

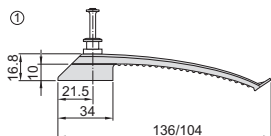
X-EKB, X-ECH Electrical Cable Fasteners

Product data

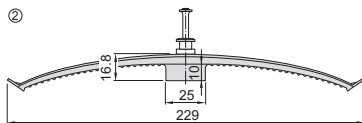
Dimensions

Single Fastener

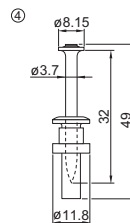
X-EKB 8/4-FR



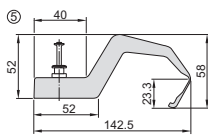
X-EKB 16



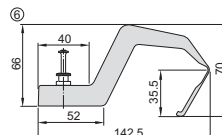
X-U 37 PH



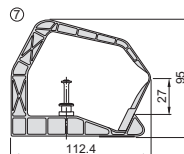
X-ECH-S



X-ECH-M

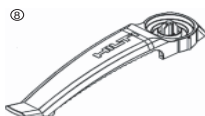


X-ECH-L

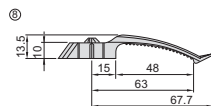


Magazine fastener

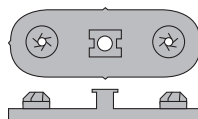
X-EKB 4 / 8 / 16 MX



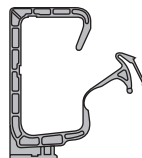
X-EKB 4 MX



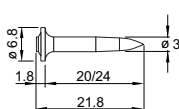
X-ECH-B MX



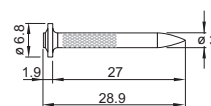
X-ECH-15/30 MX



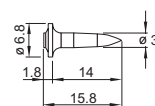
X-GHP 20/24



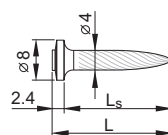
X-GN 27



X-EGN 14



X-U 16/22/27



General information

Material specifications

See Fastener selection

Fastening tools

DX 460-F8, DX 351-F8, GX 120-ME, GX 100-E, DX 460 MX, DX 351 MX

See Fastener Selection for more details.

Approvals

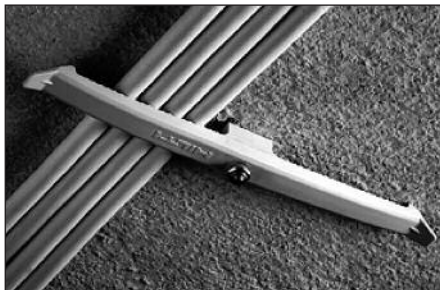
UL (USA): X-EKB MX, X-ECH / FR_U37

CSTB (France): X-EKB_U 37, X-ECH_U37

Note: technical data presented in these approvals and design guidelines reflect specific local conditions and may differ from those published in this handbook.

Applications

Examples



X-EKB for fastening cables



X-ECH for fastening bunched cables

Load data

Fastener capacity

X-EKB: Securing electrical cables to concrete ceilings and walls

Max. capacity (number of cables in one **X-EKB**) at spacing of 50–100 cm

Designation	Number of wires/cables and wire sizes	
	NYM 3 x 1.5 mm² (∅ 8 mm)	NYM 5 x 1.5 mm² (∅ 10 mm)
X-EKB 4 __	4	3
X-EKB 8 __	8	5
X-EKB 16 __	16	10

X-ECH: Securing electrical cable to ceilings and walls

Max. capacity at spacing of 60–80 cm

Designation	No. of nails	Number of cables
X-ECH-S ___ and X-ECH/FR-S ___		max. 15 × NYM 5×1.5 ² (Ø 10 mm)
X-ECH-M ___ and X-ECH/FR-M ___		max. 25 × NYM 5×1.5 ² (Ø 10 mm)
X-ECH-L ___ and X-ECH/FR-L ___		max. 35 × NYM 5×1.5 ² (Ø 10 mm)
X-ECH-15 MX and X-ECH-B	1 or 2	max. 15 × NYM 3×1.5 ² (Ø 10 mm)
X-ECH-30 MX and X-ECH-B	1 or 2	max. 30 × NYM 3×1.5 ² (Ø 10 mm)

Conditions:

- For concrete C12/15 to C45/55 ($f_{cc} = 15$ to 55 N/mm²)
- All visible placing failures have to be replaced
- Damaged X-ECH have to be replaced

Test data (Examples)

Important note: test data are for information only.

