STANDOFF ADAPTER INCLUDING S-BT HL DATA SHEET

July 2023

Standoff adapters

Product data

Product description

Adapter M8-MR 25 Adapter M8-MR 50 Adapter M8-MR 75 Adapter M8-MR 100 Adapter M10-MR 50 Adapter M10-MR 75 Adapter M10-MR 100 Adapter W10-MR 50 Adapter W10-MR 75 Adapter W10-MR 100		• For fastenings on steel with passive fire protection (PFP) coating, bare steel members or insulated steel members • Faster and more efficient – no welding/ bracketing needed • Helps to prevent contact between fixtures and steel beams or plates – both uncoated or PFP coated beams • Versatile – threaded standoff adapters can be used as a spacer for a wide range of fastenings on PFP coated beams
Adapter M8-MF 25 Adapter M8-MF 50 Adapter M8-MF 75 Adapter M8-MF 100 Adapter M10-MF 50 Adapter W10-MF 50		

Fastening system

	Fastener			
Adapter	X-BT-GR M8/7 SN 8	S-BT-GR M8/7 SN 6 HL	S-BT-ER M8/15 SN 6 HL X-BT-ER M8/7 SN 8	S-BT-GF M8/7 AN 6 HL
Adapter M8-MR 25	■	■		
Adapter M8-MR 50	■	■	■	
Adapter M8-MR 75	■	■	■	
Adapter M8-MR 100	■	■	■	
Adapter M8-MF 25	■			■
Adapter M8-MF 50	■			■
Adapter M8-MF 75	■			■
Adapter M8-MF 100	■			■

Adapter	Fastener			
	S-BT-MR M10/15 SN 6 HL X-BT-MR M10/15 SN 8 S-BT-ER M10/15 SN 6 HL X-BT-ER M10/7 SN 8	S-BT-MR W10/15 SN 6 HL X-BT-MR W10/15 SN 8 S-BT-ER W10/15 SN 6 HL X-BT-ER W10/7 SN 8	S-BT-MF M10/15 AN 6 HL	S-BT-MF W10/15 AN 6 HL
Adapter M10-MR 50	■			
Adapter M10-MR 75	■			
Adapter M10-MR 100	■			
Adapter M10-MF 50			■	
Adapter W10-MR 50		■		
Adapter W10-MR 75		■		
Adapter W10-MR 100		■		
Adapter W10-MF 50				■

Material specification and material properties

Material specification and material properties for stainless steel parts

Designation	Material	Coating	Steel grade	Standard	Corrosion resistance acc. to EN 1993-1-4
Adapter M8-MR Adapter M10-MR Adapter W10-MR	Stainless steel	None	1.4401 316	EN 10088 ASTM, AISI, SAE	CRC III

Material specification and material properties for carbon steel parts

Designation	Material	Coating	Steel grade	Standard	Corrosion resistance acc. to EN ISO 9223
Adapter M8-MF Adapter M10-MF Adapter W10-MF	Carbon steel	electroplated Zn-alloy + top coat (Duplex coat.)	1.0737 12L14	EN 10277-3 ASTM, AISI, SAE	C1–C3

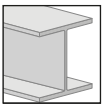
Product recommendation under various environmental conditions

Environmental condition		Fastener system: Adapter M8-MR, Adapter M10-MR, Adapter W10-MR combined with S-BT-GR M8/7 SN 6 HL, X-BT-GR M8/7 SN 8, S-BT-MR M10/15 SN 6 HL, X-BT-MR M10/15 SN 8, S-BT-MR W10/15 SN 6 HL, X-BT-MR W10/15 SN 8, S-BT-ER M8/15 SN 6 HL, X-BT-ER M8/7 SN 8, S-BT-ER M10/15 SN 6 HL, X-BT-ER M10/7 SN 8, S-BT-ER W10/15 SN 6 HL, X-BT-ER W10/7 SN 8	Fastener system: Adapter M8-MF, Adapter M10-MF, Adapter W10-MF combined with S-BT-GF M8/7 AN 6 HL, S-BT-MF M10/15 AN 6 HL, S-BT-MF W10/15 AN 6 HL, X-BT-GR M8/7 SN 8
	Dry indoor	■	■
	Indoor with temporary condensation	■	■
	Outdoor with low pollution	■	□
	Outdoor with moderate concentration of pollutants	■	□
	Coastal areas	■	-
	Outdoor, areas with heavy industrial pollution	■	-
	Close proximity to roads	■	-
	Special application	Please contact our Expert Hilti Engineers to support recommendation	
	Special application		

