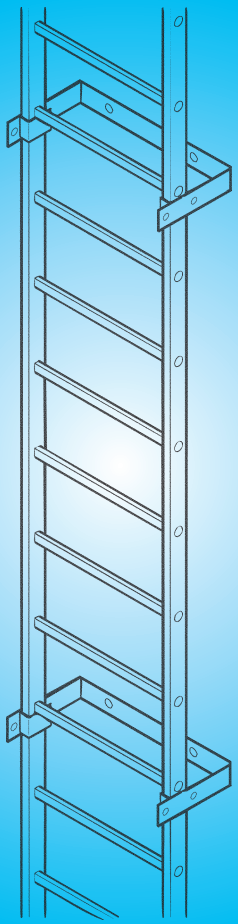
ZARGES



Installation and Use Instructions

Issued 11/2010

In accordance with
DIN 18799-1
DIN 14094-1
DIN EN ISO 14122-4

Fixed ladder systems with side stiles

GB

Nº 291229

If you need any information or have any problems that are not dealt with in sufficient detail in this manual, you can obtain the information you need directly from the manufacturer (see section 1.2).

Also, we wish to point out that the content of these installation and use instructions is not part of or intended to amend any previous agreement, promise or legal relationship. All obligations arise from the corresponding purchase contract, which also contains the full and only valid warranty policy (see also section 2.2). These contractual warranty agreements are neither extended nor restricted by the explanations given in these installation and use instructions.

Technical amendments affecting the fixed ladder system may possibly not have been included in these installation and use instructions. Please contact the manufacturer if you have any questions.

ZARGES

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1 GENERAL

1.1 Introduction

These installation and use instructions only apply to ZARGES fixed ladder systems which have been assigned to the „design test“ referred to in section 1.3.

The fixed ladder systems described in these installation and use instructions comply with the standards DIN 18799-1, DIN 14094-1 and DIN EN ISO 14122-4. The following standards apply for other fixed ladder systems:

- Fixed ladder systems on chimney stacks, DIN 18799 Part 3,

The safety instructions given in these installation and use instructions and the rules and regulations for working with fixed ladder systems apply for the fixed ladder systems mentioned in this documentation.

It is the responsibility of the operator to:

- ensure that local, regional and national regulations are observed,
- observe the requirements (laws, regulations, directives, etc.) on safe operation and handling mentioned in the installation and use instructions,
- make sure that the installation and use instructions are available to the personnel who install and use the ladders and that the information given, such as instructions, warnings and safety requirements, are followed in every detail,
- observe special instructions and requirements with regard to planning and installation of fixed ladders acc. to DIN 14094-1.

1.2 Manufacturer

The manufacturer of the fixed ladder system described in this documentation is

ZARGES GmbH
Sparte Steigtechnik
Abt. Schachttechnik/Steigleitern
PO Box 16 30
82360 Weilheim

Phone: 08 81/68 71 04
Fax: 08 81/68 73 72
E-mail: schachttechnik@zarges.de
Internet: http://www.zarges.de

1.3 Design test

The fixed ladder systems described below have been design-tested and registered in accordance with

The fixed ladders comply with the requirements of DIN 18799-1, 14094-1 and DIN EN ISO 14122-4.

1.4 Issue date

The issue date of the German installation and use instructions is November 2010.

1.5 Copyright and proprietary rights

- The copyright for these installation and use instructions remains with the manufacturer.
- All further rights are reserved, in particular in the case of a patent being granted or the design being registered.
- Any violations of the above information will require payment of damages.

1.6 Personnel requirements

1.6.1 Installation personnel

The fixed ladder may only be installed by skilled personnel.

1.6.2 Users

The people who use the fixed ladders must be familiar with the fixed ladder system. The user in question must be physically able to climb the ladder system. The user should take all the necessary precautions to avoid falls.

2 SAFETY REGULATIONS

2.1 Basic safety instructions

The following requirements apply for the installation and use of fixed ladder systems:

- BGV A1 General rules and regulations (formerly VBG 1)
- BGV C22 Construction work (formerly VBG 37)
- BGV C5 Sewage installations (formerly VBG 54)
- BGV D36 Ladders and steps (formerly VBG 74)
- BGG 906 Principles for selecting, training and certifying the capability of experts on personal safety equipment to protect against falling (formerly ZH 1/55).
- BGI 530 Notebook Working on high structures (formerly ZH 1/61)
- BGR 198 Rules for the use of personal safety equipment against falling (formerly ZH 1/709)
- DIN 18799 Part 1 Fixed ladders for construction works
- DIN 14094-1 Fire fighting purposes - Escape ladder installations
- DIN EN ISO 14122-4 Permanent means of access to machinery; fixed ladders

2.2 Duties, liability and warranty

A basic requirement for the safe handling and the problem-free installation and use of the fixed ladder is a knowledge of the safety instructions and safety regulations. These installation and use instructions, particularly the safety instructions, must be observed by anyone installing or using the fixed ladder. In addition to this, the accident prevention rules and regulations that apply for the place of installation must also be observed.

Dangers involved with using fixed ladder systems

- The fixed ladders are built according to the state of the art and the recognized safety rules. However, the installation and use of the fixed ladder system may involve dangers to the life and limb of the user or third parties, or damage to the system itself or to other material assets. The fixed ladder should only be used

- for the intended application and

- in a perfectly safe condition.

Any faults affecting safety must be remedied immediately.

Warranty and liability

The scope and duration of the form of warranty are laid down in the manufacturer's sales and delivery terms and conditions. The installation and use instructions valid at the time of delivery are always decisive for any warranty claims arising from defective documentation (see section 1.4). The following terms also apply above and beyond the sales and delivery terms and conditions: No liability shall be assumed for damages to persons and property which has occurred due to one or more of the following reasons:

- unintended use of the fixed ladder system,

- incorrect installation of the fixed ladder system,

- use of the fixed ladder system with defective safety equipment or incorrectly installed or non-functional safety and protective equipment,

- ignorance or non-observance of these installation and use instructions,

- insufficiently qualified or insufficiently instructed installation and operating personnel,

- improperly performed repairs,

- use of non-genuine spare parts,

- unauthorised structural modifications to the fixed ladder system,

- insufficient monitoring of components that are subject to wear and tear,
- catastrophes caused by foreign objects and acts of providence.

The operator and the installation firm must, under their own responsibility, ensure that:

- the safety requirements given in section 2 et seq. are observed,
- any unintended use (refer to the section. 2.4) is excluded,
- an intended use (refer to the section. 2.3) is ensured above and beyond this,
- and the fixed ladder system is used in accordance with the contractually agreed conditions of use.

2.3 Intended use

Intended use includes the following:

- observation of all of the instructions in these installation and use instructions and
- performance of the required safety inspections.

2.4 Unintended use

Any unapproved use – i.e. any deviation from the information given in section 2.3 of these installation and use instructions – is considered
as **unintended use** in the sense of the Equipment and Product Safety Act (GPSG as of 01.05.2004 in Germany). This also applies to a disregard of the standards and directives listed in these installation and use instructions.

Hazards can occur in case of unintended use. Unintended use includes, for example, using the fixed ladder to transport loads or using the fixed ladder without a good reason.

2.5 Special duties of the operator

According to BGR 198, each operator must prepare operating instructions for the use of the fixed ladder and to make them available to the users.

The operator must provide training for users based on the operating instructions at least once a year.

The operator must have the fixed ladder system inspected by an expert every year or when defects become evident.

The operator must take suitable precautions to prevent the unauthoriseduse of the fixed ladder system.

2.6 Safety equipment

From a possible fall height of ≥ 5 m, an arrester device in accordance with DIN 18799-1, DIN 14094-1 or EN 353-1 is required. Where DIN 14122-4 applies, this is already required from a height of ≥ 3 m. The particular requirements of each individual ladder system must be taken into account in this case. Example: An arrester device acc. to EN 353-1 may not be used on fixed ladders made to DIN 14094-1 Fire fighting purposes - Escape ladder installations. Only back guards are allowed in this case.

For access heights of 10 m and above, an arrester system must be used with a single-section ladder (except ladders acc. to DIN 14094-1 Fire fighting purposes - Escape ladder installations).

Before each use, the fixed ladders, the back guard hoops and any arrester system that is fitted must first be checked for proper condition and function.

Any manipulation on the aforementioned parts is not permitted. Do not use the fixed ladder if a defect is found.

3 DESCRIPTION

The ZARGES fixed ladder system is a modular structure with types made from plain aluminium, anodised aluminium, hot-galvanised steel and stainless steel (V4A).
With this design it is possible to reach any height by combining matching modules. Any cutting to size that might be required must be performed by skilled personnel on the site.

A structural planner can easily check his Zarges fixed ladder system with the Zarges Planning System (ZPS). A CD-ROM contains statics, 2D and 3D drawings, operating and installation instructions in the form of a PDF file and may useful tips.

3.1 Technical data

Lengths:

Fixed ladder (Fig. 1.1/2) 1.96 m, 2.80 m, 3.64 m

Extension stile (Fig. 1.1/1) ..... 1.10 m

Back guard stay,
length (Fig. 1.1/4) ..... 1.40 m

Back guard hoop,
width (two-section) (Fig. 1.1/3) ..... 1.34 m

Weights:

See the table in Appendix A, depending on length and material.

Total fixed ladder system:

For type and model numbers please refer to the table in appendix D1.

Required materials:

Refer to the table in Appendix D2, depending on the access height.

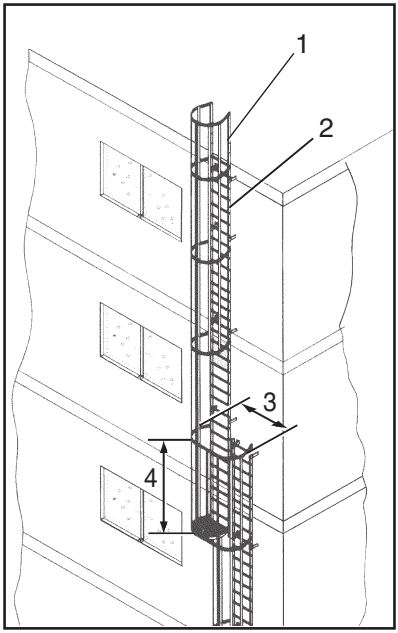


Fig. 1.1 Technical data

3.2 Type plates

The type plates (Fig. 1) are affixed to all of the main components of the fixed ladder system.

Fig. 1 Type plates, example

3.3 Overview of models and description of components with single parts and accessories

3.3.1 Design of the fixed ladder system

The ZARGES fixed ladder system consists of the fixed ladders (2/3), the wall brackets (2/4) and the stile extension (2/2). Back guard hoops (2/6), back guard stays (2/7) and platforms (2/5) may be required, depending on the circumstances.

Each fixed ladder section must be attached with 2 wall brackets, one on each side. The wall brackets must be arranged so that they are ≤ 2.00 m apart.

The back guard hoops (2/6) must start at a height of 2.20 m - 3.00 m above the entrance point and continue to a height of at least 1.00 m. Where DIN 14122-4 applies, they must continue 1.10 m beyond the exit point.

The landing rails (2/1) and exit aids must be continued 1.10 m above the exit (use a crossover if necessary).

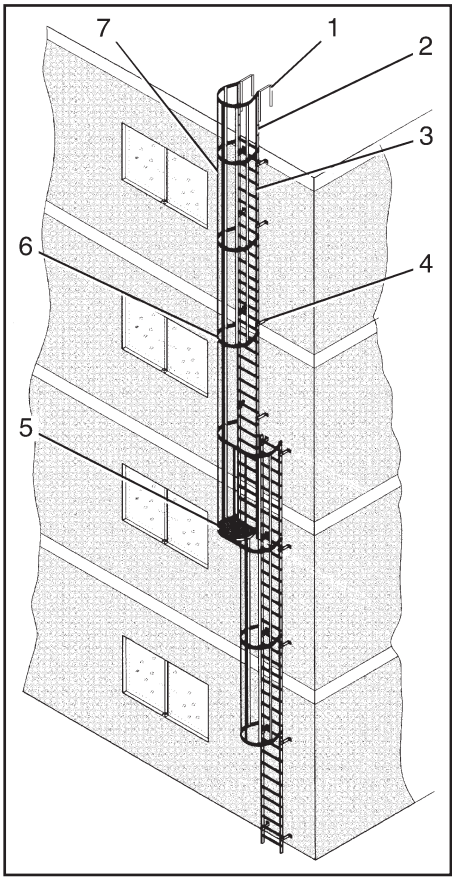


Fig. 2 Design drawing of the fixed ladder system (not to scale)

3.3.2 Fixed ladders

The fixed ladders are used to climb buildings. They can be expanded as needed, but after a certain height they must be of the multi-section type.
Where DIN EN ISO 14122-4 applies, fixed ladders must be of the multi-section type from a height of 6 m or more.
Where DIN 18799-1 and DIN 14094-1 apply, fixed ladders must be of the multi-section type from a height of 10 m or more.
The crossovers of the individual ladder sections must be provided with platforms to protect persons from falling.
On fixed ladder systems acc. to DIN 14094-1 only back guard hoops may be used as fall protection.
On fixed ladder systems acc. to DIN 18799-1 and DIN EN ISO 14122-4 a fall arrest system acc. to DIN EN 353-1 is allowed. Decisive in this case is the fall height of > 5 m.

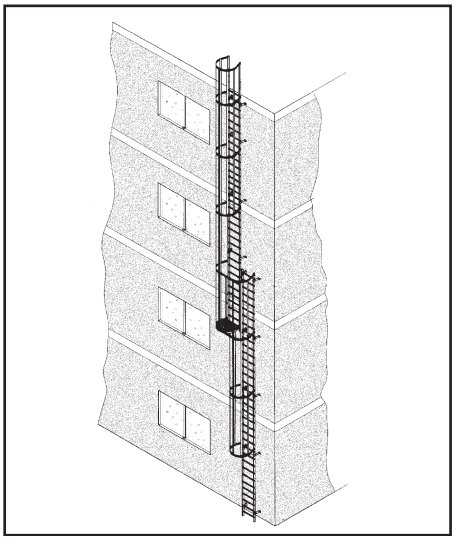


Fig. 3 Fixed ladder

See Appendix B for type and model number.

NOTE
A platform system can consist of a base platform (4/1) and several extension platforms (4/2). The base platform, however, must serve as termination of a platform arrangement. Static verification must be performed for 3 or more platforms. The ZPS (Zarges Planning System) can be used as an aid.

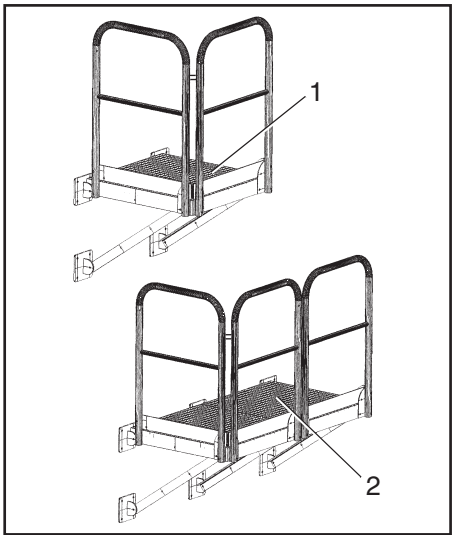


Fig. 4 Platforms

3.3.3 Base platform

The base platform serves as an entry or exit point or as access to an entrance or exit of a building.

