



# X-ECH MX CABLE HOLDER

Data Sheet

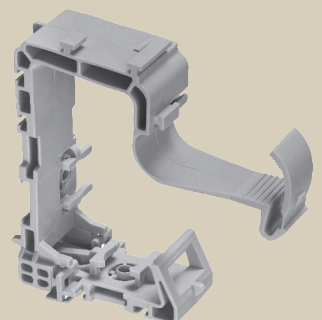
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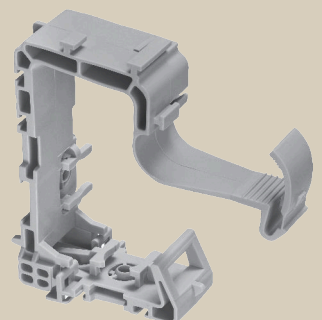


# X-ECH MX CABLE HOLDER

Data Sheet

[English](#)

03.2024



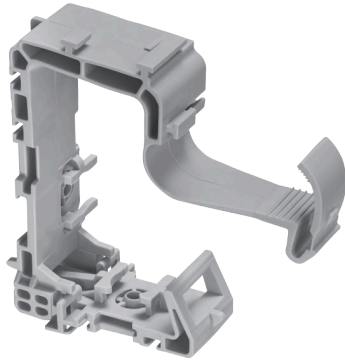
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# 1 PRODUCT INFORMATION

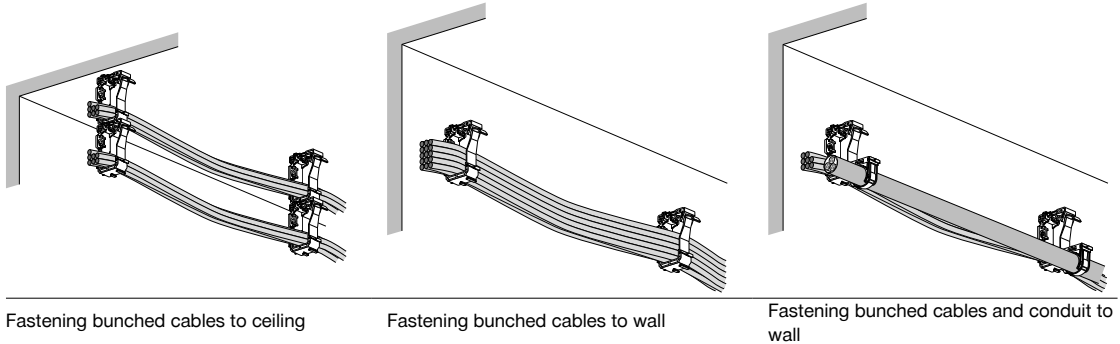
## 1.1 Product description

Designation	Features
X-ECH MX	<ul style="list-style-type: none"> <li>• Optimized for your BX nailer – friction-fit nailer nose and drill-less fastening method allows for faster, easier, and virtually dust-free installations.</li> <li>• Versatile fastening methods – compatible with push-fit anchors, wood and metal screws, or standard plastic anchors for fastening to a wide variety of base materials.</li> <li>• Interlocking system – fully modular system allows you the option to combine multiple cable holders and clamps to increase your range of applications.</li> <li>• More sustainably produced – made from eco-friendlier materials to help reduce carbon footprint.</li> <li>• High-quality installations – ETA approved solution with 50-year lifetime in cracked concrete and UL listed.</li> </ul>



# 2 APPLICATION CONDITIONS

## 2.1 Application examples

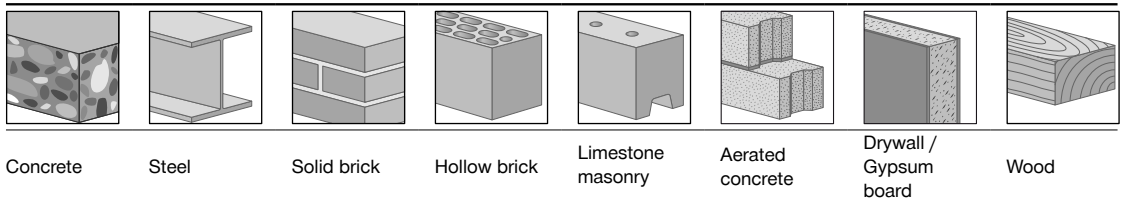


Fastening bunched cables to ceiling

Fastening bunched cables to wall

Fastening bunched cables and conduit to wall

## 2.2 Base materials



Concrete

Steel

Solid brick

Hollow brick

Limestone masonry

Aerated concrete

Drywall / Gypsum board

Wood

## 2.3 Load conditions



Static / quasi-static

## 2.4 Environmental conditions



Dry indoor



• For more details, please refer to the [Hilti Corrosion Handbook](#)

## 2.5 Temperature conditions

Element	Component part	Service temperature T [°C]	Installation temperature T [°C]
X-ECH MX	Cable bunch holder	0 – 40	-10 – 40

# 3 APPROVALS AND CERTIFICATES

Authority	Approval / Certificate number	Date of issue
Deutsches Institut für Bautechnik (DIBt)	ETA-16/0301	12/19/2023

## 4 PRODUCT DATA

### 4.1 Dimensions

Technical Drawing	Element	Height h [mm]	Length l [mm]	Width w [mm]
	X-ECH 15 (02) MX	90	48	25
	X-ECH 30 (02) MX	124.5	60	28

### 4.2 Material properties for plastic parts

Element	Component part	Material	Color	Other properties
X-ECH MX	Cable bunch holder	High Density Polyethylene (HDPE)	Light grey	Halogen free, LABS free, Silicon free, UV resistant material

## 5 SYSTEM RECOMMENDATION

### 5.1 Fastener recommendation

Element	Fastener	Base material	Fastening method
X-ECH MX	X-P 20 B4 MX, X-P 20 B3 MX	Concrete, Limestone masonry	Recommended
	X-P 17 B4 MX, X-P 24 B4 MX, X-P 17 B3 MX, X-P 24 B3 MX, X-C 20 B4 MX, X-C 20 B3 MX, X-C 24 B3 MX	Concrete, Limestone masonry	Suitable
	X-S 14 B4 MX, X-S 14 B3 MX	Steel	Suitable
	X-EAP 30	Concrete	Recommended
	X-EAP 50	Solid brick, Hollow brick, Aerated concrete, Drywall / Gypsum board	Recommended
	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30	Solid brick, Hollow brick, Aerated concrete, Drywall / Gypsum board	Suitable
	S-WS 03 Z 4.2x35	Wood	Recommended

## 5.2 Connection type

Connection type	Ceiling	Wall	Element	Connected Element	Fastener
CT 1.1			X-ECH 15 (02) MX		
CT 1.2			X-ECH 30 (02) MX		
CT 2.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30, S-WS 03 Z 4.2x35, X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-S 14 B3 MX, X-S 14 B4 MX
CT 3.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	
CT 4.1			X-ECH 15 (02) MX		X-EKS 16 (02) MX, X-EKS 19/20 (02) MX, X-EKS 25 (02) MX, X-EKS 32 (02) MX
CT 5.1			X-ECH 15 (02) MX		X-EKSC 16 (02) MX, X-EKSC 19/20 (02) MX, X-EKSC 25 (02) MX, X-EKSC 32 (02) MX
CT 6.1			X-ECH 15 (02) MX		X-FC 16-20 MX, X-FC 20-25 MX, X-FC 25-32 MX, X-FC 32-40 MX
CT 7.1			X-ECH 15 (02) MX		
CT 7.2			X-ECH 30 (02) MX		
CT 8.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	X-EAP 30, X-EAP 50
CT 9.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	

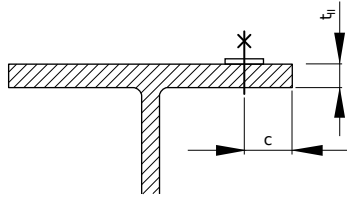
Positioning of fastening point.



• For floor applications, use the same disposition of elements as for ceiling.