■ = Suitable for corrosion prevention
□ = Suitable, requires expert evaluation

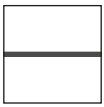
Further information can be found in following Hilti brochures:
- New Generation X-BT-GR, X-BT-MR and X-BT-ER Threaded Fastener Specification
- S-BT HL Screw-in Threaded Fastener Specification

Base materials



Steel

Load condition



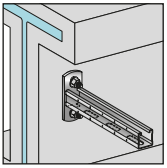
Static/quasi static

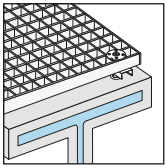
Approvals and certificates

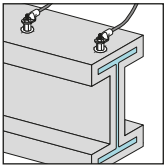
- Information presented in this product data sheet is based on Hilti Technical Data.
- Approvals/certificates available for following fastening systems:
  S-BT HL threaded studs, X-BT threaded studs

Applications

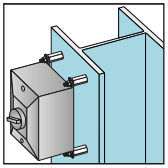
Fastening on steel with passive fire protection (PFP) coating

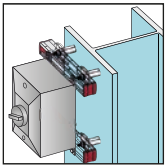




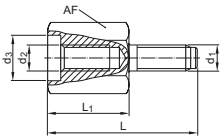


Fastening on bare steel members or insulated steel members





Dimensions



Designation	L	L_1	d_1	d_2	d_3	AF
Adapter M8-MR 25	46 mm	25 mm	acc. to M8	acc. to M8	14 mm	19 mm
Adapter M8-MF 25						
Adapter M8-MR 50	71 mm	50 mm	acc. to M8	acc. to M8	14 mm	19 mm
Adapter M8-MF 50						
Adapter M8-MR 75	96 mm	75 mm	acc. to M8	acc. to M8	14 mm	19 mm
Adapter M8-MF 75						
Adapter M8-MR 100	121 mm	100 mm	acc. to M8	acc. to M8	14 mm	19 mm
Adapter M8-MF 100						
Adapter M10-MR 50	71 mm	50 mm	acc. to M10	acc. to M10	14 mm	19 mm
Adapter M10-MF 50						
Adapter W10-MR 50	71 mm	50 mm	acc. to W10	acc. to W10	14 mm	19 mm
Adapter W10-MF 50						
Adapter M10-MR 75	96 mm	75 mm	acc. to M10	acc. to M10	14 mm	19 mm
Adapter W10-MR 75			acc. to W10	acc. to W10		
Adapter M10-MR 100	121 mm	100 mm	acc. to M10	acc. to M10	14 mm	19 mm
Adapter W10-MR 100			acc. to W10	acc. to W10		

Load data

Recommended interaction formula for combined loading

S-BT HL threaded studs with standoff adapter

V-N (shear and tension) $\frac{V}{V_{rec}} + \frac{N}{N_{rec}} \le 1.0$ with $\frac{V}{V_{rec}} \le 1.0$ and $\frac{N}{N_{rec}} \le 1.0$

X-BT threaded studs with standoff adapter

V-N (shear and tension) $\frac{V}{V_{rec}} + \frac{N}{N_{rec}} \le 1.2$ with $\frac{V}{V_{rec}} \le 1.0$ and $\frac{N}{N_{rec}} \le 1.0$

N_{rec} = Recommended resistance under tension
V_{rec} = Recommended resistance under shear load

N_{Rd} = Design resistance under tension load
V_{Rd} = Design resistance under shear load

Recommended loads

	S-BT-MR HL / S-BT-GR HL with standoff adapter made of stainless steel			
Base material thickness	$t_{II} \ge 5$ mm [0.20"]		$t_{II} = 4$ mm [0.16"]	$t_{II} = 3$ mm [0.12"]
Base material type	Steel*) S235 A36	Steel S355, S500 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	3.60 kN/810 lb	4.30 kN/970 lb	2.30 kN/520 lb	2.30 kN/520 lb
Shear, V_{rec} Standoff Adapter 25 mm	0.84 kN/190 lb	1.00 kN/225 lb	0.69 kN/155 lb	0.55 kN/125 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.45 kN/100 lb	0.54 kN/120 lb	0.38 kN/85 lb	0.31 kN/70 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.33 kN/75 lb	0.40 kN/90 lb	0.28 kN/60 lb	0.24 kN/55 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.23 kN/50 lb	0.28 kN/60 lb	0.19 kN/40 lb	0.18 kN/40 lb

*) For steel base material of grade S355 to S500, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20 %.

