



# X-BT-ER DATA SHEET

**Stainless steel threaded stud  
for electrical connection**

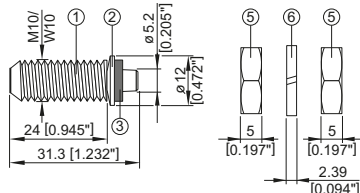


# X-BT-ER Stainless steel threaded stud for electrical connection

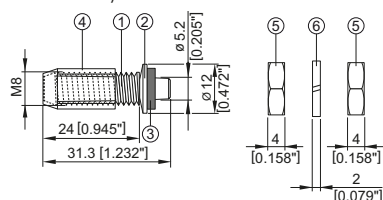
## Product data

### Dimensions

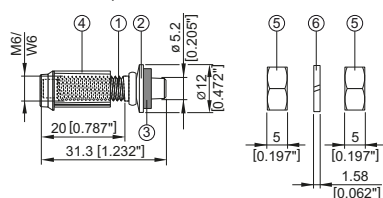
X-BT-ER M10/7 SN 8  
X-BT-ER W10/7 SN 8



X-BT-ER M8/7 SN 8



X-BT-ER M6/3 SN 8  
X-BT-ER W6/3 SN 8



### General information

#### Material specifications

- ① Shank and thread: S31803 (1.4462) at least equivalent to A4 / AISI grade 316 material
- ② SN washer: S 31635 (X2CrNiMo 17-12-2, 1.4404)
- ③ Sealing washer: Elastomer, black, resistant to UV, salt water, water, ozone, oils, etc.
- ④ Guided sleeve: Plastic
- ⑤ Nut: A4 / AISI grade 316 material
- ⑥ Lock washer: A4 / AISI grade 316 material

#### Recommended fastening tools

BX 3-BT  
DX 351-BT

See **X-BT fastener program** in the next pages and **Tools and equipment** chapter for more details.

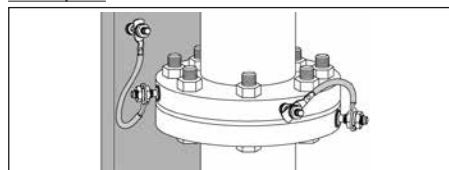
#### Approvals for X-BT-ER stainless steel threaded studs for electrical connections

ABS 18-HS1755518, DNV-GL TAS00001 SV, BV 54554, LR 19/0003, UL-file E257067

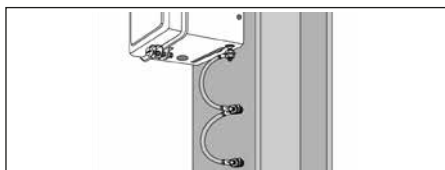


## Applications

### Examples



Functional and protective bonding in pipe  
(Outer diameter of installed surface  $\geq 150$  mm)

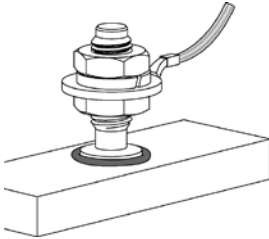


Protective bonding circuit - Double point connection

### Functional bonding and terminal connection in a circuit

For low permanent current due to static charge built up in pipes or for low permanent current when closing an electrical circuit

#### Single point connection



Recommended electrical connectors:

**X-BT-ER M10/7 SN 8**

**X-BT-ER W10/7 SN 8**

**X-BT-ER M8/7 SN 8**

**X-BT-ER M6/3 SN 8, X-BT-ER M6/7 SN 8**

**X-BT-ER W6/3 SN 8, X-BT-ER W6/7 SN 8**

Maximum allowable permanent current = 40 A

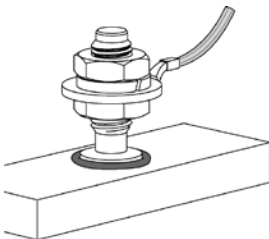
**Note:**

- Recommended connected cable size (tested to 40 A) according to IEC/EN 60204-1:  $\leq 10 \text{ mm}^2$  copper ( $\leq 8 \text{ AWG}$ ). Fastening of thicker cable is acceptable provided the maximum permanent current of 40 A is not exceeded and the provisions on cable lug thickness are observed.

