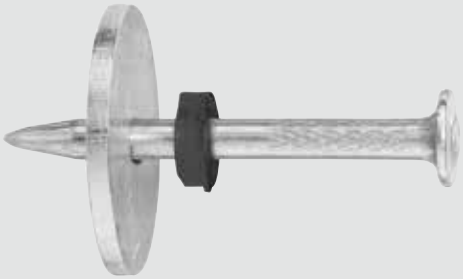
X-C
DATA SHEET

Nail for fastening to concrete and sand lime masonry



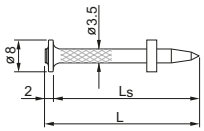
April 2021

X-C Nail – Fastening to concrete and sand lime masonry

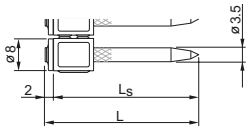
Product data

Dimensions

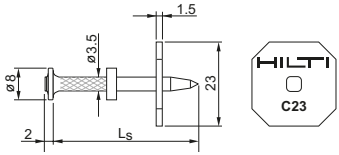
X-C __ P8



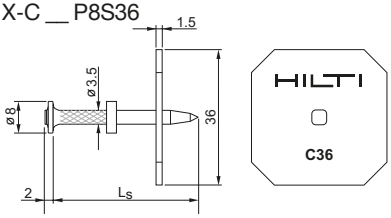
X-C __ MX



X-C __ P8S23



X-C __ P8S36



Material specifications

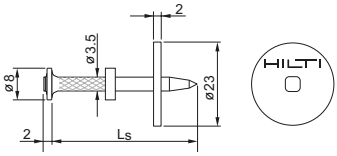
Carbon steel shank:	HRC 56.5 HRC 58 *)
Zinc coating:	5–20 µm

*) X-C 82, 97 and 117 P8 (d_{nom} = 3.7 mm)

Recommended fastening tools

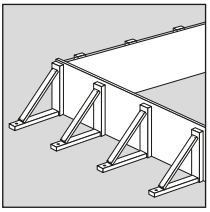
- See fastener program in the next pages.
- For more details, please refer to the chapter **Accessories and consumables compatibility** in the Direct Fastening Technology Manual (DFTM).

X-C __ P8S23T (for tunneling applications)

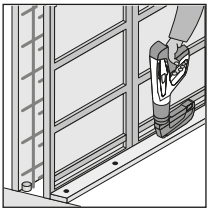


Applications

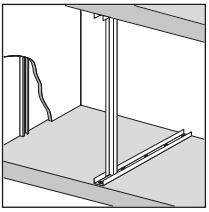
Examples



Conventional formwork



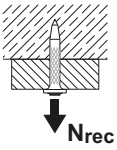
System formwork

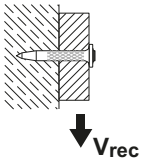


Drywall track to concrete

Performance data

Recommended resistance under tension and shear load





Fastening wood to concrete:		
N_{rec}	V_{rec}	h_{ET}
0.4 kN	0.4 kN	≥ 27 mm
0.3 kN	0.3 kN	≥ 22 mm
0.2 kN	0.2 kN	≥ 18 mm
0.1 kN	0.1 kN	≥ 14 mm

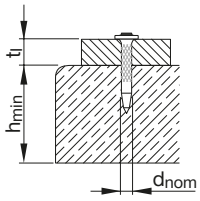
Fastenings to sandlime masonry:
$N_{rec} = V_{rec} =$ 0.4 kN for $h_{ET} \geq 27$ mm

Conditions:

- For safety relevant fastenings sufficient redundancy of the entire system is required: minimum 5 fastenings per fastened unit.
- All visible failures must be replaced.
- Valid for concrete with strength of $\mathbf{f_{cc}} < 45$ N/mm².
- Valid for predominantly static loading.
- Failure of the fastened material is not considered in recommended loads.
- To limit penetration of nail in soft material and to increase pullover load, use nails with washers.

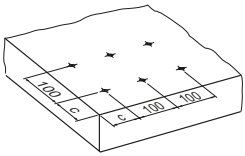
Application recommendation

Base material and fastened material thickness



Concrete
h_{min} = 80 mm
$t_I \leq$ 50.0 mm

Fastener positioning in base material



Edge distance: c ≥ 70 mm
Spacing: s ≥ 100 mm

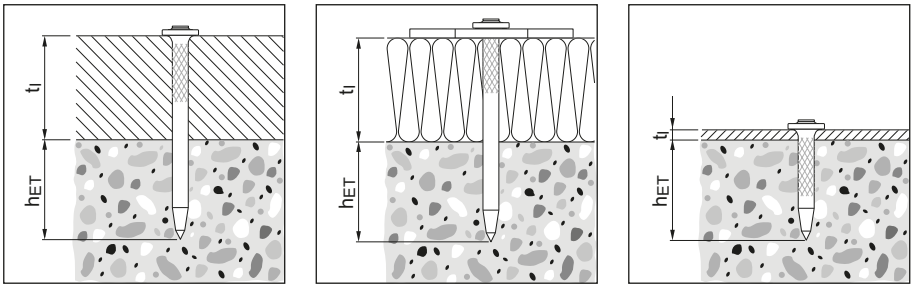
Fastener shank length recommendation

For standard fastening: $L_S = h_{ET} + t_I$ [mm]

For flush fastening: $L_S = h_{ET} + t_I - 5$ [mm]

Concrete: $h_{ET} = 22$ mm

Sandlime masonry: $h_{ET} = 27$ mm



Corrosion information

The intended use for safety relevant and permanent applications only comprises fastenings which are not directly exposed to external weather conditions or moist atmospheres.

