



The following pages are an excerpt from the North American Product Technical Guide, Volume 1: Direct Fastening Technical Guide, Edition 22.

Please refer to the publication in its entirety for complete details on this product including data development, base materials, general suitability, installation, corrosion, and product specifications.

[Direct Fastening Technical Guide, Edition 22](#)

To consult directly with a team member regarding our direct fastening products, contact Hilti's team of technical support specialists between the hours of 7:00am - 5:00pm CST.

US: 877-749-6337 or [HNATechnicalServices@hilti.com](mailto:HNATechnicalServices@hilti.com)

CA: 1-800-363-4458 ext. 6 or [CATechnicalServices@hilti.com](mailto:CATechnicalServices@hilti.com)

## 3.2.14.7 X-BT-ER ELECTRICAL CONNECTION SYSTEMS

## 3.2.14.7.1 Product description

X-BT-ER stainless steel threaded studs are designed for electrical connections under permanent current, short circuit current and lightning current conditions. Packaged with two stainless nuts and one stainless steel lock washer, the X-BT-ER can be used for electrical grounding such as bonding and lightning protection in potentially corrosive environments. The X-BT-ER is available in W6/3 SN8, W6/7 SN 8 and W10/7 SN 8 sizes.

## Product features and benefits

- **Faster:** A connection can be made in less than 1 minute. Removing and reapplication of coatings are not required.
- **More reliable:** Stainless steel stud is generally suitable for corrosive industrial environments. The vibration resistant stud helps prevent the connection from accidentally coming loose.
- **Simpler:** Drill, fasten and connect. External power source is not needed and not dependent on weather.

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3.2.14.7.2	Material specifications
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## 3.2.14.7.2 Material specifications

Part	Fastener material
① Shank and thread	S31803 (1.4462) equivalent to A4 / AISI grade 316
② SN washer	S31635 (X2CrNiMo 17-12-2, 1.4404)
③ Sealing washer	Elastomer, black; resistant to UV, salt water, water, ozone, oils, etc.
⑥ Nuts	Equivalent to A4 / AISI grade 316 material
⑦ Lock washers	Equivalent to A4 / AISI grade 316 material
④ Removable guide sleeve	Plastic

## Listings/Approvals

UL (Underwriters Laboratories)

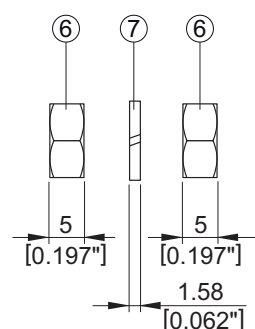
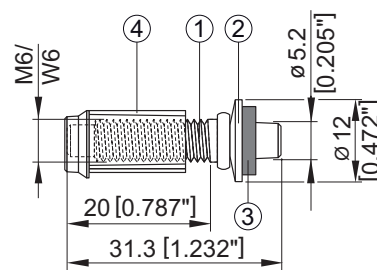
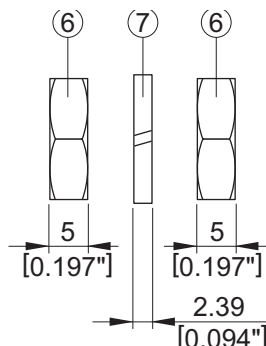
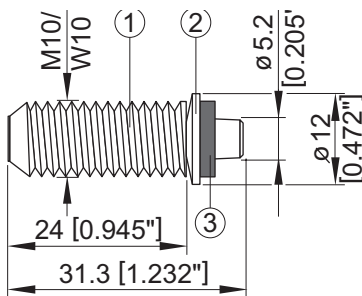
E257069

ABS (American Bureau of Shipping)

Lloyds Register

DNVGL

BV (Bureau Veritas)

