



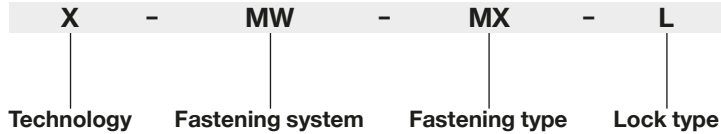
# X-MW MX, X-MW ALH DATA SHEET

Wire hanging system



## X-MW MX, X-MW ALH Wire hanging system

### X-WS Wire hanging system designation



#### Technology:

X | Direct Fastening (DX) solution

#### Fastening system:

MW MX | Wire hanging system fastened with battery-actuated  
magazined fastener

MW ALH | Wire hanging system with pre-mounted powder-actuated  
fastener

#### Fastening type:

MX | Magazined fastener

ALH | Pre-mounted fastener

#### Lock type:

L | Loop lock

## X-MW MX, X-MW ALH Wire hanging system

### Product data

#### Product description



- X-MW MX fastening system for fastening heating, ventilation, and air condition (HVAC), cable tray, conduit rack and lighting to ceiling
- System can be mounted with battery-actuated fasteners X-P 20 B3 MX, X-P 24 B3 MX, X-S 14 B3 MX
- Wire length: 2 m, 3 m and 6 m
- Loop lock



- X-MW ALH fastening system for fastening heating, ventilation, and air condition (HVAC), cable tray, conduit rack and lighting to ceiling
- System can be mounted with powder-actuated pre-mounted fasteners X-ALH 22/27/32
- Wire length: 2 m, 3 m and 6 m
- Loop lock

#### Fastening system

	Designation		
			Pre-mounted
Designation	X-P 20/24 B3 MX	X-S 14 B3 MX	X-ALH 22/27/32
X-MW MX	■	■	
X-MW ALH			■

■ = suitable for combination

□ = suitable for combination, requires expert evaluation

**Dimensions**

## Dimensions for elements

Technical drawing	Designation	Width w	Length l	Height h	Thickness t
	X-MW MX	30 mm	65 mm	21 mm	1.2 mm
	X-MW ALH	20 mm	30 mm	22.5 mm	1.5 mm
	Loop lock	12.5 mm	23 mm	18 mm	-



- Wire diameter  $d \leq 2$  mm

## Material specification and material properties for steel elements

Designation	Element	Material	Coating	Minimum coating thickness
X-MW MX	Wire holder plate	Carbon steel	Zinc	3 $\mu$ m
X-MW ALH	Wire holder plate	Carbon steel	Zinc	3 $\mu$ m
	Wire	Carbon steel	Zinc	3 $\mu$ m
	Loop lock	Aluminum, brass	Nickel	-

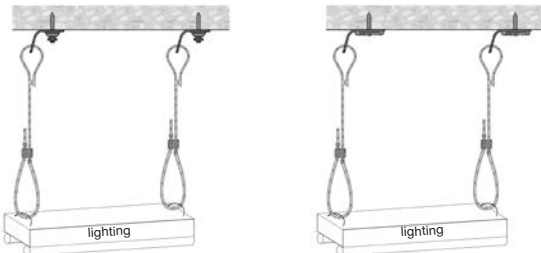
**Approvals and certificates**

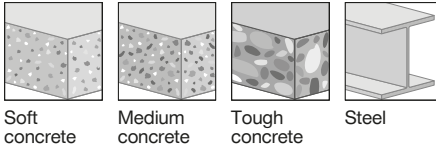
Authority	Approval/ certificate no.	Date of issue	Short description
UL Listing	E522519	09/2021	Luminaire fittings certified for Canada, model(s): X-MW ALH27 L 10ft/3m, X-MW ALH27 L 20ft/6m, X-MW ALH27 L 6ft/2m, X-MW ALH32 L 10ft/3m, X-MW MX L 10ft/3m, X-MW MX L 20ft/6m, X-MW MX L 6ft/2m.



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

**Application**
**Spiral HVAC**

**Lighting**


**Base materials**


Soft concrete

Medium concrete

Tough concrete

Steel

**Load conditions**

 Static/  
quasi static

**Recommended angle between wires at loop lock**

 Maximum angle between wires:  $\alpha \leq 60^\circ$ 
**Environmental conditions**

		Designation		
Environmental condition		X-MW MX combined with X-P 20/24 B3 MX, loop lock and wire	X-MW MX combined with X-S 14 B3 MX, loop lock and wire	X-MW ALH combined with X-ALH 22/27/32, loop lock and wire
	Dry indoor	■	■	■

■ = suitable

□ = requires expert evaluation

• For more details, please refer to following technical document(s): Hilti Corrosion Handbook.