	S-BT-MF HL / S-BT-GF HL with standoff adapter made of duplex coated carbon steel			
Base material thickness	$t_{II} \geq 5$ mm [0.20"]		$t_{II} = 4$ mm [0.16"]	$t_{II} = 3$ mm [0.12"]
Base material type	Steel*) S235 A36	Steel S355, S500 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	4.0 kN/900 lb	4.8 kN/1080 lb	2.30 kN/520 lb	2.30 kN/520 lb
Shear, V_{rec} Standoff Adapter 25 mm	0.84 kN/190 lb	1.00 kN/225 lb	0.69 kN/155 lb	0.55 kN/125 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.45 kN/100 lb	0.54 kN/120 lb	0.38 kN/85 lb	0.31 kN/70 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.33 kN/75 lb	0.40 kN/90 lb	0.28 kN/60 lb	0.24 kN/55 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.23 kN/50 lb	0.28 kN/60 lb	0.19 kN/40 lb	0.18 kN/40 lb

*) For steel base material of grade S355 to S500, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20 %.

	X-BT-MR / X-BT GR with standoff adapter made of stainless steel or duplex coated carbon steel	
Base material thickness	$t_{II} \geq 8$ mm [0.31"]	
Base material type	Steel S235, A36	Steel S355, S420, Grade 50
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	3.60 kN/810 lb	4.60 kN/1035 lb
Shear, V_{rec} Standoff Adapter 25 mm	1.14 kN/255 lb	1.43 kN/320 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.62 kN/140 lb	0.78 kN/175 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.52 kN/115 lb	0.65 kN/145 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.35 kN/80 lb	0.44 kN/100 lb

Design loads

	S-BT-MR HL / S-BT-GR HL with standoff adapter made of stainless steel			
Base material thickness	$t_{II} \geq 5$ mm [0.20"]		$t_{II} = 4$ mm [0.16"]	$t_{II} = 3$ mm [0.12"]
Base material type	Steel*) S235 A36	Steel S355, S500 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	5.1 kN/1145 lb	6.1 kN/1370 lb	3.3 kN/740 lb	3.3 kN/740 lb
Shear, V_{Rd} Standoff Adapter 25 mm	1.17 kN/260 lb	1.41 kN/315 lb	0.96 kN/215 lb	0.77 kN/170 lb
Shear, V_{Rd} Standoff Adapter 50 mm	0.64 kN/140 lb	0.76 kN/170 lb	0.53 kN/120 lb	0.43 kN/95 lb
Shear, V_{Rd} Standoff Adapter 75 mm	0.47 kN/105 lb	0.55 kN/125 lb	0.39 kN/90 lb	0.34 kN/75 lb
Shear, V_{Rd} Standoff Adapter 100 mm	0.32 kN/70 lb	0.39 kN/90 lb	0.27 kN/60 lb	0.25 kN/55 lb

*) For steel base material of grade S355 to S500, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20 %.

	S-BT-MF HL / S-BT-GF HL with standoff adapter made of duplex coated carbon steel			
Base material thickness	$t_{II} \geq 5$ mm [0.20"]		$t_{II} = 4$ mm [0.16"]	$t_{II} = 3$ mm [0.12"]
Base material type	Steel*) S235 A36	Steel S355, S500 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	5.7 kN/1280 lb	6.8 kN/1525 lb	3.3 kN/740 lb	3.3 kN/740 lb
Shear, V_{Rd} Standoff Adapter 25 mm	1.17 kN/260 lb	1.41 kN/315 lb	0.96 kN/215 lb	0.77 kN/170 lb
Shear, V_{Rd} Standoff Adapter 50 mm	0.64 kN/140 lb	0.76 kN/170 lb	0.53 kN/120 lb	0.43 kN/95 lb
Shear, V_{Rd} Standoff Adapter 75 mm	0.47 kN/105 lb	0.55 kN/125 lb	0.39 kN/90 lb	0.34 kN/75 lb
Shear, V_{Rd} Standoff Adapter 100 mm	0.32 kN/70 lb	0.39 kN/90 lb	0.27 kN/60 lb	0.25 kN/55 lb

*) For steel base material of grade S355 to S500, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20 %.