### Protective bonding circuit

For discharging short circuit current while protecting electrical equipment or earth / ground or bonded cable trays and ladders

#### Single point connection



Recommended electrical connectors:

**X-BT-ER M10/7 SN 8**

**X-BT-ER W10/7 SN 8**

**X-BT-ER M8/7 SN 8**

**X-BT-ER M6/3 SN 8, X-BT-ER M6/7 SN 8**

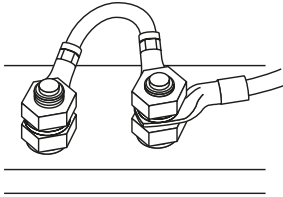
**X-BT-ER W6/3 SN 8, X-BT-ER W6/7 SN 8**

Max. short circuit current for period of 1 s = 1250 A

**Note:**

- Recommended connected cable size (tested to 1250 A for 1 s) following IEC/EN 60947-7-2:  $\leq 10 \text{ mm}^2$  copper ( $\leq 8 \text{ AWG}$ ). Fastening of thicker cable is acceptable provided the maximum current of 1250 A for a period of 1 second is not exceeded and the provisions on cable lug thickness are observed.
- Recommended connected cable size (tested to 750 A for 4 s) according to UL 467:  $\leq 10 \text{ AWG}$

### Double point connection



Recommended electrical connectors:

- X-BT-ER M10/7 SN 8**
- X-BT-ER W10/7 SN 8**
- X-BT-ER M8/7 SN 8**
- X-BT-ER M6/7 SN 8**
- X-BT-ER W6/7 SN 8**

Max. short circuit current for period of 1 s = 1800 A

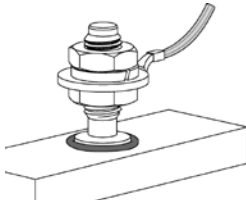
**Note:**

- Recommended connected cable size (tested to 1800 A for 1 s) following IEC/EN 60947-7-2:  $\leq 16 \text{ mm}^2$  copper ( $\leq 6 \text{ AWG}$ ). Fastening of thicker cable is acceptable provided the maximum current of 1800 A for a period of 1 second is not exceeded and the provisions on cable lug thickness are observed.

### Lightning protection

For high temporary current due to lightning.

#### Single point connection



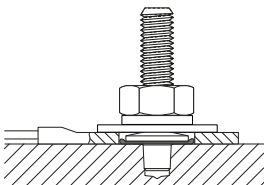
Recommended electrical connectors:

- X-BT-ER M10/7 SN 8**
- X-BT-ER W10/7 SN 8**
- X-BT-ER M8/7 SN 8**
- X-BT-ER M6/3 SN 8, X-BT-ER M6/7 SN 8**
- X-BT-ER W6/3 SN 8, X-BT-ER W6/7 SN 8**

Maximum test current (according to EN 62561-1):  
 $\leq 50 \text{ kA}$  for 2 ms

#### When one nut is utilized and cable lug is in contact with base material.

- Cable lug must be in direct contact with non-coated base material.
- Extra M10/W10 stainless steel washer to be used and installed between lock washer and cable lug.
- Base material must not contact the X-BT-ER SN washer, lock washer and nut.
- Cable lug thickness = 2 mm to 12 mm. Cable lug hole diameter  $\geq 14 \text{ mm}$ .
- **Max. tightening torque = 20 Nm.**



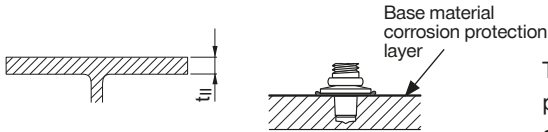
Recommended electrical connectors:

- X-BT-ER M10/7 SN 8**
- X-BT-ER W10/7 SN 8**
- X-BT-ER M8/7 SN 8**
- X-BT-ER M6/3 SN 8, X-BT-ER M6/7 SN 8**
- X-BT-ER W6/3 SN 8, X-BT-ER W6/7 SN 8**

Maximum test current:  
 $\leq 100 \text{ kA}$  for 2 ms

## Application requirements

### Thickness of base material

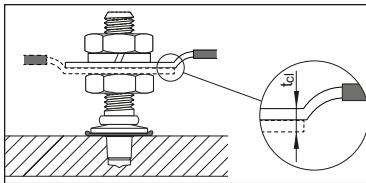


Thickness of base material corrosion protection layer  $\leq 0.4$  mm. For thicker coatings, please contact Hilti.

### Thickness of cable lug

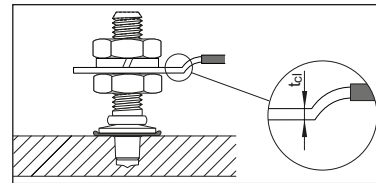
X-BT-ER M8/M10/W10  
X-BT-ER M6/W6 /7 SN 8

$t_{cl} \leq 7$  mm (0.28")



X-BT-ER M6/W6 /3 SN 8

$t_{cl} \leq 3$  mm (0.12")



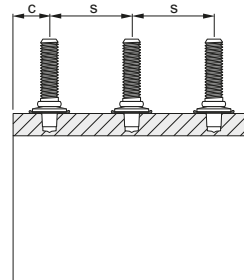
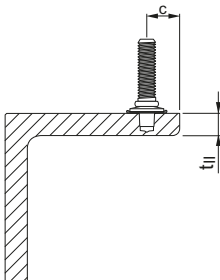
### Spacing and edge distances

Edge distance:

$c \geq 6$  mm

Spacing:

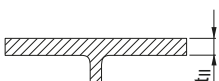
$s \geq 15$  mm



### Corrosion information

The corrosion resistance of Hilti CR500 and S31803 stainless steel material is equivalent to AISI 316 (A4) steel grade.

