PohlCon

PARTNER
FROM START
TO FUTURE.

Vertical ladders

Assembly Instruction

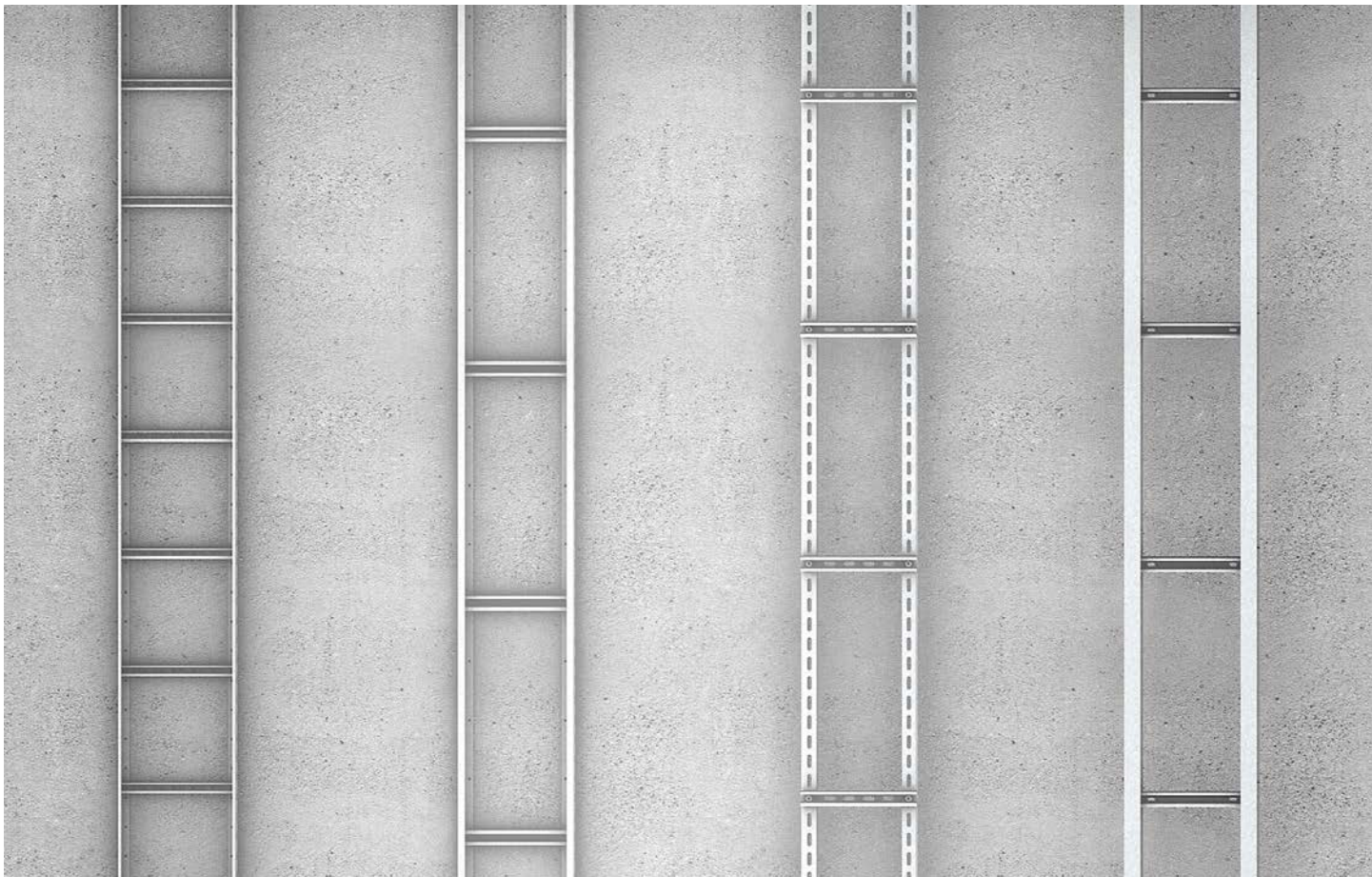


Table of contents

Introduction

Index 2

General information 3

Types of vertical ladders

Vertical ladder LGG 60 4

Vertical ladder STU 50 6

Vertical ladder STU 60/STU 62 9

Vertical ladder ST 81/ST 82 12

Index

Vertical ladder

LGG 60 Vertical ladder, L-profile
STU 50 Vertical ladder, not isosceles U-profile
STU 50-3E Vertical ladder, isosceles U-profile
STU 60 Vertical ladder, isosceles U-profile
STU 62 Vertical ladder, isosceles U-profile
ST 81 Vertical ladder, I-profile
ST 82 Vertical ladder, I-profile

Cover

RD Vertical ladder cover
STD-A Cover elevator

Accessories LGG 60

LGV 60 Ladder connector, height = 60 mm
LGTR 60 Ladder separating strip, height = 33 mm
LGTR 100 Ladder separating strip, height = 80 mm
SL 60 Protection cap