See Appendix C for type and model number.

3.3.4 Extension platform

Any number of extension platforms can be installed.

See Appendix C for type and model number.

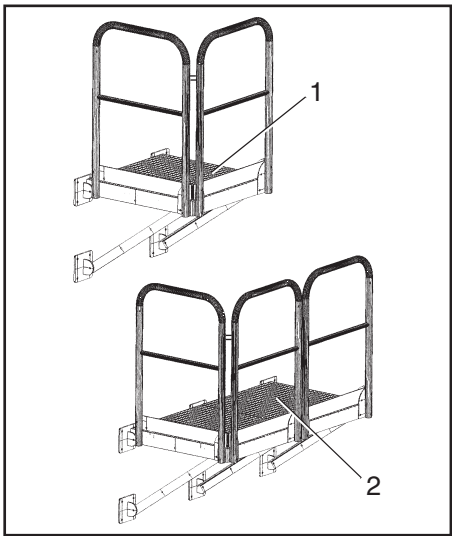


Fig. 4 Platforms

3.3.5 Back guard

A back guard segment comprises two back guard hoops and five back guard stays. Back guards are prescribed from a possible fall height of ≥ 5 m and are included in a complete system package.

- Back guard hoops

See Appendix B for type and model number.

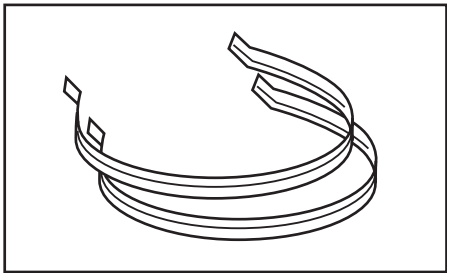


Fig. 5 Back guard hoops

- Back guard stays

See Appendix B for type and model number.

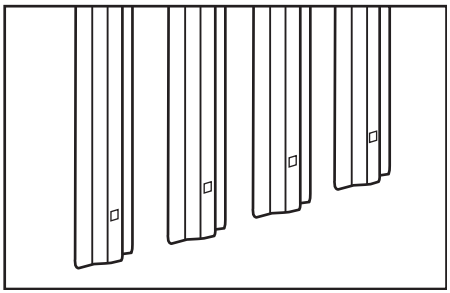


Fig. 6 Back guard stay

3.3.6 Landing rails

Landing rails
To provide something to hold on to for a safe exit from or entry into the fixed ladder system.

NOTE This rail should only be used in conjunction with a fixed stile extension Model No. 43243 or 44243.

- single side with base bracket

Length: 500 mm
Height: approx. 1100 mm above the exit

Type	Model no.
Galvanised steel	43248
Stainless steel V4A	44248

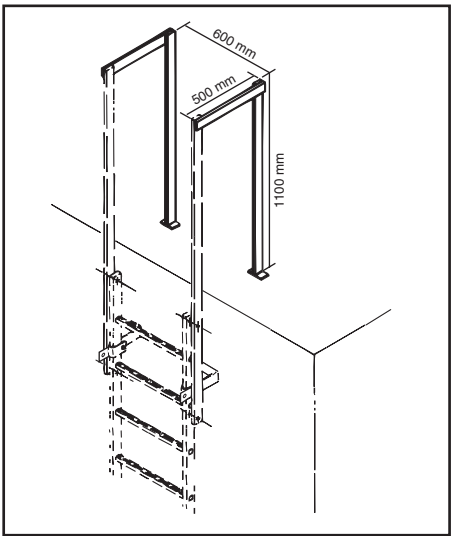


Fig. 7 Landing rails

- offset

Length: 500 mm
Height: approx. 1100 mm above the landing

Type	Model no.
Galvanised steel	43049
Stainless steel V4A	44049

NOTE Type is required acc. to DIN 14094-1.

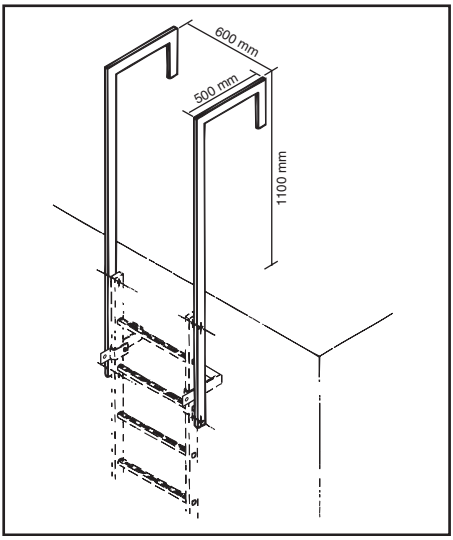


Fig. 8 Offset landing rails

• Retractable entrance aid
For space-saving applications.

Length: 1600 mm

Type	Model no.
Stainless steel, V4A (1.4571) for 60x25 mm stiles	47215

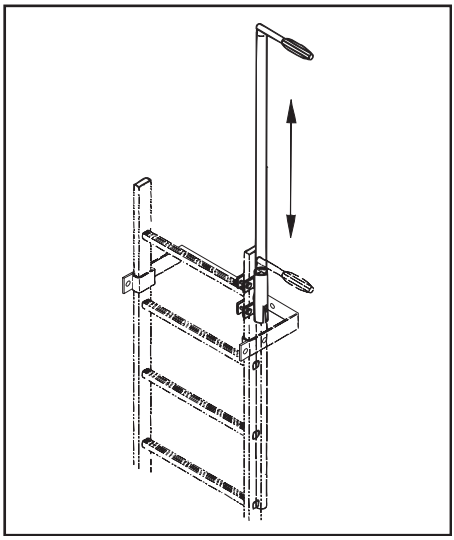


Fig. 9 Entrance aid

• Landing with crossover
For easily overcoming parapets, etc.

Depth: 800 mm
Descent ladder: 980 mm

Type	Model no.
Anodised aluminium	41181
Natural aluminium	42181
Galvanised	43181

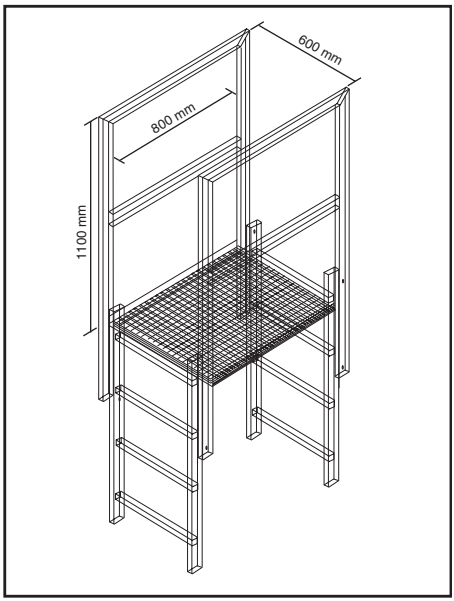


Fig. 10 Landing with crossover

3.3.7 Ground plate

For fastening shorter fixed ladders to the ground; if a fall arrester is used, the ladder should always be bolted to the ground.
Length: 120 mm
Height: 200 mm

Type	Model no.
Galvanised steel	43253
Stainless steel V4A	44253

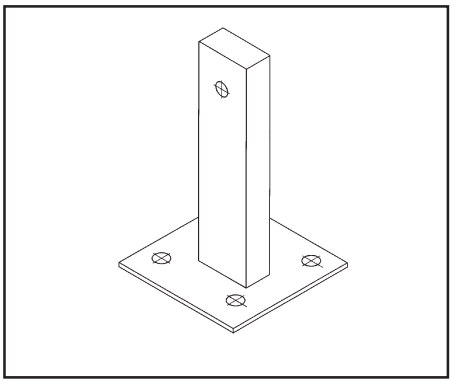


Bild 11 Fußplatte

3.3.8 Exit step

To widen the topmost rung of the ladder to ensure safe exit and entry.
Length: 520 mm
Step depth: 150 mm

Type	Model no.
Aluminium	40945
Stainless steel V4A	44254

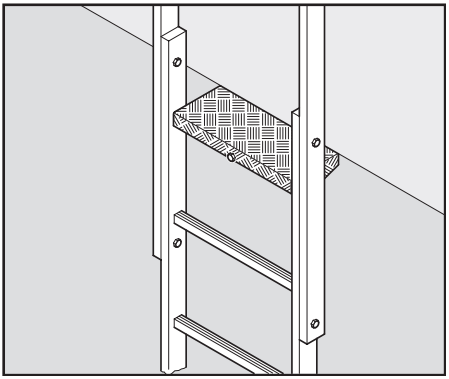


Fig. 12 Exit step

3.3.9 Handle

Provides additional support in case of special structural features.

Length: 400 mm or 600 mm
Diameter: 1"
Clearance: 150 mm

Type	400 mm Model No.	600 mm Model No.
Galvanised steel	47216	47218
Stainless steel V4A	47217	47219

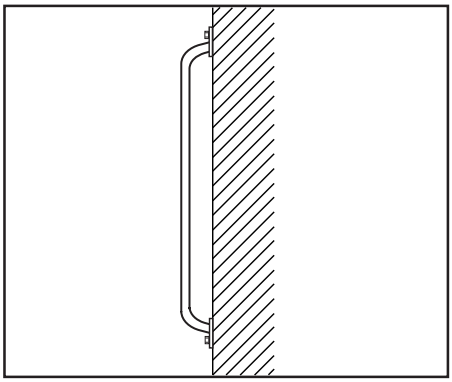


Fig. 13 Handle

3.3.10 Wall brackets on two sides

Every ladder section should be fastened with 2 wall brackets on each side or 4 brackets on one side, whereby the vertical spacing of the wall brackets must be averaged out and be < 2.00 m.

The dowels to be used must be approved by the building authorities.
Dowels are not supplied with the ladders. You can obtain the information from a support structure planning expert or from an expert adviser of the dowel manufacturer.
When aligning the wall brackets, the bolts should be brought to the maximum stand-off.
If necessary, wall brackets should be interfaced by suitable means. The structural planner will define the interfacing specifications.

- fixed

Distance from wall: 200 mm

Type	Model no.
Galvanised steel	43257
Stainless steel, V4A	44257

- adjustable

Distance from wall: 200-250 mm

Type	Model no.
Galvanised steel	43258
Stainless steel, V4A	44258

- adjustable

Distance from wall: 250-350 mm

Type	Model no.
Galvanised steel	43259
Stainless steel, V4A	44259

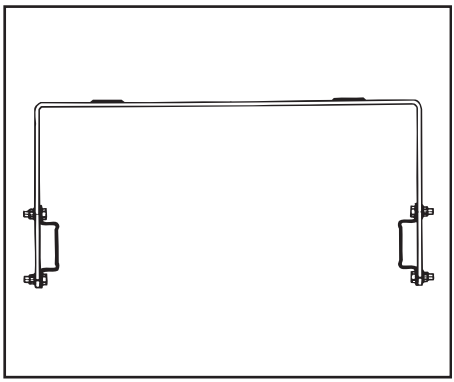


Fig. 14 Wall bracket, fixed 200 mm

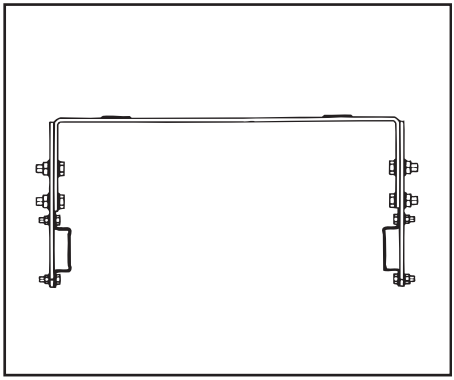


Fig. 15 Wall bracket, adjustable 200-250 mm

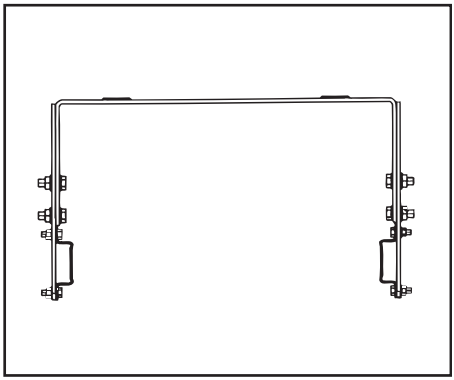


Fig. 16 Wall bracket, adjustable 250-350 mm

3.3.11 Wall brackets on one side

Every ladder section should be fastened with 2 wall brackets on each side or 4 brackets on one side, whereby the vertical spacing of the wall brackets must be averaged out and be < 2.00 m.

The dowels to be used must be approved by the building authorities.
Dowels are not supplied with the ladders.
You can obtain the information from a support structure planning expert or from an expert adviser of the dowel manufacturer.
When aligning the wall brackets, the bolts should be brought to the maximum stand-off.

• fixed
Distance from wall: 200 mm

Type	Model no.
Galvanised steel	43249
Stainless steel, V4A	44249

• adjustable
Distance from wall: 150-200 mm

Type	Model no.
Galvanised steel	43250
Stainless steel, V4A	44250

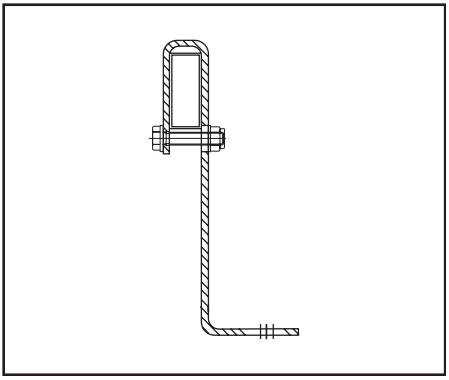


Fig. 17 Wall bracket, fixed 200 mm

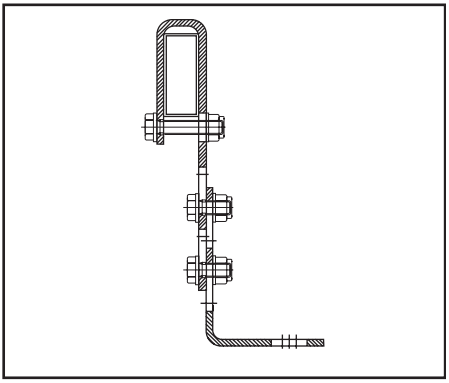


Fig. 18 Wall bracket, adjustable 150-200 mm

• adjustable
Distance from wall: 200-275 mm

Type	Model no.
Galvanised steel	43252
Stainless steel, V4A	44252

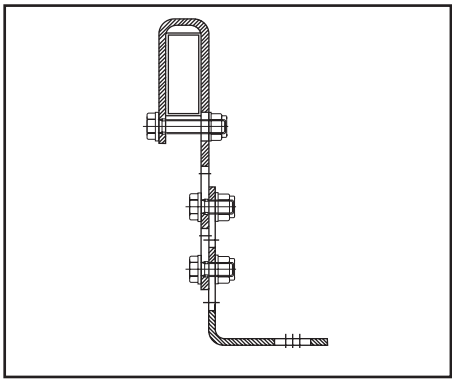


Fig. 19 Wall bracket, adjustable 200-275 mm

• adjustable
Distance from wall: 275-375 mm

Type	Model no.
Galvanised steel	43251
Stainless steel, V4A	44251

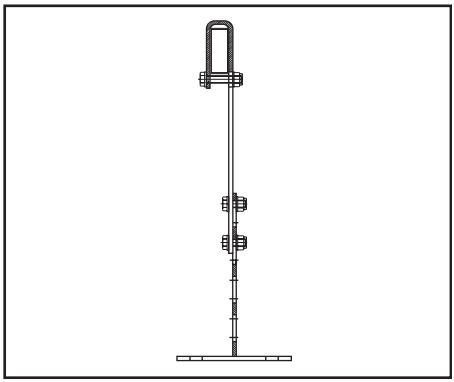


Fig. 20 Wall bracket, adjustable 275-375 mm

3.3.12 Security gate

Prevents unauthorised entry into the fixed ladder system.

