



# X-FCP DATA SHEET

Checker plate fastening system

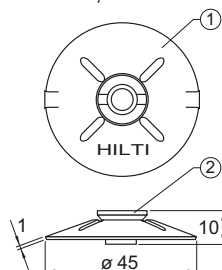


# X-FCP Checker plate fastening system

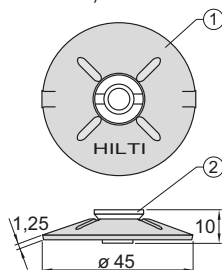
## Product data

### Dimensions

X-FCP-R 5/10



X-FCP-F 5/10



### Material specifications

See fastener selection for more details.

### Recommended fastening tools

- See fastener program in the next pages.

### Approvals

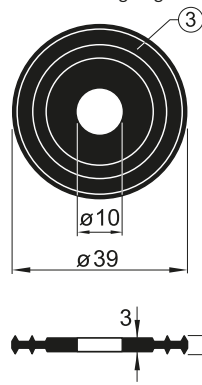
LR: X-FCP

ABS, LR: X-FCP-R

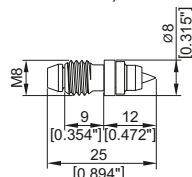
ABS: X-FCP-F

- Not all information presented in this product data sheet might be subject to approval/certificate content. Please refer to approval/certificate for further information.

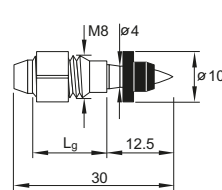
X-FCP Sealing ring



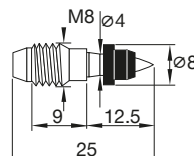
X-ST-GR M8/5 P8



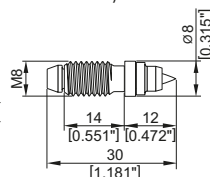
X-CRM8-15-12 FP10



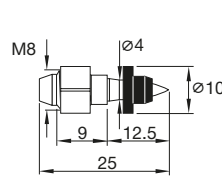
X-CRM8-9-12 P8



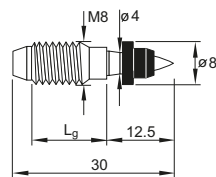
X-ST-GR M8/10 P8



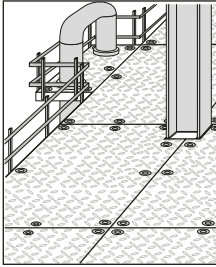
X-CRM8-9-12 FP10



X-CRM8-15-12 P8




## Application




Checker plate

### Application areas for X-FCP system


#### X-FCP-R

-  • Marine, offshore, petrochemical, calorific (coal, oil) power plants, etc.
- Not for use in automobile tunnels, swimming pools or similar environments.

#### X-FCP-F

-  • Indoors, mildly corrosive environment, or for limited lifetime use.
- Not for use in marine atmosphere or in heavily polluted environment.


#### Sealing ring

-  • Drip-through of water/oil needs to be prevented.

## Performance data

### Recommended resistance under tension load

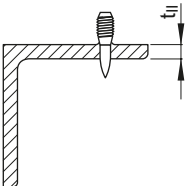
$$N_{rec} = 1.8 \text{ [kN]}$$

-  • 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 recommendation

### Base material thickness

X-CRM8 , X-ST-GR



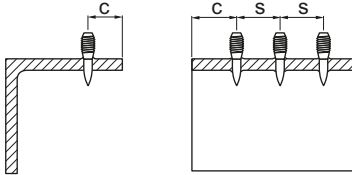
Steel thickness:  $t_{II} \geq 6 \text{ mm}$

### Fastened material thickness

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

## Fastener positioning in base material

### X-CRM8, X-ST-GR

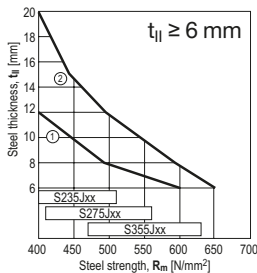


Edge distances:  $c \geq 15 \text{ mm}$

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

## Application limits for X-CRM8

### DX 76, DX 76 PTR



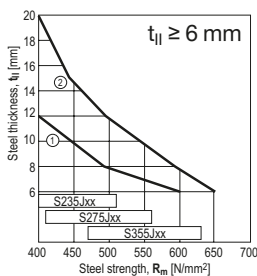
① Fastener: X-CRM8-\_\_-12 FP10 /

Tool type: DX 76 (impact)

② Fastener: X-CRM8-\_\_-12 FP10 /

Tool type: DX 76 (co-acting)

### DX 6, DX 5, DX 460



① Fastener: X-CRM8-\_\_-12 P8 /

Tool type: DX 6, DX 5 (impact), DX 460

② Fastener: X-CRM8-\_\_-12 P8 /

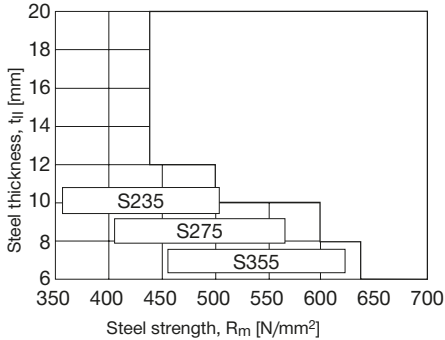
Tool type: DX 5 (co-acting), DX 460



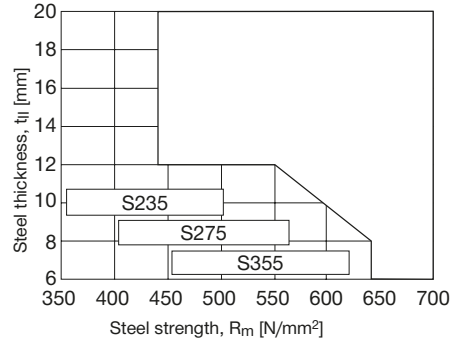
• For co-acting operation push the fastener all the way back against the piston with a ramrod.