Accessories STU 50

BGUQ 50 Bolted head plate turned 90°
LGV 50 Ladder connector, height = 50 mm
STLS Rung
STR 50 Ladder separating strip, height = 33 mm
STR 110 Ladder separating strip, height = 50 mm
SU 50/22 Protection cap, STU 50-3E
SU 50/36 Protection cap, STU 50

Accessories STU 60/62

BGU 60 Bolted head plate, KHU 60
KHUV 60 Connector, KHU 60
STR 50 Ladder separating strip, height = 33 mm
STR 110 Ladder separating strip, height = 50 mm
SU 60 Protection cap, KHU 60

Accessories ST 81/82

BGI Bolted head plate, KHI
HKI Connector, KHI
SI Protection cap, KDI/KHI
STDE Vertical ladder collision protection
STDES Anti-pullout bracket
STR 110 Ladder separating strip, height = 50 mm

Fastenings

AC Cable clamp for fastening to C profile rails
H Cable clamp for fastening to C profile rails
LH Ladder bracket
BL 4 Corner angle, KHU 40/57/60
BL 7 Corner angle, KHI
FKS Slotted cylinder head screw, DIN EN ISO 1580
IK Hexagon socket head screw, DIN 7984
KLS Clamp fastening set
US 10X21 Washer, DIN 9021
SEM M10 Hexagon nut, DIN 934
AMF18 Channel nut with spring, A 7/A 8
SD Expansion anchor
SD-BS Expansion anchor, fire protection
SNA Nail anchor

Zinc coating

KZF Cold zinc paint
KZS Cold zinc spray

Formed parts, covers, accessories and fastenings are not included with the vertical ladders and must be ordered separately.

General information

Vertical ladders are used to fasten and support vertical cable guides. The support structures must be planned according to engineering standards, and the permissible torque must be observed for all bolted connections.

The following general instructions must be observed before beginning assembly work:

1. The permissible torque must be observed for all screw connections. (see table: „Selection of screw tightening torques“)
2. Carry out cutting and sectioning work with the utmost care and in compliance with occupational safety. (see fig. 1)
3. All cutting and sectioning points are to be galvanised on site after deburring. Cold zinc paint (CZP)/ cold zinc spray (CZS) can be used to repair cut edges or defects for strip galvanised/pre-galvanised material (version S). Only CZP may be used for the finally galvanised/ batch galvanised version (version F).
4. In the case of high temperature fluctuations, a fixed and a floating bearing in the butt joint must be considered. (see fig. 2)

Selection of screw tightening torques

Bolt diameter	Strength class Screw (DIN EN ISO 898-1)	Screw tightening torque according to VDI 2230 [Nm]
M6	4.6	4
M8	4.6	8
M10	4.6	18
M12	4.6	32
M6	8.8	10
M8	8.8	24
M10	8.8	48
M12	8.8	84

Legende



Wear safety goggles



Wear hearing protection



Observe tightening torque for fastening elements



Fig. 1: Observe occupational safety measures during cutting and sectioning work.

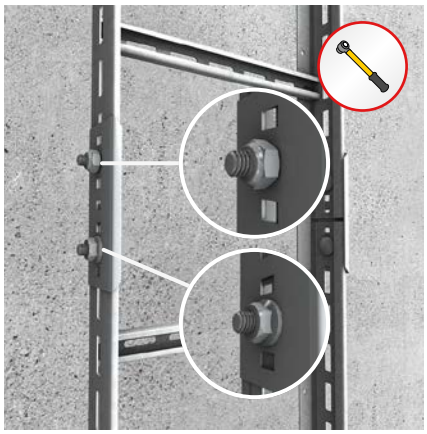
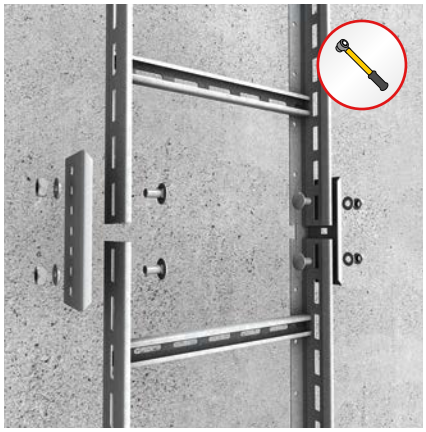


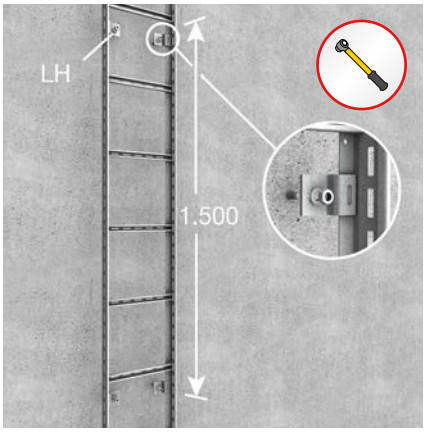
Fig. 2: above: fixed bearing (KLR); below: floating bearing (FRSV, SEMSS); Gap dimension 4 mm, tightening torque hand-tight (max. 4 Nm)