Material: galvanised steel
Can be locked with a padlock (not supplied with ladder).
Hidden hinge mounting, sheet metal planking.
Locking pins at top.

Model No.: 43498

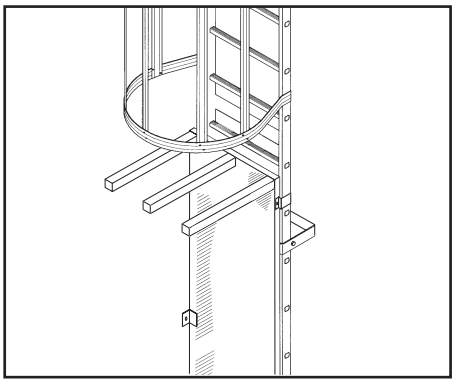


Fig. 21 Security gate

3.3.13 Intermediate platform

Provides a space-saving crossover to the next fixed ladder with multi-section fixed ladder systems (fixed type) or as a rest platform for single-section fixed ladder (fold-down type).
The intermediate platform can also be added later without any problems. If a bolt is inserted, it can be used as a fixed platform.
Size: 520 x 550 mm

Type	Model no.
Galvanised steel	43255
Stainless steel, V4A	44255

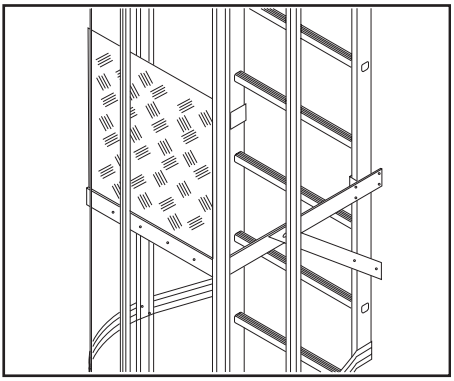


Fig. 22 Intermediate platform

3.3.14 Base ladder

Prevents unauthorised entry into the fixed ladder system.

Can be suspended with 4 ladder hooks and a cable-type padlock with 2 keys.
Length: 3.18 m

Type	Model no.
Natural aluminium	41445

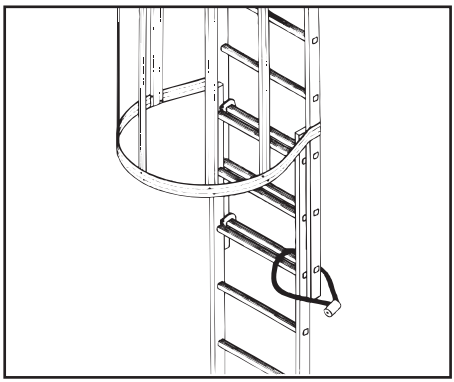


Fig. 23 Base ladder

3.3.15 Escape ladder

Prevents unauthorised entry into the fixed ladder system and enables a safe descent from the building in an emergency.

With automatic emergency release, descent from above.

Length:	3.20 m	4.90 m
Model No.:	42446	42448

The component parts of the emergency release are supplied as loose parts for self-assembly.
Remote unlocking on request.

CAUTION **Suitable safety precautions must always be taken in the area where the ladder descends. The ladder system may not end above the entrances or exits of buildings and must be set up so that the descending ladder ends on level ground with a sufficient load-bearing capacity.**

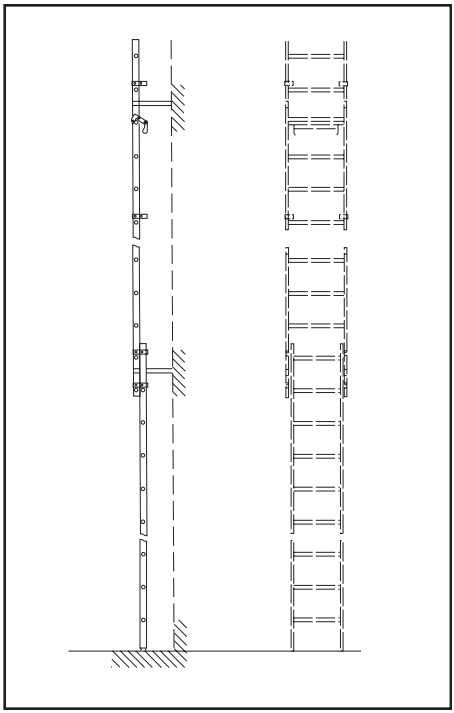


Fig. 24 Escape ladder

3.3.16 Pole barriers

Model No.: 43500

Hot-galvanised steel pole barrier. Identified by a red plastic coating. Model closes automatically through the force of gravity.

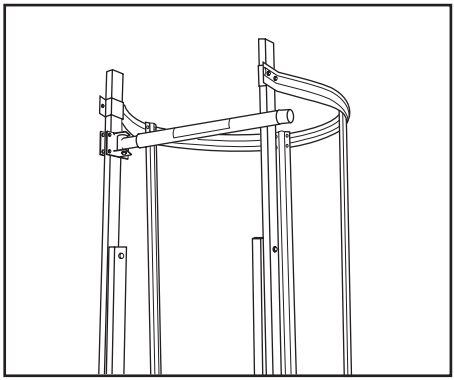


Fig. 25 Pole barrier

Model No.: 43501

Hot-galvanised steel pole barrier. Identified by a red plastic coating. Model locks automatically through encapsulated spring mechanism. Left- or right-handed stop possible by turning the stop or reversing the action of the spring. The closing force can be increased by increasing the pretension.

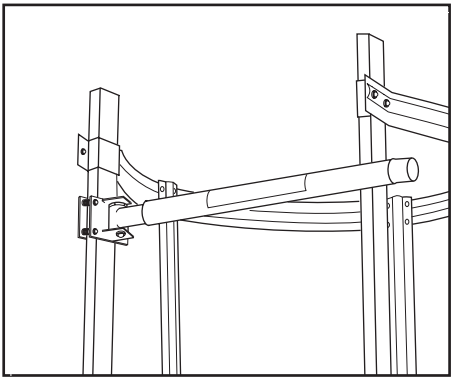


Fig. 25.1 Pole barrier

Model No.: 43502

Galvanised steel pole barrier. Identified by a red/white self-adhesive film coating. With hand and knee rail. The model closes automatically due to an encapsulated spring mechanism. Left- or right-handed stop possible by turning the stop or reversing the action of the spring. The closing force can be increased by increasing the pretension.

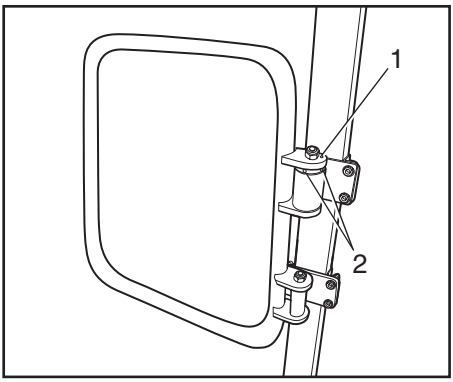


Fig. 25.2 Hoop-shaped pole barrier

3.3.17 Windbreak

For improved vibration reduction in high winds, we recommend also attaching wind-breaking braces (26/1) to the back guard hoops.

Type	Model no.
Aluminium	207245
Stainless steel V4A	207246

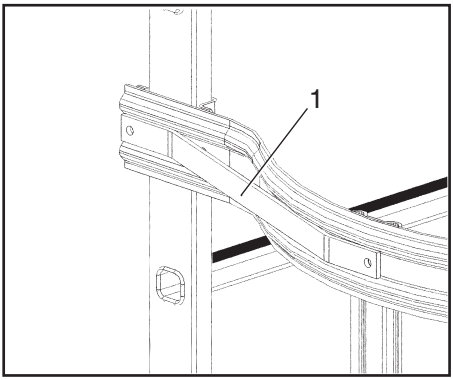


Fig. 26 Wind-breaking brace

3.3.18 Hinged platform

Model No.: 43265

The hinged platform is provided with a mechanical lock. An encapsulated spring mechanism opens the hinged platform automatically.

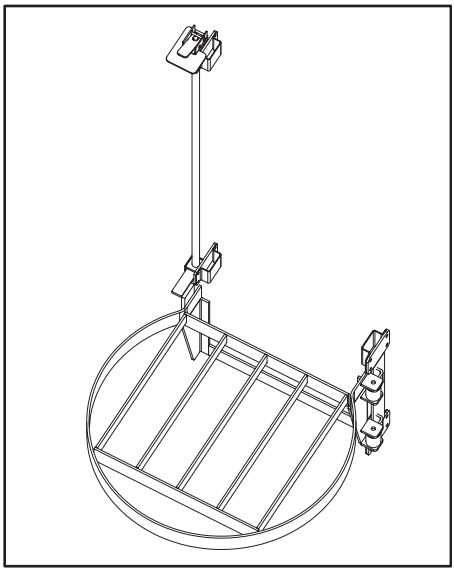


Fig. 26.1 Hinged platform

4 INSTALLATION

4.1 Safety regulations

NOTE If the circumstances of the building do not allow the installation of multi-section fixed ladder systems over 10 m acc. to DIN 18799-1 or DIN EN ISO 14122-4, BGV D36 requires that they be equipped with fall protection in accordance with DIN EN 353-1.

- All of the safety requirements given in section 2 must be observed and complied with.
- ZARGES fixed ladder systems may only be installed and operated with genuine ZARGES parts. Combining them with parts from other manufacturers can impair safety and is not permitted.
- Only genuine ZARGES nuts and bolts may be used for bolted joints. Self-locking nuts should always be used for bolted joints. The nuts and bolts should always be tightened with a torque wrench.
- Before the wall brackets are fitted, the wall should be inspected to make sure it has an even, plumb surface; if not, adjustable wall brackets should be used.

If the supplied wall brackets are installed with dowel systems, only dowel systems approved by the building authorities may be used. The installation firm is responsible for the performance of the work and must inspect the masonry closely. If there is any uncertainty, contact a structural planning expert or an expert adviser from the manufacturer (a requirement according to DIN 14094-1). Each wall bracket must withstand a total extraction force of ≥ 3 kN and if used in combination with an arrester system (e.g. Zarges arrester system ZAST) an impact force of ≥ 6 kN. The dowels are not supplied with the ladder. Please refer to Appendix E.

- Each ladder section should be fastened with 2 wall brackets on each side or 4 brackets on one side, whereby the vertical spacing between the wall brackets must be averaged out and be ≤ 2.00 m. If the ladder is shorter than 2.00 m, at least two fastening points must be used (e.g. ground plates, one wall bracket on two sides or two wall brackets on one side).
- If the fixed ladders have fall protection, the bottom ladder should be fastened to the ground with two ground plates.
- If the single-section fixed ladder system is over 10 m long, a rest platform must be installed at least every 10 m. Where DIN EN ISO 14122-4 is applicable, already if the ladder is over 6.00 m long.

NOTE Fixed ladder systems with back guards must be of the multi-section type if over 10 m long. Where DIN EN ISO 14122-4 is applicable, already if the ladder is over 6.00 m long.

- The installer must be suitably protected against falling during the installation work.

4.2 Preparations prior to performing the installation work

The installation must be adapted to local conditions and is therefore not subject to any specific sequence.
The installation of fixed ladders and add-on parts is explained in detail in the following instructions and supplemented with a parts list.

The dimensions and spacing values given should be adhered to exactly.

For a clearer overview, we recommend assembling the parts of the ladder on the ground. This allows you to determine where the individual wall brackets and back guard hoops should be fitted. To make things easier, we recommend marking these places.

If the supplied wall brackets are installed with dowel systems, only dowel systems approved by the building authorities may be used. The installation firm is responsible for the performance of the work and must inspect the masonry closely. If there is any uncertainty, contact a structural planning expert or an expert adviser from the manufacturer (a requirement according to DIN 14094-1). Each wall bracket must withstand a total extraction force of ≥ 3 kN and if used in combination with an arrester system (e.g. Zarges arrester system ZAST) an impact force of ≥ 6 kN. The dowels are not supplied with the ladder.

Exact details are given by the Zarges Planning System. Please refer to Appendix E.

All nuts and bolts must be tightened according to the table with a torque wrench.

Tightening torque for stainless steel bolts (A2/A4)

Size	Tightening torque (Nm)
M6	7.5
M8	17.5
M10	35.0
M12	60.0

All values given are recommended guideline values. The coefficient of friction changes, depending on the lubrication.

- **Installing the connecting brackets on the stainless steel fixed ladders**
  Insert the M8x40 hexagon bolts with the plain washers and D12x1.5x25 mm spacer tubes through the hole from the inside of the ladder. Install the channel section with the 9 mm hole from the outside and torque the M8 nut and plain washer. Repeat this process in the same way on the second stile and on any further ladders.

  See section 4.3. for further installation steps.

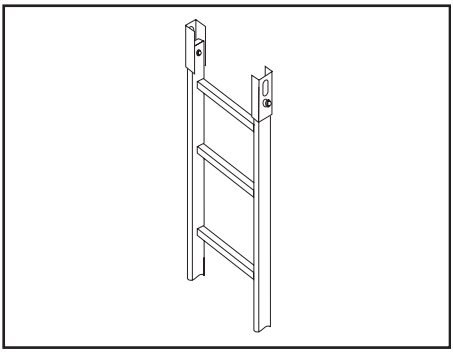


Fig. 27

- **Installing the ladder connectors on the fixed ladders made of hot-galvanised steel and aluminium**
  Insert the ladder connector in the stile. Insert the M8x40 hexagon bolts through the stile from the inside and torque the M8 nuts and plain washers. Repeat this process in the same way on the second stile and on any further ladders.

  See section 4.3. for further installation steps.

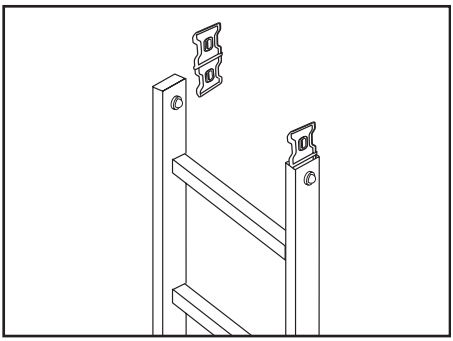


Fig. 27.1

- **Installing the stile extension on the topmost ladder**
  Insert the M8x105 hexagon bolts with plain washers and D12x1.5x89 mm spacer tubes through the hole from the inside of the ladder and slide the 20x3.0x40 mm spacer tubes over the previously installed spacer tubes. Install the stile extension from the outside and torque the plain washers and M8 hexagon nuts. Then place the end caps supplied in loose form on the top of the ladder.