	X-BT-MR / X-BT GR with standoff adapter made of stainless steel or duplex coated carbon steel	
Base material thickness	$t_{II} \geq 8$ mm [0.31"]	
Base material type	Steel S235, A36	Steel S355, S420, Grade 50
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	5.00 kN/1120 lb	6.50 kN/1460 lb
Shear, V_{Rd} Standoff Adapter 25 mm	1.60 kN/360 lb	2.00 kN/450 lb
Shear, V_{Rd} Standoff Adapter 50 mm	0.87 kN/195 lb	1.09 kN/245 lb
Shear, V_{Rd} Standoff Adapter 75 mm	0.73 kN/165 lb	0.91 kN/205 lb
Shear, V_{Rd} Standoff Adapter 100 mm	0.49 kN/110 lb	0.61 kN/135 lb

Recommended loads for Grating on PFP

	S-BT-GR HL with standoff adapter made of stainless steel S-BT-GF HL with standoff adapter made of duplex coated carbon steel		
Base material thickness	$t_{II} \geq 5$ mm [0.20"]		
Base material type	Steel (S235, A36)		
Grating disc type	X-FCM NG	X-FCM HL	
Grating type	Square and Rectangular	Square	Rectangular
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	Refer to the Product Data Sheet X-FCM Grating Fastening System		
Shear, V_{rec} Standoff Adapter 25 mm	0.30 kN/65 lb	0.60 kN/135 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.30 kN/65 lb	0.45 kN/100 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.30 kN/65 lb	0.33 kN/75 lb	0.33 kN/75 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.23 kN/50 lb	0.23 kN/50 lb	0.23 kN/50 lb

	S-BT-GR HL with standoff adapter made of stainless steel S-BT-GF HL with standoff adapter made of duplex coated carbon steel		
Base material thickness	3 mm [0.12"] ≤ t_{II} < 5 mm [0.20"]		
Base material type	Steel (S235, A36)		
Grating disc type	X-FCM NG	X-FCM HL	
Grating type	Square and Rectangular	Square	Rectangular
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	Refer to the Product Data Sheet X-FCM Grating Fastening System		
Shear, V_{rec} Standoff Adapter 25 mm	0.30 kN/65 lb	0.55 kN/125 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.30 kN/65 lb	0.31 kN/70 lb	0.31 kN/70 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.24 kN/55 lb	0.24 kN/55 lb	0.24 kN/55 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.18 kN/40 lb	0.18 kN/40 lb	0.18 kN/40 lb

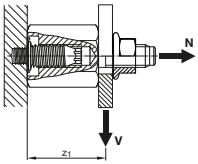
	X-BT MR / X-BT GR with standoff adapter made of stainless steel or duplex coated carbon steel	
Base material thickness	t_{II} ≥ 8 mm [0.31"]	
Base material type	Steel (S235, A36)	
Grating disc type	X-FCM HL	
Grating type	Square	Rectangular
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	Refer to the Product Data Sheet X-FCM Grating Fastening System	
Shear, V_{rec} Standoff Adapter 25 mm	0.60 kN/135 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 50 mm	0.60 kN/135 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 75 mm	0.52 kN/115 lb	0.40 kN/90 lb
Shear, V_{rec} Standoff Adapter 100 mm	0.35 kN/80 lb	0.35 kN/80 lb

For more information on the X-FCM grating fastening system, please refer to the X-FCM Grating Fastening System Product Data Sheet.

Conditions for recommended loads and design loads:

- The design resistance can be used for the design according the partial safety concept, e.g. EN 1993-1-1 (Eurocode 3).
- Global factor of safety Ω resp. partial factor of safety γ_m (based on 5% fractile ultimate test value)

	Recommended loads	Design loads
static pull-out	2.80	2.00
static shear	2.80	2.00



- For the shear resistance values a stand-off distance Z1 = 30 mm [1.18"], 55 mm [2.16"], 80 mm [3.15"], 105 mm [4.13"] is considered.
- Minimum edge distance = 15 mm [0.59"], spacing ≥ 18 mm [0.709"]
- Effect of base metal vibration and stress (e.g. areas with tensile stress) considered.
- Redundancy (multiple fastening) must be provided.
- Maximum displacement in direction of the shear force ≤ 2.0 mm [0.08"]

Performance data for electrical connections on PFP

Please refer to the Product Data Sheet S-BT-ER (HC) HL and S-BT-EF (HC) HL threaded studs and Product Data Sheet X-BT-ER threaded studs for electrical connections.