LGV 60 + LGV 50: 1x fixed bearing, 1x floating bearing
KHUV 60 + HKI: 2x fixed bearing, 2x floating bearing (see respective assembly steps)

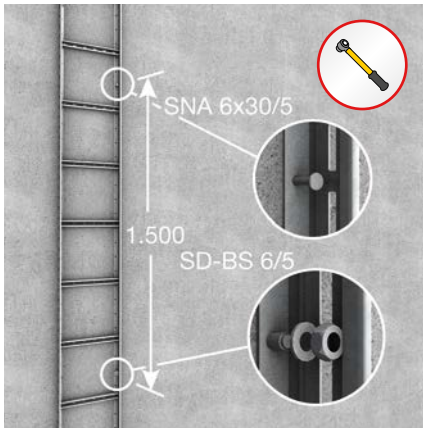
Vertical ladder LGG 60



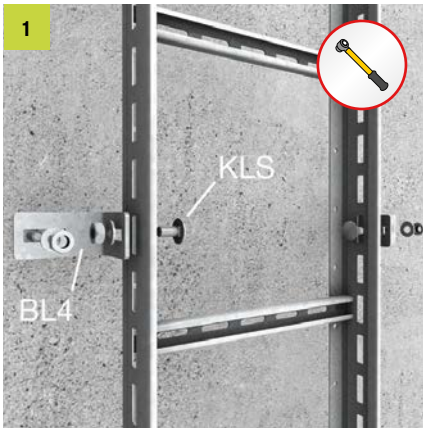
Connection with ladder connector (LGV 60)
Vertical ladders (LGG 60) are connected with the LGV 60 and clamping screws (KLS 8x16) if required.



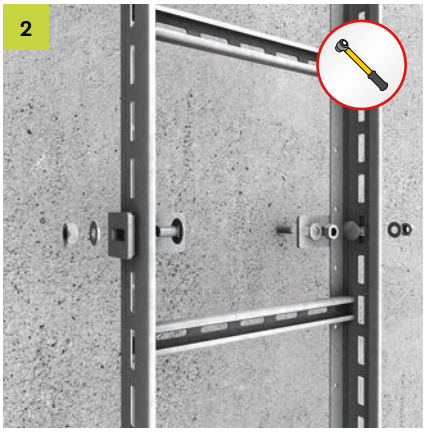
Wall mounting with ladder bracket (LH)
Dowel the ladder rail to the concrete wall with LH and e.g. with expansion anchor (SD 10/10) at a max. support distance of 1,500 mm.



Wall mounting with nail anchor SNA, expansion anchor SD-BS
Anchor the vertical ladder (LGG 60) directly to the concrete wall through the existing holes in the two ladder rails with SNA 6x30/5 [alternatively: SD-BS 6/5] at a max. support spacing of 1,500 mm.



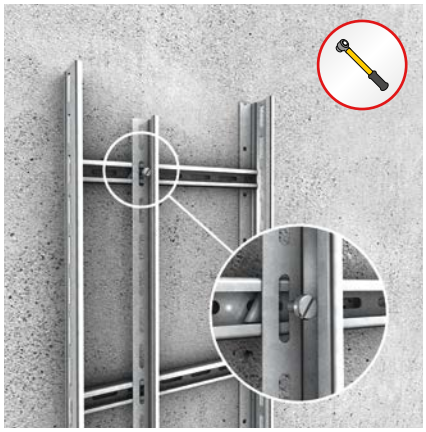
Wall mounting with corner angle (BL 4)
Bolt BL 4 to the ladder rail externally or internally using a clamp fastening set (KLS 8x16) and anchor to the concrete



wall e.g. with a expansion anchor (SD 10/10) at a max. support distance of 1,500 mm.



Floor and ceiling mounting with corner angle (BL4)
Vertical ladders (LGG 60) can be additionally doweled to concrete floors and ceilings with BL 4 and clamp fastening set (KLS 8x16) using e.g. an expansion anchor (SD 10/10) if required. Observe a maximum fastening distance of 1,500 mm.



Separating strip (LGTR 60)
Bolt LGTR 60 three times with anchor nut (AM16 M6) and slotted cylinder head screw (FKS 6x10), at first and last rung as well as centrally.



Protection cap (SL 60)
Depending on the conditions, slide the SL 60 onto the ladder rail.



Cable clamp (Typ H)
Select H according to cable diameter and number of cables. The use of separately selected trays depends on the cables to be laid according to the manufacturer's instructions.



Vertical ladder with cover elevator (STD-A)
Screw the STD-A to the ladders side rail with three clamp fastening sets (KLS 8x16).

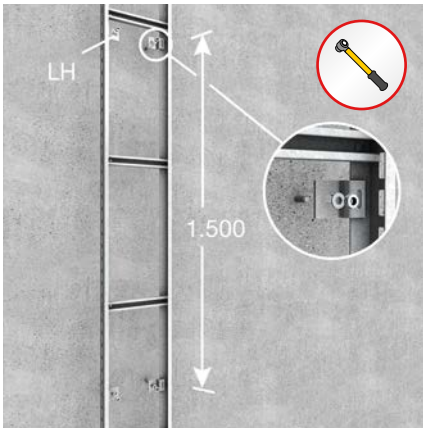


Place the ladder cover (RD) on the STD-A and screw it in place with six self-tapping screws (BS 4.2x13GV).

