accordance with the applicable national regulations.
- Inspection intervals in Germany:
Inspection intervals depend on the frequency of usage, how often the equipment is used and the frequency and severity of any defects found.
- Recommendation:
The fixed vertical ladder system should be inspected at least once a year.
- According to DIN EN ISO 14122-4, it is mandatory to inspect a fixed vertical ladder system at least once every 3 years!

Inspection:

The fixed vertical ladder system must be checked to ensure that it is in good condition and good working order by a specialist/suitably qualified person.

- A specialist/suitably qualified person is someone who:
By virtue of his/her professional training, professional experience, current work or through having been individually trained by the manufacturer, can demonstrate that he/she has the necessary expertise to inspect fixed vertical ladder systems.



The respective applicable national operating and inspection regulations must be observed accordingly.

ALWAYS ON TOP!

ABS Safety GmbH

Gewerbering 3
D-47623 Kevelaer
Germany

Tel.: +49 28 32 972 81 - 0
Fax: +49 28 32 972 81 - 285

info@absturzsicherung.de



www.absturzsicherung.de



.de/en



.de/fr



.de/nl

EL 30. November 2023



[instagram.com/abssafety](https://www.instagram.com/abssafety)



[youtube.com/abssafetygmbh](https://www.youtube.com/abssafetygmbh)



[facebook.com/ABS.Safety](https://www.facebook.com/ABS.Safety)



[linkedin.com/company/abs-safety-gmbh](https://www.linkedin.com/company/abs-safety-gmbh)



[xing.com/pages/abssafetygmbh](https://www.xing.com/pages/abssafetygmbh)