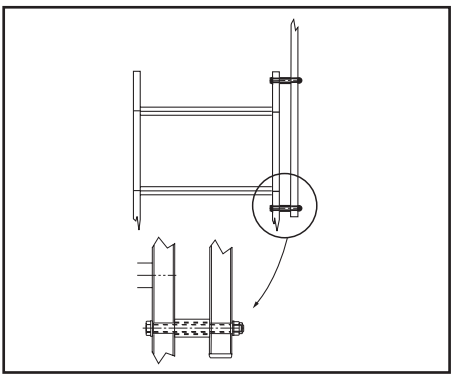


Fig. 28

4.3 Installation

4.3.1 Installation of wall brackets and fixed ladders

If the supplied wall brackets are installed with dowel systems, only dowel systems approved by the building authorities may be used. The installation firm is responsible for the performance of the work and must inspect the masonry closely. If there is any uncertainty, contact a structural planning expert or an expert adviser from the manufacturer (a requirement according to DIN 14094-1). Each wall bracket must withstand a total extraction force of ≥ 3 kN and if used in combination with an arrester system (e.g. Zarges arrester system ZAST) an impact force of ≥ 6 kN. The dowels are not supplied with the ladder. Please refer to Appendix E.
In exceptional cases the 200 mm clearance for the wall brackets may be 50 mm less.

- Each ladder section should be fastened with 2 wall brackets (29/1) on each side or 4 brackets on one side, whereby the vertical distance between the wall brackets must be averaged out and be ≤ 2.00 m.

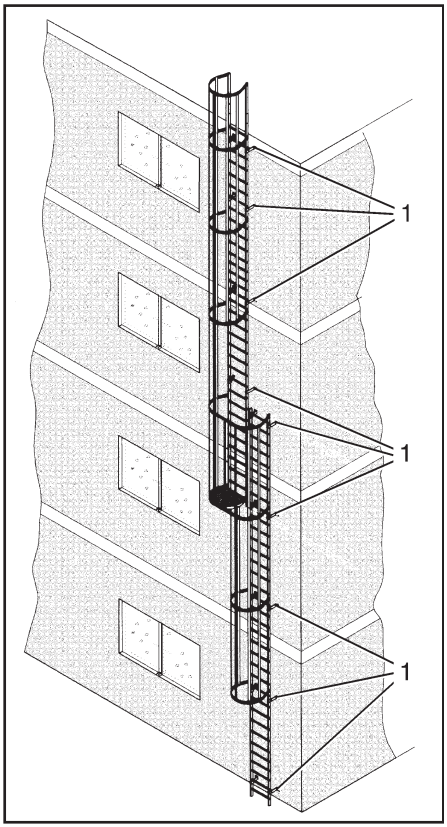


Fig. 29 Installation of the wall brackets

If escape ladders are to be fitted, the first fixed ladder must installed at a height of 2.70 m.

If base ladders are to be fitted, the first fixed ladder must be installed at a height of 2.20 m.

If a security gate is to be fitted, no wall brackets may be fitted near the hinge fasteners.

In the case of short ladders and ladders with arrester devices, the fixed ladder should be fastened to the ground with ground plates (30/4).

- Insert the ground plates (30/4) into the stiles (30/3), scribe and drill a hole of 13 mm. Apply a suitable anti-corrosion agent to any damaged surfaces. Insert the ground plates (30/4) into the stiles (30/3). Feed the M8x35 hexagon bolts, plain washers and D12x1.5x24 mm spacer tubes from the inside through the stiles lead and torque the washers and M8 nuts. Align the ladder plumb to the wall brackets and fasten the ground plates to the ground.
- Put the fixed ladder into the wall brackets (30/2). Place connecting brackets around the stiles, fasten to the wall bracket with M8x24 bolts, and torque the plain washers and M8 nuts.
- See page 27 for how to install the connecting brackets or ladder connectors, depending on the material the ladder is made from.
- Slide the next ladder over the connecting brackets or ladder connectors (30/1) on the ladder installed first. Feed M8x40 hexagon bolts with plain washers and D12x1.5x28.5 spacer tubes from the inside of the ladder through the hole and the slot in the connecting bracket (30/1).

NOTE The individual fixed ladders must be mounted with an expansion clearance of approx. 3 mm.

- Torque the channel section with a plain washer and M8 nut. Repeat this process in the same way on the second stile and further ladders.
- The ladder with the stile extension should be used as the upper connection.

The last rung should not protrude over the exit edge.

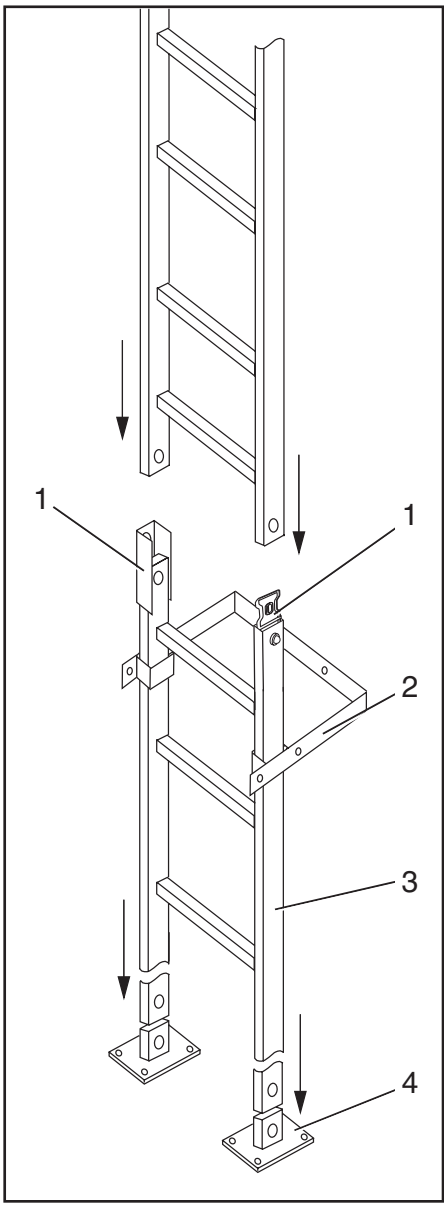


Fig. 30 Installation of the fixed ladder

4.3.2 Installation of the back guard hoop

NOTE If self-locking nuts are used, a high temperature installation paste should be applied to the bolts. This will prevent any so-called „cold welding“.

- Fasten the first single-section back guard hoop (31/3) to the top of the stile extension (31/2), at least 1 m above the exit point, using clip (31/1), M8x16 hexagon bolts, plain washers and M8 nuts (nuts must point outwards), and torque the nuts.
- Fasten the second back guard hoop to the fixed ladder, approx. 1.40 m from the first, but do not tighten the bolts yet.
- Screw the back guard braces (31/4), one after the other, to the first back guard hoop from the inside.
- Arrange the next row of back braces with an overlap (32) between the first brace and the hoop, install and torque the M10x25 bolts, plain washers and M10 nuts (nuts must point outwards).
- Fasten the second back guard hoop to the ladder stiles and torque the nuts.
- Continue to proceed as described above.
- The last back guard hoop must be 2.20 m - 3.00 m above the access point/crossover point (platform).

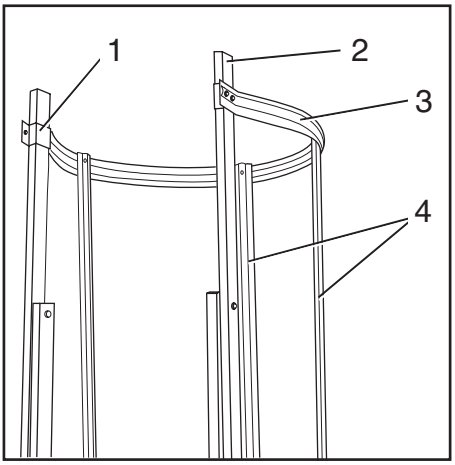


Fig. 31 Back guard

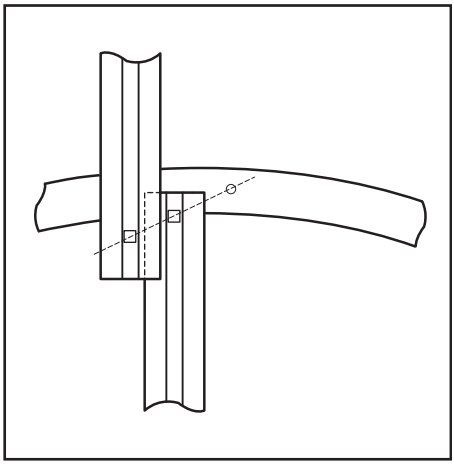


Fig. 32

- Install the back guard hoop (33/1) for offset arrangement at a distance of at least 1.40 m from the crossover point (intermediate platform) (33/4) on the outside of both fixed ladders and torque the nuts.

- Fasten the second back guard hoop (33/2) for offset arrangement to the stiles approx. 1.40 m from the first one, but do not tighten the bolts yet.

- Screw the back guard stays to the two back guard hoops one after the other from the inside.

- Fasten the second back hoop to the stiles and torque the nuts.

- Fasten the single-section back guard hoop (33/3) to the stile directly below the back guard hoop for offset arrangement and torque the nuts.

- Continue the installation as described above.

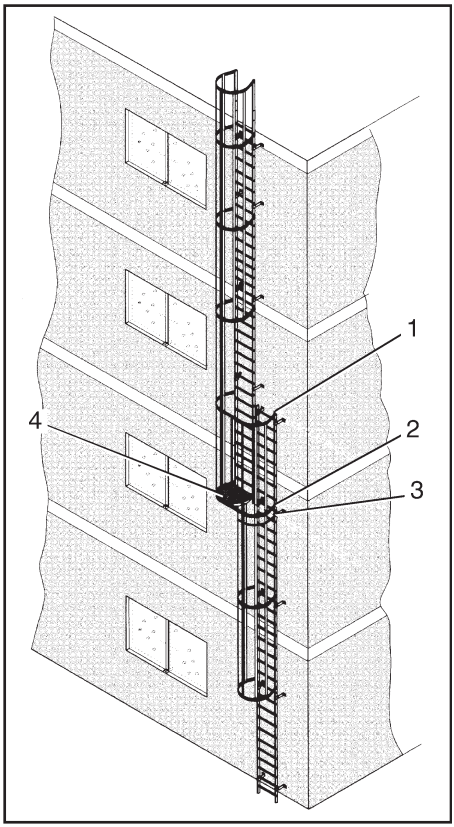


Fig. 33 View of back guard

NOTE

For ladders with special lengths, the back guard stays may have to be cut to length on site by skilled personnel.
The back guard hoops must be shortened in such a way that no excess lengths with sharp edges result.
In these cases the back guard hoops should be cut approx. 1 cm behind the back guard stay.

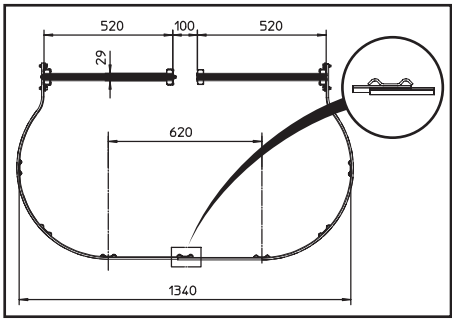


Fig. 33a Back guard hoop for offset version

4.3.2.1 Back guards on single-section fixed ladders

When stepping laterally from a single-section fixed ladder system onto a rest platform, proceed as follows:

- Remove the back guard stays (33b/1).
- Cut the back guard hoop (33b/5) properly to the correct length.

NOTE Any necessary shortening of the back guard hoop must be done in such a way that no excess lengths with sharp edges result. In these cases the back guard hoops should be cut approx. 1 cm behind the back guard stay.

- Measure the distance between back guard stays (33b/4) and rails (33b/3) of the rest platform (33b/2). It should not be over 120 mm. It the distance is over 120 mm, install the previously removed back guard stays (33b/1) properly between back guard stays (33b/4) and rails (33b/3).
- Torque the nuts and bolts as specified in section 4.3.2.

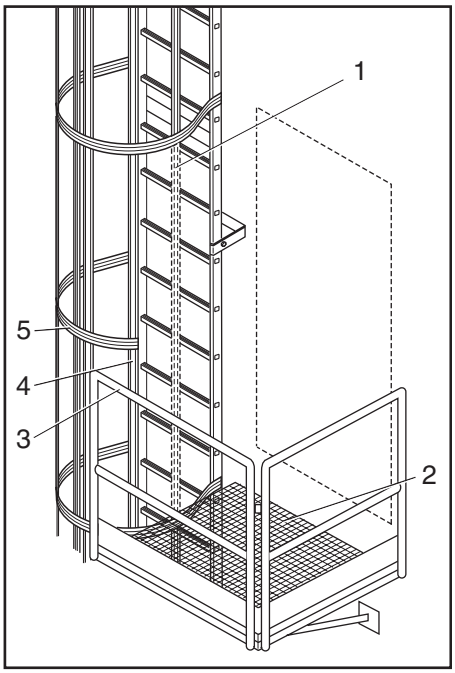


Fig. 33b View back guard on single-section ladder

ATTENTION If necessary, cut the back guard stay (33b/1) properly below the platform to the height of the platform. Avoid sharp-edged projecting ends and tripping hazards when doing this installation.

4.3.3 Installation of the rail

- Insert the M8x65 hexagon bolt (34/1), plain washer and 12x1.5x24 mm spacer tube from the inside through the hole in the stile extension. Install the landing rail (500 mm long), plain washer and M8 nut on the outside and fasten.
- Insert the M8x65 hexagon bolt (34/1), plain washer and 12x1.5x24 mm spacer tube through the hole in the landing rail (1000 mm long) and fasten to the inside part of the previously fitted rail with a plain washer and M8 nut.
- Insert the M8x35 hexagon bolts (34/2), plain washers and 12x1.5x24 mm spacer tubes from the inside through the holes of the landing rail , fasten the fastening bracket with washers and M8 nuts. Torque all nuts and bolts.
- Attach the fastening bracket to the building.

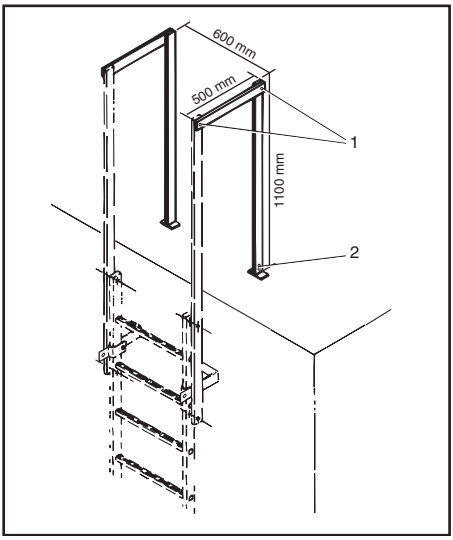


Fig. 34 Installation of the rail

4.3.4 Installation of intermediate platform

- Fit the frame (35/1) of the intermediate platform to the stiles of the ladder with the brackets (35/2) so that it is horizontal and torque the nuts and bolts.
- Attach the fastening bracket (35/3) for the support braces to the ladder stiles and torque the nuts and bolts.

NOTE If the intermediate platform is used as an end platform, it must be secured against accidental opening with a bolt.

- Fasten the opening cord to the fixed ladder so that a safe descent is ensured.

