



STANDOFF ADAPTER DATA SHEET



July 2021

Standoff adapters

Product data

Product description

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 M10-MR 50
 Adapter M10-MF 50
 Adapter W10-MR 50
 Adapter W10-MF 50



- 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
- Wide M8 flange nut available for use with Hilti MQ strut channel

Fastening system

Adapter	Fastener		
	S-BT-GR M8/7 SN 6 S-BT-MR M8/7 SN 6	S-BT-GF M8/7 AN 6 S-BT-MF M8/7 AN 6	X-BT-GR M8/7 SN 8
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	S-BT-MF M10/15 AN 6	S-BT-MR W10/15 SN 6	S-BT-MF W10/15 AN 6
Adapter M10-MR 50	■			
Adapter W10-MR 50			■	
Adapter M10-MF 50		■		
Adapter W10-MF 50				■

Adapter	Fastener	
	X-BT-MR M10/15 SN 8	X-BT-MR W10/15 SN 8
Adapter M10-MR 50	■	
Adapter W10-MR 50		■
Adapter M10-MF 50	■	
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	Stainless steel	none	1.4401 316	EN 10088 ASTM, AISI, SAE	CRC III
Adapter M10-MR					
Adapter W10-MR					
Serrated flange nut M8	Stainless steel	none	A4-70	EN ISO 3506-2	CRC III
Serrated flange nut M10					

Material specification and material properties for carbon steel parts

Designation	Material	Coating	Steel grade	Standard	Corrosivity category acc. to EN ISO 9223
Adapter M8-MF	Carbon steel	electroplated Zn-alloy + top coat (Duplex coat.)	1.0737 12L14	EN 10277-3 ASTM, AISI, SAE	C1 – C3
Adapter M10-MF					
Adapter W10-MF					
Serrated flange nut M8	Carbon steel	HDG	Grade 8	EN ISO 898-2	C1 – C3
Serrated flange nut M10					

Product recommendation under various environmental conditions

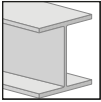
Environmental condition		Fastener system	
		Adapter M8-MR Adapter M10-MR Adapter W10-MR combined with S-BT-GR M8/7 SN 6 S-BT-MR M8/7 SN 6 X-BT-GR M8/7 SN 8 S-BT-MR M10/15 SN 6 X-BT-MR M10/15 SN 8 S-BT-MR W10/15 SN 6 X-BT-MR W10/15 SN 8	Adapter M8-MF Adapter M10-MF Adapter W10-MF combined with S-BT-GF M8/7 AN 6 S-BT-MF M8/7 AN 6 S-BT-MF M10/15 AN 6 S-BT-MF W10/15 AN 6
	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:

- X-BT Threaded Fastener Specification
- New Generation X-BT-GR, X-BT-MR and X-BT-ER Threaded Fastener Specification
- S-BT Threaded Fastener Specification

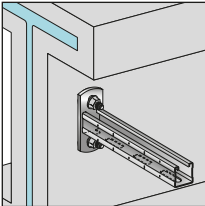
Base materials

Steel
Load condition

Static/quasi static
Approvals and certificates

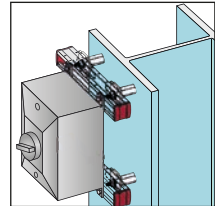
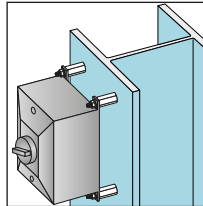

- Information presented in this product data sheet is based on Hilti Technical Data.
- Approvals / certificates available for following fastening systems:
S-BT threaded studs, X-BT threaded studs

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						

	Designation	t _{NUT}	d ₁	d ₂	AF
	Serrated flange nut M8	7.9 mm	acc. to M8	21.8 mm	13 mm
	Serrated flange nut M10	9.9 mm	acc. to M10	21.8 mm	15 mm
	Serrated flange nut W10	9.9 mm	acc. to W10	21.8 mm	9/16"

