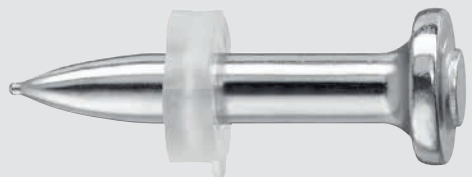




X-CR DATA SHEET

**Stainless steel nail for fastening
to concrete, sand lime masonry
and steel**

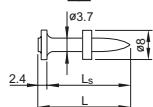


X-CR Stainless steel nail for fastening to concrete, sand lime masonry and steel

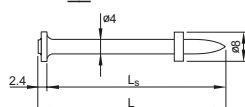
Product data

Dimensions

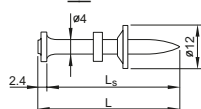
X-CR __ P8



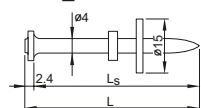
X-CR __ P8



X-CR __ P8 S12



X-CR_P8 S15



Material specifications

Nail shank: CrNiMo Alloy
 $f_u \geq 1800 \text{ N/mm}^2$
 (49 HRC)

Zinc coating: X-CR 48/52 P8 S15 has
 5–13 μm

Zinc coating to improve anchorage in concrete

Recommended fastening tools

DX 6, DX 5, DX 460, DX 36, DX 2, DX-E72

Approvals

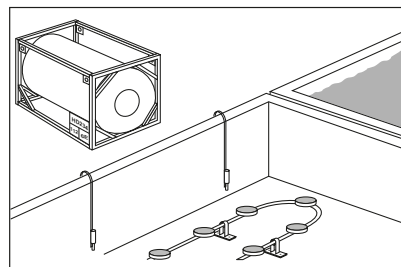
ABS, LR: all types



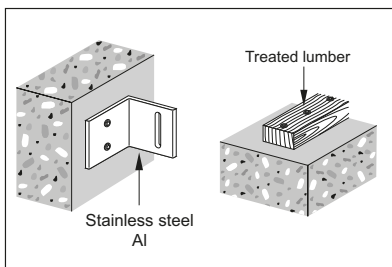
i Not all information presented in this product data sheet might be subject to approval / certificate content. Please refer to approval/certificate for further information.

Applications

Examples



Exposure to weather or otherwise corrosive conditions

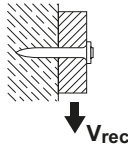
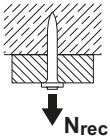


Noble or corrosive fastened material

Performance data

Recommended resistance under tension and shear load for DX Standard

Fastening wood to concrete, sandlime masonry or steel



Fastening wood to concrete, sandlime masonry:

$$N_{rec} = V_{rec} = 0.4 \text{ kN}$$

Fastening wood to steel:

$$N_{rec} = V_{rec} = 0.6 \text{ kN}$$

Conditions

- For safety relevant fastenings sufficient redundancy of the entire system is required: minimum 5 fastenings per fastened unit with normal weight concrete base material.
- All visible failures must be replaced.
- Valid for concrete and sandlime masonry with strength of $f_{cc} < 40 \text{ N/mm}^2$.
- Valid for predominantly static loading.

Soft material

- Working loads depend on strength and thickness of material fastened. Do not use working loads in excess of those for wood.
- Depth penetration and other conditions same as for fastening wood
- Use R23 or R36 ($\varnothing 4.5 \text{ mm}$ hole) washer to control penetration and to increase pull-over strength. Separately available from Hilti.

Recommended resistance under tension and shear load for DX-Kwik (with pre-drilling)

	$N_{rec,1}$	$N_{rec,2}$	V_{rec}	M_{rec}
X-CR 39/44	2.0 kN	0.6 kN	2.0 kN	5.5 kN
X-CR 48	3.0 kN	0.9 kN	3.0 kN	5.5 kN

Conditions

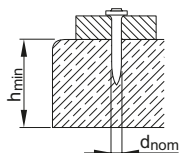
- $N_{rec,1}$: concrete in compressive zone.
- $N_{rec,2}$: concrete in tension zone.
- Static or cyclic (5000 load applications) loading.
- $f_{cc} \geq 25 \text{ N/mm}^2$. For higher concrete strengths, higher loadings may be possible if supported by testing.
- A sufficient redundancy has to be ensured, that the failure of a single fastening will not lead to collapse of the entire system.
- Recommended loads are based on failure of the fastener anchorage in the concrete. Thickness and quality of the fastened material may lower the loadings.
- Observance of all pre-drilling requirements, fastened thickness limits, and recommended details.