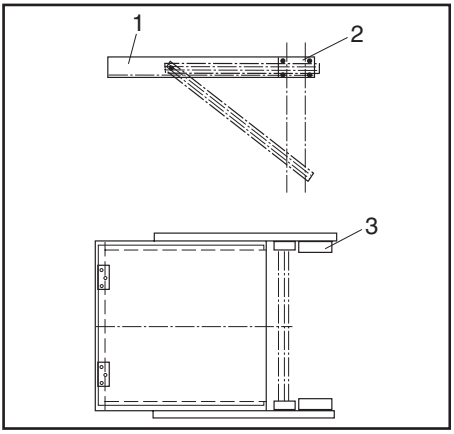


Fig. 35 Installation of intermediate platform

4.3.5 Installation of the platforms

- Arrange the wall anchors according to the size of the platform (36) and fasten to the masonry.
- Install support braces (37/3) on the lower wall anchors and fasten with M10x70 bolts (37/7) and M10 nuts.
- Position the frame (37/2) on the upper wall anchors (37/1) and fasten with M10x30 bolts and M10 nuts. The undrilled side of the frame must be facing the masonry with the bend upwards so that the grating can later be placed on top and not inside.
- Lift the frame and mount on the support braces with M10x30 bolts and M10 nuts.
- Insert the grating and fasten to the frame with clips.
- Position the mounts (37/5) at the corners. Insert the M10x30 bolts through the holes (37/4) and (37/6) and fasten to the frame with M10 nuts.
- Place the rail on the mounts, noting the hole (38/1) in the rail connector, and fasten to the mounts (38/5) with M10x80 bolts and M10 nuts.
- Position the foot rails (38/2) on the mounts from the inside. Insert the M10x70 bolts through the rail uprights (38/3), the mounts and foot rails and fasten with M10 nuts.

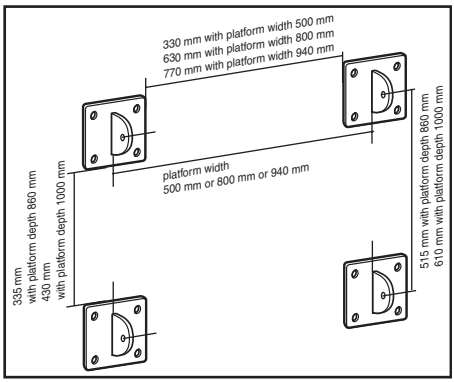


Fig. 36 Wall anchors

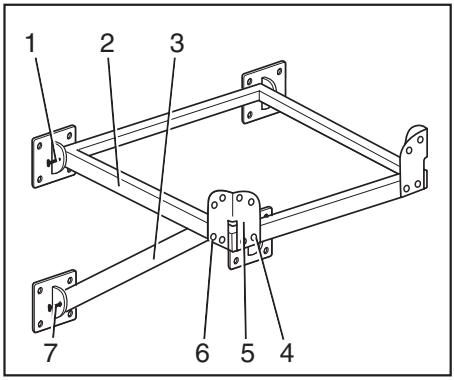


Fig. 37 Installation of frame

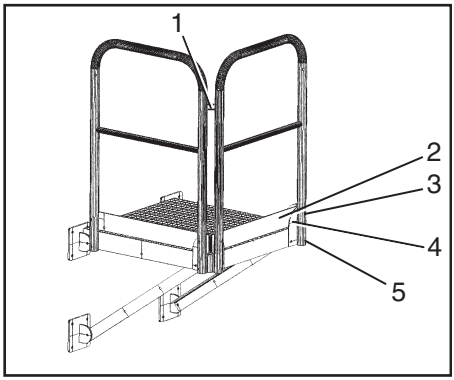


Fig. 38 Installation of rail

- Insert the M10x30 bolts through the mounts (38/4) and foot rail and fasten with M10 nuts.
- Insert the M10x150 bolt through the hole in the rail (38/1), the R16x2x40 spacer tube and the second hole in the rail and secure with M10 nuts.
- Torque all nuts and bolts.

Wall anchors may only be used with dowel systemsapproved by the building authorities. The installation firm is responsible for the performance of the work and must inspect the masonry closely. If there is any uncertainty, contact a structural planning expert or an expert adviser from the manufacturer (a requirement according to DIN 14094-1). Please refer to Appendix E.

Fasten any number of extension platforms to the building as described above. Fasten the frames (37/2) of the installed platforms with 4 M10x45 bolts, plain washers and M10 nuts and torque the nuts and bolts. If more than 2 platforms are installed, the statics must be verified by the manufacturer (see page 58 ff.). We recommend using the ZPS (Zarges Planning System).

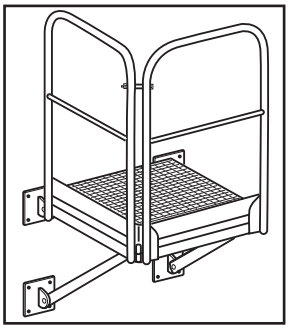


Fig. 38.1
Model No.: 43270/43275

1 x frame
1 x grating
2 x rails
2 x mount
2 x support
4 x wall anchor
2 x grating fastener
12 x M10 x 30
8 x M10 x 80
1 x M10 x 160
21 x M10
21 x plain washer
1 x spacer tube

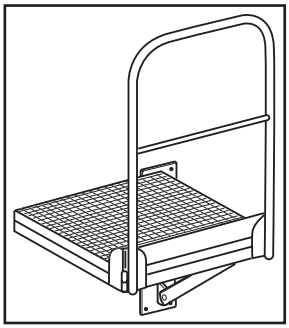


Figure 38.2
Model No.: 43271/
43276

1 x frame
1 x grating
1 x rail
2 x mount
1 x support
2 x wall anchor
2 x grating fastener
8 x M10 x 30
4 x M10 x 45
4 x M10 x 80
16 x M10
16 x plain washer

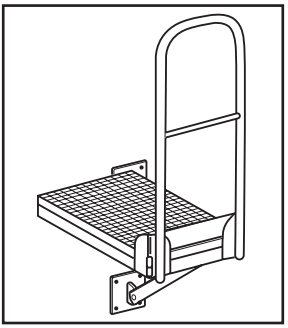


Figure 38.3
Model No.: 43272/
43277

1 x frame
1 x grating
1 x rail
2 x mount
1 x support
2 x wall anchor
2 x grating fastener
8 x M10 x 30
4 x M10 x 45
4 x M10 x 80
16 x M10
16 x plain washer

4.3.6 Installation of the security gate

NOTE The assistance of a second person is recommended when installing the security gate.

- Hold the hinge flange (39/3) on the inside of the stile so that the top of the gate is approx. 10 cm below the lowest back guard hoop. Put the fastening bracket (39/2) around the stile and fasten to the hinge flange (39/3) with M8 bolts, plain washers and M8 nuts.

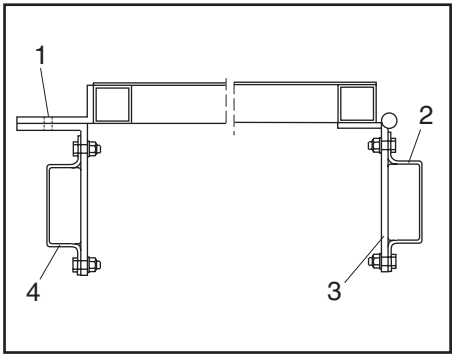


Fig. 39 Installation of the security gate

- Fasten the stop flange with the fastening bracket (39/4) to the other stile so that the 12 mm holes (39/1) for the padlock coincide.

4.3.7 Installation of the exit step

- Push channel sections over the topmost rung so that the tread is between the wall and the ladder. Torque the M8 bolt (40/1), plain washer and M8 nut.

NOTE According to DIN 14122-4, the clearance between the exit step and the wall must not exceed 70 mm.

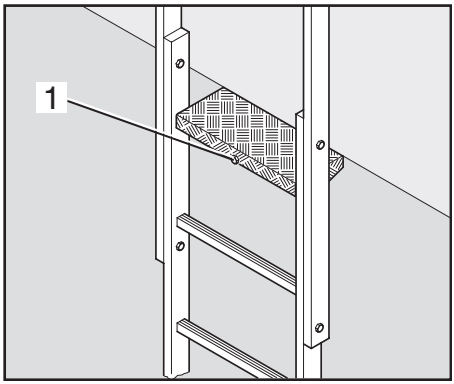


Fig. 40 Installation of the exit step

4.3.8 Installation of the escape ladder

Mounting the expansion heads

- Drill 8 holes with a diameter of 7.5 mm from below in the centre of the 1st , 2nd, 7th and 11th rungs as shown 25 mm away from the stiles.
- Drive in the expansion heads (41/2) as contact protection.

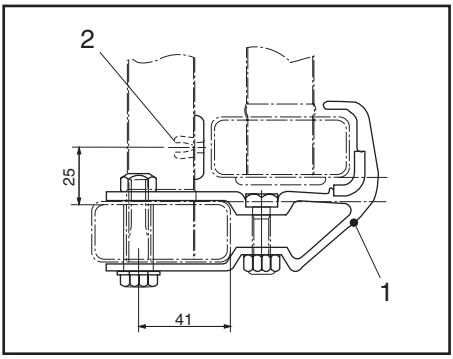


Fig. 41 Installation of the escape ladder

Installing the braces

- Fit two braces (41/1), (42/1) each 290 mm apart on the lower section of the ladder.
- Fit two braces (41/1), (42/1) each 1386 mm away from the lower braces.
- To do this, push the braces (41/1), (42/1) over the stile and scribe holes 41 mm from the edge of the stile. Drill 8.2 mm holes on the inside of the stile and 12.3 mm holes on the outside.
- Push the braces over the stile, insert a spacer tube with M8 hexagon bolt and plain washer into the stile from the outside and torque the M8 nut and washer.

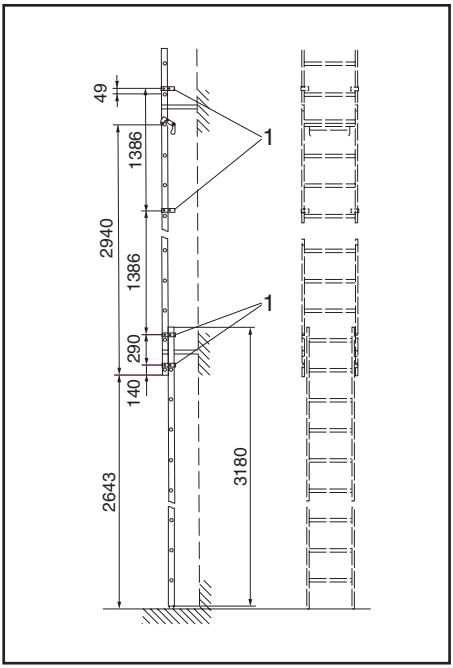


Fig. 42 View of the escape ladder

Installing the drop hook

- Drill a 5-mm hole 30 mm above the 11th rung and 15 mm away from the edge of each stile.
- Screw sheet metal screws (43/3) with spacer tubes (43/2) through the plates on the side of the drop hook (43/1) into the stiles from the inside.

Inserting the escape ladder

- Slide the sliding part from the bottom upwards into the brackets until the top rung of the sliding part engages in the drop hook.

CAUTION **<u>Always</u> take suitable safety precautions in the area where the ladder descends.**

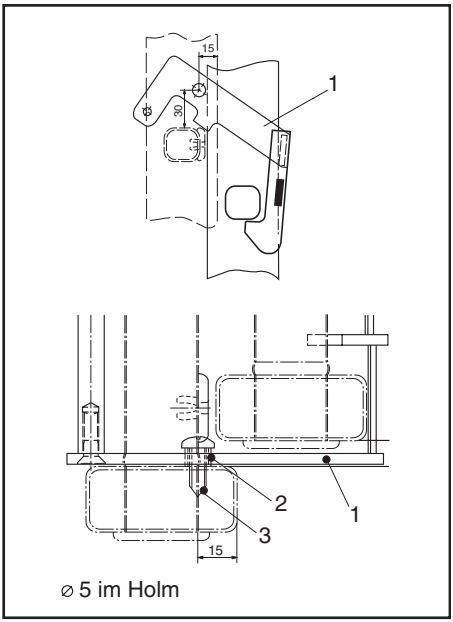


Fig. 43 Installing the drop hook

ATTENTION The hole used for attaching the fixed ladder on the wall brackets in the area of the escape ladder must be countersunk and the hexagon bolts must be replaced by countersunk bolts.
Apply suitable anti-corrosion agent in the area the countersink.

Performing a functional test

A functional test must be carried out upon completion of the installation work. The escape ladder must lower easily.

- Guide the escape ladder down with a rope.
- Pull the escape ladder again up and engage it properly.

4.3.9 Installation of the offset landing rails

Insert the M8x105 hexagon bolts with plain washers and D12x1.5x89 mm spacer tubes through the hole from the inside of the ladder and slide the 20x3.0x40 mm spacer tubes over the previously installed spacer tubes. Attach the stile extension from the outside and torque the plain washers and M8 cap nuts.

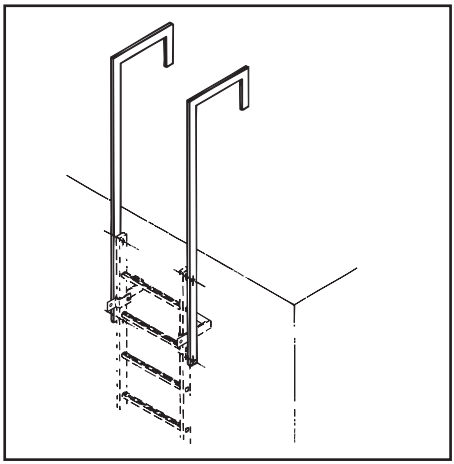


Fig. 44

4.3.10 Installation of the landing with crossover

Insert the M8x105 hexagon bolts with plain washers and D12x1.5x89 mm spacer tubes through the holes from the inside of the ladder and slide the 20x3.0x40 mm spacer tubes over the previously installed spacer tubes. Attach the rail part from the outside and torque the plain washers
and M8 cap nuts.
Cut the escape ladder to the exact length on the site and attach them to the building with wall brackets or ground plates.

Fasten the escape ladder to the inside of the rail part with M8 hexagon bolts, plain washers and M8 nuts and torque the nuts.

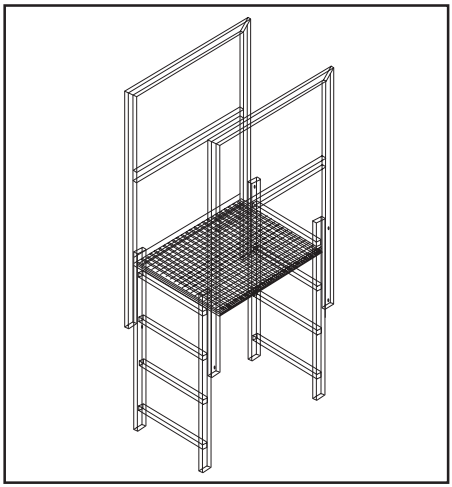


Fig. 45

4.3.11 Installation of the base ladder

Hook the base ladder with all four ladder hooks on the rungs of the installed fixed ladder.
The base ladder must be held by all four ladder hooks.
As protection against unauthorised access to the fixed ladder system and unintentional removal from the fixed ladder system, we recommend securing the ladder with the supplied cable-type padlock.