Performance data

Recommended interaction formula for combined loading

S-BT threaded studs with standoff adapter

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

X-BT threaded studs with standoff adapter

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

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 / S-BT-GR with standoff adapter made of stainless steel			
Base material thickness	t _{II} ≥ 5 mm [0.20"]		t _{II} = 4 mm [0.16"]	t _{II} = 3 mm [0.12"]
Base material type	Steel S235 A36	Steel S355, S420 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N _{rec} Standoff Adapter 25, 50, 75, 100 mm	1.89 kN / 425 lb	2.27 kN / 510 lb	1.79 kN / 400 lb	1.79 kN / 400 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, S420, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20%

	S-BT-MF / S-BT-GF with standoff adapter made of duplex coated carbon steel			
Base material thickness	$t_{II} \geq 5 \text{ mm [0.20"]}$		$t_{II} = 4 \text{ mm [0.16"]}$	$t_{II} = 3 \text{ mm [0.12"]}$
Base material type	Steel S235 A36	Steel S355, S420 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{rec} Standoff Adapter 25, 50, 75, 100 mm	1.96 kN / 440 lb	2.36 kN / 530 lb	1.89 kN / 425 lb	1.89 kN / 425 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, S420, 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	$t_{II} \geq 8 \text{ mm [0.31"]}$	
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 / S-BT-GR with standoff adapter made of stainless steel			
Base material thickness	$t_{II} \geq 5 \text{ mm [0.20"]}$		$t_{II} = 4 \text{ mm [0.16"]}$	$t_{II} = 3 \text{ mm [0.12"]}$
Base material type	Steel S235 A36	Steel S355, S420 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	2.65 kN / 595 lb	3.18 kN / 715 lb	2.50 kN / 560 lb	2.50 kN / 560 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

	S-BT-MF / S-BT-GF with standoff adapter made of duplex coated carbon steel			
Base material thickness	$t_{II} \geq 5 \text{ mm [0.20"]}$		$t_{II} = 4 \text{ mm [0.16"]}$	$t_{II} = 3 \text{ mm [0.12"]}$
Base material type	Steel S235 A36	Steel S355, S420 Grade 50	Steel*) S235 A36	Steel*) S235 A36
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	2.75 kN / 615 lb	3.30 kN / 740 lb	2.65 kN / 595 lb	2.65 kN / 595 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, S420, S390GD, S420GD, AH36, DH36, EH36 the values are allowed to be increased up to 20%

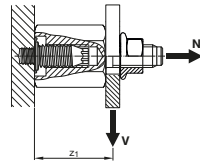
	X-BT MR / X-BT GR with standoff adapter made of stainless steel or duplex coated carbon steel	
Base material thickness	$t_{II} \geq 8 \text{ mm [0.31"]}$	
Base material type	Steel S235, A36	Steel S355, S420, Grade 50
Tension, N_{Rd} Standoff Adapter 25, 50, 75, 100 mm	5.00 kN / 1120 lb	6.50 kN / 1460 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

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 $Z_1 = 30 \text{ mm [1.18"]}$, 55 mm [2.16"] , 80 mm [3.15"] , 105 mm [4.13"] is considered.
- Minimum edge distance = 15 mm [0.59"] , spacing $\geq 18 \text{ mm [0.709"]}$
- 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 $\leq 2.0 \text{ mm [0.08"]}$



Application recommendation

Base material

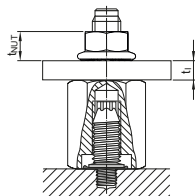
All requirements for the base material (type, strength, thickness, spacing and edge distances, application limits, etc.) are given in the Product Data Sheet (PDS) of the S-BT fastener and X-BT fastener.

