The following pages are an excerpt from the North American Product Technical Guide, Volume 1: Direct Fastening Technical Guide, Edition 24.

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 24

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.

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3.2.13 X-ST-GR STUD FASTENERS FOR FASTENING TO STEEL

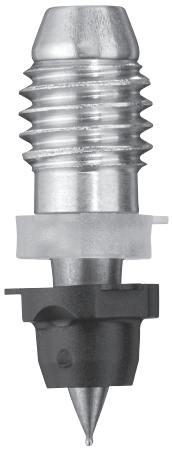
3.2.13.1 PRODUCT DESCRIPTION

The Hilti X-ST-GR threaded studs consist of a threaded sleeve and a drive pin. The drive pin is manufactured from a proprietary CrMnMo alloy which has corrosion resistance equivalent to SAE 316 stainless steel. The proprietary alloy provides a high hardness level, increasing the application limit when compared with traditional alloys. See Material Specification and Application Limit sections with more information.

Product features:

- CrMnMo Alloy with improved material hardness
- Base steel thickness from 1/4 inch to full steel*
- With proper tool and cartridge selection, can be used in high strength base steel material up to 92 ksi.

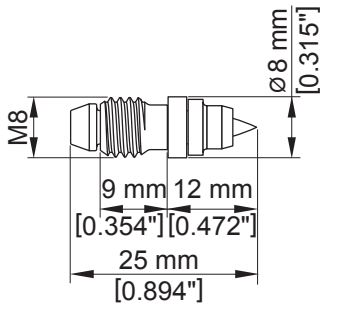
* Performance above 1/2" is dependent on steel hardness, see Application Limit in Steel with more information



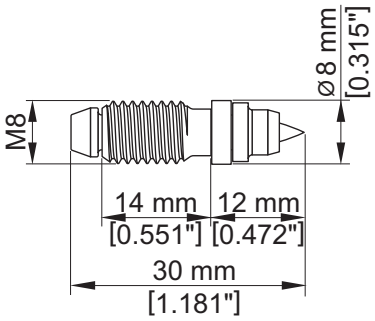
X-ST-GR

Listings/Approvals

ICC-ES (International Code Council)
ESR-2347 with LABC/LARC Supplement



X-ST-GR M8/5 P8



X-ST-GR M8/10 P8

3.2.13.2 MATERIAL SPECIFICATIONS

Part	Material designation	Tensile strength, Fu ksi (N/mm²)
Shank	CrMnMo Alloy P558	≥ 290 (2000)
Threaded Sleeve	Stainless Steel	≥ 110 (750)
Guidance Washer	Polyethylene	N/A

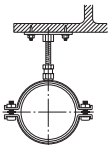
3.2.13.3 TECHNICAL DATA

Allowable Loads in Minimum ASTM A36 (Fy ≥ 36 ksi; Fu ≥ 58 ksi) Steel[1]

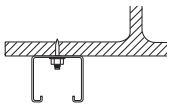
Load type	Steel thickness in.
	1/4, 3/8 or 1/2-inch Steel
Tension lb (kN)	405 (1.8)
Shear lb (kN)	405 (1.8)
Torque ft-lb (Nm)	6.0 (8.1)
Moment ft-lb (Nm)	4.0 (5.5)

1 The tabulated allowable load values are for the X-ST-GR fasteners only, using a safety factor of 5.0 to the average ultimate values obtained based on testing in accordance with ICC-ES AC70 and ASTM E1190. Some conditions like high wind loads, shock or fatigue may require a different safety factor.

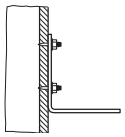
Applications



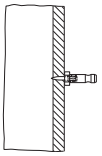
Base plates for pipe hangers



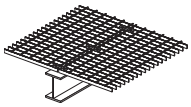
Strut profile fastening



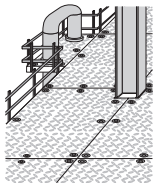
Facade brackets



Multi-purpose connections



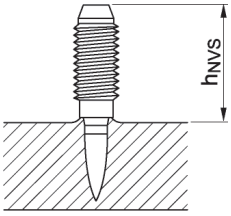
Grating



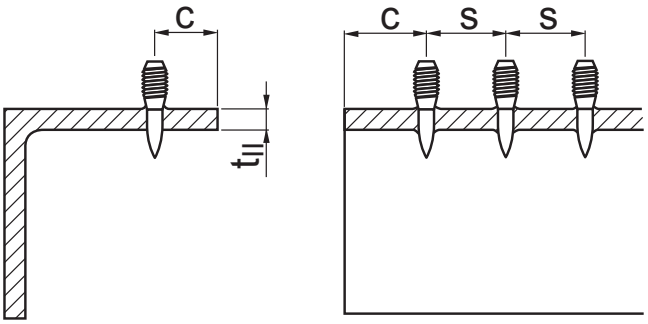
Checker plate

Fastener selection

Designation	Thread dimension	h_{NVS} in. (mm)
X-ST-GR M8/5 P8	M8	1/2 - 19/32 (12.0 - 15.0)
X-ST-GR M8/10 P8	M8	11/16 – 13/16 (17.0 - 20.0)