## 6 APPLICATION REQUIREMENTS

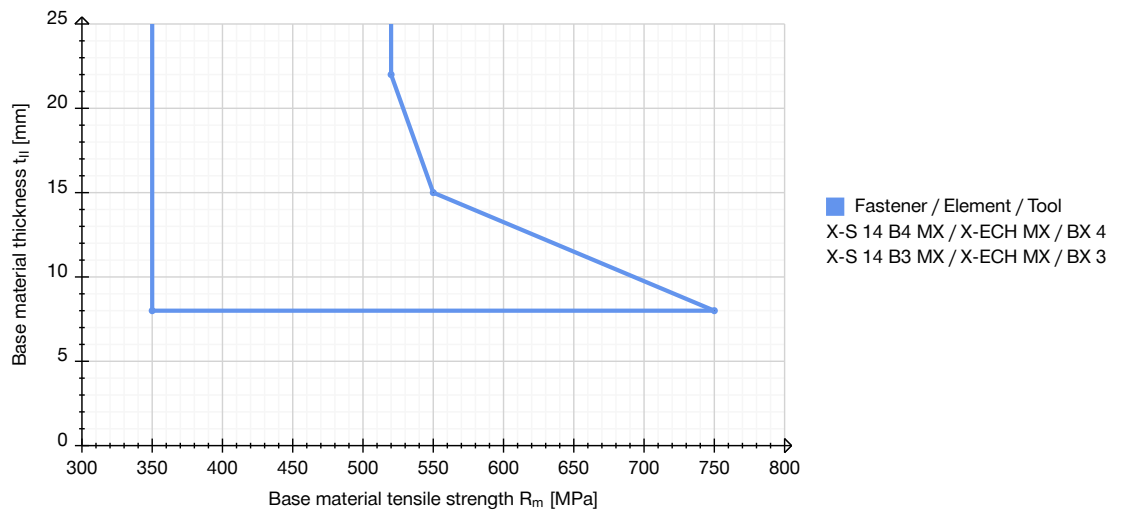
### 6.1 Base material properties



Fastening element to steel

<b>Base material</b>	Steel
<b>Base material thickness <math>t_{II}</math> [mm]</b>	$\geq 8$
<b>Edge distance <math>c</math> [mm]</b>	$\geq 15$

### 6.2 Application range in steel





## 7 PERFORMANCE DATA

### 7.1 Recommended loads under quasi static/static loading

Connection Type	Tension load	Shear load
	$N_{rec}$ [kN]	$V_{rec}$ [kN]
CT 1.1, CT 2.1, CT 3.1, CT 4.1, CT 5.1, CT 6.1, CT 7.1, CT 8.1, CT 9.1	0.014	0.014
CT 1.2, CT 7.2	0.028	0.028

- Redundancy of fastening points is required.
- Minimum number of fastening points for safety relevant fastenings:  $\geq 5$ .

## 8 QUALITY ASSURANCE

### 8.1 Fastening inspection

Ceiling	Wall	Element	Fastener	Fastener standoff $h_{NHS}$ [mm]
		X-ECH 15 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX	6-11
		X-ECH 30 (02) MX	X-P 24 B3 MX, X-P 24 B4 MX	
		X-ECH 15 (02) MX	X-S 14 B3 MX, X-S 14 B4 MX	6-9
		X-ECH 30 (02) MX		

- Visible setting failures must be replaced with a new fastener, not in the same hole.
- These are abbreviated instructions which may vary by application.
- Always review/ follow the instructions accompanying the product.

## 9 ORDERING INFORMATION

### 9.1 Item number and description

Designation	Item number	Description
HMF 5x25	2185263	HMF Wall plug
HMF 6x30	2185268	HMF Wall plug

<b>Designation</b>	<b>Item number</b>	<b>Description</b>
HUD-2 5x25	2287817	HUD-2 Plastic wall plug
HUD-2 6x30	2287820	HUD-2 Plastic wall plug
S-WS 03 Z 4.2x35	413322	S-WS 03 Z Sharp-point electrical screws
X-C 20 B3 MX	2123993	X-C B3 MX Concrete nails (collated)
X-C 20 B4 MX	2361658	X-C B4 MX Concrete nails (collated)
X-C 24 B3 MX	2123994	X-C B3 MX Concrete nails (collated)
X-EAP 30	2388259	X-EA MX Push fit anchor
X-EAP 50	2388260	X-EA MX Push fit anchor
X-ECH 15 (02) MX	2388249	X-ECH MX Cable holder
X-ECH 30 (02) MX	2388250	X-ECH MX Cable holder
X-P 17 B3 MX	2156216	X-P B3 MX Concrete nails (collated)
X-P 17 B4 MX	2361537	X-P B4 MX Concrete nails (collated)
X-P 20 B3 MX	2156217	X-P B3 MX Concrete nails (collated)
X-P 20 B4 MX	2361538	X-P B4 MX Concrete nails (collated)
X-P 24 B3 MX	2156218	X-P B3 MX Concrete nails (collated)
X-P 24 B4 MX	2361539	X-P B4 MX Concrete nails (collated)
X-S 14 B3 MX	2156392	X-S B3 MX Steel nails (collated)
X-S 14 B4 MX	2361654	X-S B4 MX Steel nails (collated)



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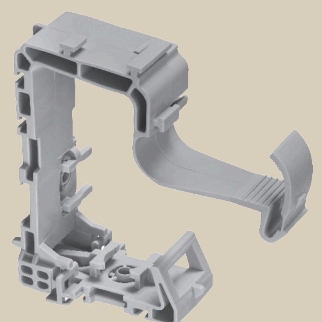


# X-ECH MX KABELHALTER

Datenblatt

[Deutsch](#)

03.2024



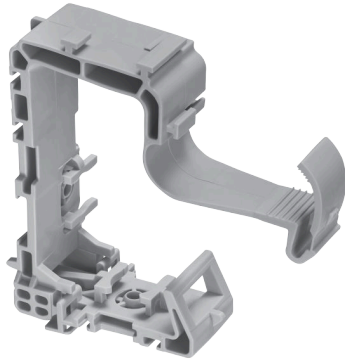
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# 1 PRODUKTINFORMATIONEN

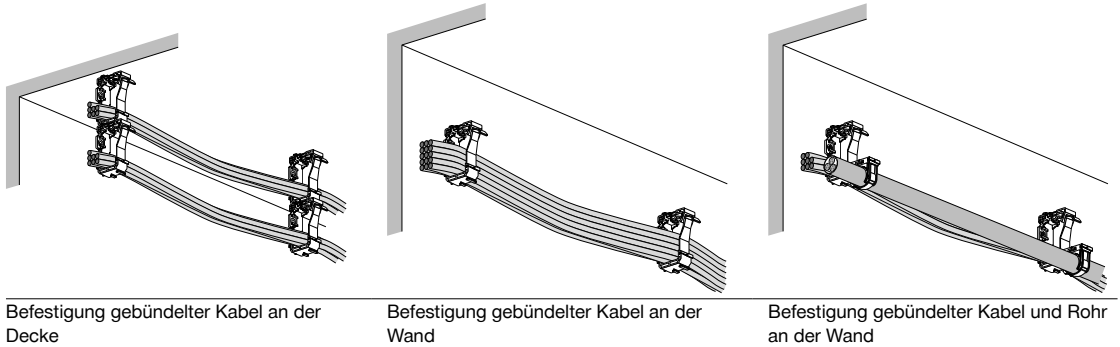
## 1.1 Produktbeschreibung

Bezeichnung	Besondere Eigenschaften
X-ECH MX	<ul style="list-style-type: none"> <li>• Optimiert für BX Bolzensetzgeräte – reibschlüssige Gerätenase und bohrerlose Befestigungsmethode ermöglichen eine schnellere, einfachere und praktisch staubfreie Montage.</li> <li>• Vielseitige Befestigungsmethoden – kompatibel mit Steckdübeln, Schrauben für Holz und Metall oder Standard-Kunststoffdübeln für eine Vielzahl von Untergrundmaterialien.</li> <li>• Verriegelungssystem – vollständig modulares System bietet die Möglichkeit zur Kombination mehrerer Kabelhalter und Klemmen für weitere Anwendungsmöglichkeiten.</li> <li>• Nachhaltigere Produktion – hergestellt aus umweltfreundlicheren Materialien, um den CO<sub>2</sub>-Ausstoß zu verringern.</li> <li>• Hochwertige Installationen – Lösung mit ETA-Zulassung für eine Lebensdauer von 50 Jahren in gerissenem Beton sowie mit UL-Zulassung.</li> </ul>



# 2 ANWENDUNGSBEDINGUNGEN

## 2.1 Anwendungsbeispiele



Befestigung gebündelter Kabel an der Decke

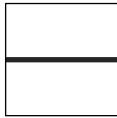
Befestigung gebündelter Kabel an der Wand

Befestigung gebündelter Kabel und Rohr an der Wand

## 2.2 Untergrundmaterial

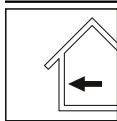
Beton	Stahl	Vollziegel	Hohlziegel	Kalksteinmauerwerk	Porenbeton	Trockenbau / Gipskartonplatte	Holz

