

General Information

Window frame straps are a common method to fasten windows to concrete or sand lime masonry. Based on system tests in accordance with EN 14351-1 and corresponding RAL guideline at ift-Rosenheim, Germany, the connection of the window frame to the wall can be done with Hilti powder- and gas actuated nails.

All load cases, as wind pressure, impact loads and operator loads have been investigated by these system tests. Only the dead load of the window itself is taken by other measures like wedging.

Nails

X-U 22



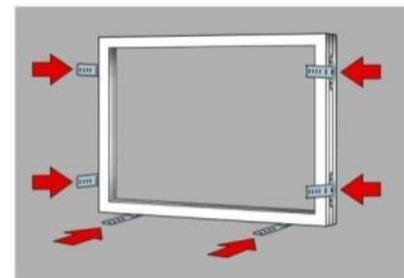
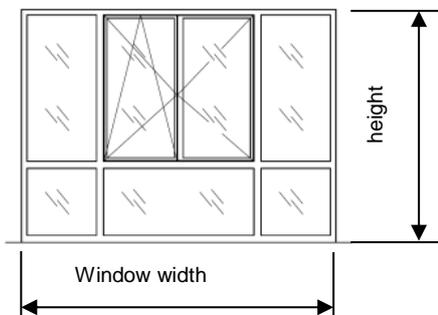
X-C 22



X-GHP 18



Application conditions



Window frame:

Area: max. 6 m²
 Width: max. 3000 mm
 Height: max. 3000 mm

Window casement:

Weight: max. 180 kg
 Width: max. 1400 mm
 Height: max. 3000 mm

Window casements with a width of more than 1000 mm must have a height of 800 mm at minimum or must be designed as bottom hung window.

Window Frame Strap:

Thickness: 1 – 2 mm
 Material: galvanized steel

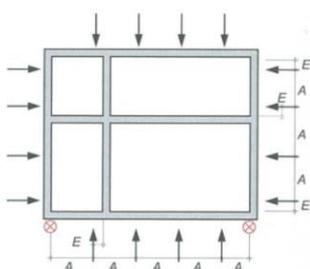
Base material:

Sand lime masonry SFK 16 – 28
 Concrete (C20/25)
 Concrete (C30/37)

Recommended fastener:

X-GHP 18
 X-C 22
 X-U 22

Fastener location on the window frame



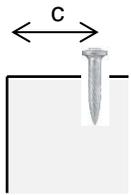
Spacing of the fastening points

A = max. 700 mm

Edge distance of the first fastening point

E = max. 100 mm

Edge distance and spacing

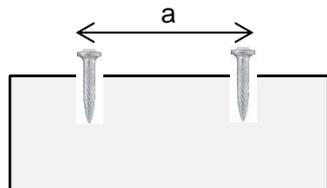


Concrete

X-C 22:	c = 50 mm
X-GHP 18:	c = 50 mm
X-U 22:	c = 50 mm

Sand-lime Masonry

X-C 22:	c = 40 mm
X-GHP 18:	c = 40 mm
X-U 22:	c = 50 mm



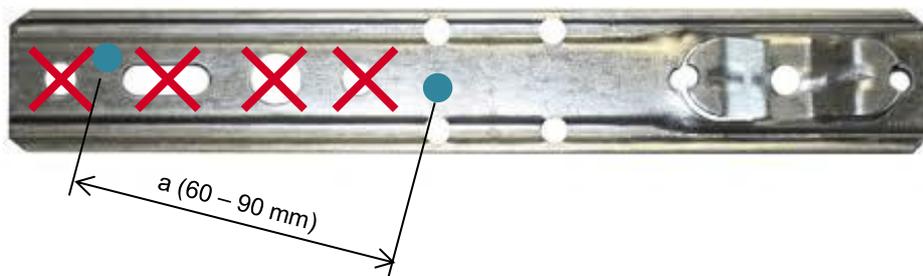
Concrete

X-C 22:	a = 50 mm
X-GHP 18:	a = 50 mm
X-U 22:	a = 50 mm

Sand-lime Masonry

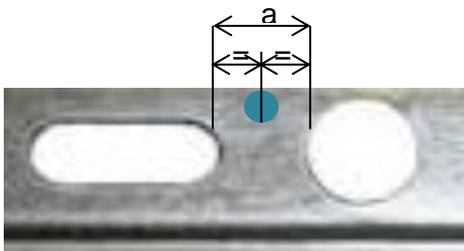
X-C 22:	a = 40 mm
X-GHP 18:	a = 40 mm
X-U 22:	a = 50 mm

Window Frame Strap - fastening details



Strap thickness: 1 – 2 mm

- Fasten through the steel material.
- No fastenings through elongated holes.
- Nails can also be set eccentric, see picture above.
- Setting failures must be replaced.



$a_{min} = 12 \text{ mm}$

Fastening system DX

■ recommended
■ feasible

Nails	Item no. 100 nails / box	L _s [mm]	d _{nom} [mm]	DX 460 MX	DX 460 F8	DX 36	DX E72	DX 351 MX	DX 351 F8	DX 35	DX 462 F8
X-C 20 MX	388509	20	3.5	■				■			
X-C 22 P8	388527	22	3.5		■	■	■		■	■	
X-C 27 P8	388528	27	3.5		■	■	■		■	■	
X-C 27 MX	388510	27	3.5	■				■			
X-U 22 P8	237332	22	4		■	■	■		■	■	■
X-U 22 MX	237346	22	4	■				■			
X-U 27 P8	237333	27	4		■	■	■		■	■	■
X-U 27 MX	237347	27	4	■				■			

Fastening system GX

X-GHP 18 MX
X-GHP 24 MX



Setting Tool GX 120



Gas can: GC 22 / GC 21