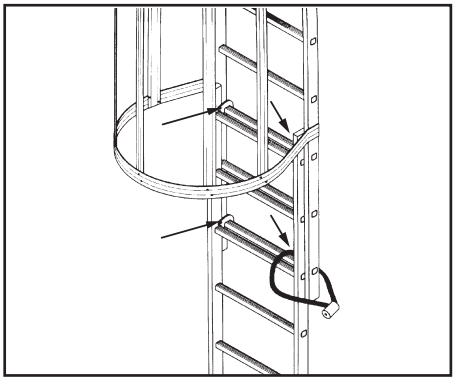


Fig. 46

4.3.12 Installation of the pole barriers

Hold the pole barrier fastening flange on the inside of the stile extension.
Fasten the bracket with M8 bolts, plain washers and M8 nuts from the outside of the stile and torque the nuts.

To adjust the spring tension of items no. 43501 and 43502, position the adjusting lever on the spring element (47.1/2) and loosen the bolt (47.1/1). Adjust the spring tension with the adjusting lever and tighten the bolt (47.1/1).

NOTE The pole barrier must fall automatically against the second stile extension.

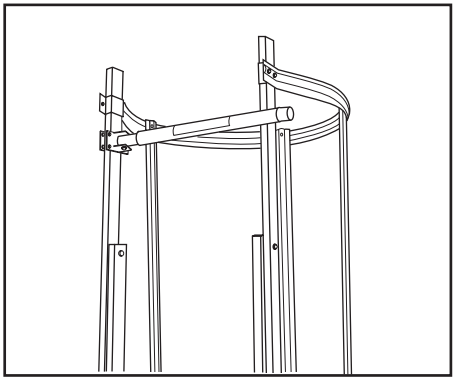


Fig. 47

To enter the fixed ladder system, the pole barrier must be moved to the side towards the building.

General information for all barriers:
All of the barriers mentioned above can be fitted to the following products from the Zarges fixed ladder range:

1. Stile extension, Model No. 43243/ 44243
2. Offset stile extension, Model No. 43049/44049
3. Landing with crossover (rooftop crossover), Order No. 41181/42191/43181

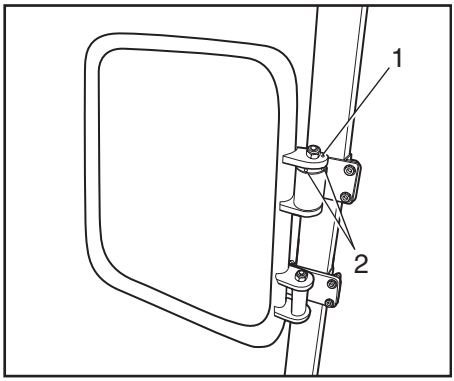


Fig. 47.1

4.3.13 Installation of the retractable entrance aid

Hold the retractable entrance aid in position on one stile of the ladder from the outside. Attach the supplied fastening flanges with M8 hexagon bolts, plain washers and M8 nuts, and torque the nuts and bolts.

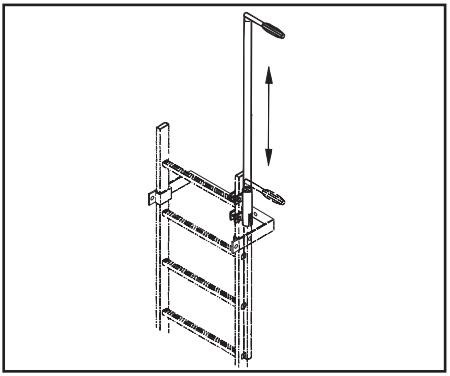


Fig. 48

4.3.14 Installation of the of the wind-break

Remove the back guard hoop nuts. Position the wind-breaking brace as shown in Figure 49 and reattach with bolts, plain washers and nuts.
Torque all nuts and bolts.

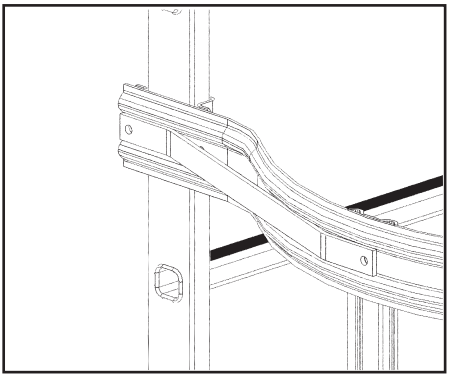


Fig. 49

4.3.15 Installation of the hinged platform

Position the hinged platform on the stile so that it can swing up without contacting anything.
Position the fastening plates (49.1/1) from the inside of the stile and attach to the hinged platform with bolts, washer and nuts.
Position the locking mechanism (49.1/4) on the stile so that the locking pin can engage in the opening of the locking gudgeon (49.1/2).
Position the fastening plates (49.1/3) from the inside of the stile and attach them with bolts, washer and nuts.
Torque all bolts according to the table of torques.

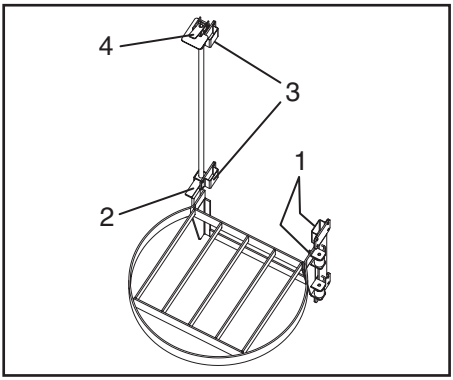


Fig. 49.1

4.4 Work to be performed after installation

The following checks should be performed after installation and before the fixed ladder system is used for the first time:

- Are the wall anchors in line?
- Is the fixed ladder installed plumb (adjustable wall brackets)?
- Have only dowels approved by the building authorities been used for the corresponding substrate?
- Is the clearance between the fixed ladder and the wall greater than 200 mm at every point?
- Have all of the nuts and bolts been tightened with the correct torque?
- Have intermediate platforms been installed correctly and are they in proper working order?
- Are all of the components undamaged and in proper working order?
- Are all surfaces undamaged, especially those of galvanised steel components?
- Have damaged surfaces been touched up with a suitable anti-corrosion agent?
- Have suitable protective measures been taken for an installed escape ladder?
- Is the traversing range of an installed hinged platform free from obstacles? Check that it pivots and locks properly.

5 USING THE FIXED LADDER SYSTEM

5.1 Safety regulations

- Entry into the fixed ladder system from above is only permitted if an entrance aid or stile extension is used.

- Entry into the fixed ladder system is only permitted if the user has made sure that the system and components are in proper working order.
  It is not permitted to use the ladder system if any components are defective. Defective components should be replaced by the manufacturer or by an expert.
  Unauthorised modifications to components of the fixed ladder system are not permitted and will result in voiding the warranty and liability.

- Only fixed ladder systems for which the specified tests have not expired may be used.

- If fall protection is required, it is forbidden to enter the fixed ladder system without personal protective gear.

- A user may only enter the ladder system if in good physical health and in the physical condition (no alcohol, no drugs, no medicines) to enter it.

- Section 6 should be observed with regard to cleaning.

- Only ZARGES components may be used in a ZARGES ladder system. The use of components from other manufacturers is not permitted.

- Users may not hold any loads in their hands when using the fixed ladder system. Only small loads carried on the body may be taken into the system.

- The user must always face the ladder when ascending or descending.

- Safety harnesses in accordance with DIN EN 353 should be worn if work is performed from fixed ladders.

5.2 Using the retractable entrance aid

From above

- Pull out the retractable entrance aid on the handle section until the locking pin at the end of the tube can engage in the guide cut-out. To do this, turn the handle slightly to the side and push the entrance aid downwards.

- Before entering the fixed ladder system, check that the retractable entrance aid is locked in position. Do not use an entrance aid that is not locked.

- After entering the fixed ladder system, raise the retractable entrance aid, turn it to the side and lower it completely.

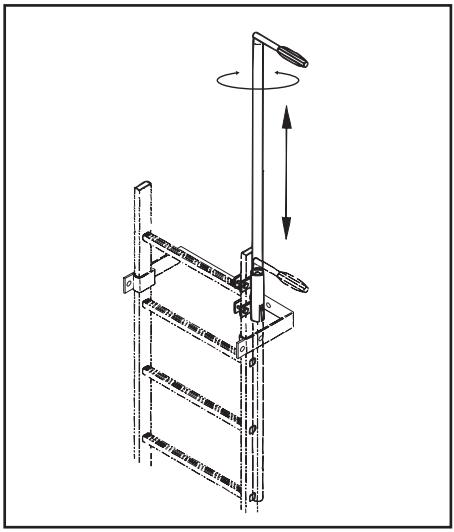


Fig. 50 Retractable entrance aid

From below

- Starting from a secure standing position, push up the retractable entrance aid until the locking pin at the end of the tube can engage in the guide cut-out. To do this, turn the handle slightly to the side and pull the entrance aid downwards.

- Before leaving the fixed ladder system, check that the retractable entrance aid is locked. Do not use an entrance aid that is not locked.

- After leaving the fixed ladder system, lift up the entrance aid, turn it to the side and lower it completely.

5.3 Using the landing rails

- The user must keep both hands on the rails until he has reached a safe standing position.

5.4 Using the landing with crossover

- On reaching the crossover, the user must turn around to leave the crossover and climb down the escape ladder with the face to the ladder.

5.5 Using the fold-down intermediate platform

From above

- From a safe standing position, pivot the platform up with the opening cord (52/1) and climb down through the frame of the platform.
- Lock the platform again by hand from a safe standing position.

From below

- From a safe standing position, open the platform (52/1) fully by hand and climb up through the frame of the platform.
- Close the platform with the opening cord from a safe standing position.
- Fasten the opening cord so that a safe ascent and descent is ensured.

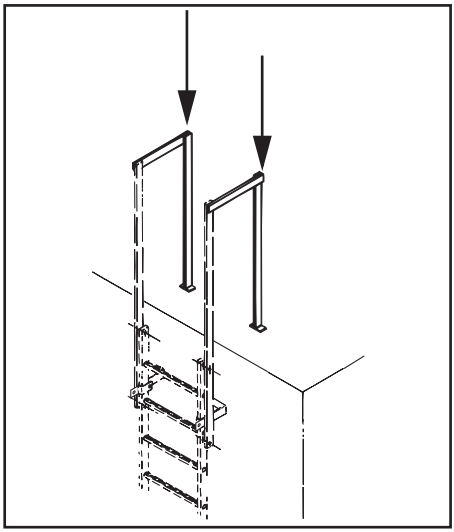


Fig. 51

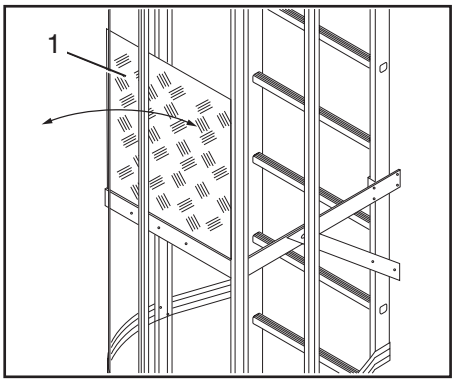


Fig. 52

NOTE If the intermediate platform is used as an end platform in a multi-section ladder system, the intermediate platform must be secured with a bolt to prevent any unauthorised opening.

5.6 Using the security gate

- Open the security gate and make sure that it cannot be closed unintentionally.
- After using the fixed ladder system, lock the security gate with the lock (not supplied) to prevent unauthorised use of the fixed ladder system.

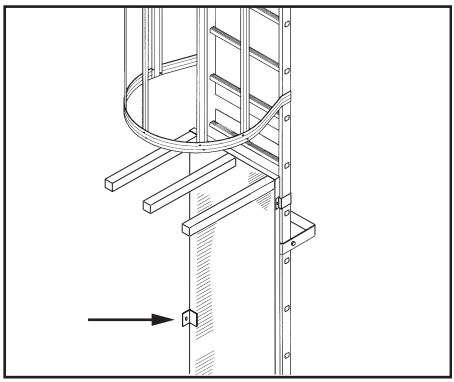


Fig. 53

5.7 Using the base ladder

- Hook the base ladder with all four ladder hooks on the rungs of the installed fixed ladder.
- The base ladder must be rest on the fixed ladder with all four ladder hooks.
- When climbing the base ladder, take care that the base ladder does not swing and thus unhook itself.
- As protection against unauthorised access to the fixed ladder system and unintentional removal from the fixed ladder system, we recommend securing the ladder with the supplied cable-type padlock.

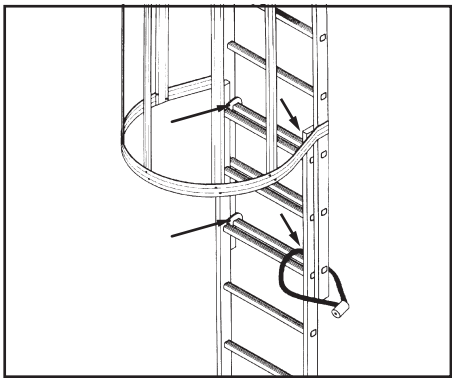


Fig. 54

5.8 Using the escape ladder

Before releasing the escape ladder, make sure that there are no people or objects in the area of the descending ladder.

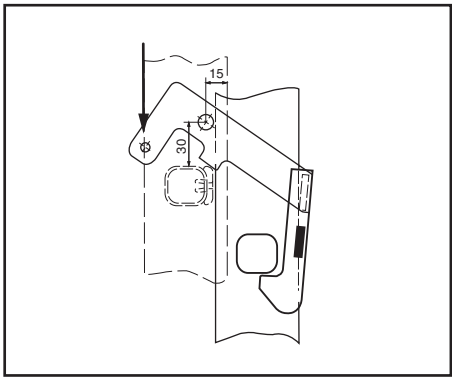


Fig. 55

From above

- Push the red release bar down with your foot from a safe standing place on the fixed ladder.
- Step on the escape ladder only after it has made safe contact with the exit point.

A remote unlocking is available on request.

5.9 Using the pole barrier

Locking the pole barrier is not permitted.

Model No. 43500 To enter/leave, swing the barrier slightly forward and up towards the building.

Model No. 43501 To enter/leave, swing the barrier forward towards the building against the action of the spring.

Model No. 43502 To enter/leave, swing the barrier forward towards the building against the action of the spring.

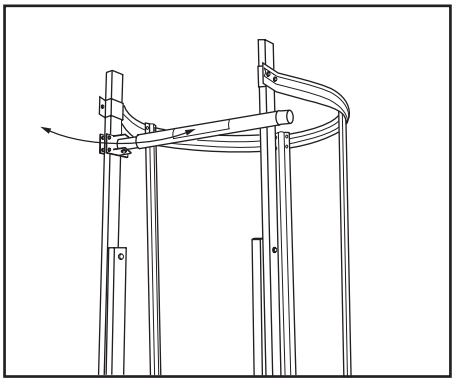


Fig. 56

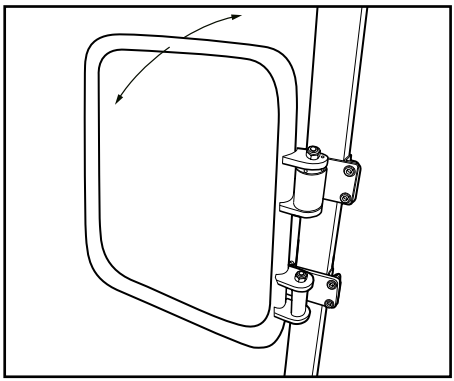


Fig. 56.1

5.10 Using the platforms

- Going from the platform to the fixed ladder is only allowed after the user has placed both hands firmly on the fixed ladder.
- Going from the fixed ladder to the platform is only allowed after user is at the height of the platform and a safe crossover is ensured.