## 2.3 Lastbedingungen



Statisch/quasi-statisch

## 2.4 Umgebungsbedingungen



Trockene Innenräume



• Weitere Einzelheiten entnehmen Sie bitte dem [Hilti Corrosion Handbook](#)

## 2.5 Temperaturbedingungen

Element	Bauteil	Betriebstemperatur	Einbautemperatur
		T [°C]	T [°C]
X-ECH MX	Kabelhalter	0 – 40	-10 – 40

# 3 ZULASSUNGEN UND ZERTIFIZIERUNGEN

Behörde	Zulassungs- / Zertifizierungsnummer	Ausgabedatum
Deutsches Institut für Bautechnik (DIBt)	ETA-16/0301	19.12.2023

## 4 PRODUKTDATEN

### 4.1 Abmessungen

Technische Zeichnung	Element	Höhe h [mm]	Länge l [mm]	Breite w [mm]
	X-ECH 15 (02) MX	90	48	25
	X-ECH 30 (02) MX	124,5	60	28

### 4.2 Materialeigenschaften für Kunststoffteile

Element	Bauteil	Material	Farbe	Sonstige Eigenschaften
X-ECH MX	Kabelhalter	HDPE (High Density Polyethylen)	Lichtgrau	Halogenfrei, LABS-frei, Silikonfrei, UV-beständiges Material

## 5 SYSTEMEMPFEHLUNG

### 5.1 Empfohlenes Befestigungselement

Element	Befestigungselement	Untergrundmaterial	Befestigungsmethode
X-ECH MX	X-P 20 B4 MX, X-P 20 B3 MX	Beton, Kalksteinmauerwerk	Empfohlen
	X-P 17 B4 MX, X-P 24 B4 MX, X-P 17 B3 MX, X-P 24 B3 MX, X-C 20 B4 MX, X-C 20 B3 MX, X-C 24 B3 MX	Beton, Kalksteinmauerwerk	Geeignet
	X-S 14 B4 MX, X-S 14 B3 MX	Stahl	Geeignet
	X-EAP 30	Beton	Empfohlen
	X-EAP 50	Vollziegel, Hohlziegel, Porenbeton, Trockenbau / Gipskartonplatte	Empfohlen
	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30	Vollziegel, Hohlziegel, Porenbeton, Trockenbau / Gipskartonplatte	Geeignet
S-WS 03 Z 4.2x35	Holz	Empfohlen	



## 5.2 Verbindungstyp

Verbindungstyp	Decke	Wand	Element	Verbundenes Element	Befestigungselement
CT 1.1			X-ECH 15 (02) MX		
CT 1.2			X-ECH 30 (02) MX		
CT 2.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30, S-WS 03 Z 4.2x35, X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-S 14 B3 MX, X-S 14 B4 MX
CT 3.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	
CT 4.1			X-ECH 15 (02) MX		X-EKS 16 (02) MX, X-EKS 19/20 (02) MX, X-EKS 25 (02) MX, X-EKS 32 (02) MX
CT 5.1			X-ECH 15 (02) MX		X-EKSC 16 (02) MX, X-EKSC 19/20 (02) MX, X-EKSC 25 (02) MX, X-EKSC 32 (02) MX
CT 6.1			X-ECH 15 (02) MX		X-FC 16-20 MX, X-FC 20-25 MX, X-FC 25-32 MX, X-FC 32-40 MX
CT 7.1			X-ECH 15 (02) MX		
CT 7.2			X-ECH 30 (02) MX		
CT 8.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	X-EAP 30, X-EAP 50
CT 9.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	

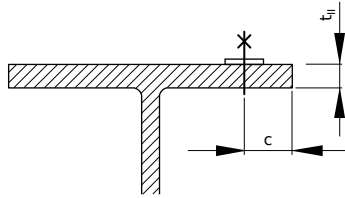
Positionierung von Befestigungspunkten.



- Bei Boden Anwendungen ist die gleiche Anordnung der Elemente wie bei der Decke zu verwenden.

## 6 ANWENDUNGSANFORDERUNGEN

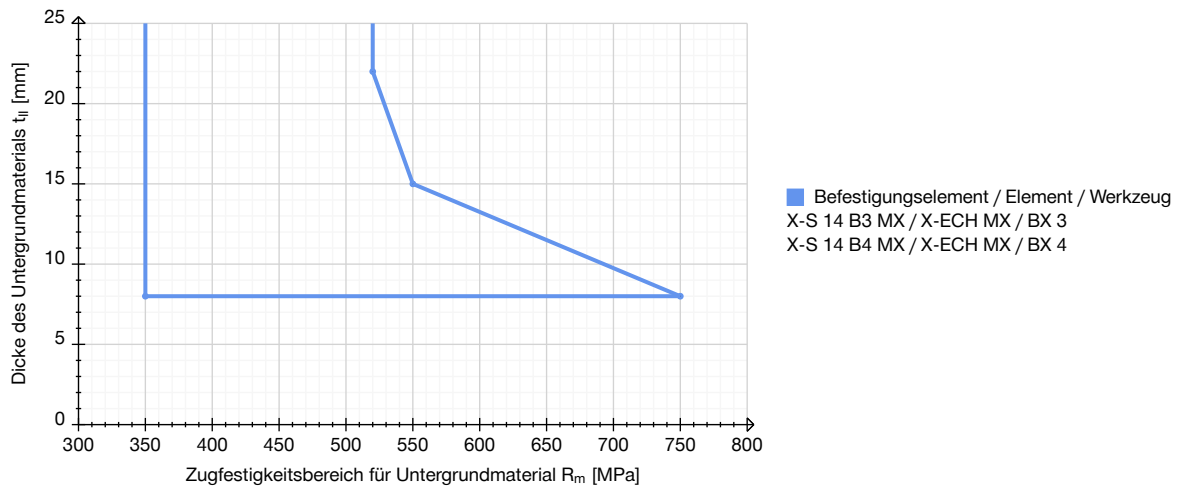
### 6.1 Eigenschaften des Untergrundmaterials



Befestigung von Element an Stahl

Untergrundmaterial	Stahl
Untergrundmaterialdicke $t_{II}$ [mm]	$\geq 8$
Randabstand $c$ [mm]	$\geq 15$

### 6.2 Anwendungsbereich an Stahl



## 7 LEISTUNGSDATEN

### 7.1 Empfohlene Lasten unter statischer bzw. quasi-statischer Belastung

Verbindungstyp	Zuglast	Quer- kraft
	$N_{rec}$ [kN]	$V_{rec}$ [kN]
CT 1.1, CT 2.1, CT 3.1, CT 4.1, CT 5.1, CT 6.1, CT 7.1, CT 8.1, CT 9.1	0,014	0,014
CT 1.2, CT 7.2	0,028	0,028



- Redundanz für Befestigungspunkte ist erforderlich.
- Mindestanzahl Befestigungspunkte für sicherheitsrelevante Befestigungen:  $\geq 5$ .

## 8 QUALITÄTSSICHERUNG

### 8.1 Kontrolle der Setztiefe

Decke	Wand	Element	Befestigungselement	Bolzenvorstand $h_{NHS}$ [mm]
		X-ECH 15 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX,	6-11
		X-ECH 30 (02) MX	X-P 24 B3 MX, X-P 24 B4 MX	
		X-ECH 15 (02) MX	X-S 14 B3 MX,	6-9
		X-ECH 30 (02) MX	X-S 14 B4 MX	



- Sichtbare Montagefehler sind durch ein neues Befestigungselement zu ersetzen.
- Dies ist eine gekürzte Fassung der Bedienungsanleitung. Der Wortlaut kann je nach Anwendung unterschiedlich sein.
- Lesen Sie immer die dem Produkt beiliegende Bedienungsanleitung und befolgen Sie diese.