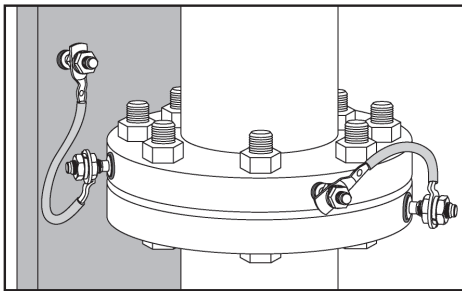


X-BT-ER W10/7 SN 8

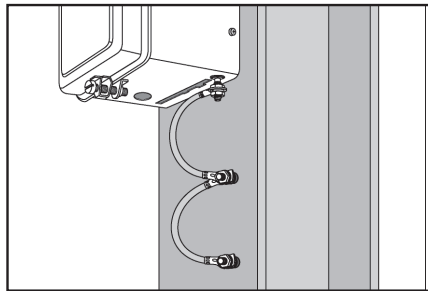
X-BT-ER W6/3 SN 8  
X-BT-ER W6/7 SN 8

### 3.2.14.7.3 Technical data

#### Application examples



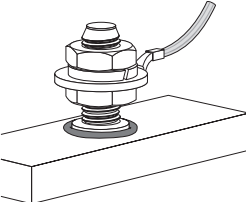
Functional and protective bonding in pipe  
(outer diameter of installed surface  $\geq 5.9''$ )



Protective bonding circuit – double point  
connection

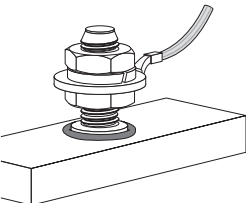
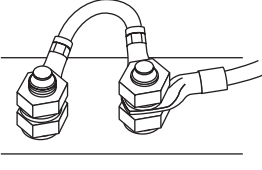
#### Functional bonding and terminal connection in a circuit

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	Maximum allowable permanent current	Notes
	X-BT-ER W10/7 SN 8 X-BT-ER WR6/7 SN 8 X-BT-ER W6/3 SN 8	= 40A	Recommended connected cable size (tested to 40A) according to IEC/EN 60204-1 shall not exceed 10mm <sup>2</sup> copper (8AWG). Fastening of thicker cable is acceptable provided the maximum permanent current of 40A is not exceeded and the provisions on cable lug thickness are observed.

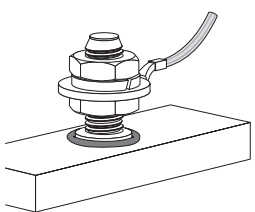
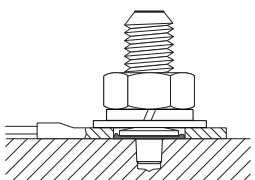
#### Protective bonding circuit

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

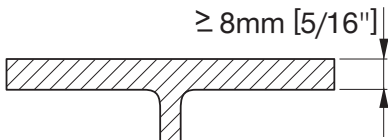
Single point connection	Recommended electrical connectors	Maximum short circuit current for period of 1s	Notes
	X-BT-ER W10/7 SN 8 X-BT-ER W6/7 SN 8 X-BT-ER W6/3 SN 8	= 1250A	Recommended connected cable size (tested to 1250A for 1s) following IEC/EN 60947-7-2 shall not exceed 10mm <sup>2</sup> copper (8AWG). Fastening of thicker cable is acceptable provided the maximum current of 1250A for a period of 1 second is not exceeded and the provisions on cable lug thickness are observed.  Recommended connected cable size (tested to 750A for 4s) according to UL 467: $\leq 10\text{AWG}$
Double point connection	Recommended electrical connectors	Maximum short circuit current for period of 1s	Notes
	X-BT-ER W10/7 SN 8 X-BT-ER W6/7 SN 8	= 1800A	Recommended connected cable size (tested to 1800A for 1s) following IEC/EN 60947-7-2 shall not exceed 16mm <sup>2</sup> copper (6AWG). Fastening of thicker cable is acceptable provided the maximum current of 1800A for a period of 1 second is not exceeded and the provisions on cable lug thickness are observed.