**Fastener program**

## Item no. and description

Designation	Item no.	Description
X-MW MX, Ø 2 mm, L 6ft/2m	2325727	Wire hanging system with loop lock and wire
X-MW MX, Ø 2 mm, L 10ft/3m	2325728	
X-MW MX, Ø 2 mm, L 20ft/6m	2325729	
X-MW ALH 22, Ø 2 mm, L 10ft/3m	2325738	
X-MW ALH 27, Ø 2 mm, L 6ft/2m	2325730	
X-MW ALH 27, Ø 2 mm, L 10ft/3m	2325731	
X-MW ALH 27, Ø 2 mm, L 20ft/6m	2325732	
X-MW ALH 32, Ø 2 mm, L 10ft/3m	2325733	

## X-MW MX, X-MW ALH for fastening to concrete

### Performance data

Recommended resistance under tension and shear load

Designation	Embedment depth $h_{ET}$	Tension load		Shear load	
		$N_{rec}$		$V_{rec}$	
Fastening system		Soft/medium concrete	Tough concrete	Soft/medium concrete	Tough concrete
X-MW MX + X-P 20/24 B3 MX	≥ 16 mm	0.05 kN	–	0.05 kN	–
X-MW ALH 22 (X-ALH 22)	≥ 18 mm	0.1 kN	0.1 kN	0.1 kN	0.1 kN
X-MW ALH 27 (X-ALH 27)	≥ 22 mm	0.1 kN	0.1 kN	0.1 kN	0.1 kN
X-MW ALH 32 (X-ALH 32)	≥ 26 mm	0.1 kN	0.1 kN	0.1 kN	0.1 kN

- Redundancy of fastening points is required.
- Minimum number of fastening points for safety relevant fastening: ≥ 5.
- For more details in relation to base material properties, please refer to the chapter Fastener selection guide in the Direct Fastening Manual (DFTM).

### Stick rate estimation

	Designation	Soft/medium concrete	Tough concrete
	X-MW MX + X-P 20/24 B3 MX	95–100 %	–
	X-MW ALH 22 (X-ALH 22)	95–100 %	90–95 %
	X-MW ALH 27 (X-ALH 27)	95–100 %	90–95 %
	X-MW ALH 32 (X-ALH 32)	90–95 %	85–95 %

- The stick rate indicates the percentage of nails that were driven correctly to carry a load.
- Stick rate can vary from the above values depending on job site conditions.



**System recommendation**

## System recommendation for fastening collated nails with battery-actuated tools

Designation	Battery-actuated tool			Base material		
	BX 3 ME 02	Soft concrete	Medium concrete	Tough concrete		
X-MW MX + X-P 20/24 B3 MX	■	■	■			

■ = recommended

□ = feasible

## System recommendation for fastening pre-mounted nails with powder-actuated tools

Designation	Powder-actuated tool						Base material		
	DX 6 F8	DX 5 F8	DX 460 F8	DX 351 CT	DX 351 ME	DX 2	Soft concrete	Medium concrete	Tough concrete
X-MW ALH 22 (X-ALH 22)	■	□	□	■	■	■	■	■	■
X-MW ALH 27 (X-ALH 27)	■	□	□	■	■	■	■	■	■
X-MW ALH 32 (X-ALH 32)	■	□	□				■	■	■

■ = recommended

□ = feasible



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

**Cartridge recommendation**

Base material	Cartridge color (tool power level)		
	Fastening system: X-MW ALH 22 (X-ALH 22)	Fastening system: X-MW ALH 27 (X-ALH 27)	Fastening system: X-MW ALH 32 (X-ALH 32)
	Tool type: DX 6 F8	Tool type: DX 6 F8	Tool type: DX 6 F8
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Soft/medium concrete	titanium ■ (4-5)	titanium ■ (4-5)	titanium ■ (6-8) to black ■ (7-8)
Tough concrete	titanium ■ (4-5)	titanium ■ (6-8)	titanium ■ (6-8) to black ■ (7-8)

Base material	Cartridge color (tool power level)		
	Fastening system: X-MW ALH 22 (X-ALH 22)	Fastening system: X-MW ALH 27 (X-ALH 27)	Fastening system: X-MW ALH 32 (X-ALH 32)
	Tool type: DX 5 F8, DX 460 F8, DX 351 CT, DX 351 ME, DX 2	Tool type: DX 5 F8, DX 460 F8, DX 351 CT <sup>1)</sup> , DX 351 ME <sup>1)</sup> , DX 2 <sup>1)</sup>	Tool type: DX 5 F8, DX 460 F8
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Soft/medium concrete	yellow ■, red ■	red ■	red ■, black ■
Tough concrete	red ■	red ■, black ■	black ■

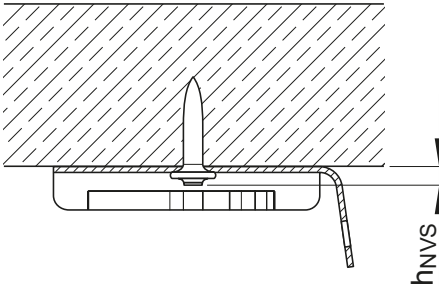
<sup>1)</sup> Black cartridges do not apply for this tool.