## 9 BESTELLINFORMATIONEN

### 9.1 Artikelnummer und Beschreibung

Bezeichnung	Artikelnummer	Beschreibung
HMF 5x25	2185263	HMF Kunststoffdübel
HMF 6x30	2185268	HMF Kunststoffdübel
HUD-2 5x25	2287817	HUD-2 Kunststoff-Universaldübel
HUD-2 6x30	2287820	HUD-2 Kunststoff-Universaldübel
S-WS 03 Z 4.2x35	413322	S-WS 03 Z Holzschrauben
X-C 20 B3 MX	2123993	X-C B3 MX Nägel für Beton (magaziniert)
X-C 20 B4 MX	2361658	X-C B4 MX Nägel für Beton (magaziniert)
X-C 24 B3 MX	2123994	X-C B3 MX Nägel für Beton (magaziniert)
X-EAP 30	2388259	X-EA MX Steckdübel
X-EAP 50	2388260	X-EA MX Steckdübel
X-ECH 15 (02) MX	2388249	X-ECH MX Kabelhalter
X-ECH 30 (02) MX	2388250	X-ECH MX Kabelhalter
X-P 17 B3 MX	2156216	X-P B3 MX Nägel für Beton (magaziniert)
X-P 17 B4 MX	2361537	X-P B4 MX Nägel für Beton (magaziniert)
X-P 20 B3 MX	2156217	X-P B3 MX Nägel für Beton (magaziniert)
X-P 20 B4 MX	2361538	X-P B4 MX Nägel für Beton (magaziniert)
X-P 24 B3 MX	2156218	X-P B3 MX Nägel für Beton (magaziniert)
X-P 24 B4 MX	2361539	X-P B4 MX Nägel für Beton (magaziniert)

<b>Bezeichnung</b>	<b>Artikelnummer</b>	<b>Beschreibung</b>
X-S 14 B3 MX	2156392	X-S B3 MX Nagel für Stahl (magaziniert)
X-S 14 B4 MX	2361654	X-S B4 MX Nagel für Stahl (magaziniert)



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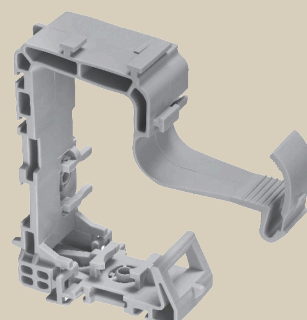
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# X-ECH MX BRIDA PARA MÚLTIPLES CABLES

Hoja de datos

[Español](#)



03.2024

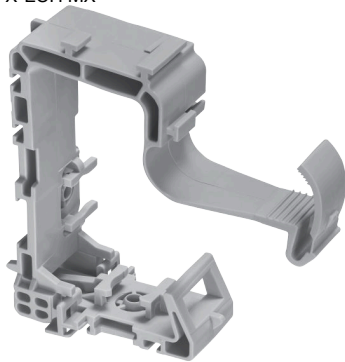
# ÍNDICE

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# 1. INFORMACIÓN DEL PRODUCTO

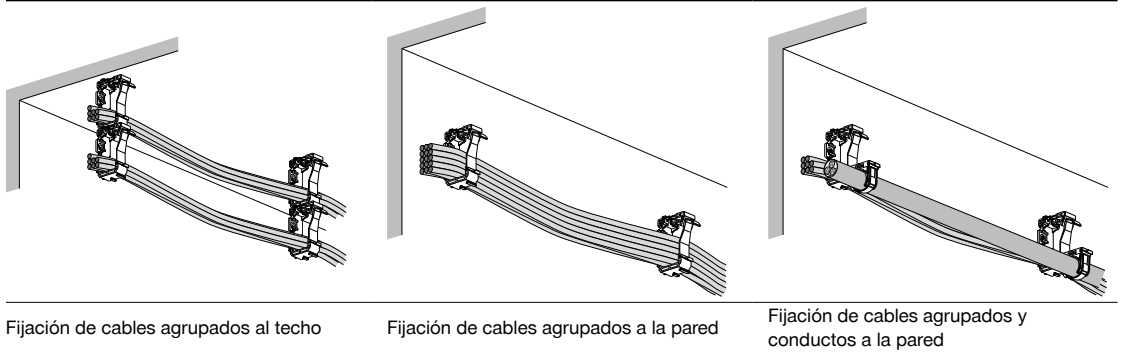
## 1.1. Descripción del producto

Designación	Características
X-ECH MX	<ul style="list-style-type: none"> <li>Optimizada para la clavadora BX: la punta de la herramienta con ajuste de fricción y el método de fijación sin taladro permiten realizar instalaciones más rápidas, más sencillas y prácticamente sin polvo.</li> <li>Métodos de fijación versátiles: compatibles con anclajes con ajuste a presión, tornillos de madera y metal o anclajes plásticos estándar para fijar una amplia variedad de materiales base.</li> <li>Sistema de interbloqueo: el sistema, completamente modular, da la opción de combinar múltiples portacables y bridas para aumentar el rango de aplicaciones.</li> <li>Producción más sostenible: fabricación con materiales más ecológicos para ayudar a reducir la huella de carbono.</li> <li>Instalaciones de alta calidad: solución con homologación ETA, vida útil de 50 años en hormigón fisurado y con certificación UL.</li> </ul>



# 2. CONDICIONES DE APLICACIÓN

## 2.1. Ejemplos de aplicación

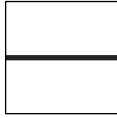


## 2.2. Materiales base

Hormigón	Acero	Ladrillo macizo	Ladrillo hueco	Albañilería de piedra caliza	Hormigón celular	Tabique seco / Placa de yeso	Madera



### 2.3. Condiciones de carga



Estática y cuasiestática

### 2.4. Condiciones ambientales



Interior seco



• Para obtener más información, consulte [Manual sobre corrosión de Hilti](#)

### 2.5. Condiciones de temperatura

Elemento	Pieza de componente	Temperatura de servicio T [°C]	Temperatura de instalación T [°C]
X-ECH MX	Brida para múltiples cables	0 - 40	-10 - 40

## 3. HOMOLOGACIONES Y CERTIFICADOS

Autoridad	Número de homologación / certificado	Fecha de emisión
Deutsches Institut für Bautechnik (DIBt)	ETA-16/0301	12/19/2023

## 4. DATOS DEL PRODUCTO

### 4.1. Dimensiones

Dibujo técnico	Elemento	Altura h [mm]	Longitud l [mm]	Ancho w [mm]
	X-ECH 15 (02) MX	90	48	25
	X-ECH 30 (02) MX	124,5	60	28

### 4.2. Propiedades del material para piezas de plástico

Elemento	Pieza de componente	Material	Color	Otras propiedades
X-ECH MX	Brida para múltiples cables	Polietileno de alta densidad (HDPE)	Gris luminoso	Libre de disolventes y compuestos halogenados, Material resistente a los rayos UV, Sin halógenos, Sin LABS

## 5. RECOMENDACIÓN DEL SISTEMA

### 5.1. Recomendación de fijación

Elemento	Fijación	Material base	Método de fijación
X-ECH MX	X-P 20 B4 MX, X-P 20 B3 MX	Hormigón, Albañilería de piedra caliza	Recomendado
	X-P 17 B4 MX, X-P 24 B4 MX, X-P 17 B3 MX, X-P 24 B3 MX, X-C 20 B4 MX, X-C 20 B3 MX, X-C 24 B3 MX	Hormigón, Albañilería de piedra caliza	Apto
	X-S 14 B4 MX, X-S 14 B3 MX	Acero	Apto
	X-EAP 30	Hormigón	Recomendado
	X-EAP 50	Ladrillo macizo, Ladrillo hueco, Hormigón celular, Tabique seco / Placa de yeso	Recomendado
	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30	Ladrillo macizo, Ladrillo hueco, Hormigón celular, Tabique seco / Placa de yeso	Apto
	S-WS 03 Z 4.2x35	Madera	Recomendado

## 5.2. Tipo de conexión

Tipo de conexión	Techo	Muro	Elemento	Elemento conectado	Fijación
CT 1.1			X-ECH 15 (02) MX		
CT 1.2			X-ECH 30 (02) MX		
CT 2.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30,
CT 3.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	S-WS 03 Z 4.2x35, X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-S 14 B3 MX, X-S 14 B4 MX
CT 4.1			X-ECH 15 (02) MX		X-EKS 16 (02) MX, X-EKS 19/20 (02) MX, X-EKS 25 (02) MX, X-EKS 32 (02) MX
CT 5.1			X-ECH 15 (02) MX		X-EKSC 16 (02) MX, X-EKSC 19/20 (02) MX, X-EKSC 25 (02) MX, X-EKSC 32 (02) MX
CT 6.1			X-ECH 15 (02) MX		X-FC 16-20 MX, X-FC 20-25 MX, X-FC 25-32 MX, X-FC 32-40 MX
CT 7.1			X-ECH 15 (02) MX		
CT 7.2			X-ECH 30 (02) MX		
CT 8.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	X-EAP 30, X-EAP 50
CT 9.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	

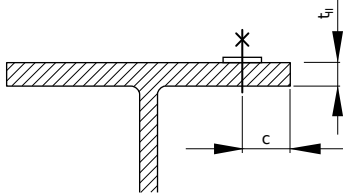
Colocación del punto de fijación.