System recommendation

Recommended tightening torque for standoff adapter

Tightening torque:
T_{rec} = 8 Nm

Tightening tool:
- Torque wrench
- Torque tool X-BT ¼" – 8 Nm
- Screwdriver with torque release coupling (TRC)*
- Screwdriver with (ESC)**

	T_{rec}
	8 Nm
Hilti screwdriver*	Torque setting:
SBT 4-A22*	7
SBT 6** (HJ)	3

Recommended tightening torque for upper flange nut

Tightening torque:
T_{rec} = 20 Nm

Tightening tool:
- Torque wrench
- Torque tool X-BT ¼" – 20 Nm
- Screwdriver with ESC)

	T_{rec}
	20 Nm
Hilti screwdriver*	Torque setting:
SBT 6** (HJ)	5

*) The setting of the torque via the Hilti screwdriver SBT 4-A22 with torque release coupling (TRC) can change as the clutch wears over time. The specified torque setting is only a rough guide value and applies to a new Hilti screwdriver SBT 4-A22. Hilti recommends using a calibrated torque wrench or the Hilti Torque tool X-BT ¼" – 8 Nm or X-BT ¼" – 20 Nm to apply the recommended torque.

**) Electronic slip clutch (ESC): ESC has 2 stop detections, Soft Joint (SJ) and Hard Joint (HJ). Hard joint detection is activated due to drop in speed (fast stop) and can lead to a torque spike.

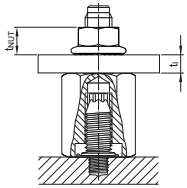
Recommended tightening torque for X-FCM Grating Fastening System

Please refer to the Product Data Sheet X-FCM Grating Fastening System as the value varies from 5–20 Nm depending on product.

Application requirements

Base material

All requirements for the base material (type, strength, thickness, spacing and edge distances, application limits, etc.) are given in the Product Data Sheet (PDS) of the S-BT HL fastener and X-BT fastener.



Thickness of fastened material t_I

Adapter M8-MR and M8-MF: ≤11 mm [0.43"]

Adapter M10-MR and M10-MF: ≤9 mm [0.35"]

Adapter W10-MR and W10-MF: ≤9 mm [0.35"]

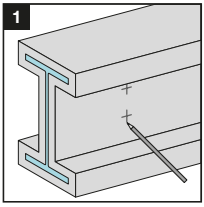
Fastener selection

Fastener	Standoff adapter		Standoff length
S-BT-GR M8/7 SN 6 HL X-BT GR M8/7 SN 8 S-BT-ER M8/15 SN 6 HL X-BT-ER M8/7 SN 8	Stainless steel	Adapter M8-MR 25*	25 mm [1"]
		Adapter M8-MR 50	50 mm [2"]
		Adapter M8-MR 75	75 mm [3"]
		Adapter M8-MR 100	100 mm [4"]
S-BT-GF M8/7 AN 6 HL X-BT-GR M8/7 SN 8	Carbon steel	Adapter M8-MF 25	25 mm [1"]
		Adapter M8-MF 50	50 mm [2"]
		Adapter M8-MF 75	75 mm [3"]
		Adapter M8-MF 100	100 mm [4"]
S-BT-MR M10/15 SN 6 HL X-BT-MR M10/15 SN 8 S-BT-ER M10/15 SN 6 HL X-BT-ER M10/7 SN 8	Stainless steel	Adapter M10-MR 50	50 mm [2"]
		Adapter M10-MR 75	75 mm [3"]
		Adapter M10-MR 100	100 mm [4"]
S-BT-MF M10/15 AN 6 HL X-BT-MR M10/15 SN 8	Carbon steel	Adapter M10-MF 50	50 mm [2"]
S-BT-MR W10/15 SN 6 HL X-BT-MR W10/15 SN 8 S-BT-ER W10/15 SN 6 HL X-BT-ER W10/7 SN 8	Stainless steel	Adapter W10-MR 50	50 mm [2"]
		Adapter W10-MR 75	75 mm [3"]
		Adapter W10-MR 100	100 mm [4"]
S-BT-MF W10/15 AN 6 HL X-BT-MR W10/15 SN 8	Carbon steel	Adapter W10-MF 50	50 mm [2"]

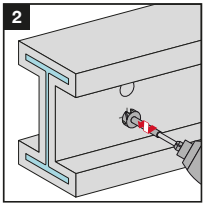
*) Not for combination with S-BT-ER M8/15 SN 6 HL and X-BT-ER M8/7 SN 8.

