



PRODUCT TECH GUIDE SUPPLEMENT

X-ST-GR Fasteners



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X-ST-GR

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

3.2.10.1 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

3.2.10.2 MATERIAL SPECIFICATIONS

Listings/Approvals

ICC-ES (International Code Council) ESR-2347



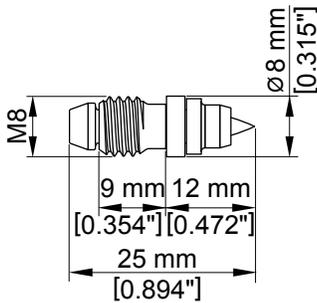
Part	Material Designation	Tensile Strength, Fu ksi (N/mm ²)
Shank	CrMnMo Alloy P558	≥ 290 (2000)
Threaded Sleeve	Stainless Steel	≥ 110 (750)
Guidance Washer	Polyethylene	N/A

3.2.10.3 TECHNICAL DATA

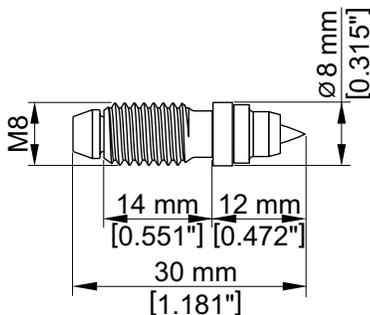
Allowable Loads in Minimum ASTM A36 (Fy ≥ 36 ksi; Fu ≥ 58 ksi) Steel¹

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.

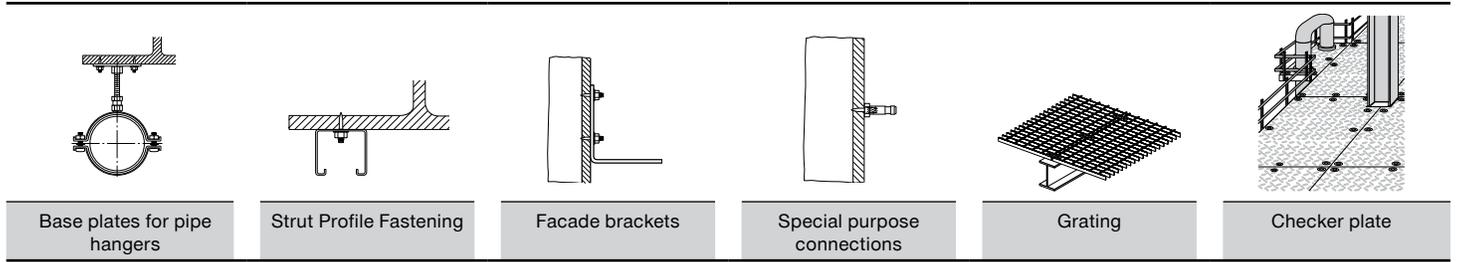


X-ST-GR M8/5 P8



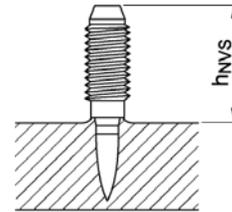
X-ST-GR M8/10 P8

Applications

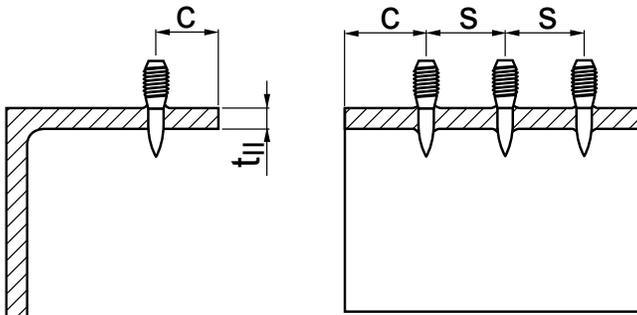


Fastener Selection

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)



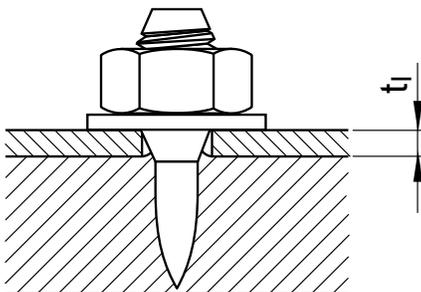
Spacing, Edge Distances and Base Material Thickness



$C, S \geq 0.59$ inch

$t_{II} \geq 0.24$ inch

Thickness of Fastened Material



$t_{II} \leq 0.4$ inch for X-ST-GR M8/10 P8

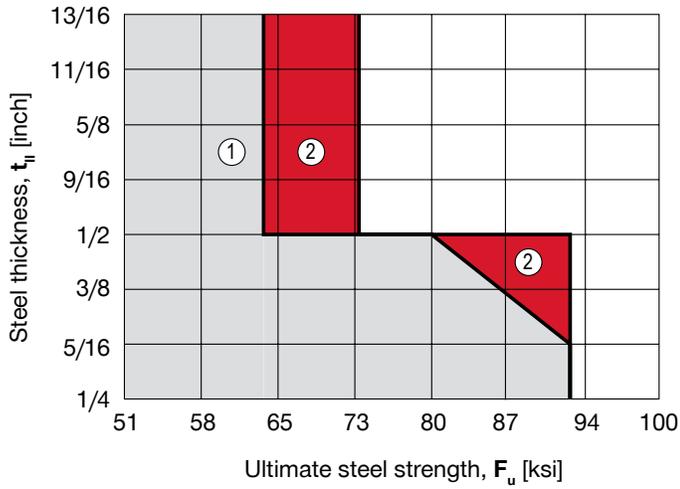
$t_{II} \leq 0.2$ inch for X-ST-GR M8/5 P8

Tool Selection



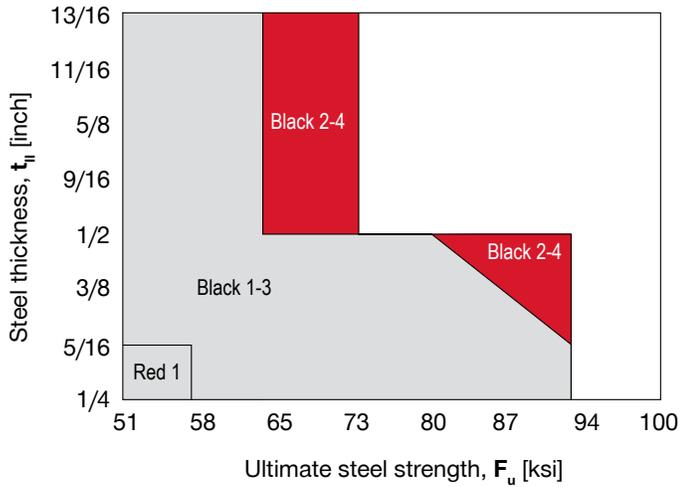
DX 460 with fastener guide X-5-460-F8N15. For co-acting use a ramrod with DX 460

Application Limit in Steel



- ① DX 460 (impact)
- ①+② DX 460 (co-acting using ramrod)

Cartridge and Tool Power Level Selection*



Using DX 460
6.8/11M black or red cartridge

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

3.2.10.4 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