5.11 Using the hinged platform

- The hinged platform is normally closed.
- To descend, release the locking mechanism from a safe place.

WARNING Make sure that there are no obstacles in the pivoting range of or below the hinged platform.

The hinged platform is opened automatically by an encapsulated spring mechanism.

- Close the hinged platform again after the descent.

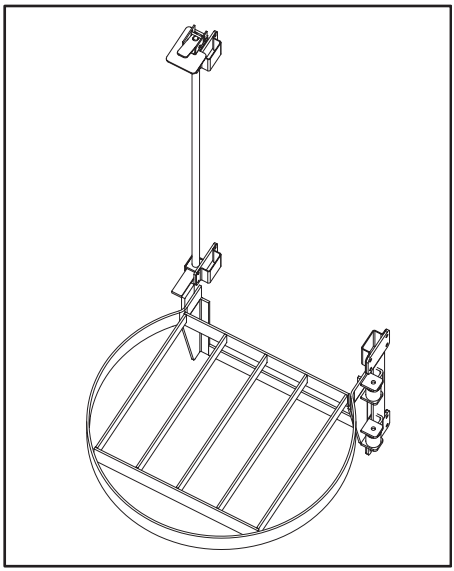


Fig. 56.2

6 MAINTENANCE AND CARE

6.1 Maintenance

- All of the fixed parts of the fixed ladder system are maintenance-free. Observe the inspections described in section 7.
- Service the moving parts as described in section 6.2.

6.2 Care

- Check moving parts such as the hinges on the intermediate platform, the pole barrier swivel arms, the escape ladder emergency release and the security gate hinges to ensure that they move freely and oil them slightly, if necessary.
- Immediately remove any dirt on the fixed ladder, especially any oil.
- If the fixed ladder system is dirty, clean it with a non-abrasive substance. Do not clean with acids or alkaline solutions.
- Seal any damaged surfaces with a suitable anti-corrosion agent.
- Remove any plant parts protruding into the fixed ladder system.

7 INSPECTIONS

- The operator is responsible for ensuring that the fixed ladder system is inspected by an expert if defects become evident, however at least once a year.
- The performance of the inspection must be documented, together with the findings and any resulting action. We recommend keeping a inspection logbook consisting of fixed ladder check sheets on which all of the data on the fixed ladder system should be entered. The fixed ladder check sheets should also contain instructions for the performance of the inspection and documentation.
- The labels on the individual components must be present and legible, and replaced if necessary.

Fixed ladder check sheets for the inspection logbook are available free of charge from ZARGES GmbH - Abteilung Schachttechnik/Steigleitern.

Appendix A, Weight data (complete fixed ladder system)

Height up to m	Ladder length in m incl. stile extension	Total weight in kg Type: Aluminium	Total weight in kg Type: Steel
4.80	5.90	32.6	51.1
5.60	6.70	51.7	109.3
6.50	7.60	61.7	125.6
7.40	8.50	63.7	130.6
8.50	9.60	77.3	161.7
9.60	10.90	94.2	191.8
10.70	11.80	132.1	253.1
11.80	12.90	148.6	283.7
12.60	13.50	155.7	304.5
13.80	14.90	167.1	319.3
14.90	16.00	184.0	349.4
15.70	16.80	191.1	370.2
16.80	17.90	182.2	375.4
18.00	19.10	192.8	391.2
19.10	20.20	208.9	422.3

Appendix B, Types of fixed ladders

Overview of single parts	Anodised aluminium	Natural aluminium	Galvanised steel	Stainless steel V4A (1.4571)
	Model No.	Model No.	Model No.	Model No.
Ladder section 1.96 m (without wall anchors)	**41240**	**42240**	**43240**	**44240**
Ladder section 2.80 m (without wall anchors)	**41241**	**42241**	**43241**	**44241**
Ladder section 3.64 m (without wall anchors)	**41242**	**42242**	**43242**	**44242**
Stile extension, on one side	**-**	**-**	**43243**	**44243**
Back guard hoop, diam. 700 mm	**41244**	**42244**	**43244**	**44244**
Back guard stay 1400 mm long	**41245**	**42245**	**43245**	**44245**
Back guard hoop for offset type	**41247**	**42247**	**43247**	**44247**
Wall anchor, fixed, distance from wall 200 mm (galvanised steel & V4A only)	**-**	**-**	**43257**	**44257**
Intermediate platform (galvanised steel & V4A only)	**-**	**-**	**43255**	**44255**
Wind-breaking braces	**-**	**207245**	**-**	**207246**

Appendix C, Platforms

Size mm	860 x 800	1000 x 940
Weight kg	70	86
Model No.	**43270**	**43275**

Appendix C, Expansion platforms

Size mm	1000 x 500	860 x 800	860 x 500	1000 x 940
Weight kg	52	58	50	74
Model No.	**43277**	**43271**	**43272**	**43276**

Appendix D1, Complete system type

Type	**Anodised aluminium**	**Natural aluminium**	**Galvanised steel**	**Stainless steel V4A**
Height up to (m)	**Model No.**	**Model No.**	**Model No.**	**Model No.**
4.80	58148	58248	58348	58448
5.60	58157	58257	58357	58457
6.50	58165	58265	58365	58465
7.40	58174	58274	58374	58474
8.50	58185	58285	58385	58485
9.60	58196	58296	58396	58496
10.70	58507	58607	58707	58807
11.80	58518	58618	58718	58818
12.60	58526	58626	58726	58826
13.80	58538	58638	58738	58838
14.90	58549	58649	58749	58849
15.70	58557	58657	58757	58857
16.80	58568	58668	58768	58868
18.00	58580	58680	58780	58880
19.10	58591	58691	58791	58891

Parts list (material-independent)

Height up to (m)	Ladder length (m) incl. stile extension	Ladder section 1.96 m	Ladder section 2.80 m	Ladder section 3.64 m	Stile extension	Wall anchor, fixed	Back guard hoop	Back guard stay	Back guard hoop for diff. types	Intermediate platform, fixed
4.80	5.90	1	1	-	2	4	-	-	-	-
5.60	6.70	-	2	-	2	4	4	15	-	-
6.50	7.60	-	1	1	2	4	5	20	-	-
7.40	8.50	-	-	2	2	4	5	20	-	-
8.50	9.60	-	3	-	2	6	6	25	-	-
9.60	10.70	2	2	-	2	8	7	30	-	-
10.70	11.80	-	3	1	2	10	7	35	2	1
11.80	12.90	1	4	-	2	12	8	40	2	1
12.60	13.70	-	5	-	2	12	9	45	2	1
13.80	14.90	2	4	-	2	14	9	45	2	1
14.90	16.00	4	3	-	2	16	10	50	2	1
15.70	16.80	3	4	-	2	16	11	55	2	1
16.80	17.90	-	-	5	2	12	12	60	2	1
18.00	19.10	-	3	3	2	14	12	60	2	1
19.10	20.20	-	6	1	2	16	13	65	2	1

Appendix E, Note for installation firms, planners, designing engineers, etc.

The values given in the following pages are only to serve as a reference and to make your installation and planning work easier.
The values in the tables are basic values. You must always carry out a comparison with your current project, in particular in respect to the bearing capacity of the mounting wall. If necessary, consult an expert for support structure planning and/or a competent person for dowel installation (dowel manufacturer). Where DIN 14094-1 applies, these persons must always be consulted.
Please note that there are installation situations in which other means of installation must be used.

fischer COMPUFIX

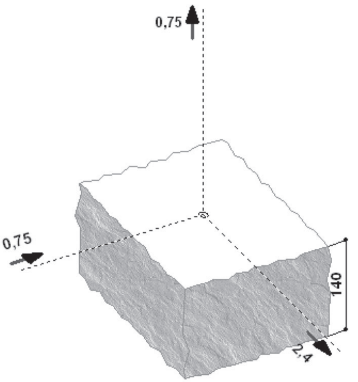
European certification
Measured acc. to ETAG, Appendix C

Artur Fischer GmbH & Co. KG
Postfach 1152 * 72176 Waldachtal
www.fischer.de

Building project:	Aluminium fixed ladder
Component:	Example of a dowel measurement for fixed ladder wall anchors on concrete
Dowel:	ZYKON anchor FZA 12 x 80 M8 D / 30 A4 made of A4 (Model No. 60666)
Accessories:	Drill FZUB 12 x 80 (Model No. 60626) Impact drill FZE 12 (Model No. 60741) Impact tool FZUE 12 (Model No. 60641) (for attaching to the drill)
Anchor substrate:	Cracked concrete normally reinforced Concrete strength class: C 20 / 25
Edge reinforcement:	No influence
Dowel bending:	Non-existent

Assumed load

(*) Dimension not to scale



[mm], [kN], [kNm]

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European approval
Measured acc. to ETAG, Appendix C

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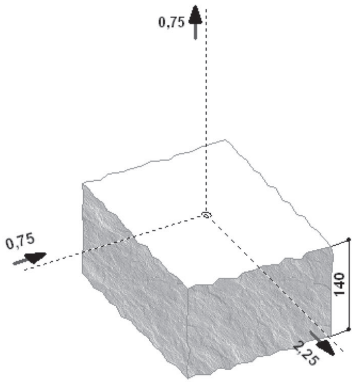
16.03.2006

Building project:	Steel fixed ladder
Component:	Example of a dowel measurement for fixed ladder wall anchors on concrete
Dowel:	ZYKON anchor FZA 12 x 80 M8 D / 30 A4 made of A4 (Model No. 60666)
Accessories:	Drill FZUB 12 x 80 (Model No. 60626) Impact drill FZE 12 (Model No. 60741) Impact tool FZUE 12 (Model No. 60641) (for attaching to the drill)
Anchor substrate:	Cracked concrete normally reinforced Concrete strength class: C 20 / 25
Edge reinforcement:	No influence
Dowel bending:	Non-existent

Assumed load

(*) Dimension not to scale



[mm], [kN], [kNm]

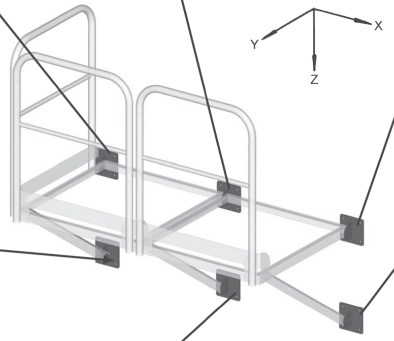
Supporting forces for platform combination Platform 1000x940(043275) with 1000x940(043276)

Attention:
The forces include partial load factors
acc. to DIN 18800 (Nov 90)

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,408	5,052	2,731	0,177	0,031	0,025
3,50 kN/m²	LG 2	0,421	4,898	0,255	0,016	0,008	0,112
1,50 kN	LG 3	0,408	4,879	0,255	0,016	0,012	0,054
	LG 4	0,410	2,931	1,801	0,104	0,016	0,082
	LG 5	0,405	1,211	2,791	0,181	0,035	0,012
	LG 11	0,409	6,672	3,898	0,240	0,041	0,038
5,00 kN/m²	LG 12	0,430	6,115	0,182	0,015	0,011	0,145
2,00 kN	LG 13	0,408	6,079	0,181	0,012	0,014	0,071
	LG 14	0,412	3,476	1,976	0,128	0,020	0,103
	LG 15	0,406	1,180	3,563	0,231	0,044	0,014

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,208	2,535	1,366	0,089	0,016	0,022
3,50 kN/m²	LG 2	0,216	4,098	0,216	0,014	0,008	0,072
1,50 kN	LG 3	0,212	2,449	0,128	0,008	0,006	0,036
	LG 4	0,209	2,195	1,341	0,087	0,011	0,055
	LG 5	0,204	0,627	2,495	0,162	0,026	0,011
	LG 11	0,210	3,345	1,850	0,120	0,021	0,028
5,00 kN/m²	LG 12	0,222	5,265	0,209	0,013	0,009	0,093
2,00 kN	LG 13	0,215	3,049	0,091	0,006	0,007	0,045
	LG 14	0,212	2,710	1,709	0,111	0,014	0,071
	LG 15	0,205	0,622	3,248	0,211	0,033	0,010

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,208	2,535	1,366	0,089	0,016	0,022
3,50 kN/m²	LG 2	0,216	4,098	0,216	0,014	0,008	0,072
1,50 kN	LG 3	0,212	2,449	0,128	0,008	0,006	0,036
	LG 4	0,209	2,195	1,341	0,087	0,011	0,055
	LG 5	0,204	0,627	2,495	0,162	0,026	0,011
	LG 11	0,210	3,345	1,850	0,120	0,021	0,028
5,00 kN/m²	LG 12	0,222	5,265	0,209	0,013	0,009	0,093
2,00 kN	LG 13	0,215	3,049	0,091	0,006	0,007	0,045
	LG 14	0,212	2,710	1,709	0,111	0,014	0,071
	LG 15	0,205	0,622	3,248	0,211	0,033	0,010



Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,002	-2,527	1,784	0,116	0	0
3,50 kN/m²	LG 2	0,014	-4,231	2,950	0,191	0	0
1,50 kN	LG 3	0,001	-2,440	1,724	0,112	0	0
	LG 4	0,004	-2,274	1,612	0,105	0	0
	LG 5	0,000	-0,647	0,485	0,031	0	0
	LG 11	0,003	-3,337	2,339	0,152	0	0
5,00 kN/m²	LG 12	0,022	-5,443	3,770	0,245	0	0
2,00 kN	LG 13	0,002	-3,041	2,136	0,139	0	0
	LG 14	0,006	-2,819	1,986	0,129	0	0
	LG 15	0,000	-0,645	0,484	0,031	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,002	-2,527	1,784	0,116	0	0
3,50 kN/m²	LG 2	0,014	-4,231	2,950	0,191	0	0
1,50 kN	LG 3	0,001	-2,440	1,724	0,112	0	0
	LG 4	0,004	-2,274	1,612	0,105	0	0
	LG 5	0,000	-0,647	0,485	0,031	0	0
	LG 11	0,003	-3,337	2,339	0,152	0	0
5,00 kN/m²	LG 12	0,022	-5,443	3,770	0,245	0	0
2,00 kN	LG 13	0,002	-3,041	2,136	0,139	0	0
	LG 14	0,006	-2,819	1,986	0,129	0	0
	LG 15	0,000	-0,645	0,484	0,031	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	LG 1	0,003	-5,052	3,568	0,232	0	0
3,50 kN/m²	LG 2	0,016	-4,898	3,449	0,223	0	0
1,50 kN	LG 3	0,002	-4,879	3,448	0,224	0	0
	LG 4	0,005	-2,930	2,103	0,137	0	0
	LG 5	0,000	-1,211	0,913	0,059	0	0
	LG 11	0,004	-6,671	4,677	0,304	0	0
5,00 kN/m²	LG 12	0,025	-6,115	4,272	0,277	0	0
2,00 kN	LG 13	0,003	-6,080	4,272	0,278	0	0
	LG 14	0,007	-3,476	2,478	0,161	0	0
	LG 15	0,000	-1,180	0,891	0,057	0	0