Installation recommendation

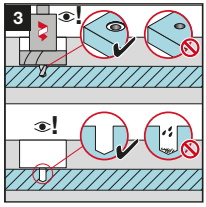
Fastening standoff adapter with S-BT HL or X-BT on PFP-coated steel



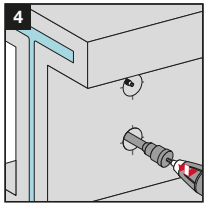
Mark location of each fastening.



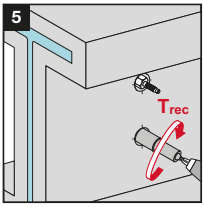
Remove PFP and pre-drill with stepped drill bit...



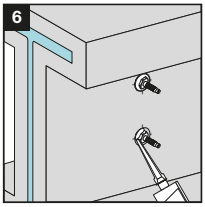
...until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



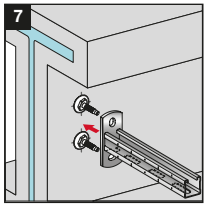
Set studs into drilled hole.



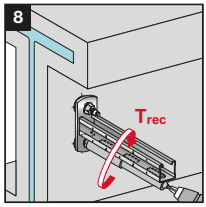
Screw-on the Hilti standoff adapter on the stud and tighten it with the recommended installation torque T_{rec} of 8 Nm.



Close the opening within 4 hours of the opening is being made in accordance to the patching instructions by the PFP-manufacturer.



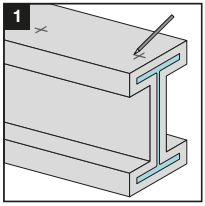
Position accessory on standoff adapter and hold in place. Use of MQZ bore plate as needed for strut applications.



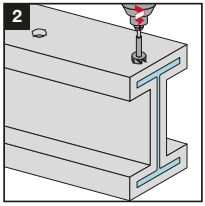
Fasten the accessory on the standoff adapter with the recommended installation torque T_{rec} of 20 Nm.

Important notes:
These are abbreviated instructions which may vary by application.
ALWAYS review/follow the instructions for use (IFU) accompanying the product.

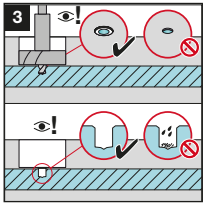
Grating fastening with standoff adapter with S-BT HL or X-BT on PFP-coated steel



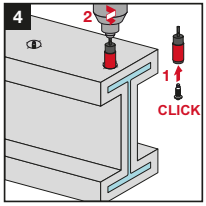
Mark location of each fastening.



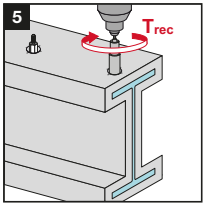
Remove PFP and pre-drill with stepped drill bit...



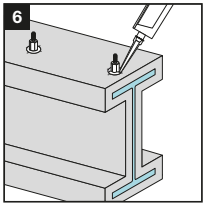
...until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



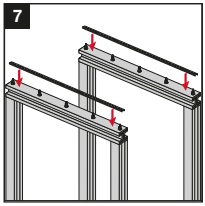
Set studs into drilled hole.



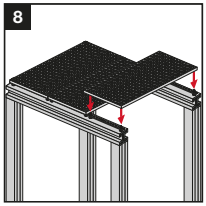
Screw-on the Hilti standoff adapter on the stud and tighten it with the recommended installation torque T_{rec} of 8 Nm.



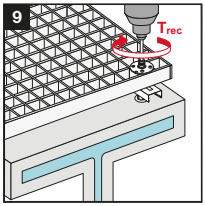
Close the opening within 4 hours of the opening is being made in accordance to the patching instructions by the PFP-manufacturer.



Position Oglaend channel CH50-1 on standoff adapter.[1)]



Position grating on top of the Oglaend channel S-M CH50-1 and standoff adapter and hold in place.



