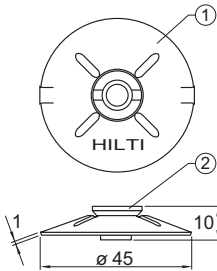


X-FCP Checker Plate Fastening System

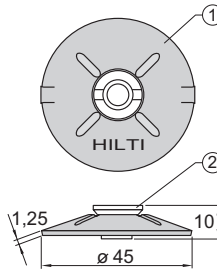
Product data

Dimensions

X-FCP-R 5/10



X-FCP-F 5/10



General Information

Material specifications

See fastener selection for more details.

Recommended fastening tools

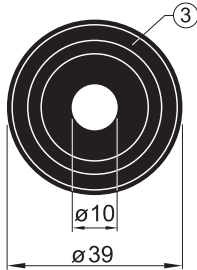
See **X-FCP fastener program** in the next pages and **Tools and equipment chapter** for more details.

Approvals

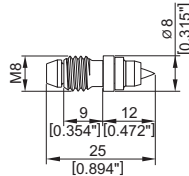
LR: X-FCP
 ABS, LR: X-FCP-R
 ABS: X-FCP-F



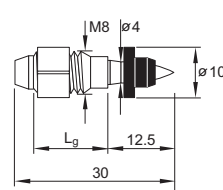
X-FCP Sealing ring



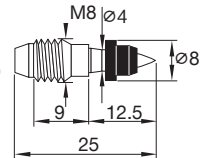
X-ST-GR M8/5 P8



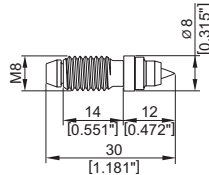
X-CRM8-15-12 FP10



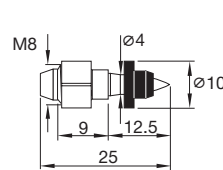
X-CRM8-9-12 P8



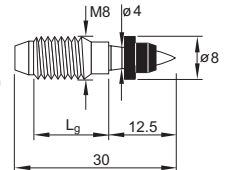
X-ST-GR M8/10 P8



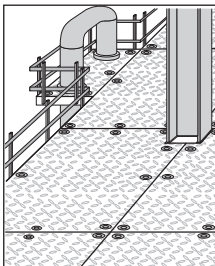
X-CRM8-9-12 FP10



X-CRM8-15-12 P8



Application



Chequer plate

Load data

Recommended loads:

$N_{rec} = 1.8 \text{ [kN]}$

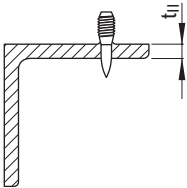
Conditions:

- Limited by the strength of the X-CRM8 and X-ST-GR threaded stud.
- Recommended loads are valid for fastenings of steel and aluminium with 20 mm pre-drilling.
- **X-FCP-F** and **X-FCP-R** are not intended for shear loading.

Application requirements

Thickness of base material

X-CRM8 , X-ST-GR



Minimum steel thickness $t_{II} \geq 6 \text{ mm}$

Thickness of fastened material

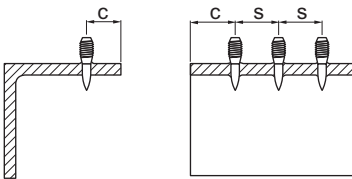
Thickness of chequer plates: $t_1 \approx 5.0\text{--}13.0 \text{ mm}$

Spacing and edge distances

X-CRM8, X-ST-GR

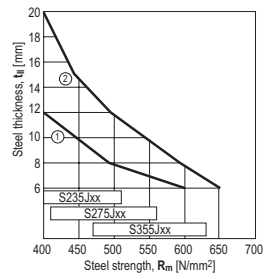
Edge distances: $c \geq 15 \text{ mm}$

Spacing: $s \geq 15 \text{ mm}$



Application limits

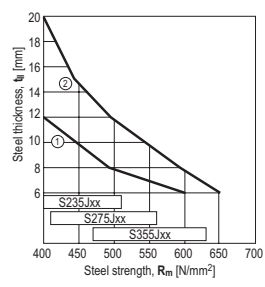
DX 76, DX 76 PTR



- ① **X-CRM8-_-12 FP10 / DX 76 (impact)**
- ② **X-CRM8-_-12 FP10 / DX 76 (co-acting)**

$$t_{II} \geq 6 \text{ mm}$$

DX 460, DX 5



- ① **X-CRM8-_-12 P8 / DX 460, DX 5 (impact)**
- ② **X-CRM8-_-12 P8 / DX 460, DX 5 (co-acting)**

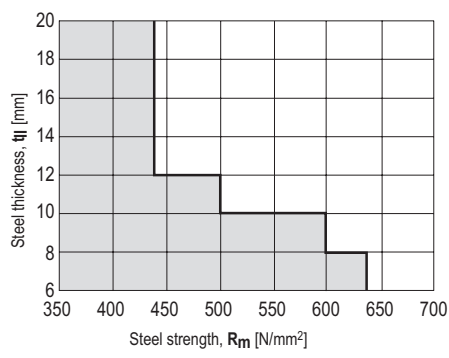
$$t_{II} \geq 6 \text{ mm}$$

Note:

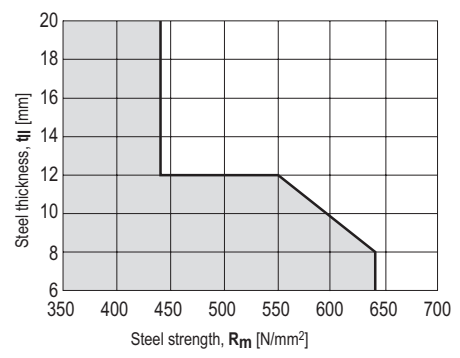
For co-acting operation push the fastener all the way back against the piston with a ramrod.