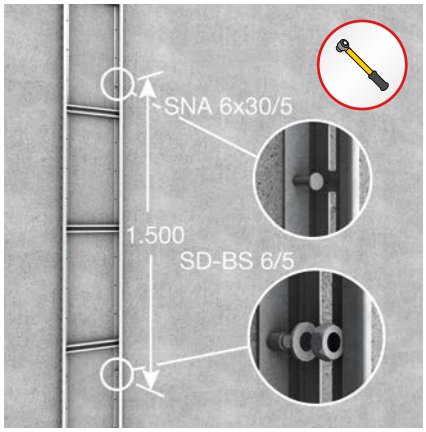
Vertical ladder STU 50



Connection with ladder connector LGV 50
Vertical ladders (STU 50) are connected with the ladder connector (LGV 50) and clamping screws (KLS 8X16) if required.



Wall mounting with ladder bracket (LH)
Dowel the ladder rail with ladder bracket (LH) and e.g. with steel expansion anchor (SD 10/10) at max. support distance of 1,500 mm to concrete wall.



Wall mounting with nail anchor SNA or expansion anchor SD-BS
Anchor the vertical ladder (STU 50S/F) directly to the concrete wall through the existing holes in the two ladder rails with SNA 6x30/5 [alternatively: SD-BS 6/5] at a max. support spacing of 1,500 mm.



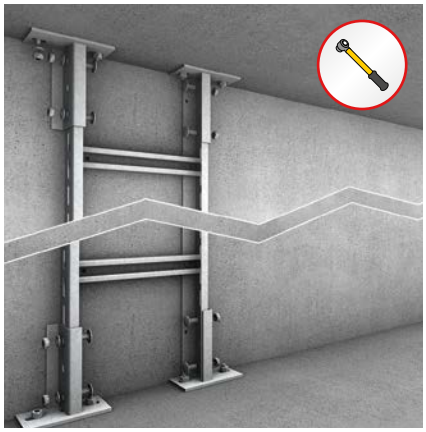
Wall mounting with corner angle BL 4
Bolt BL 4 to the ladder rail externally or internally using a clamp fastening set (KLS 10x20) and anchor to the concrete



wall e.g. with an expansion anchor (SD 10/10) at a max. support distance of 1,500 mm.



Floor and ceiling mounting with corner angle BL 4
Vertical ladders (STU 50) can be additionally doweled to concrete floors and ceilings with BL 4 and clamp fastening set (KLS 10x20) using e.g. an expansion anchor (SD 10/10) if required. Observe a maximum fastening distance of 1,500 mm.



Floor and ceiling mounting with bolted head plate BGUQ 50
Vertical ladders (STU 50) can be additionally anchored to concrete floors and ceilings with the head plate (BGUQ 50) and the round-head bolt (FRSV 10x20) using e.g. a steel expansion anchor (SD 10/10). Observe a maximum fastening distance of 1,500 mm.



Additional rungs STLS in the course of the assembly
Additionally required rungs (STLS) are screwed to the side rail at the desired distance.



Additional STUS rungs for retrofitting
Additionally required rungs (STUS) are screwed to the side rail from the inside at the desired distance via the corner angle (BL 6).



In the case of the ladder variant with nail anchor SNA, the additional installation with rungs STUS is not possible.



Separating strip STR 50
Screw the separating strip (STR 50) three times with a channel nut with spring (AMF18 M6) and slotted cylinder head screw (FKS 6x20), at the first and last rung as well as centrally.



Protection cap SU
Depending on the conditions, slide the protection cap (SU 50/36) onto the ladder rail. For the vertical ladders STU 50-3E use the protection caps SU 50/22.



Cable clamp (type AC)
Select AC according to cable diameter and number of cables. The use of separately selected trays depends on the cables to be laid according to the manufacturer's instructions.

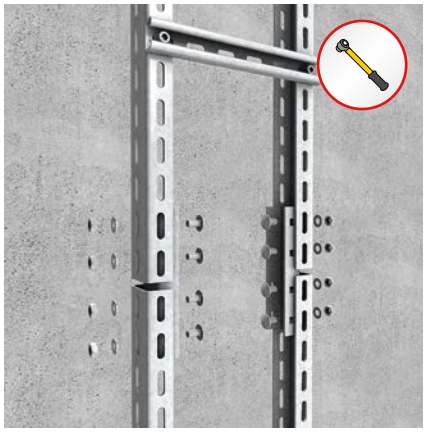


Vertical ladder with cover elevator (STD-A)
Screw the STD-A to the ladders side rail with three clamp fastening sets (KLS 10x20).