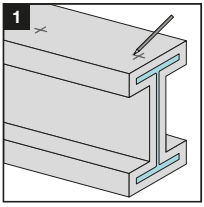
Tighten X-FCM discs with 5 mm Allen-type bit with the suited installation torque.

[1)] If a Oglaend channel CH50-1 is used, a stainless steel washer is required between the standoff adapter and the channel to prevent deformation of the channel when the X-FCM disc is tightened.

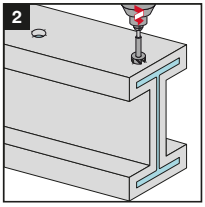
Important notes:

These are abbreviated instructions which may vary by application. ALWAYS review/follow the instructions for use (IFU) accompanying the product.

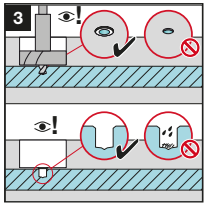
Electrical connections with standoff adapter made of stainless steel with S-BT-ER HL or X-BT-ER on PFP-coated steel



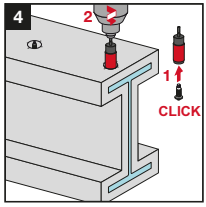
Mark location of each fastening.



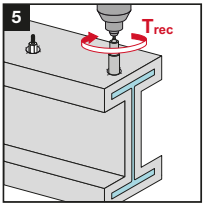
Remove PFP and pre-drill with stepped drill bit...



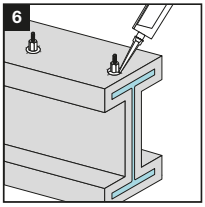
...until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



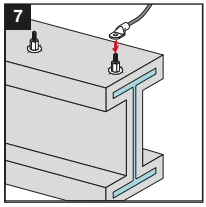
Set S-BT-ER HL or X BT-ER electrical connectors into drilled hole.



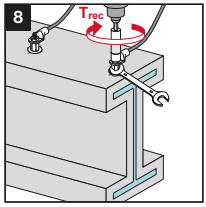
Screw-on the Hilti standoff adapter on the stud and tighten it with the recommended installation torque T_{rec} of 8 Nm.



Close the opening within 4 hours of the opening is being made in accordance to the patching instructions by the PFP-manufacturer.



Position cable lug on standoff adapter and hold in place.

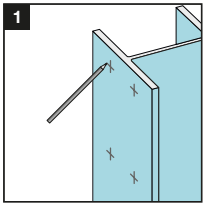


Add the spring washer and tighten the nut with the recommended installation torque T_{rec} of 16 Nm.

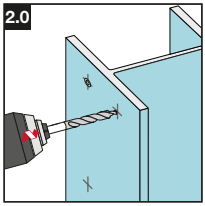
Important notes:
These are abbreviated instructions which may vary by application.
ALWAYS review/follow the instructions for use (IFU) accompanying the product.

Fastening standoff adapter with S-BT or X-BT on bare steel members

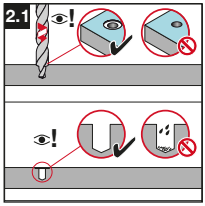
Installation instructions



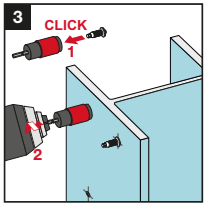
Mark location of each fastening.



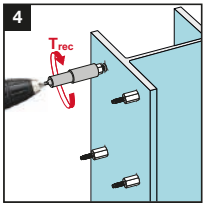
Pre-drill with stepped drill bit...



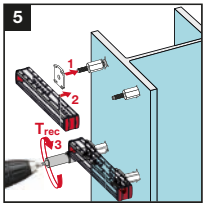
...until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



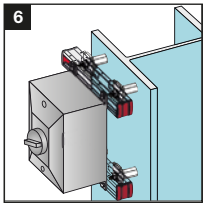
Set studs into drilled hole.



Screw-on the Hilti standoff adapter on the stud and tighten it with the recommended installation torque T_{rec} of 8 Nm.



Position channel on standoff adapter and hold in place. Tighten the nuts with a tightening torque T_{rec} of 20 Nm.



Fasten the accessory on the channel with the suited installation torque.

Important notes:

These are abbreviated instructions which may vary by application.
ALWAYS review/follow the instructions for use (IFU) accompanying the product.
In case of a drill through hole, rework of the coating on the back side of the plate/profile may be needed.