- Para las aplicaciones de suelo, se usa la misma disposición de elementos que para el techo.

## 6. REQUISITOS DE APLICACIÓN

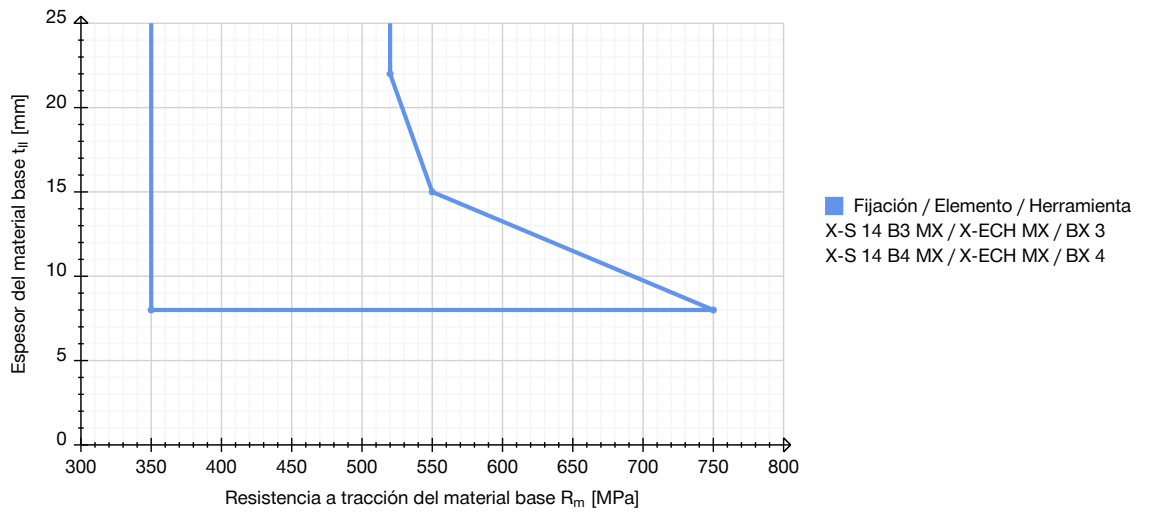
### 6.1. Propiedades del material base



Fijación de elemento sobre acero

<b>Material base</b>	Acero
<b>Base material thickness <math>t_{II}</math> [mm]</b>	$\geq 8$
<b>Distancia al borde <math>c</math> [mm]</b>	$\geq 15$

### 6.2. Rango de aplicación en acero



## 7. DATOS DE RENDIMIENTO

### 7.1. Cargas recomendadas con carga estática o cuasiestática

Tipo de conexión	Carga de tensión	Carga cortante
	$N_{rec}$ [kN]	$V_{rec}$ [kN]
CT 1.1, CT 2.1, CT 3.1, CT 4.1, CT 5.1, CT 6.1, CT 7.1, CT 8.1, CT 9.1	0,014	0,014
CT 1.2, CT 7.2	0,028	0,028

- Se requiere redundancia de puntos de fijación.
- Número mínimo de puntos de fijación para fijaciones en las que la seguridad es importante:  $\geq 5$ .

## 8. CONTROL DE CALIDAD

### 8.1. Control de profundidad de colocación

Techo	Muro	Elemento	Fijación	Fijación con distanciador $h_{NHS}$ [mm]
		X-ECH 15 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX	6-11
		X-ECH 30 (02) MX		
		X-ECH 15 (02) MX	X-S 14 B3 MX, X-S 14 B4 MX	6-9
		X-ECH 30 (02) MX		

- Los fallos de colocación visibles deben sustituirse por nuevas fijaciones, sin utilizar el mismo orificio.
- Estas instrucciones se encuentran abreviadas y pueden variar según la aplicación.
- Revise y siga siempre las instrucciones que acompañan al producto.

## 9. INFORMACIÓN DEL PEDIDO

### 9.1. Número y descripción del artículo

Designación	Número de elemento	Descripción
HMF 5x25	2185263	HMF Anclaje plástico

Designación	Número de elemento	Descripción
HMF 6x30	2185268	HMF Anclaje plástico
HUD-2 5x25	2287817	HUD-2 Tapón de pared de plástico
HUD-2 6x30	2287820	HUD-2 Tapón de pared de plástico
S-WS 03 Z 4.2x35	413322	S-WS 03 Z Tornillos para madera
X-C 20 B3 MX	2123993	X-C B3 MX Clavos para hormigón (en tiras)
X-C 20 B4 MX	2361658	X-C B4 MX Clavos para hormigón (en tiras)
X-C 24 B3 MX	2123994	X-C B3 MX Clavos para hormigón (en tiras)
X-EAP 30	2388259	X-EA MX Anclaje con ajuste a presión
X-EAP 50	2388260	X-EA MX Anclaje con ajuste a presión
X-ECH 15 (02) MX	2388249	X-ECH MX Brida para múltiples cables
X-ECH 30 (02) MX	2388250	X-ECH MX Brida para múltiples cables
X-P 17 B3 MX	2156216	X-P B3 MX Clavos para hormigón (en tiras)
X-P 17 B4 MX	2361537	X-P B4 MX Clavos para hormigón (en tiras)
X-P 20 B3 MX	2156217	X-P B3 MX Clavos para hormigón (en tiras)
X-P 20 B4 MX	2361538	X-P B4 MX Clavos para hormigón (en tiras)
X-P 24 B3 MX	2156218	X-P B3 MX Clavos para hormigón (en tiras)
X-P 24 B4 MX	2361539	X-P B4 MX Clavos para hormigón (en tiras)
X-S 14 B3 MX	2156392	X-S B3 MX Clavo de acero (en tiras)
X-S 14 B4 MX	2361654	X-S B4 MX Clavo de acero (en tiras)



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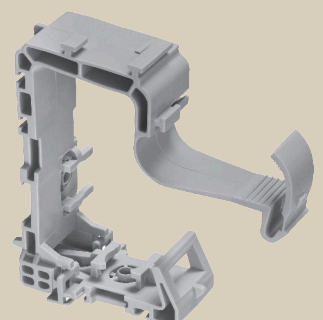
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[www.hilti.group](https://www.hilti.group)



# X-ECH MX SUPPORT DE BOTTE DE CÂBLES

Fiche technique

[Français](#)



03.2024



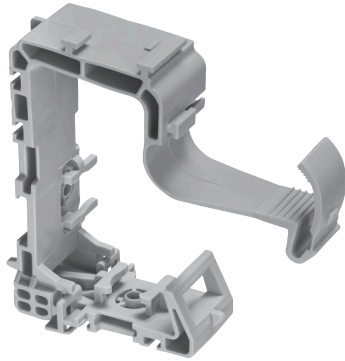
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# 1 INFORMATIONS SUR LE PRODUIT

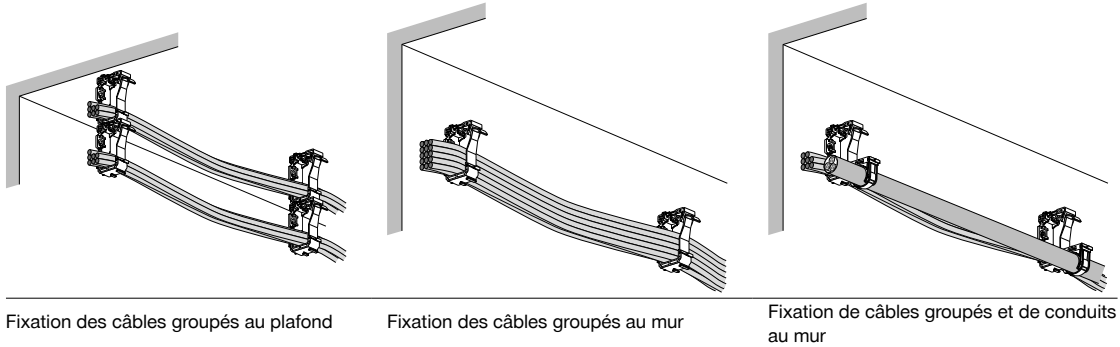
## 1.1 Description du produit

Désignation	Caractéristiques
X-ECH MX	<ul style="list-style-type: none"> <li>Optimisé pour votre cloueur BX – l'adaptation par friction du nez du cloueur et la méthode de fixation sans perçage permettent des installations plus rapides, plus faciles et pratiquement sans poussière.</li> <li>Méthodes de fixation polyvalentes – compatibles avec les chevilles à emboîter, les vis à bois et à métal ou les chevilles plastiques standard pour la fixation à une grande variété de matériaux supports.</li> <li>Système d'interverrouillage – système entièrement modulaire vous permettant de combiner plusieurs attache-câbles et serre-câbles afin d'élargir votre gamme d'applications.</li> <li>Production plus durable – fabriqué à partir de matériaux plus respectueux de l'environnement afin de réduire l'empreinte carbone.</li> <li>Installations de grande qualité – solution homologuée ETE avec une durée de vie de 50 ans dans le béton fissuré et conforme aux normes UL.</li> </ul>