Load capacity of the nails:

The nail resistance is not controlling the failure of the fastener.

Fastenings to concrete

Nail	Average tensile failure load $N_{u,m}$ [kN]	Variation coefficient [%]	Embedment depth h_{ET} [mm]	Concrete strength f_{cc} [N/mm ²]
X-U 37 PH	1.53	56.4	17.0	31.5
X-U 22 MX	3.18	37.8	20.1	54.7
X-U 27 MX	4.04	35.4	24.5	30.9
X-GHP 20 MX	1.61	52.0	14.0	52.2
X-GN 27 MX	1.91	47.1	19.2	23.7

Application requirements

Thickness of base material

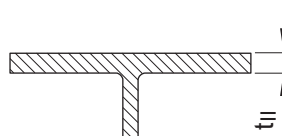
Concrete

X-U: $h_{\min} = 80 \text{ mm}$

X-GHP, X-GN: $h_{\min} = 60 \text{ mm}$

Steel

$t_{II} \geq 4 \text{ mm}$



Thickness of fastened material

Fasteners recommended for cable $\varnothing 8 \text{ mm}$ and 10 mm

Spacing and edge distances

X-EKB: approximately 50–100 cm

(Adjust as necessary to control cable sag)

X-ECH: approximately 60– 80 cm

(Adjust as necessary to limit sagging)

Corrosion information

These zinc-coated fasteners are not suitable for long-term service outdoors or in otherwise corrosive environments.

For further detailed information on corrosion see relevant chapter in **Direct Fastening Principles and Technique** section.

Fastener selection and system recommendation
Fastener program

Fastener with pre-mounted DX-nail: Technical information

Fastener			Tools
Designation	Shank Ø d _s [mm]	Shank length L _s [mm]	
① X-EKB8 U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
② X-EKB16 U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑤ X-ECH-S U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑥ X-ECH-M U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑦ X-ECH-L U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
① X-EKB4-FR U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
① X-EKB8-FR U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
② X-EKB16-FR U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑤ X-ECH/FR-S U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑥ X-ECH/FR-M U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
⑦ X-ECH/FR-L U 37	4.0	37	DX 460-F8, DX 351-F8, DX 36
③, ④ All nail shanks: carbon steel, HRC 58, galvanized 5–13 µm			
Sleeve/thimble: carbon steel, not hardened, galvanized 5–13 µm			

Fastener with pre-mounted DX-nail: Order information

Designation	Item no.	Plastic material
X-EKB 4-FR U37	361581	Polyamide ²)
X-EKB 8 U37	386231	Polyamide ¹)
X-EKB 8-FR U37	386233	Polyamide ²)
X-EKB 16 U37	386232	Polyamide ¹)
X-EKB 16-FR U37	386234	Polyamide ²)
X-ECH-S U37	386235	
X-ECH-M U37	386236	
X-ECH-L U37	386237	
X-ECH/FR-S U37	386238	Polyamide ²)
X-ECH/FR-M U37	386239	
X-ECH/FR-L U37	386240	

¹) halogen and silicon free, light grey RAL 7035

²) halogen and silicon free, flame retardant, stone grey RAL 7030

Fastener without pre-mounted nail: Technical information

Base material	Cable holder		Nail			
	Designation	Technology	Designation	Shank Ø d _s [mm]	Shank length L _s [mm]	L [mm]
Concrete	X-EKB (FR) 4 MX	GX	X-GN 27 MX	3.0	27	28.9
Concrete		GX	X-GHP 20 MX	3.0	20	21.8
Concrete		GX	X-GHP 24 MX	3.0	24	25.8
Concrete		DX	X-U 22 MX	4.0	22	24.4
Concrete		DX	X-U 27 MX	4.0	27	29.4
Steel	X-ECH-30 MX	GX	X-EGN 14 MX	3.0	14	15.8
Steel		DX	X-U 16 MX	4.0	16	18.4