- For more details in relation to base material properties, please refer to the chapter **Fastener selection guide** in the Direct Fastening Manual (DFTM).

Application recommendation

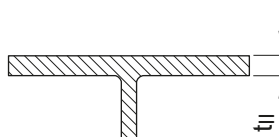
Base material thickness



Concrete

$h_{min} = 80 \text{ mm}$ ($d_{nom} = 3.7 \text{ mm}$)

$h_{min} = 90 \text{ mm}$ ($d_{nom} \geq 4.0 \text{ mm}$)



Steel

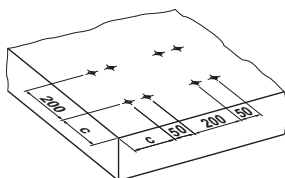
$t_{II} \geq 5 \text{ mm}$ for fastening of wood

Fastened material thickness

$t_1 \leq 25.0 \text{ mm}$ (detailed information see fastener selection)

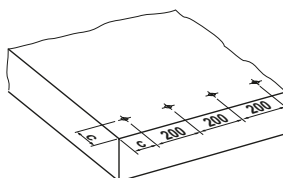
Fastener positioning in base material

Pairs



	reinforced*	non-reinforced
c	100 mm	150 mm

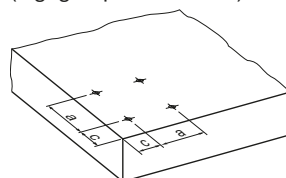
Row along edge



	reinforced*	non-reinforced
c	80 mm	150 mm

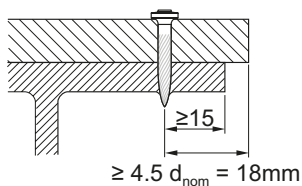
General

(e.g. group of fasteners)



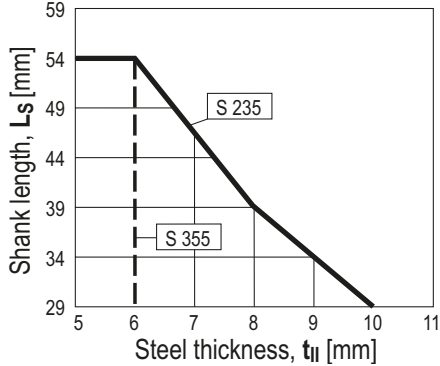
	reinforced*	non-reinforced
c	80 mm	150 mm
a	80 mm	100 mm

* Minimum $\varnothing 6 \text{ mm}$ reinforcing steel continuous along all edges and around all corners. Edge bar must be enclosed by stirrups.

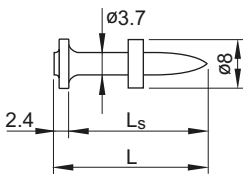


Application limits

Steel



Fastener shanks length recommendation for DX Standard



Wood: $L_s = h_{ET} + t_t$ [mm]
 Soft material: $L_s = h_{ET} + t_t - 2.4 - h_{CS}$ [mm]
 $h_{CS} \approx 3$ mm if possible

Required depth of penetration h_{ET}

Normal weight concrete NWC

f_{CC} [N/mm ²]	15	25	35
h_{ET} [mm]	32	27	22

Sandlime masonry SLM

f_{CC} [N/mm ²]	15	25	35
h_{ET} [mm]	32	27	27

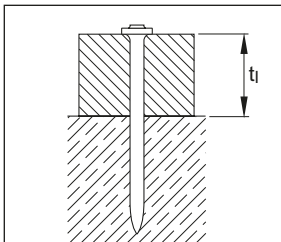
• h_{ET} according to concrete strength f_{CC} .