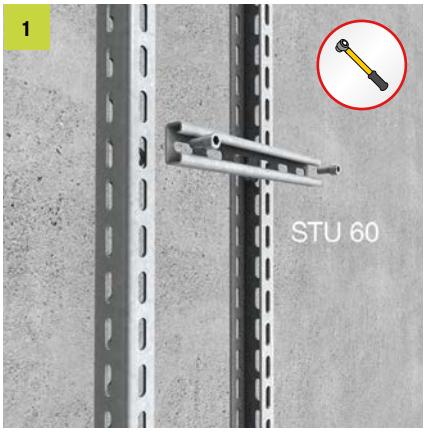


Place the ladder cover (RD) on the STD-A and screw it in place with six self-tapping screws (BS 4.2x13GV).

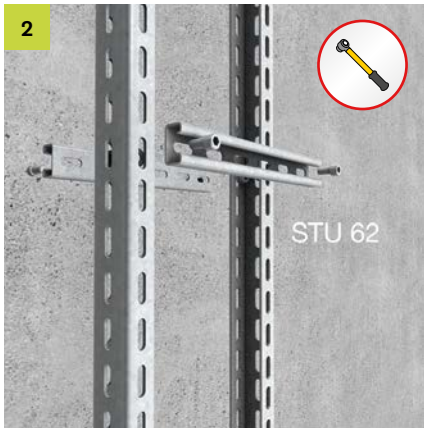
Vertical ladder STU 60/STU 62



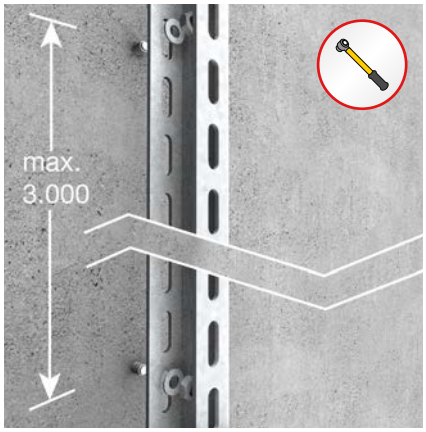
Connection with connector KHUV 60
Vertical ladders (STU 60/STU 62) are connected with the connector (KHUV 60) and clamping screws (KLS 10x20) if required.



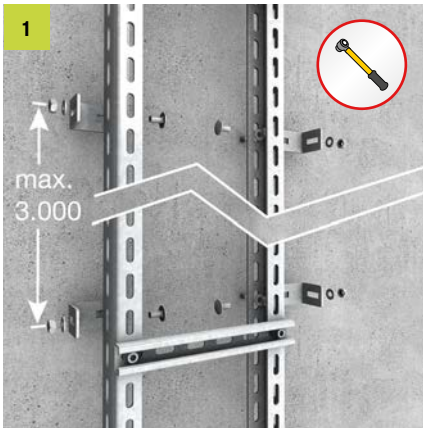
On-site assembly vertical ladder STU 60/STU 62
Vertical ladders (STU 60/STU 62 [for cable assignment on both sides]) are delivered unassembled. The rungs



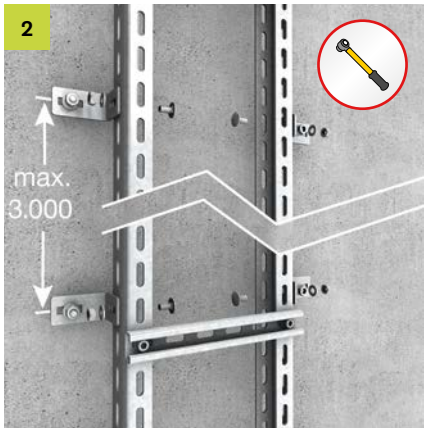
(KHA 8) are screwed onto the rail profile (KHU 60) with hexagon socket head screws (IK 10X20), washers (US 10X21) and hexagon nuts (SEM 10) at a distance of 600 mm.



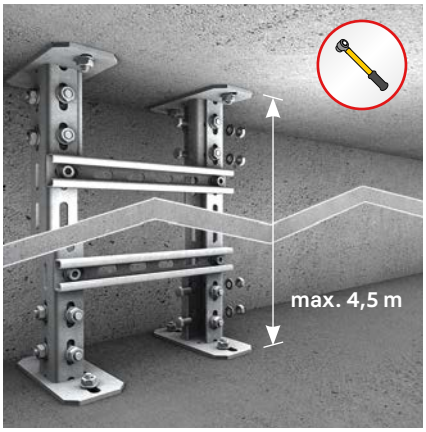
Wall mounting with steel expansion anchor SD
Dowel the vertical ladder (STU 60/ STU 62) directly to the concrete wall through the existing holes in the two ladder rails with expansion anchors (SD 10/10) at a max. support spacing of 3,000 mm.