# 2 CONDITIONS D'APPLICATION

## 2.1 Exemples d'application



Fixation des câbles groupés au plafond

Fixation des câbles groupés au mur

Fixation de câbles groupés et de conduits au mur

## 2.2 Matériau support

Béton	Acier	Brique pleine	Brique creuse	Maçonnerie en pierre calcaire	Béton poreux	Mur sec / Plaques de plâtre	Bois

## 2.3 Conditions de charge



Statique/quasi statique

## 2.4 Conditions environnementales



Milieu intérieur sec



• Pour de plus amples informations, reportez-vous au [manuel sur la corrosion Hilti](#)

## 2.5 Conditions de température

Élément	Pièce de composant	Température de service	Température d'installation
		T [°C]	T [°C]
X-ECH MX	Support de botte de câbles	0 – 40	-10 – 40

# 3 HOMOLOGATIONS ET CERTIFICATS

Autorité	Numéro d'homologation / de certificat	Date d'émission
Deutsches Institut für Bautechnik (DIBt)	ETA-16/0301	19.12.2023

## 4 DONNÉES PRODUIT

### 4.1 Dimensions

Dessin technique	Élément	Hauteur h [mm]	Longueur l [mm]	Largeur w [mm]
	X-ECH 15 (02) MX	90	48	25
	X-ECH 30 (02) MX	124,5	60	28

### 4.2 Propriétés du matériau pour pièces plastiques

Élément	Pièce de composant	Matériau	Couleur	Autres propriétés
X-ECH MX	Support de botte de câbles	Polyéthylène haute densité (HDPE)	Gris clair	Matériau résistant aux UV, Sans halogène, Sans LABS, Sans silicone

## 5 RECOMMANDATION SYSTÈME

### 5.1 Recommandation de fixation

Élément	Fixation	Matériau support	Méthode de fixation
X-ECH MX	X-P 20 B4 MX, X-P 20 B3 MX	Béton, Maçonnerie en pierre calcaire	Recommandé
	X-P 17 B4 MX, X-P 24 B4 MX, X-P 17 B3 MX, X-P 24 B3 MX, X-C 20 B4 MX, X-C 20 B3 MX, X-C 24 B3 MX	Béton, Maçonnerie en pierre calcaire	Compatible
	X-S 14 B4 MX, X-S 14 B3 MX	Acier	Compatible
	X-EAP 30	Béton	Recommandé
	X-EAP 50	Brique pleine, Brique creuse, Béton poreux, Mur sec / Plaques de plâtre	Recommandé
	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30	Brique pleine, Brique creuse, Béton poreux, Mur sec / Plaques de plâtre	Compatible
S-WS 03 Z 4.2x35	Bois	Recommandé	

## 5.2 Type de connexion

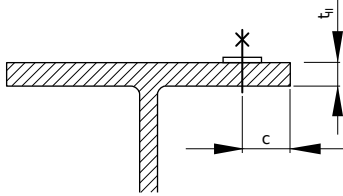
Type de connexion	Plafond	Mur	Élément	Élément connecté	Fixation
CT 1.1			X-ECH 15 (02) MX		
CT 1.2			X-ECH 30 (02) MX		
CT 2.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30,
CT 3.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	S-WS 03 Z 4.2x35, X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-S 14 B3 MX, X-S 14 B4 MX
CT 4.1			X-ECH 15 (02) MX		X-EKS 16 (02) MX, X-EKS 19/20 (02) MX, X-EKS 25 (02) MX, X-EKS 32 (02) MX
CT 5.1			X-ECH 15 (02) MX		X-EKSC 16 (02) MX, X-EKSC 19/20 (02) MX, X-EKSC 25 (02) MX, X-EKSC 32 (02) MX
CT 6.1			X-ECH 15 (02) MX		X-FC 16-20 MX, X-FC 20-25 MX, X-FC 25-32 MX, X-FC 32-40 MX
CT 7.1			X-ECH 15 (02) MX		
CT 7.2			X-ECH 30 (02) MX		
CT 8.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	X-EAP 30, X-EAP 50
CT 9.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	

Positionnement de points de fixation.

- Pour les applications au sol, utilisez la même disposition des éléments que pour le plafond.

## 6 EXIGENCES EN MATIÈRE D'APPLICATION

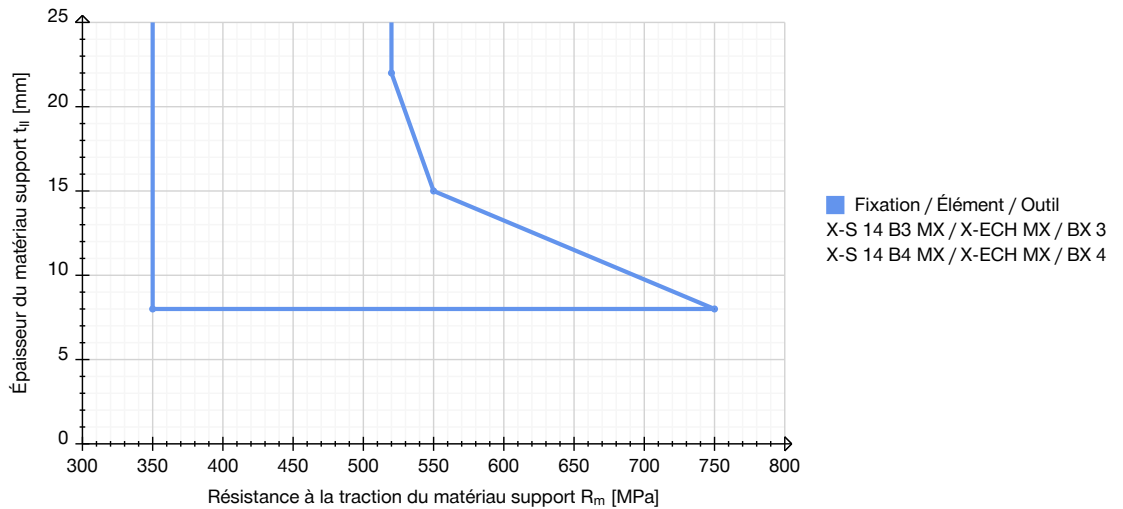
### 6.1 Propriétés du matériau support



Fixation d'élément sur acier

<b>Matériau support</b>	Acier
<b>Épaisseur du matériau support <math>t_{ij}</math> [mm]</b>	$\geq 8$
<b>Distance au bord <math>c</math> [mm]</b>	$\geq 15$

### 6.2 Plage d'applications en acier



## 7 DONNÉES DE PERFORMANCE

### 7.1 Charges recommandées sous charge statique ou quasi-statique

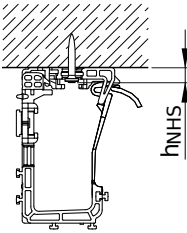
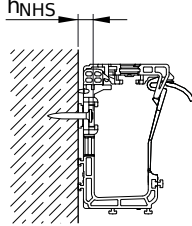
Type de connexion	Charge de traction	Charge de cisaillement
	$N_{rec}$ [kN]	$V_{rec}$ [kN]
CT 1.1, CT 2.1, CT 3.1, CT 4.1, CT 5.1, CT 6.1, CT 7.1, CT 8.1, CT 9.1	0,014	0,014
CT 1.2, CT 7.2	0,028	0,028



- La redondance des points de fixation est requise.
- Nombre minimum de points de fixation pour les fixations de sécurité :  $\geq 5$ .

## 8 ASSURANCE QUALITÉ

### 8.1 Contrôle de profondeur d'ancrage

Plafond	Mur	Élément	Fixation	Implantation de la fixation $h_{NHS}$ [mm]
		X-ECH 15 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX	6-11
		X-ECH 30 (02) MX	X-S 14 B3 MX, X-S 14 B4 MX	6-9



- Les erreurs de pose visibles doivent être corrigées en réalisant une nouvelle fixation, avec un nouveau trou.
- Ces instructions abrégées peuvent varier selon l'application.
- Toujours consulter/suivre les instructions qui accompagnent le produit.