Thickness of fastened material t_f

Adapter M8-MR and M8-MF: $\leq 9 \text{ mm}$ [0.35"]

Adapter M10-MR and M10-MF: $\leq 7 \text{ mm}$ [0.27"]

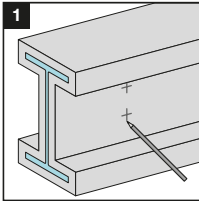
Adapter W10-MR and W10-MF: $\leq 7 \text{ mm}$ [0.27"]



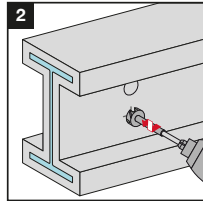
Fastener	Standoff adapter		Standoff length
S-BT-GR M8/7 SN 6 S-BT-MR M8/7 SN 6 X-BT GR M8/7 SN 8	Stainless steel	Adapter M8-MR 25	25 mm [1"]
		Adapter M8-MR 50	50 mm [2"]
		Adapter M8-MR 75	75 mm [3"]
		Adapter M8-MR 100	100 mm [4"]
S-BT-GF M8/7 AN 6 S-BT-MF M8/7 AN 6 X-BT GR M8/7 SN 8	Carbon steel	Adapter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

Installation recommendation

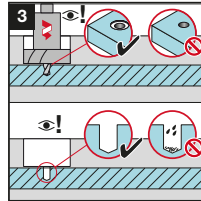
Fastening standoff adapter with S-BT or X-BT on PFP-coated steel



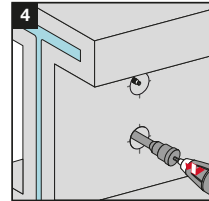
Mark location of each fastening.



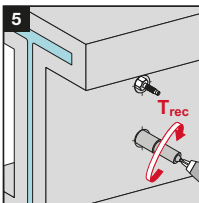
Remove PFP and pre-drill with stepped drill bit ...



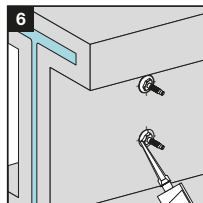
... until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



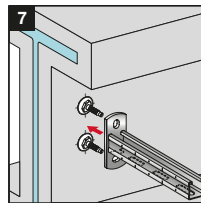
Set studs into drilled hole.



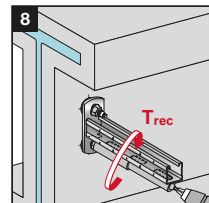
Screw-on the Hilti standoff adapter on the stud and tighten it with the recommended installation torque T_{rec} of 8 Nm.



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.



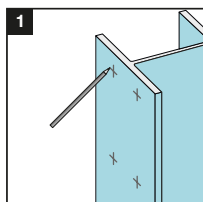
Fasten the accessory on the standoff adapter with the recommended installation torque T_{rec} of 20 Nm.

Important notes:

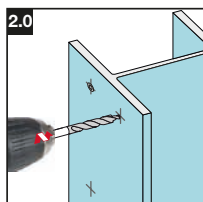
These are abbreviated instructions which may vary by application. ALWAYS review / follow the instructions for use (IFU) accompanying the product.

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

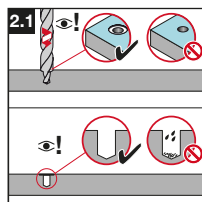
Installation instructions



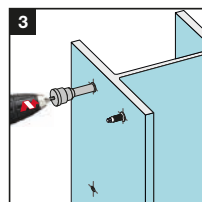
Mark location of each fastening.



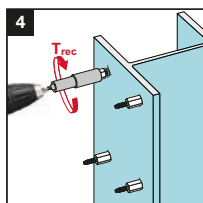
Pre-drill with stepped drill bit ...



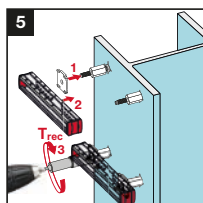
... until shoulder grinds a shiny ring. The drilled hole and the area around drilled hole must be clean and free from liquids and debris.