Light weight concrete LWC

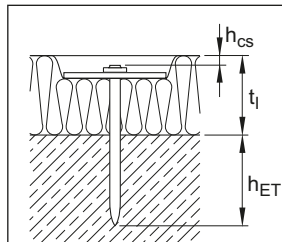
$h_{ET} = 32-37$ mm

Steel

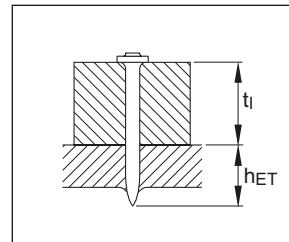
$h_{ET} \geq 10$ mm



Normal weight concrete NWC



Sandlime masonry SLM



Steel

Corrosion information

- For fastenings exposed to weather or other corrosive conditions. Not for use in highly corrosive surroundings like swimming pools or highway tunnels.
- For more details, please refer to following technical document: Hilti Corrosion Handbook.

System recommendation

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

Cartridge recommendation for fastening to masonry and concrete

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 F8	Tool type: DX 5 F8, DX 460 F8, DX 2
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Sand lime masonry	titanium ■ (1-3)	green ■
Soft/medium concrete	titanium ■ (2-8)	yellow ■, red ■

Cartridge recommendation for fastening to concrete with Kwik method (incl. pre-drilling)

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 F8	Tool type: DX 5 F8, DX 460 F8, DX 2
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Soft/medium concrete	titanium ■ (4-8)	red ■
Tough concrete	titanium ■ (4-8)	red ■

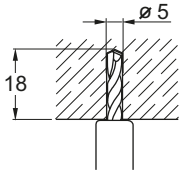
Cartridge recommendation for fastening to steel

Base material		Cartridge color (tool power level)	
		Tool type: DX 6 F8	Tool type: DX 5 F8, DX 460 F8
		Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
S235 to S355	$5 \leq t_{ } < 10 \text{ mm}$	titanium ■ (2-8)	yellow ■, red ■

- 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.

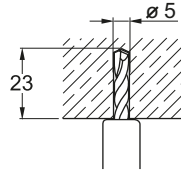
Quality assurance

Installation instruction for DX-Kwik: Pre-drilling details (not through fastened material)



X-CR 39 / X-CR 44

Fastener	t_f [mm]	Drill bit	Item no
X-CR 39	≤ 2	TX-C-5/18	00061793
X-CR 44	2-7	TX-C-5/18	

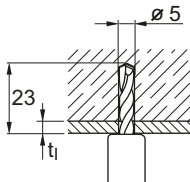


X-CR 48 / X-CR 52

Fastener	t_f [mm]	Drill bit	Item no
X-CR 48	≤ 5	TX-C-5/23	00061787
X-CR 52	5-9	TX-C-5/23	00061787

Details valid for C20/25 – C45/55 ($f_{cc} = 25-55 \text{ N/mm}^2$ / $f_c = 20-45 \text{ N/mm}^2$)

Installation instruction for DX-Kwik: Pre-drilling details (through fastened material)



X-CR 48

Fastener	t_f [mm]	Drill bit	Item no
X-CR 48	≤ 2	TX-C-5/23	00061787

Details valid for C20/25 – C50/60



- These are abbreviated instructions which may vary by application.
- Always review/follow the instructions accompanying the product.

Fastener program

Fasteners		Tool		
Designation	Item no	L _S	d _{nom}	Designation
X-CR 24 P8	247359	24 mm	3.7 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 29 P8	247360	29 mm	3.7 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 34 P8	247361	34 mm	3.7 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 39 P8	247362	39 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 44 P8	247363	44 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 54 P8	247429	54 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2, DX-E 72 ¹⁾
X-CR 39 P8 S12	247354	39 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2 ²⁾
X-CR 44 P8 S12	247355	44 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2 ²⁾
X-CR 48 P8 S15	258121	48 mm	4.0 mm	DX 6, DX 5, DX 460, DX 36, DX 2 ²⁾
X-CR 52 P8 S15	2052687	52 mm	4.0 mm	DX 6, DX 5, DX 460
X-CR-FOX 53 P8 S15 ³⁾	2305190	53 mm	4.0 mm	DX 6, DX 5, DX 460

¹⁾ DX Standard (without pre-drilling)

²⁾ DX-Kwik (with pre-drilling)

³⁾ Fastener for fixing Hilti brackets MFT-FOX V, MFT-FOX VI
(For more details, please refer to ETA-14/0426)