- 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**

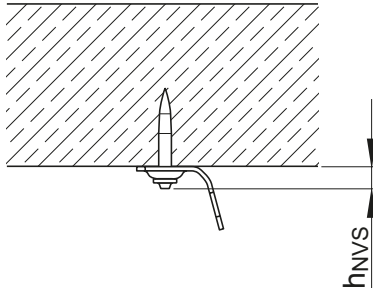
Admissible fastener stand-off for  
X-MW MX



$$h_{NVS, \min} = 3 \text{ mm}$$

$$h_{NVS, \max} = 9 \text{ mm}$$

Admissible fastener stand-off  
X-MW ALH 22 (X-ALH 22)  
X-MW ALH 27 (X-ALH 27)  
X-MW ALH 32 (X-ALH 32)



$$h_{NVS, \min} = 6 \text{ mm}$$

$$h_{NVS, \max} = 11 \text{ mm}$$



- 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.

## X-MW MX, X-MW ALH for fastening to steel

### Performance data

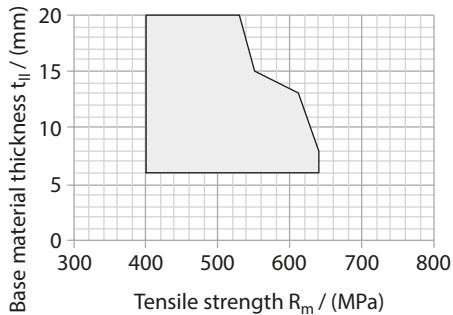
Recommended resistance under tension and shear load

Designation	Embedment depth $h_{ET}$	Tension load $N_{rec}$	Shear load $V_{rec}$
Fastening system		S235, S275, S355	S235, S275, S355
X-MW MX + X-S 14 B3 MX	$\geq 5$ mm	0.45 kN	0.45 kN
X-MW ALH 22 (X-ALH 22)	$\geq 15$ mm	0.45 kN	0.45 kN

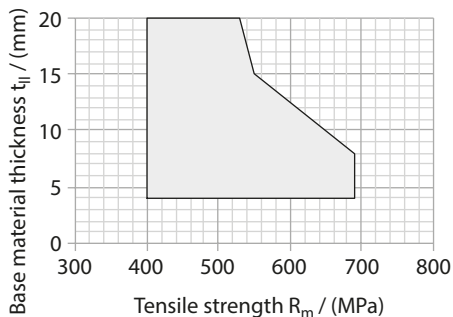


- Redundancy of fastening points is required.
- Minimum number of fastening points for safety relevant fastening:  $\geq 5$ .
- For more details in relation to base material properties, please refer to the chapter Fastener selection guide in the Direct Fastening Manual (DFTM).

### Application recommendation



— X-MW MX + X-S 14 B3 MX



— X-MW ALH 22



- Application area covered by polygon.

**System recommendation**

System recommendation for fastening collated nails with battery-actuated tools

Designation	Battery-actuated tool			Base material		
			BX 3 ME 02	Steel S235	Steel S275	Steel S355
X-MW MX + X-S 14 B3 MX	■			■	■	■

■ = recommended

□ = feasible

System recommendation for fastening pre-mounted nails with powder-actuated tools

Designation	Powder-actuated tool			Base material		
	DX 6 F8	DX 5 F8	DX 460 F8	Steel S235	Steel S275	Steel S355
X-MW ALH 22 (X-ALH 22)	■	□	□	■	■	■

■ = recommended

□ = feasible



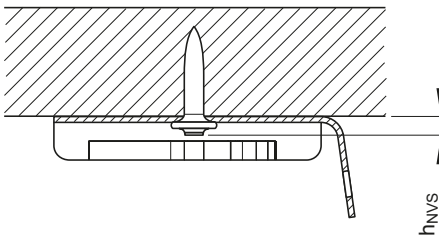
- For more details, please refer to the chapter **Accessories and consumables compatibility** in the Direct Fastening Technology Manual (DFTM).

**Cartridge recommendation**

Base material		Cartridge color (tool power level)	
		Fastening system: X-MW ALH 22 (X-ALH 22)	
		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	$6 \leq t_{II} \leq 20 \text{ mm}$	titanium ■ (6-8), black ■ (7-8)	red ■, black ■

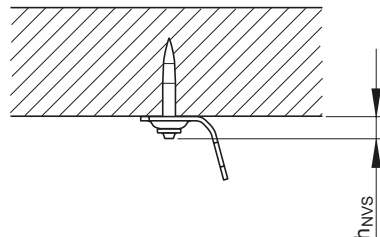


- Tool power level adjustment by setting tests on site.
- Start tool energy selection with lowest recommended tool power level.
- Correct according requirement from chapter quality assurance.

**Quality assurance**
**Admissible fastener stand-off for  
X-MW MX**


$$h_{NVS, \min} = 3 \text{ mm}$$

$$h_{NVS, \max} = 7 \text{ mm}$$

**Admissible fastener stand-off for  
X-MW ALH 22 (X-ALH 22)**


$$h_{NVS, \min} = 6 \text{ mm}$$

$$h_{NVS, \max} = 11 \text{ mm}$$



- 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.