### Application limit



- $t_{II} \geq 8$  mm [5/16"] no through penetration
- $t_{II} \geq 6$  mm for through penetration
- No limits with regards to steel strength

### Fastener selection and system recommendation BX 3-BT

#### Fastener program

| Designation        | Item no. | Tool designation | Fastener Guide designation |
|--------------------|----------|------------------|----------------------------|
| X-BT-ER M10/7 SN 8 | 2194352  | BX 3-BT          | X-FG B3-BT M               |
| X-BT-ER M8/7 SN 8  | 2194351  | BX 3-BT          | X-FG B3-BT M               |
| X-BT-ER M6/3 SN 8  | 2252195  | BX 3-BT          | X-FG B3-BT M               |
| X-BT-ER W10/7 SN 8 | 2194353  | BX 3-BT          | X-FG B3-BT W               |
| X-BT-ER W6/3 SN 8  | 2252198  | BX 3-BT          | X-FG B3-BT W               |

### Fastener selection and system recommendation DX 351-BT

#### Fastener program

| Designation        | Item no. | Tool designation | Fastener Guide designation |
|--------------------|----------|------------------|----------------------------|
| X-BT-ER M10/7 SN 8 | 2194352  | DX 351-BT        | BT FG M1024                |
| X-BT-ER M8/7 SN 8  | 2194351  | DX 351-BT        | BT FG M1024                |
| X-BT-ER M6/3 SN 8  | 2252195  | DX 351-BT        | BT FG M1024                |
| X-BT-ER M6/7 SN 8  | 2194349  | DX 351-BT        | BT FG M1024                |
| X-BT-ER W10/7 SN 8 | 2194353  | DX 351-BT        | BT FG W1024                |
| X-BT-ER W6/3 SN 8  | 2252198  | DX 351-BT        | BT FG W1024                |
| X-BT-ER W6/7 SN 8  | 2194350  | DX 351-BT        | BT FG W1024                |

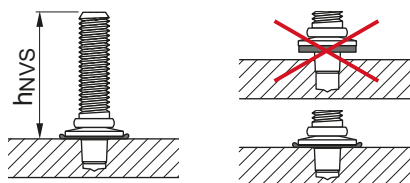
### Cartridge selection and tool energy setting

#### 6.8/11 M high precision brown cartridge

Fine adjustment by installation tests on site

### Fastening quality assurance

#### Fastening inspection

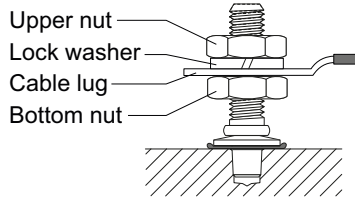
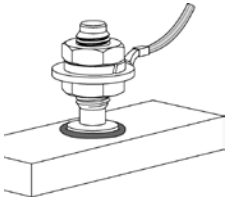


X-BT-ER M/W10, X-BT-ER M8 and X-BT-ER M/W6

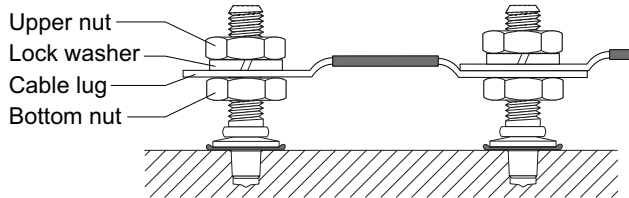
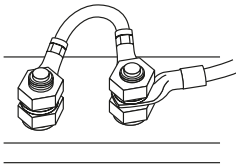
$h_{NVS} = 25.7 - 26.8 \text{ mm}$   
 $= 1.01'' - 1.055''$

## Installation for electrical connections

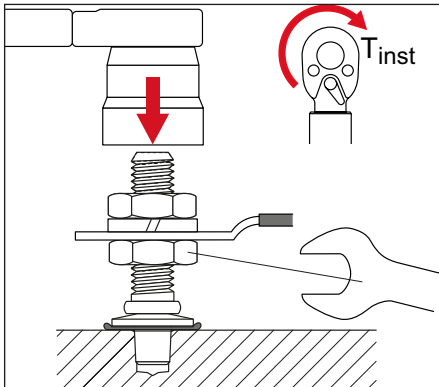
### Single point connection for all X-BT-ER



### Double point connection only for X-BT-ER M6/W6 and X-BT-ER M8



### Torque recommendation for X-BT-ER



Hold the bottom nut with a spanner while tightening the upper nut.

Tightening torque:

$$T_{inst} = 8 - 20 \text{ Nm}$$

These are abbreviated instructions which may vary by application.

**ALWAYS** review/follow the instructions accompanying the product.