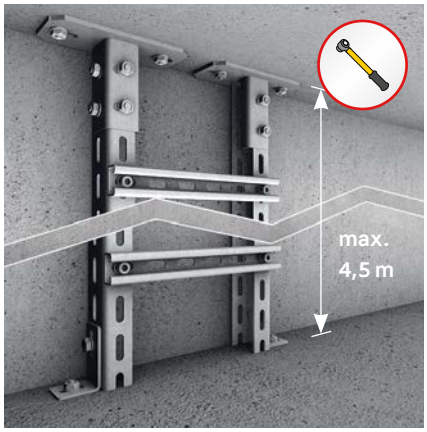
Wall mounting with corner angle BL 4
Bolt BL 4 to the ladder rail externally or internally using a clamp fastening set (KLS 10x20) and anchor to the concrete



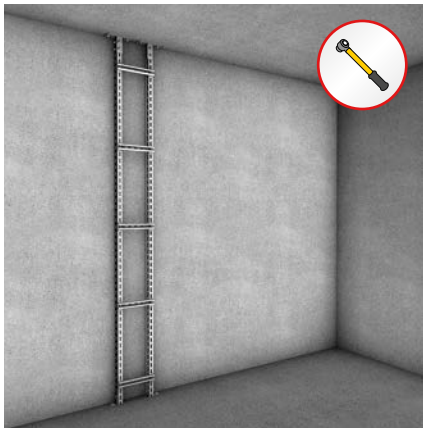
wall e.g. with an expansion anchor (SD 10/10) at a max. support distance of 3,000 mm.

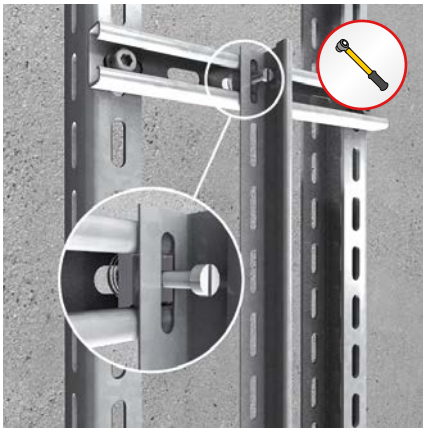


Floor and ceiling mounting with head plate BGU 60
Vertical ladders (STU 60/STU 62) can be additionally anchored to concrete floors and ceilings with the head plate (BGU 60) and steel expansion anchors (SD 10/10). Observe a maximum fastening distance of 4,500 mm, freestanding.

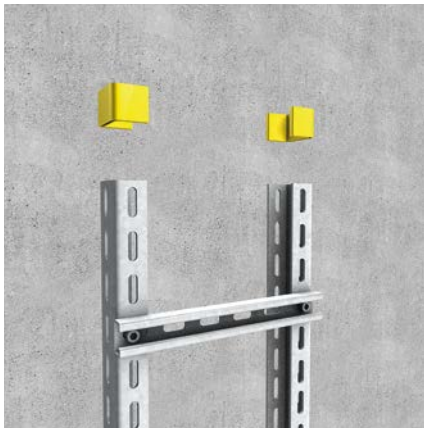


Floor and ceiling mounting with head plate BGU 60 and corner angle BL 4
Vertical ladders (STU 60/STU 62) can be anchored to concrete floors and ceilings with the head plate (BGU 60), corner angles (BL 4) and steel expansion anchors (SD 10/10). Observe a maximum fastening distance of 4,500 mm, free-standing. The combinations of head plate and corner angle are variable.





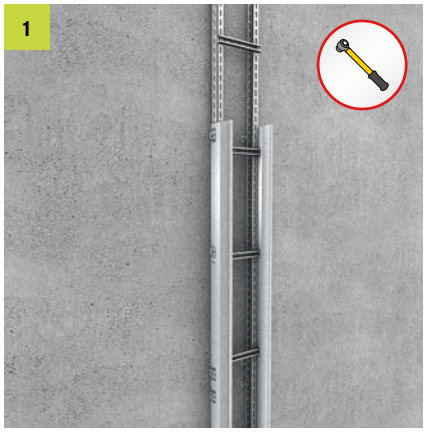
Separating strip STR 50
Screw the separating strip (STR 50) three times with a channel nut with spring (AMF18 M6) and slotted cylinder head screw (FKS 6x20), at the first and last rung as well as centrally.



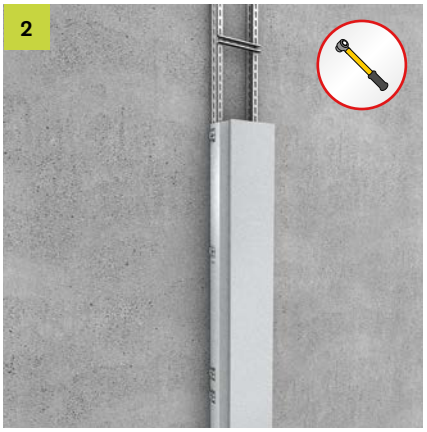
Protection cap SU 60
Depending on the conditions, slide the protection cap (SU 60) onto the ladder rail.



Cable clamp (type AC)
Select cable clamps (type AC) according to cable diameter and number. The use of separately selected trays depends on the cables to be laid according to the manufacturer's instructions.

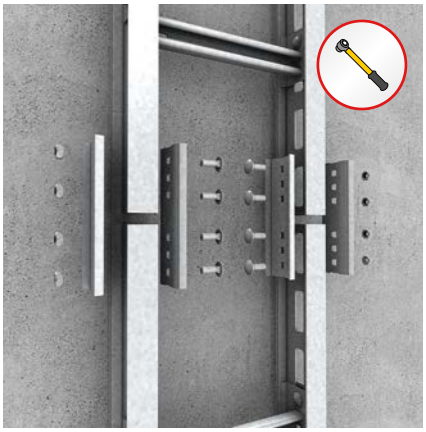


Vertical ladder with cover elevator STD-A
Screw the STD-A to the ladders side rail with three clamp fastening sets (KLS 10x20).