Lightning protection

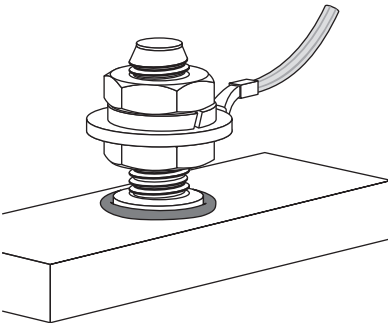
For high temporary current due to lightning.

Single point connection	Recommended electrical connectors	Maximum current (According to EN 62561-1:2012-01)	
	X-BT-ER W10/7 SN 8 X-BT-ER W6/7 SN 8 X-BT-ER W6/3 SN 8	≤ 50kA for 2ms	
One nut with cable lug	Recommended electrical connectors	Maximum tested current	When one nut is utilized and cable lug is in contact with base material
	X-BT-ER W10/7 SN 8 X-BT-ER W6/7 SN 8 X-BT-ER W6/3 SN 8	≤ 100kA for 2ms	Cable lug must be in direct contact with non-coated base material. Extra 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 = 0.079" to 0.47" (2mm to 12mm). Cable lug hole diameter ≥ 0.55" (14mm). Max. tightening torque = 14.8 ft-lb (20 Nm)

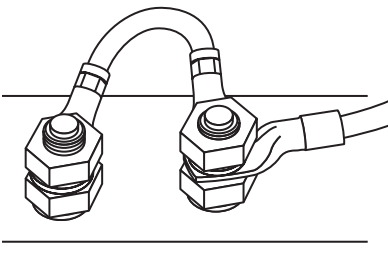
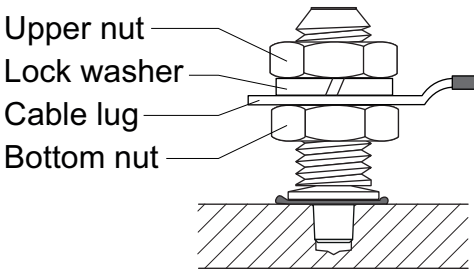
3.2.14.7.4 Installation parameters



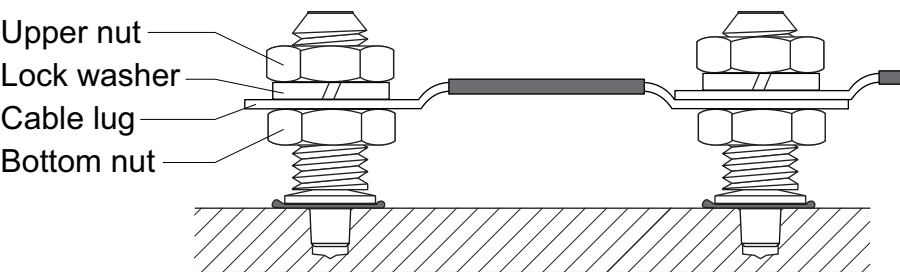
Thickness of base material must be ≥ 5/16" (8 mm), spacing of the fasteners must be ≥ 5/8" (15 mm), edge distance of the fasteners must be ≥ 1/4" (6 mm).  
Thickness of base material corrosion protection layer ≤ 0.02" (0.5 mm). For thicker coatings, please contact Hilti.



Single point connection for all X-BT-ER



Double point connection for X-BT-ER W10/7 SN 8



### 3.2.14.7.5 Installation Instructions

Installation Instructions For Use (IFU) are included with each product package. They can also be viewed or downloaded online at [www.hilti.com](http://www.hilti.com). Because of the possibility of changes, always verify that downloaded IFU are current when used.

Proper installation is critical to achieve full performance. Training is available on request. Contact Hilti Technical Services for applications and conditions not addressed in the IFU.

### 3.2.14.7.6 Ordering information\*

#### X-BT-ER Stainless Steel Threaded Studs

Description	Notes	Packaging quantity
X-BT-ER W6/3 SN 8	Including two nuts and one lock washer	100
X-BT-ER W6/7 SN 8	Including two nuts and one lock washer For use with DX 351 only	100
X-BT-ER W10/7 SN 8	Including two nuts and one lock washer	100

\* Ordering information about tools and cartridge can be found on page 78-79.