X-ST-GR:

Steel: DX 76 PTR



Steel: DX 460, DX 5



Fastener selection and system recommendation

Fastener program

Application areas

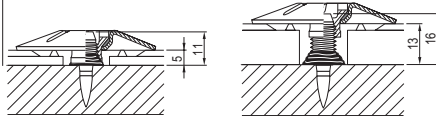
Marine, offshore, petrochemical, caloric (coal, oil) power plants, etc.	Indoors, mildly corrosive environment, or for limited lifetime use
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X-FCP system

X-FCP-R Item no. 308860 Note: Not for use in automobile tunnels, swimming pools or similar environments	X-FCP-F Item no. 308859 Note: Not for use in marine atmosphere or in heavily polluted environment.	Sealing ring Drip-through of water/oil needs to be prevented	Tools SF 120-A, SF 150-A
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Threaded studs

Designation	Chequer plate thickness	Tools
X-CRM8-15-12	9–13 mm	DX 460, DX 5, DX 76, DX 76 PTR
X-CRM8-9-12	5– 8 mm	DX 460, DX 5, DX 76, DX 76 PTR
X-ST-GR M8/10 P8	9–13 mm	DX 460, DX 5, DX 76 PTR
X-ST-GR M8/5 P8	5– 8 mm	DX 460, DX 5, DX 76 PTR



Cartridge selection and tool energy setting

Threaded studs		Tools
X-CRM8	6.8/11M red cartridges	DX 460, DX 5
	6.8/18M yellow cartridges	DX 76, DX 76 PTR
X-ST-GR	6.8/11M black or red cartridges	DX 460, DX 5
	6.8/18M yellow or red cartridges	DX 76 PTR

Tool energy adjustment by setting tests on site.

Material and coatings

X-FCP system

	X-FCP-R		X-FCP-F		All Systems
	① Disk	② Screw	① Disk	② Screw	③ Sealing ring
Material designation	X5CrNiMo17122	X2CrNiMo17132	ST2K40 BK	9SMnPb28 K	Neoprene, black
Coating	none	none	Duplex *	Duplex *	

*) 480 h Salt spray test per DIN 50021 and 10 cycles Kesternich test per DIN 50018/2.0 (comparable to 45 µm HDG steel)

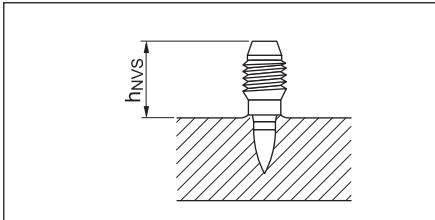
X-ST-GR		
	Shank	Threaded sleeve
Material designation	P558 (CrMnMo ally)	A4 (AISI316)
Coating	none	none

Threaded studs X-CRM8		
	X-CR shank	CRM8 threaded sleeve
Material designation	Stainless steel wire, CR 500 (A4 / AISI316)	X2CrNiMo17132 X5CrNiMo17122+2H (A4 / AISI316)
Coating	none	none

Fastening quality assurance

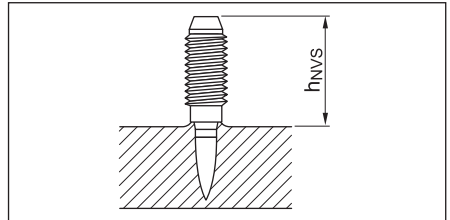
Fastening inspection

X-CRM8-9-12



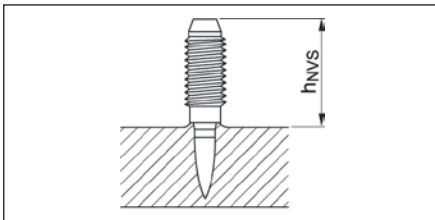
$h_{NVS} = 12.0 - 15.0 \text{ mm}$

X-CRM8-15-12



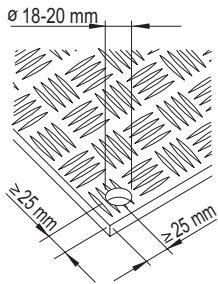
$h_{NVS} = 17.0 - 20.0 \text{ mm}$

X-ST-GR

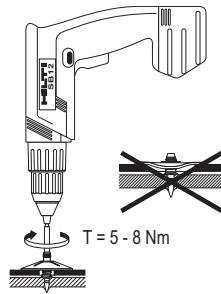


X-ST-GR M8/5 P8, $h_{NVS} = 12.0 - 15.0 \text{ mm}$
 X-ST-GR M8/10 P8, $h_{NVS} = 17.0 - 20.0 \text{ mm}$

Plates must be
pre-drilled or pre-punched



Tighten the disk



Tightening torque

$T_{rec} = 5-8\text{ Nm}$

Tightening tool:

- Screwdriver with torque release coupling (TRC)
- S-NSX 2.8 x 15 bit

Hilti Torque
Screwdriver setting

SF 120-A TRC 5.5-7

SF 150-A TRC 8-9

Hilti Torque tool X-BT 1/4"