## 9 INFORMATIONS DE COMMANDE

### 9.1 Numéro d'article et description

Désignation	Code article	Description
HMF 5x25	2185263	HMF Ancrage plastique
HMF 6x30	2185268	HMF Ancrage plastique
HUD-2 5x25	2287817	HUD-2 Cheville murale en plastique
HUD-2 6x30	2287820	HUD-2 Cheville murale en plastique
S-WS 03 Z 4.2x35	413322	S-WS 03 Z Vis à bois
X-C 20 B3 MX	2123993	X-C B3 MX Clous béton (en bande)
X-C 20 B4 MX	2361658	X-C B4 MX Clous béton (en bande)
X-C 24 B3 MX	2123994	X-C B3 MX Clous béton (en bande)
X-EAP 30	2388259	X-EA MX Cheville à frapper
X-EAP 50	2388260	X-EA MX Cheville à frapper
X-ECH 15 (02) MX	2388249	X-ECH MX Support de botte de câbles
X-ECH 30 (02) MX	2388250	X-ECH MX Support de botte de câbles
X-P 17 B3 MX	2156216	X-P B3 MX Clous béton (en bande)
X-P 17 B4 MX	2361537	X-P B4 MX Clous béton (en bande)
X-P 20 B3 MX	2156217	X-P B3 MX Clous béton (en bande)
X-P 20 B4 MX	2361538	X-P B4 MX Clous béton (en bande)
X-P 24 B3 MX	2156218	X-P B3 MX Clous béton (en bande)
X-P 24 B4 MX	2361539	X-P B4 MX Clous béton (en bande)
X-S 14 B3 MX	2156392	X-S B3 MX Clous en acier (en bande)
X-S 14 B4 MX	2361654	X-S B4 MX Clous en acier (en bande)





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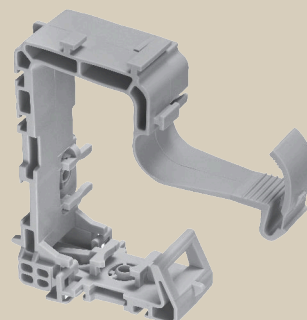
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[www.hilti.group](https://www.hilti.group)



# X-ECH MX RACCOGLICAVI

Scheda tecnica

[Italiano](#)



03.2024

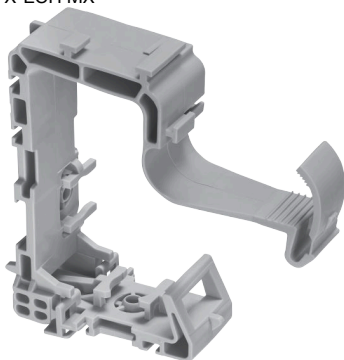
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# 1 INFORMAZIONI SUL PRODOTTO

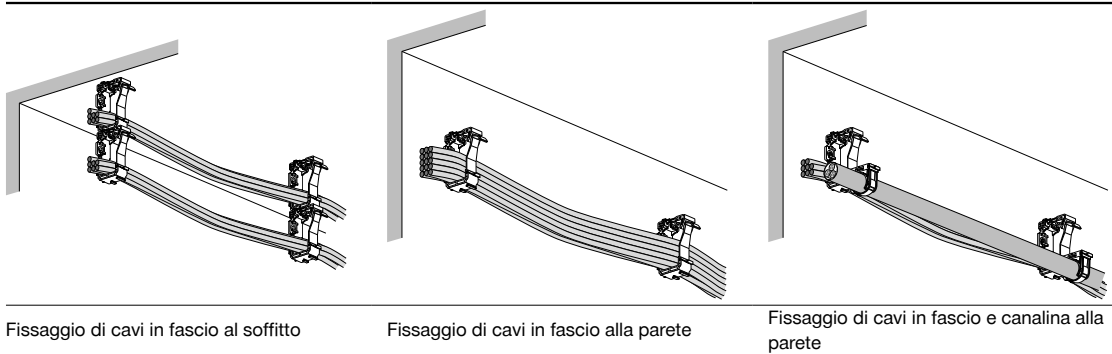
## 1.1 Descrizione del prodotto

Denominazione	Vantaggi
X-ECH MX	<ul style="list-style-type: none"> <li>Ottimizzato per l'inchiodatrice BX: il nasello dell'inchiodatrice ad attrito e il metodo di fissaggio senza trapano consentono installazioni più veloci, più facili e quasi senza polvere.</li> <li>Metodi di fissaggio versatili: compatibili con ancoranti a innesto, viti per legno e metallo o ancoranti in plastica standard per il fissaggio in un'ampia varietà di materiali di base.</li> <li>Sistema di interblocco - il sistema completamente modulare consente di combinare più portacavi e morsetti per ampliare la gamma di applicazioni.</li> <li>Prodotto in modo più sostenibile: realizzato con materiali più ecologici per contribuire a ridurre l'impronta di carbonio.</li> <li>Installazioni di alta qualità - soluzione approvata ETA con una durata di 50 anni in calcestruzzo fessurato e certificazione UL.</li> </ul>



# 2 CONDIZIONI DI APPLICAZIONE

## 2.1 Esempi di applicazione

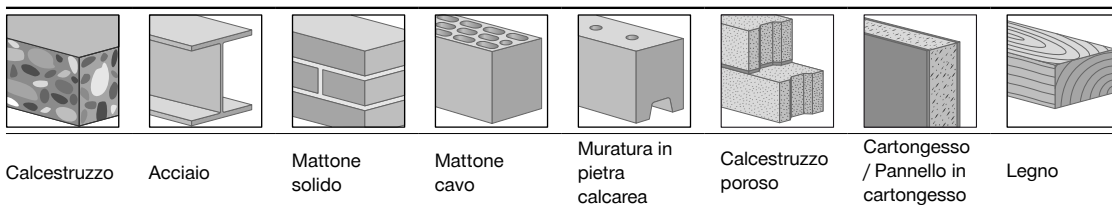


Fissaggio di cavi in fascio al soffitto

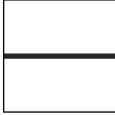
Fissaggio di cavi in fascio alla parete

Fissaggio di cavi in fascio e canalina alla parete

## 2.2 Materiali di base

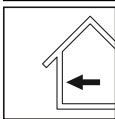


## 2.3 Condizioni di carico



Statico/quasi statico

## 2.4 Condizioni ambientali



Interni asciutti



• Per maggiori dettagli consultare [Manuale sulla corrosione Hilti](#)

## 2.5 Condizioni di temperatura

Elemento	Parte del componente	Temperatura di servizio T [°C]	Temperatura di installazione T [°C]
X-ECH MX	Raccogliacavi	0 - 40	-10 - 40

# 3 OMOLOGAZIONI E CERTIFICAZIONI

Autorità	Numero omologazione / certificazione	Data di emissione
Deutsches Institut für Bautechnik (DIBt)	ETA-16/0301	19.12.2023

## 4 DATI DEL PRODOTTO

### 4.1 Dimensioni

Disegno tecnico	Elemento	Altezza h [mm]	Lunghezza l [mm]	Larghezza w [mm]
	X-ECH 15 (02) MX	90	48	25
	X-ECH 30 (02) MX	124,5	60	28

### 4.2 Proprietà dei materiali per parti in plastica

Elemento	Parte del componente	Materiale	Colore	Altre proprietà
X-ECH MX	Raccogliacavi	Polietilene ad alta densità (HDPE)	Grigio chiaro	Materiale resistente ai raggi UV, Privo di LABS, Senza alogeni, Senza silicone

## 5 RACCOMANDAZIONI SUL SISTEMA

### 5.1 Raccomandazioni per il elemento di fissaggio

Elemento	Elemento di fissaggio	Materiale di base	Metodo di fissaggio
X-ECH MX	X-P 20 B4 MX, X-P 20 B3 MX	Calcestruzzo, Muratura in pietra calcarea	Consigliato
	X-P 17 B4 MX, X-P 24 B4 MX, X-P 17 B3 MX, X-P 24 B3 MX, X-C 20 B4 MX, X-C 20 B3 MX, X-C 24 B3 MX	Calcestruzzo, Muratura in pietra calcarea	Adatto
	X-S 14 B4 MX, X-S 14 B3 MX	Acciaio	Adatto
	X-EAP 30	Calcestruzzo	Consigliato
	X-EAP 50	Mattone solido, Mattone cavo, Calcestruzzo poroso, Cartongesso / Pannello in cartongesso	Consigliato
	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30	Mattone solido, Mattone cavo, Calcestruzzo poroso, Cartongesso / Pannello in cartongesso	Adatto
	S-WS 03 Z 4.2x35	Legno	Consigliato