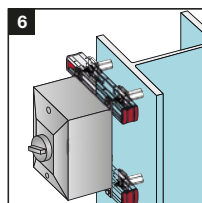
Set studs into drilled hole.



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

Tightening torque for standoff adapter

	Fastener: X-BT-MR, S-BT-MR, S-BT-MF
Element: standoff adapter	8 Nm

Tightening tool recommendation for tightening with cordless screwdriver

Cordless screwdriver	Clutch type (stop detection)	Gear	Clutch
SF 4-A22	TRC	1	8
SF 6-A22	ESC (HJ)	1	7
SF 6H-A22	ESC (HJ)	1	7
SBT 4-A22	TRC	1	7



- Tool power level adjustment:

Gear:



Clutch:



- The setting of the torque via the Hilti screwdriver 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. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.
- The specified torque setting for the Hilti screw drivers with electronic slip clutch (ESC) is only a rough guide value as the ESC has 2 stop detections; Soft Joint (SJ) detection and Hard Joint (HJ) detection. The hard joint detection is activated due to drop in speed (fast stop) and can lead to a torque spike. The installation torque may vary depending on the user and the application. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.

Tightening tool recommendation for tightening with Hilti torque tool

Hilti torque tool
Torque tool X-BT 1/4" – 8 Nm

Tightening torque for upper flange nut

	Fastener: standoff adapter
Element: Upper flange nut	20 Nm

Tightening tool recommendation for tightening with cordless screwdriver

Cordless screwdriver	Clutch type (stop detection)	Gear	Clutch
SF 6-A22	ESC (HJ)	1	5
SF 6H-A22	ESC (HJ)	1	5



- Tool power level adjustment:

Gear:



Clutch:



- The setting of the torque via the Hilti screwdriver 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. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.
- The specified torque setting for the Hilti screw drivers with electronic slip clutch (ESC) is only a rough guide value as the ESC has 2 stop detections; Soft Joint (SJ) detection and Hard Joint (HJ) detection. The hard joint detection is activated due to drop in speed (fast stop) and can lead to a torque spike. The installation torque may vary depending on the user and the application. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.

Tightening tool recommendation for tightening with Hilti torque tool

Hilti torque tool
Torque tool X-BT 1/4" – 20 Nm

Fastener selection

Component	Designation	Item no.	Comment
Standoff adapter	Adapter M8-MF 25	2268526	M8: package includes serrated wide flange nut
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	M10 / W10: package includes adapters only
Standoff adapter	Adapter M10-MR 50	2281193	
Standoff adapter	Adapter W10-MF 50	2281192	
Standoff adapter	Adapter W10-MR 50	2281191	
Threaded stud	S-BT-GF M8/7 AN 6	2140527	use with Adapter M8-MF
Threaded stud	S-BT-GR M8/7 SN 6	2140529	use with Adapter M8-MR
Threaded stud	S-BT-MF M10/15 AN 6	2140528	use with Adapter M10-MF
Threaded stud	S-BT-MF W10/15 AN 6	2139173	use with Adapter W10-MF
Threaded stud	S-BT-MR M10/15 SN 6	2140740	use with Adapter M10-MR
Threaded stud	S-BT-MR W10/15 SN 6	2140741	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
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 5.5-74 S	2143137	for base material steel
Stepped drill bit	TX-BT 4.7/7-80	2197930	for base material steel
Depth gauge	S-DG BT M8/7 Short 6	2279735	for exact setting of the S-BT M8
Depth gauge	S-DG BT M10-W10/15 Long 6	2143261	for exact setting of the S-BT M10/W10
Calibration card	S-CC BT 6	2143270	for calibration of the depth gauge
Torque tool	X-BT 1/4" – 8 Nm	2119272	manual torque tool (8 Nm)
Torque tool	X-BT 1/4" – 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 3/4"	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