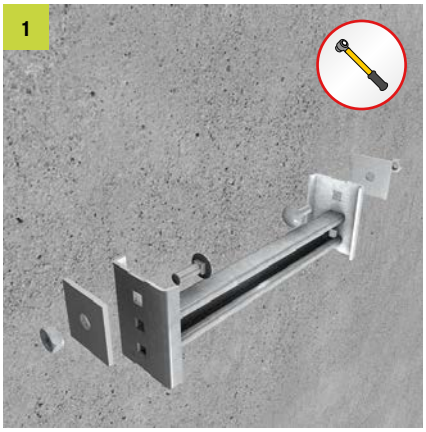


Place the ladder cover (RD) on the STD-A and screw it in place with six self-tapping screws (BS 4.2x13GV).

Vertical ladder ST 81/ST 82



Connection with connector HKI
Vertical ladders (ST 81) are connected with the connector (HKI) and clamping screws (FRS 10x30 and SEM 10) if required.



On-site assembly vertical ladder ST 81
The vertical ladder (ST 81) is delivered unassembled. The rungs (STIS) are screwed into the side rail (KHI) using the



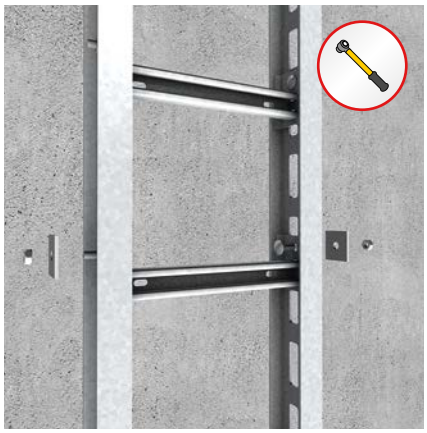
round-head bolt (FRS 10x30) and the rectangular washer (RUS 50-L13) with the hexagon nut (SEM 10) (distance 600 mm).



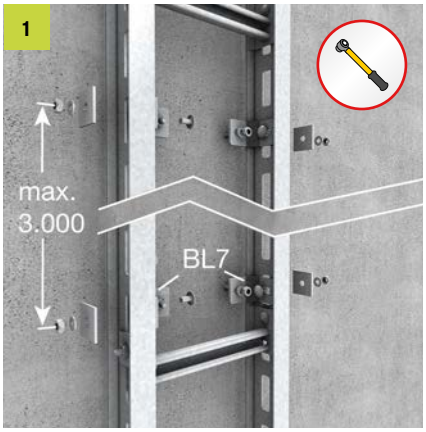
On-site assembly vertical ladder ST 82
The vertical ladder (ST 82) for cable assignment on both sides is delivered unassembled. The rungs (STISD) are



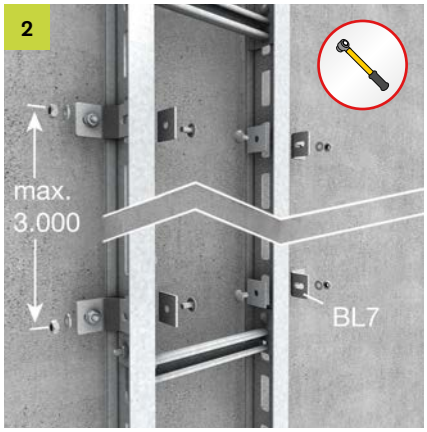
screwed into the side rail (KHI) using the round-head bolt (FRS 10x30) and the rectangular washer (RUS 50-L13) with the hexagon nut (SEM 10) (distance 600 mm).

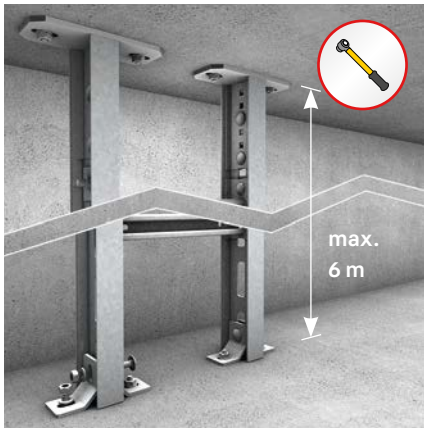


Additional rungs STIS/STISD for on-site assembly
Additionally required rungs (STIS/STISD) are screwed to the side rail (KHI) at the desired distance (e.g. at a distance of 300 mm).