## 5.2 Tipo di collegamento

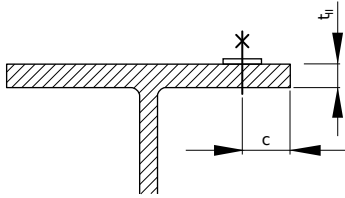
Tipo di collegamento	Soffitto	Parete	Elemento	Elemento di collegamento	Elemento di fissaggio
CT 1.1			X-ECH 15 (02) MX		
CT 1.2			X-ECH 30 (02) MX		
CT 2.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	HMF 5x25, HMF 6x30, HUD-2 5x25, HUD-2 6x30, S-WS 03 Z 4.2x35, X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-S 14 B3 MX, X-S 14 B4 MX
CT 3.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	
CT 4.1			X-ECH 15 (02) MX	X-EKS 16 (02) MX, X-EKS 19/20 (02) MX, X-EKS 25 (02) MX, X-EKS 32 (02) MX	
CT 5.1			X-ECH 15 (02) MX	X-EKSC 16 (02) MX, X-EKSC 19/20 (02) MX, X-EKSC 25 (02) MX, X-EKSC 32 (02) MX	
CT 6.1			X-ECH 15 (02) MX	X-FC 16-20 MX, X-FC 20-25 MX, X-FC 25-32 MX, X-FC 32-40 MX	
CT 7.1			X-ECH 15 (02) MX		
CT 7.2			X-ECH 30 (02) MX		
CT 8.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	X-EAP 30, X-EAP 50
CT 9.1			X-ECH 15 (02) MX	X-ECH 15 (02) MX	

Posizionamento del punto di fissaggio.

• Per le applicazioni a pavimento, utilizzare la stessa disposizione degli elementi prevista per il soffitto.

## 6 REQUISITI DI APPLICAZIONE

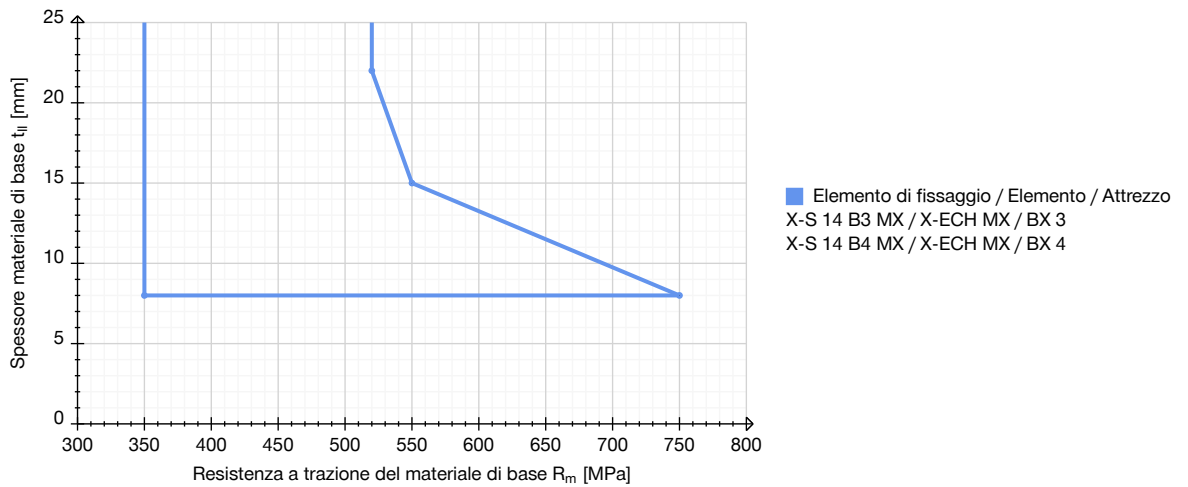
### 6.1 Proprietà del materiale di base



Fissaggio di elemento all'acciaio

<b>Materiale di base</b>	Acciaio
<b>Base material thickness <math>t_{II}</math> [mm]</b>	$\geq 8$
<b>Edge distance <math>c</math> [mm]</b>	$\geq 15$

### 6.2 Range di applicazione in acciaio



## 7 DATI SULLE PRESTAZIONI

### 7.1 Carichi consigliati ad azioni statiche o quasi statiche

Tipo di collegamento	Carico a trazione	Carico di taglio
	$N_{rec}$ [kN]	$V_{rec}$ [kN]
CT 1.1, CT 2.1, CT 3.1, CT 4.1, CT 5.1, CT 6.1, CT 7.1, CT 8.1, CT 9.1	0,014	0,014
CT 1.2, CT 7.2	0,028	0,028

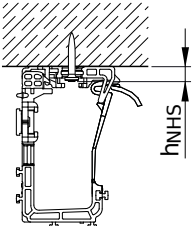
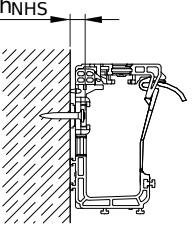


- È necessaria una ridondanza dei punti di fissaggio.
- Numero minimo di punti di fissaggio per fissaggi rilevanti per la sicurezza:  $\geq 5$ .



## 8 ASSICURAZIONE QUALITÀ

### 8.1 Controllo della profondità di posa

Soffitto	Parete	Elemento	Elemento di fissaggio	Distanziatore chiodo $h_{NHS}$ [mm]
		X-ECH 15 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX	6-11
		X-ECH 30 (02) MX	X-C 20 B3 MX, X-C 20 B4 MX, X-C 24 B3 MX, X-P 17 B3 MX, X-P 17 B4 MX, X-P 20 B3 MX, X-P 20 B4 MX, X-P 24 B3 MX, X-P 24 B4 MX	
		X-ECH 15 (02) MX	X-S 14 B3 MX, X-S 14 B4 MX	6-9
		X-ECH 30 (02) MX	X-S 14 B3 MX, X-S 14 B4 MX	



- Gli errori di impostazione evidenti devono essere corretti sostituendo l'elemento di fissaggio, realizzando un nuovo foro.
- Di seguito sono riportate istruzioni brevi che possono variare a seconda dell'applicazione.
- Consultare/seguire sempre le istruzioni allegate al prodotto.

## 9 INFORMAZIONI PER L'ORDINE

### 9.1 Numero articolo e descrizione

Denominazione	Codice articolo	Descrizione
HMF 5x25	2185263	HMF Tassello plastico
HMF 6x30	2185268	HMF Tassello plastico
HUD-2 5x25	2287817	HUD-2 Spina a muro in plastica
HUD-2 6x30	2287820	HUD-2 Spina a muro in plastica
S-WS 03 Z 4.2x35	413322	S-WS 03 Z Viti da legno
X-C 20 B3 MX	2123993	X-C B3 MX Chiodi per calcestruzzo (a nastro)
X-C 20 B4 MX	2361658	X-C B4 MX Chiodi per calcestruzzo (a nastro)
X-C 24 B3 MX	2123994	X-C B3 MX Chiodi per calcestruzzo (a nastro)
X-EAP 30	2388259	X-EA MX Tassello a innesto
X-EAP 50	2388260	X-EA MX Tassello a innesto
X-ECH 15 (02) MX	2388249	X-ECH MX Raccogliacavi
X-ECH 30 (02) MX	2388250	X-ECH MX Raccogliacavi
X-P 17 B3 MX	2156216	X-P B3 MX Chiodi per calcestruzzo (a nastro)
X-P 17 B4 MX	2361537	X-P B4 MX Chiodi per calcestruzzo (a nastro)
X-P 20 B3 MX	2156217	X-P B3 MX Chiodi per calcestruzzo (a nastro)

<b>Denominazione</b>	<b>Codice articolo</b>	<b>Descrizione</b>
X-P 20 B4 MX	2361538	X-P B4 MX Chiodi per calcestruzzo (a nastro)
X-P 24 B3 MX	2156218	X-P B3 MX Chiodi per calcestruzzo (a nastro)
X-P 24 B4 MX	2361539	X-P B4 MX Chiodi per calcestruzzo (a nastro)
X-S 14 B3 MX	2156392	X-S B3 MX Chiodo per acciaio (a nastro)
X-S 14 B4 MX	2361654	X-S B4 MX Chiodo per acciaio (a nastro)



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