- 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 wood to masonry and concrete

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX 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 ■ (1-5)	green ■, yellow ■
Tough concrete	titanium ■ (4-8)	yellow ■, red ■

Cartridge recommendation for fastening steel to masonry and concrete

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX, DX 351 MX DX 5 F8, DX 460 F8, DX 351 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 ■ (1-5)	green ■, yellow ■
Tough concrete	titanium ■ (4-8)	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.

Fastener program

Nails					Tools							
	Item no.		Specification		DX 6 MX, DX 5 MX, DX 460 MX	DX 6 F8, DX 5 F8, DX 460 F8	DX 2, DX 36	DX E72	DX 351 MX	DX 351 F8	DX 35	
Designation	Packs of 1000 pcs	Packs of 100 pcs	L_S (mm)	d_{nom} (mm)								Description
X-C 22 P8	2091378	2091377	22	3.5		■	■	■		■	■	Thin metal part to concrete
X-C 27 P8	2091380	2091379	27	3.5		■	■	■		■	■	Thin metal part to concrete
X-C 32 P8	2091382	2091381	32	3.5		■	■	■		■	▪	Thin metal part to concrete
X-C 37 P8	2091384	2091383	37	3.5		■	■	■		■	▪	Thin metal part to concrete
X-C 42 P8	2091386	2091385	42	3.5		■	■	■		■		Soft mat / Wood on concrete
X-C 47 P8	2091388	2091387	47	3.5		■	■	■		▪		Soft mat / Wood on concrete
X-C 52 P8	2091390	2091389	52	3.5		■	■	■				Wood on concrete
X-C 62 P8	2091392	2091391	62	3.5		■	■	■				Wood on concrete
X-C 72 P8		2091393	72	3.5		■	■	■				Wood on concrete
X-C 82 P8		360930	82	3.7		■	▪	■				Wood on concrete (with pre-hammering)
X-C 97 P8		360931	97	3.7		■	▪	■				Wood on concrete (with pre-hammering)
X-C 117 P8		360933	117	3.7		■	▪	■				Wood on concrete (with pre-hammering)
X-C 20 THP	2091373	2091372	20	3.5		■	■	■		■	■	Thin metal part to concrete
X-C 22 P8 S15TH		2091410	22	3.5		■	■	■				Thin metal part to concrete
X-C 22 P8TH	2091374	2091375	22	3.5		■	■	■		■	■	Thin metal part to concrete
X-C 27 P8TH		2091376	27	3.5		■	■	■		■	■	Thin metal part to concrete
X-C 27 P8S23	2091396	2091395	27	3.5		■	■	■		■	■	High pull-over strength on concrete
X-C 32 P8S23	2091399	2091397	32	3.5		■	■	■		■	▪	High pull-over strength on concrete
X-C 37 P8S23	2091401	2091400	37	3.5		■	■	■		■	▪	High pull-over strength on concrete
X-C 42 P8S23	2091404	2091403	42	3.5		■	■	■		■		High pull-over strength on concrete
X-C 47 P8S23	2091406	2091405	47	3.5		■	■	■		■		High pull-over strength on concrete
X-C 37 P8S36	2091407		37	3.5		■	■	■		■	▪	High pull-over strength on concrete
X-C 52 P8S36	2091408		52	3.5		■	■	■		■		High pull-over strength on concrete
X-C 62 P8S36	2091409		62	3.5		■	■	■				High pull-over strength on concrete
X-C 32 P8S23T	2091398		32	3.5		■	■	■				Tunneling applications
X-C 37 P8S23T	2091402		37	3.5		■	■	■				Tunneling applications
X-C 20 MX	2091264	2091265	20	3.5	■				■			Thin metal part to concrete
X-C 27 MX	2091266	2091267	27	3.5	■				■			Thin metal part to concrete
X-C 32 MX	2091268	2091269	32	3.5	■							Thin metal part to concrete
X-C 37 MX	2091360	2091361	37	3.5	■							Thin metal part to concrete
X-C 42 MX	2091362	2091363	42	3.5	■							Soft material / Wood on concrete
X-C 47 MX	2091364	2091365	47	3.5	■							Soft material / Wood on concrete
X-C 52 MX	2091366	2091367	52	3.5	■							Wood on Concrete
X-C 62 MX	2091368	2091369	62	3.5	■							Wood on Concrete
X-C 72 MX	2091370	2091371	72	3.5	■							Wood on Concrete

■ recommended, ▪ feasible