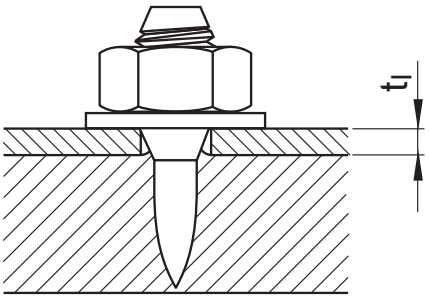
Spacing, edge distances and base material thickness



C, S ≥ 0.59 inch

t_{II} ≥ 0.24 inch

Thickness of fastened material



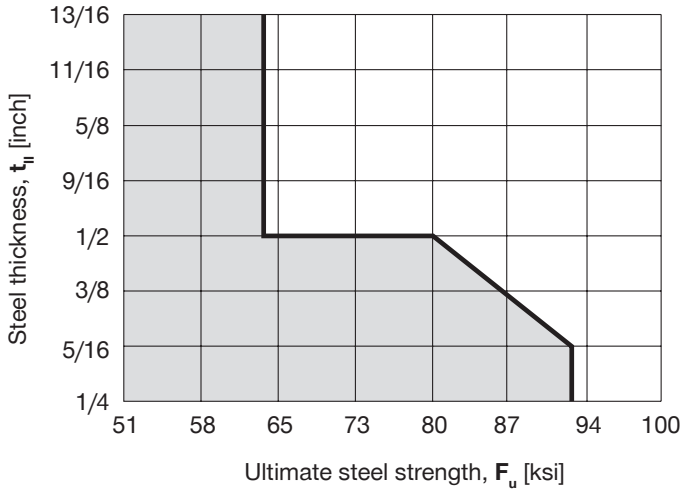
t_I ≤ 0.4 inch for X-ST-GR M8/10 P8

t_I ≤ 0.2 inch for X-ST-GR M8/5 P8

Tool selection

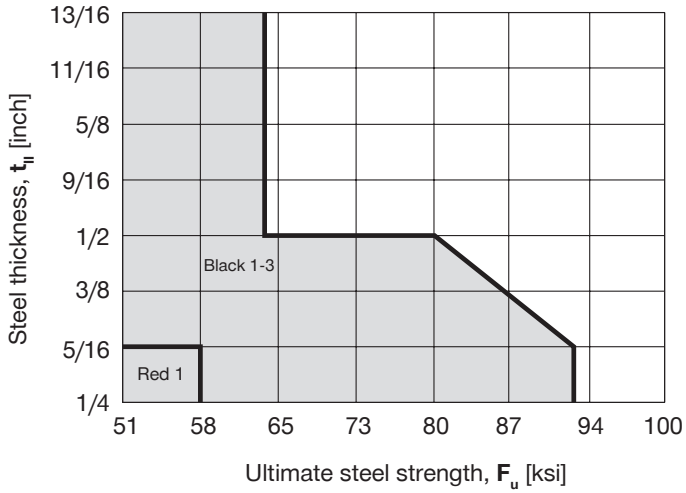
DX 5 with fastener guide X-5-460-F8N15.

Application limit in steel



(Applications below and to the left of the solid line are within the recommended application range)

Cartridge and tool power level selection*



(Applications below and to the left of the solid line are within the recommended application range)

Using DX 5
6.8/11M black or red cartridge

* Typical cartridge selection. Site testing is required to confirm proper cartridge level.

3.2.13.4 ORDERING INFORMATION

Fastener description	Shank length in. (mm)	Shank Ø in. (mm)	Thread length in. (mm)	Thread Ø	Guidance washer Ø	Qty
X-ST-GR M8/5 P8	1/2 (12)	0.157 (4)	3/8 (9)	Metric 8 mm	8 mm Plastic	100
X-ST-GR M8/10 P8	1/2 (12)	0.157 (4)	5/8 (15)	Metric 8 mm	8 mm Plastic	100