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Supporting forces for platform combination Platform 1000x940(043275) with 500x940(043277)

Attention:
The forces include partial load factors
acc. to DIN 18800 (Nov 90)

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,411	3,131	1,601	0,104	0,013	0,005
	LG 2	0,424	4,423	0,206	0,013	0,006	0,019
	LG 3	0,405	4,716	0,184	0,011	0,003	0,042
	LG 4	0,411	2,627	1,481	0,096	0,014	0,042
	LG 5	0,405	1,067	2,602	0,169	0,035	0,012
5,00 kN/m² 2,00 kN	LG 11	0,411	5,249	2,873	0,186	0,010	0,007
	LG 12	0,436	5,537	0,141	0,008	0,006	0,027
	LG 13	0,404	5,916	0,111	0,007	0,004	0,056
	LG 14	0,414	3,125	1,840	0,119	0,019	0,058
	LG 15	0,405	1,042	3,334	0,216	0,046	0,011

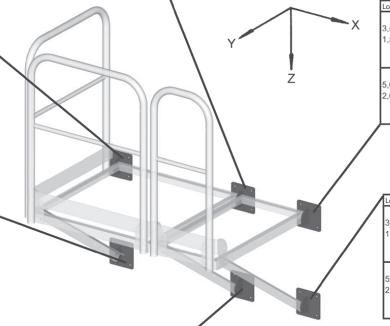
Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,208	2,535	1,366	0,089	0,016	0,022
	LG 2	0,216	4,098	0,216	0,014	0,008	0,072
	LG 3	0,212	2,449	0,128	0,008	0,006	0,036
	LG 4	0,209	2,195	1,341	0,087	0,011	0,055
	LG 5	0,204	0,627	2,495	0,162	0,026	0,011
5,00 kN/m² 2,00 kN	LG 11	0,210	3,345	1,850	0,120	0,021	0,028
	LG 12	0,222	5,265	0,209	0,013	0,009	0,093
	LG 13	0,215	3,049	0,091	0,006	0,007	0,045
	LG 14	0,212	2,710	1,709	0,111	0,014	0,071
	LG 15	0,205	0,622	3,248	0,211	0,033	0,010

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,203	0,614	0,235	0,015	0,003	0,010
	LG 2	0,219	3,623	0,123	0,008	0,006	0,115
	LG 3	0,209	2,286	0,057	0,003	0,003	0,025
	LG 4	0,210	1,891	1,221	0,079	0,018	0,069
	LG 5	0,204	0,440	2,306	0,150	0,041	0,009
5,00 kN/m² 2,00 kN	LG 11	0,206	1,922	1,024	0,066	0,011	0,017
	LG 12	0,228	4,687	0,108	0,007	0,008	0,151
	LG 13	0,211	2,886	0,020	0,001	0,003	0,030
	LG 14	0,213	2,359	1,573	0,102	0,023	0,090
	LG 15	0,204	0,428	3,019	0,196	0,540	0,009

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,002	-2,527	1,784	0,116	0	0
	LG 2	0,014	-4,231	2,950	0,191	0	0
	LG 3	0,001	-2,440	1,724	0,112	0	0
	LG 4	0,004	-2,274	1,612	0,105	0	0
	LG 5	0,000	-0,647	0,485	0,031	0	0
5,00 kN/m² 2,00 kN	LG 11	0,003	-3,337	2,339	0,152	0	0
	LG 12	0,022	-5,443	3,770	0,245	0	0
	LG 13	0,002	-3,041	2,136	0,139	0	0
	LG 14	0,006	-2,819	1,986	0,129	0	0
	LG 15	0,000	-0,645	0,484	0,031	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-0,599	0,452	0,029	0	0
	LG 2	0,021	-4,038	2,822	0,183	0	0
	LG 3	0,002	-2,274	1,610	0,104	0	0
	LG 4	0,006	-2,103	1,495	0,097	0	0
	LG 5	0,000	-0,473	0,364	0,023	0	0
5,00 kN/m² 2,00 kN	LG 11	0,002	-1,906	1,357	0,088	0	0
	LG 12	0,036	-5,239	3,638	0,236	0	0
	LG 13	0,002	-2,874	2,022	0,131	0	0
	LG 14	0,009	-2,645	1,869	0,121	0	0
	LG 15	0,000	-0,468	0,360	0,023	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,000	-3,125	2,235	0,145	0	0
	LG 2	0,019	-4,705	3,321	0,215	0	0
	LG 3	0,001	-4,708	3,331	0,216	0	0
	LG 4	0,005	-2,759	1,986	0,129	0	0
	LG 5	0,000	-1,053	0,803	0,051	0	0
5,00 kN/m² 2,00 kN	LG 11	0,001	-5,241	3,695	0,240	0	0
	LG 12	0,033	-5,911	4,140	0,268	0	0
	LG 13	0,000	-5,908	4,154	0,270	0	0
	LG 14	0,008	-3,302	2,361	0,153	0	0
	LG 15	0,000	-1,025	0,783	0,050	0	0



ZARGES

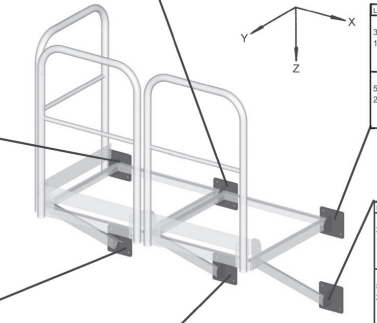
Supporting forces for platform combination Platform 800x860(043270) with 800x860(043271)

Attention:
The forces include partial load factors
acc. to DIN 18800 (Nov 90)

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,407	4,039	2,005	0,130	0,001	0,018
	LG 2	0,421	4,973	0,111	0,011	0,006	0,139
	LG 3	0,407	4,922	0,111	0,006	0,001	0,018
	LG 4	0,410	2,863	1,507	0,097	0,010	0,087
	LG 5	0,405	1,100	2,710	0,175	0,024	0,009
5,00 kN/m² 2,00 kN	LG 11	0,407	5,271	2,700	0,175	0,001	0,018
	LG 12	0,432	6,285	0,021	0,001	0,011	0,182
	LG 13	0,408	6,185	0,021	0,000	0,000	0,018
	LG 14	0,412	3,424	1,882	0,122	0,013	0,109
	LG 15	0,405	1,063	3,485	0,226	0,031	0,005

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,205	2,031	1,003	0,065	0,012	0,013
	LG 2	0,216	4,122	0,139	0,009	0,007	0,085
	LG 3	0,211	2,473	0,056	0,003	0,005	0,033
	LG 4	0,208	2,139	1,296	0,084	0,013	0,053
	LG 5	0,204	0,572	2,439	0,158	0,029	0,010
5,00 kN/m² 2,00 kN	LG 11	0,206	2,647	1,351	0,088	0,016	0,016
	LG 12	0,223	5,349	0,121	0,008	0,008	0,111
	LG 13	0,214	3,105	0,011	0,000	0,005	0,040
	LG 14	0,210	2,657	1,665	0,108	0,016	0,068
	LG 15	0,204	0,564	3,188	0,207	0,037	0,009

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,205	2,031	1,003	0,065	0,012	0,013
	LG 2	0,216	4,122	0,139	0,009	0,007	0,085
	LG 3	0,211	2,473	0,056	0,003	0,005	0,033
	LG 4	0,208	2,139	1,296	0,084	0,013	0,053
	LG 5	0,204	0,572	2,439	0,158	0,029	0,010
5,00 kN/m² 2,00 kN	LG 11	0,206	2,647	1,351	0,088	0,016	0,016
	LG 12	0,223	5,349	0,121	0,008	0,008	0,111
	LG 13	0,214	3,105	0,011	0,000	0,005	0,040
	LG 14	0,210	2,657	1,665	0,108	0,016	0,068
	LG 15	0,204	0,564	3,188	0,207	0,037	0,009



Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-2,020	1,414	0,092	0	0
	LG 2	0,013	-4,312	2,932	0,190	0	0
	LG 3	0,002	-2,461	1,710	0,111	0	0
	LG 4	0,003	-2,238	1,562	0,101	0	0
	LG 5	0,000	-0,596	0,443	0,029	0	0
5,00 kN/m² 2,00 kN	LG 11	0,002	-2,636	1,827	0,119	0	0
	LG 12	0,024	-5,604	3,759	0,244	0	0
	LG 13	0,003	-3,092	2,130	0,138	0	0
	LG 14	0,005	-2,792	1,932	0,125	0	0
	LG 15	0,000	-0,592	0,440	0,028	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-2,020	1,414	0,092	0	0
	LG 2	0,013	-4,312	2,932	0,190	0	0
	LG 3	0,002	-2,461	1,710	0,111	0	0
	LG 4	0,003	-2,238	1,562	0,101	0	0
	LG 5	0,000	-0,596	0,443	0,029	0	0
5,00 kN/m² 2,00 kN	LG 11	0,002	-2,636	1,827	0,119	0	0
	LG 12	0,024	-5,604	3,759	0,244	0	0
	LG 13	0,003	-3,092	2,130	0,138	0	0
	LG 14	0,005	-2,792	1,932	0,125	0	0
	LG 15	0,000	-0,592	0,440	0,028	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-4,039	2,828	0,184	0	0
	LG 2	0,016	-4,974	3,420	0,222	0	0
	LG 3	0,002	-4,922	3,420	0,222	0	0
	LG 4	0,004	-2,863	2,025	0,131	0	0
	LG 5	0,000	-1,101	0,823	0,053	0	0
5,00 kN/m² 2,00 kN	LG 11	0,002	-5,272	3,654	0,238	0	0
	LG 12	0,028	-6,286	4,260	0,276	0	0
	LG 13	0,002	-6,184	4,260	0,276	0	0
	LG 14	0,006	-3,424	2,399	0,155	0	0
	LG 15	0,000	-1,063	0,797	0,051	0	0

ZARGES

Supporting forces for platform combination Platform 800x860(043270) with 500x860(043272)

Attention:
The forces include partial load factors
acc. to DIN 18800 (Nov 90)

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,406	3,427	1,690	0,109	0,003	0,020
	LG 2	0,425	5,125	0,030	0,006	0,005	0,169
	LG 3	0,409	4,813	0,068	0,004	0,001	0,009
	LG 4	0,410	2,857	1,498	0,097	0,015	0,100
	LG 5	0,406	0,955	2,766	0,179	0,036	0,008
5,00 kN/m² 2,00 kN	LG 11	0,405	4,368	2,223	0,144	0,005	0,022
	LG 12	0,439	6,531	-0,073	-0,005	0,011	0,223
	LG 13	0,410	6,084	-0,022	-0,002	0,002	0,006
	LG 14	0,413	3,459	1,884	0,122	0,021	0,128
	LG 15	0,405	0,913	3,574	0,232	0,048	0,005

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,205	2,031	1,003	0,065	0,012	0,013
	LG 2	0,216	4,122	0,139	0,009	0,007	0,095
	LG 3	0,211	2,473	0,056	0,003	0,005	0,033
	LG 4	0,208	2,139	1,296	0,084	0,013	0,053
	LG 5	0,204	0,572	2,439	0,158	0,029	0,010
5,00 kN/m² 2,00 kN	LG 11	0,206	2,647	1,351	0,088	0,016	0,016
	LG 12	0,223	5,349	0,121	0,008	0,008	0,111
	LG 13	0,214	3,105	0,011	0,000	0,005	0,040
	LG 14	0,210	2,657	1,665	0,108	0,016	0,066
	LG 15	0,204	0,564	3,188	0,207	0,037	0,009

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,204	1,430	0,688	0,044	0,008	0,012
	LG 2	0,218	3,704	0,058	0,004	0,005	0,115
	LG 3	0,209	2,340	0,014	0,001	0,003	0,024
	LG 4	0,208	1,890	1,221	0,079	0,018	0,064
	LG 5	0,204	0,427	2,298	0,149	0,041	0,009
5,00 kN/m² 2,00 kN	LG 11	0,204	1,755	0,874	0,057	0,010	0,013
	LG 12	0,227	4,829	-0,09	-0,006	0,006	0,152
	LG 13	0,210	2,979	-0,032	-0,002	0,003	0,028
	LG 14	0,211	2,363	1,579	0,102	0,024	0,083
	LG 15	0,204	0,414	3,015	0,196	0,054	0,009

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-2,020	1,414	0,092	0	0
	LG 2	0,013	-4,312	2,932	0,190	0	0
	LG 3	0,002	-2,461	1,710	0,111	0	0
	LG 4	0,003	-2,238	1,562	0,101	0	0
	LG 5	0,000	-0,596	0,443	0,029	0	0
5,00 kN/m² 2,00 kN	LG 11	0,002	-2,636	1,827	0,119	0	0
	LG 12	0,024	-5,604	3,759	0,244	0	0
	LG 13	0,003	-3,092	2,130	0,138	0	0
	LG 14	0,005	-2,792	1,932	0,125	0	0
	LG 15	0,000	-0,592	0,440	0,028	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-1,413	1,003	0,065	0	0
	LG 2	0,019	-4,120	2,810	0,182	0	0
	LG 3	0,002	-2,366	1,647	0,107	0	0
	LG 4	0,004	-2,091	1,463	0,095	0	0
	LG 5	0,000	-0,461	0,350	0,023	0	0
5,00 kN/m² 2,00 kN	LG 11	0,001	-1,738	1,224	0,079	0	0
	LG 12	0,034	-5,385	3,625	0,235	0	0
	LG 13	0,002	-3,008	2,075	0,135	0	0
	LG 14	0,007	-2,636	1,830	0,260	0	0
	LG 15	0,000	-0,454	0,345	0,022	0	0

Load case set	Load case	Px (kN)	Py (kN)	Pz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
3,50 kN/m² 1,50 kN	LG 1	0,001	-3,433	2,417	0,157	0	0
	LG 2	0,016	-4,900	3,369	0,218	0	0
	LG 3	0,002	-4,827	3,357	0,218	0	0
	LG 4	0,004	-2,755	1,950	0,126	0	0
	LG 5	0,000	-0,966	0,730	0,047	0	0
5,00 kN/m² 2,00 kN	LG 11	0,001	-4,374	3,051	0,198	0	0
	LG 12	0,028	-6,229	4,221	0,274	0	0
	LG 13	0,001	-6,100	4,205	0,273	0	0
	LG 14	0,007	-3,321	2,328	0,385	0	0
	LG 15	0,000	-0,925	0,702	0,045	0	0

ZARGES

EC Declaration of Conformity

in the sense of EC Directive 89/106/EEC (building products)

The **ZARGES fixed ladder system** is designed and manufactured in accordance with the above-mentioned EC directive in the sole responsibility of

ZARGES GmbH
Sparte Steigtechnik
Abt. Schachttechnik/Steigleitern
PO Box 16 30

82360 Weilheim

The following harmonized standards apply:

- DIN 18799-1 -- Check sheet for fixed ladders
- DIN 14094-1 -- Fire fighting purposes - Escape ladder installations
- DIN EN ISO 14122-4 -- Permanent means of access to machinery

The notified body for monitoring the ZARGES fixed ladder system is:

Fachausschuss Bauliche Einrichtungen
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT

Niebuhrstr. 5

53113 Bonn

which has been charged with

- Filing of the documents
- Inspecting for proper application of the harmonized standards with confirmation of the approved documents
- **EC type test, Test Certificate No. 07033 07034 07035**

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(Olav Beck), Product Manager, 30.03.2009