## Application limits for X-ST-GR

Tool type: DX 76 PTR



Tool type: DX 6, DX 5, DX 460



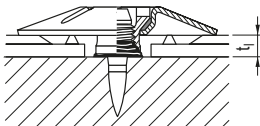
## System recommendation



- For more details, please refer to the chapter **Accessories and consumables compatibility** in the Direct Fastening Technology Manual (DFTM).

## Threaded studs

Designation	Fastened material thickness	Tools
	$t_f$	
X-CRM8-15-12	9–13 mm	DX 6, DX 5, DX 460, DX 76, DX 76 PTR
X-CRM8-9-12	5– 8 mm	DX 6, DX 5, DX 460, DX 76, DX 76 PTR
X-ST-GR M8/10 P8	9–13 mm	DX 6, DX 5, DX 460, DX 76 PTR
X-ST-GR M8/5 P8	5– 8 mm	DX 6, DX 5, DX 460, DX 76 PTR



## Cartridge selection and tool energy setting



- Fastener setting information (e.g. cartridge recommendation, tool power level adjustment, base material properties and fastend material properties) and installation information (e.g. quality assurance) are part of the corresponding product data sheet for fastener.
- Tool power level adjustment by setting tests on site.
- Start tool energy selection with lowest recommended tool power level.
- Correct according requirement from chapter quality assurance.

### Material specification and coatings

#### X-FCP-R system

	① Disk	② Screw	③ Sealing ring
Material designation	X5CrNiMo17122	X2CrNiMo17132	Neoprene, black
Coating	none	none	

#### X-FCP-F system

	① Disk	② Screw	③ Sealing ring
Material designation	ST2K40 BK	9SMnPb28 K	Neoprene, black
Coating	Duplex	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

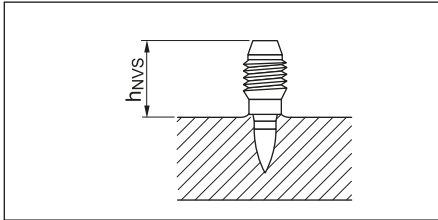
#### X-CRM8

	Shank	Threaded sleeve
Material designation	Stainless steel wire, CR 500 (A4/AISI316)	X2CrNiMo17132 X5CrNiMo17122+2H (A4/AISI316)
Coating	none	none

## Quality assurance

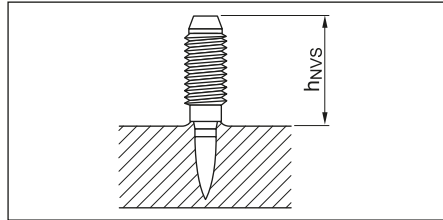
### Fastening inspection

#### X-CRM8-9-12



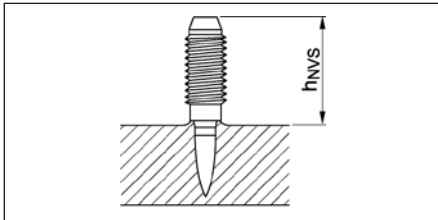
$h_{NVS} = 12.0-15.0 \text{ mm}$

#### X-CRM8-15-12



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

#### X-ST-GR

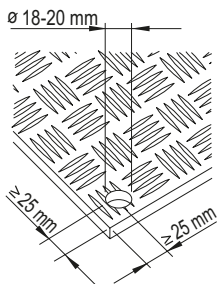


X-ST-GR M8/5 P8,  $h_{NVS} = 12.0-15.0 \text{ mm}$

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

## Pre-drill

Plates must be pre-drilled or pre-punched



### Installation recommendation

#### Tightening torque

	Fastener: X-ST-GR, X-CRM8
Element: X-FCP	5–8 Nm

#### Tightening tool recommendation for tightening with cordless screwdriver

Cordless screwdriver	Clutch type (stop detection)	Gear	Clutch
SF 2-A12	TRC	1	15
SF 2H-A12	TRC	1	15
SF 4-A22	TRC	1	8
SF 6-A22	ESC (SJ)	1	7
SF 6H-A22	ESC (SJ)	1	7



- Tool power level adjustment:

Gear:



Clutch:



- The setting of the torque via the Hilti screwdriver with torque release coupling (TRC) can change as the clutch wears over time. The specified torque setting is only a rough guide value and applies to a new Hilti screwdriver. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.
- The specified torque setting for the Hilti screw drivers with electronic slip clutch (ESC) is only a rough guide value as the ESC has 2 stop detections; Soft Joint (SJ) detection and Hard Joint (HJ) detection. The hard joint detection is activated due to drop in speed (fast stop) and can lead to a torque spike. The installation torque may vary depending on the user and the application. To ensure recommended torque is applied, Hilti recommends the use of a calibrated torque wrench or the Hilti torque tool.

#### Tightening tool recommendation for tightening with Hilti torque tool

Hilti torque tool
Torque tool S-BT 1/4" – 5 Nm
Torque tool X-BT 1/4" – 8 Nm

### Fastener program

#### Item no. and description

Designation	Item no.	Description
X-FCP-R	308860	Checker plate
X-FCP-F	308859	Checker plate