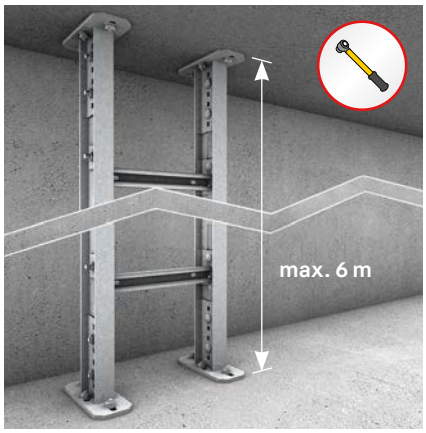


Wall mounting with corner angle BL 7
Bolt BL 7 to the ladder rail externally or internally using a clamp fastening set (KLS 10x20) and anchor to the concrete wall e.g. with an expansion anchor (SD 10/10) at a max. support distance of 3,000 mm.





Floor and ceiling mounting with BGIQ/ BL7
Vertical ladders (ST 81/ST 82) can be anchored to concrete floors and ceilings with the head plate (BGIQ), corner angles (BL 7) and steel expansion anchors (SD 10/10). Observe a maximum fastening distance of 6,000 mm, free-standing. The combinations of head plate and corner angle are variable.



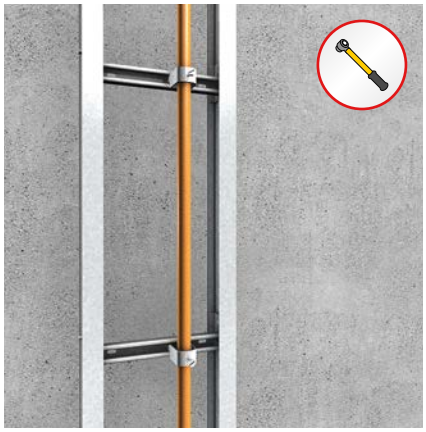
Floor and ceiling mounting with head-plate BGI
Vertical ladders (ST 81/ST 82) can be doweled to concrete floors and ceilings with the head plate (BGI) and steel expansion anchors (SD 10/10). Observe a maximum fastening distance of 6,000 mm, free-standing.



Separating strip STR 50
Screw the separating strip (STR 50) three times with a channel nut with spring (AMF18 M6) and slotted cylinder head screw (FKS 6x20), at the first and last rung as well as centrally.



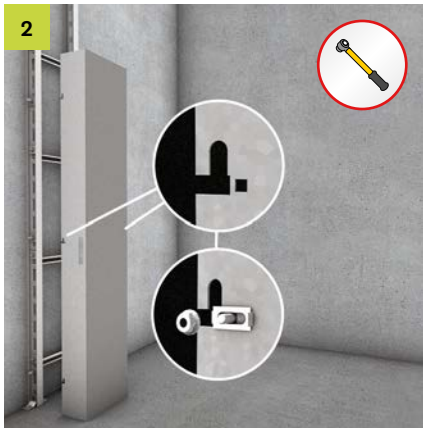
Protection cap SI
Depending on the conditions, slide the protection cap (SI) onto the ladder rail.



Cable clamp (type AC)
Select cable clamps (type AC) according to cable diameter and number. The use of separately selected trays depends on the cables to be laid according to the manufacturer's instructions.



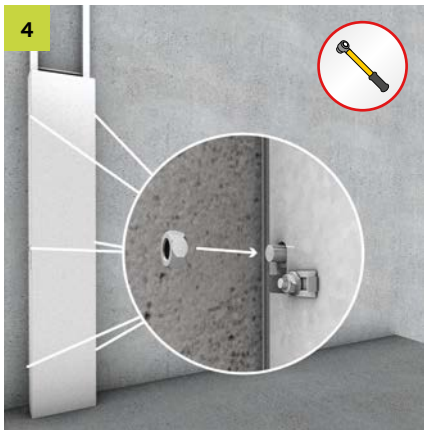
Collision protection STDE
Mount the six hexagon head bolts (SES 10X50) analogue to the position of the holes of the collision protection (STDE) in the side rails according to the detailed picture. Single sequence:
1x SES 10X50, 1x RUS 50-L11F, side rail, 1x RUS 50-L11F, 1x SEM 10, spacing 5 mm, 1x SEM 10.



Push the anti-pullout bracket (STDES) only centrally left and right onto the collision protection (STDE). Insert the round-head bolt (FRSV 6X12) from the inside through the anti-pullout bracket and pre-assemble it with the hexagonal nut with flange (SEMS 6).



Hook the collision protection (STDE) onto the pre-mounted hexagon head bolt (SES 10X50) and, as shown in the detail picture, screw it 6x with the



hexagon nut (SEM 10). The detail picture shows the central arrangement with anti-pullout bracket (STDES).



Push back the anti-pullout bracket (STDES) according to the detailed picture and screw on the hexagonal nut with flange (SEMS 6).

All rights reserved. Reprinting and any electronic reproduction only authorised with our written permission.
Errors excepted and subject to technical changes. No liability can be accepted by the publisher on any legal basis whatsoever.
This publication supersedes all previous versions of the document, thereby rendering them invalid.

© PohlCon | PC-LIT-MA-ST-EN | 09-2023 | 2. v. | 09-2023

PohlCon GmbH
Nobelstr. 51
12057 Berlin
Germany

T +49 30 68283-04

www.pohlcon.com