Fastener selection

Component	Designation	Item no.	Comment
Standoff adapter	Adapter M8-MF 25	2268526	Purchase M8 wide flange nut separately
Standoff adapter	Adapter M8-MF 50	2268527	
Standoff adapter	Adapter M8-MF 75	2268528	
Standoff adapter	Adapter M8-MF 100	2268529	
Standoff adapter	Adapter M8-MR 25	2268522	
Standoff adapter	Adapter M8-MR 50	2268523	
Standoff adapter	Adapter M8-MR 75	2268524	
Standoff adapter	Adapter M8-MR 100	2268525	
Standoff adapter	Adapter M10-MF 50	2281194	
Standoff adapter	Adapter M10-MR 50	2281193	
Standoff adapter	Adapter M10-MR 75	2394867	
Standoff adapter	Adapter M10-MR 100	2394868	
Standoff adapter	Adapter W10-MF 50	2281192	
Standoff adapter	Adapter W10-MR 50	2281191	
Standoff adapter	Adapter W10-MR 75	2394869	
Standoff adapter	Adapter W10-MR 100	2395330	
Threaded stud	S-BT-GF M8/7 AN 6 HL	2345766	use with Adapter M8-MF
Threaded stud	S-BT-GR M8/7 SN 6 HL	2345767	use with Adapter M8-MR
Threaded stud	S-BT-MF M10/15 AN 6 HL	2346060	use with Adapter M10-MF
Threaded stud	S-BT-MF W10/15 AN 6 HL	2346061	use with Adapter W10-MF
Threaded stud	S-BT-MR M10/15 SN 6 HL	2346064	use with Adapter M10-MR
Threaded stud	S-BT-MR W10/15 SN 6 HL	2346065	use with Adapter W10-MR
Threaded stud	S-BT-ER M8/15 SN 6 HL	2346073	use with Adapter M8-MR
Threaded stud	S-BT-ER M10/15 SN 6 HL	2346074	use with Adapter M10-MR
Threaded stud	S-BT-ER W10/15 SN 6 HL	2346072	use with Adapter W10-MR
Threaded stud	X-BT-GR M8/7 SN 8	2194344	use with Adapter M8-MR or M8-MF
Threaded stud	X-BT-MR M10/15 SN 8	2194340	use with Adapter M10-MR or M10-MF
Threaded stud	X-BT-MR W10/15 SN 8	2194341	use with Adapter W10-MR or W10-MF
Threaded stud	X-BT-ER M8/7 SN8	2194351	use with Adapter M8-MR
Threaded stud	X-BT-ER M10/7 SN8	2194352	use with Adapter M10-MR
Threaded stud	X-BT-ER W10/7 SN8	2194353	use with Adapter W10-MR
Stepped drill bit	TS-BT 31-74 PFP	2270470	for removal of the PFP-coating from the base material
Stepped drill bit	TX-BT 31-74 PFP	2310192	for removal of the PFP-coating from the base material
Stepped drill bit	TS-BT 31-95 PFP	2394865	for removal of the intumescent and cementitious PFP-coating from the base material
Stepped drill bit	TX-BT 31-95 PFP	2394866	for removal of the intumescent and cementitious PFP-coating from the base material
Stud Holder	S-SH BT M8	2361441	for exact setting of the S-BT HL M8
Stud Holder	S-SH BT M/W10	2361442	for exact setting of the S-BT HL M10/W10

Component	Designation	Item no.	Comment
Torque tool	X-BT ¼" – 8 Nm	2119272	manual torque tool (8 Nm)
Torque tool	S-BT ¼" – 16 Nm	2346085	manual torque tool (16 Nm)
Torque tool	X-BT ¼" – 20 Nm	2212510	manual torque tool (20 Nm)
Nut setter	S-NS 19 95/3 1/4"	2268521	for standoff adapter
Nut setter	S-NS 13 C 95/3 1/4"	2149244	for serrated flange nut M8
Nut setter	S-NS 15 C 95/3 1/4"	2149245	for serrated flange nut M10
Nut setter	S-NS 9/16" C 95/3 3/4"	2149246	for serrated flange nut W10
Wide flange nut	M8-F wide	2289918	use with adapter M8-MF
Wide flange nut	M8-A4-70 wide	2289919	use with adapter M8-MR