Fastener without pre-mounted nail: Order information

Fastener	Plastic material	Designation	Item no.
Electrical Cable Holder	Polyamide ¹⁾	X-EKB 4 MX	285712
		X-EKB 8 MX	285713
		X-EKB 16 MX	285714
	Polyamide ²⁾	X-EKB FR 4 MX	285715
		X-EKB FR 8 MX	285716
		X-EKB FR 16 MX	285717
	Polyamide ¹⁾	X-ECH-15 MX	2018247
		X-ECH-30 MX	2018248
		X-ECH-15/B MX	2018729 (kit)
		X-ECH-30/B MX	2018891 (kit)
		X-ECH-B MX	2018391
GX Nails		X-EGN 14 MX	338872
		X-GHP 20 MX	285890
		X-GHP 24 MX	438945
		X-GN 27 MX	340229
DX Nails		X-U 16 MX	237344
		X-U 22 MX	237346
		X-U 27 MX	237347

¹⁾ halogen and silicon free, light grey RAL 7035

²⁾ halogen and silicon free, flame retardant, stone grey RAL 7030

System recommendation

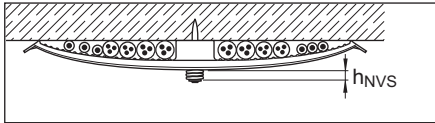
DX tools:	Steel:	6.8/11M red cartridge
	Concrete:	6.8/11M yellow cartridge on green/fresh and standard concrete 6.8/11M red cartridge on precast, old and hard concrete
	Masonry:	6.8/11M yellow or green cartridge, green for MX Fastener
GX 120-ME tool:	Gas can GC 21 (GC 22 in USA)	
GX 100-E tool:	Gas can GC 11 (GC 12 in USA)	

Tool energy adjustment by setting tests on site.

Fastening quality assurance

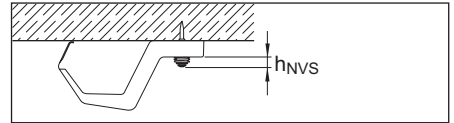
Fastening inspection

X-EKB fastening quality



$h_{NVS} = 7 \pm 2 \text{ mm}$

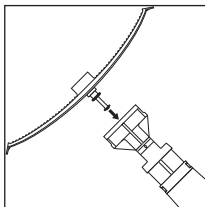
X-ECH fastening quality



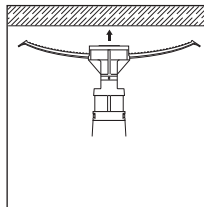
$h_{NVS} = 7 \pm 2 \text{ mm}$

Installation

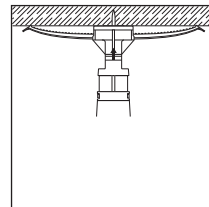
X-EKB



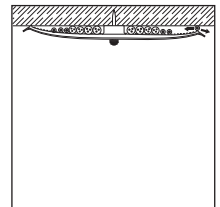
1. Load X-EKB in the tool



2. Apply clasp to surface with tool



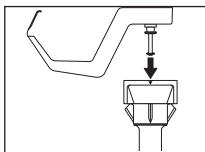
3. Compress tool and pull the trigger



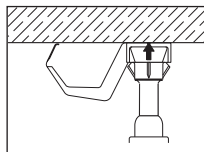
4. Lift arm and put the cables in place

Spacing: approximately 50–100 cm (Adjust as necessary to control cable sagging)

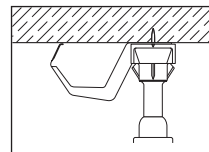
X-ECH



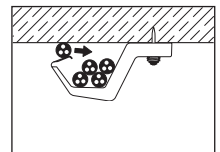
1. Load X-ECH in the tool



2. Apply the X-ECH to the surface with tool

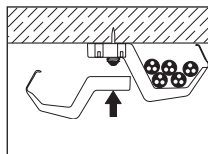


3. Compress tool and pull the trigger

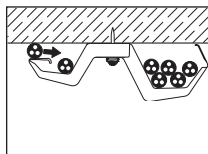


4. Introduce the cables

Stacking X-ECH



1. Attach an X-ECH-S and press to "click"



2. Introduce the cables

Possible:

X-ECH-S on X-ECH-S

X-ECH-S on X-ECH-M

Not possible:

X-ECH-M on X-ECH-S

X-ECH-M on X-ECH-M

Spacing: approximately 60–80 cm (Adjust as necessary to limit sagging)

