



GX 3 SYSTEM DATA SHEET

**System Fastener for interior finishing,
building construction, mechanical
and electrical application**



GX 3 System Fastener for interior finishing, building construction, mechanical and electrical application

Product data

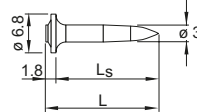
GX 3 gas tool



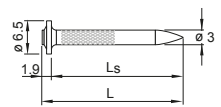
GX 3, GX 3-ME

Nails for fastening to concrete

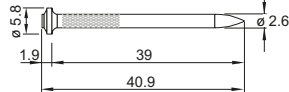
X-P 17/20/24 G3 MX



X-C 20/27/32 G3 MX

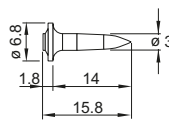


X-C 39 G3 MX



Nails for fastening to steel

X-S 14 G3 MX



Material specification for nails

X-P G3 MX, X-S G3 MX

Carbon steel, HRC 57.5, 2-13 μm zinc coating

X-C G3 MX

Carbon steel, HRC 56.5, 2-13 μm zinc coating

Approvals and certificates

ICC-ESR 1752 (USA)

X-P 17/20/24 G3 MX, X-C 20/27/32 G3 MX and X-S 14 G3 MX

IBMB

X-P 17/20/24 G3 MX, X-C 20/27/32/39 G3 MX

ETA-16/0301

X-P 20/24 G3 MX



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

Applications

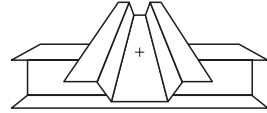
Examples



Drywall tracks



Light-duty building construction applications



Temporary tacking of composite deck to steel beams

Product data

Electrical elements to be used with nails

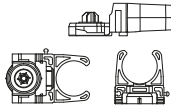
X-ECT MX



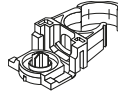
X-UCT MX



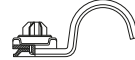
X-EKS MX



X-EKSC MX



X-FB MX



X-ECH MX



X-DFB MX



X-EKB MX



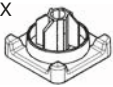
X-ECC MX



X-EHS MX



X-ET MX



X-TT



X-ECT 40 MX



Material specifications for plastic parts

X-ECT MX, X-EKS, X-EKSC MX, ECH MX

PA, halogen free, silicone free, light grey RAL 7035

X-EKB MX

PA, halogen free, light grey RAL 7035

X-ECT-FR MX

PBT, silicone free, flame retardant, stone grey RAL 7030

X-EKB-FR MX

PBT, silicone free, flame retardant, stone grey RAL 7030

X-UCT MX, X-ET MX

HDPE, halogen free, silicone free, light grey RAL 7035

X-TT

PET

X-FB MX, X-DFB MX

Galvanized steel sheet

$f_u = 270-420 \text{ N/mm}^2$, 10-20 μm zinc coating

X-ECC MX, X-EHS MX

Galvanized steel sheet

$f_u = 270-420 \text{ N/mm}^2$, 10-20 μm zinc coating

Approvals and certificates

ICC-ESR 1752 (USA), IBMB, ETA-16/0301

Applications



Conduits and light-duty pipes



Electrical cables

Product data

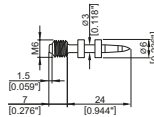
GX 3 gas tool



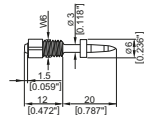
GX 3, GX 3-ME

Studs for fastening to concrete

X-M6-7-24 G3 P7

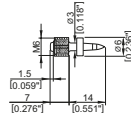


X-W6-12-20 G3 P7

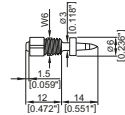


Studs for fastening to steel

X-M6-7-14 G3 P7



X-W6-12-14 G3 P7



Material specifications for studs

Carbon steel shank

HRC 57.5

Zinc coating

2-10 µm

Applications



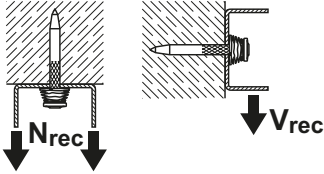
Junction boxes, switch boxes, etc.



Pipe rings for light-duty pipes

Performance data

Recommended resistance under tension and shear load for drywall track fastening



X-S 14 G3 MX (Base material: steel)

Tension N_{rec}	Shear V_{rec}
0.4 kN	0.4 kN

X-P G3, X-C G3 (Base material: concrete / sand-lime masonry)

Embedment	Tension N_{rec}		Shear V_{rec}		Tension N_{rec}	Shear V_{rec}
	Concrete Type					
	Soft/ medium	Tough	Soft/ medium	Tough		
					Sand-lime masonry	
≥ 22 mm	-	-	-	-	0.3 kN	0.3 kN
≥ 18 mm	0.2 kN	-	0.2 kN	-	0.2 kN	0.2 kN
≥ 14 mm	0.1 kN	0.1 kN	0.1 kN	0.1 kN	0.1 kN	0.1 kN

Conditions

- For safety relevant fastenings sufficient redundancy of the entire system is required; Minimum of 5 nails per fastened track. All visible setting failures must be replaced
- Sheet metal failure is not considered in recommended loads and must be assessed separately
- Soft, medium concrete up to $f_{c,cube} = 45 \text{ N/mm}^2$ (C35/45), some tough concrete up to $f_{c,cube} = 60 \text{ N/mm}^2$ (C50/60).
- Concrete with aggregate like granite or river rock or softer, and up to 16 mm diameter

Stick rate estimation



Designation	Soft/medium concrete	Tough concrete
X-P G3	85–98%	70–85%
X-C G3	75–90%	55–70%



- 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.

Recommended loads and tightening torque for threaded studs

Designation	N_{rec}	V_{rec}	T_{rec}	Base material
X-M6-7-24 G3 P7	0.05 kN	0.05 kN	3.0 Nm	Concrete, sand-lime masonry
X-W6-12-20 G3 P7	0.05 kN	0.05 kN	3.0 Nm	
X-M6-7-14 G3 P7	0.2 kN	0.2 kN	3.0 Nm	Steel
X-W6-12-14 G3 P7	0.2 kN	0.2 kN	3.0 Nm	

Recommended tension and shear load for fastening electrical elements

Designation	Tension load N_{rec}	Shear load V_{rec}
X-ECT 40 MX, X-ECT MX, X-ECT FR MX	0.040 kN	0.040 kN
X-UCT MX	0.040 kN	0.040 kN
X-EKS MX	0.011 kN	0.011 kN
X-EKSC MX	0.032 kN	0.032 kN
X-FB MX / X-DFB MX	0.020 kN	0.020 kN
X-ECC MX	0.050 kN	0.050 kN
X-EHS MX	0.080 kN	0.080 kN
X-EKB 4 MX, X-EKB FR 4 MX	0.090 kN	
X-EKB 8 MX, X-EKB FR 8 MX	0.014 kN	
X-EKB 16 MX, X-EKB FR 16 MX	0.018 kN	
X-ECH MX	0.040 kN	0.040 kN

Recommended tension and shear load for fastening pipes

Designation	Tension load N_{rec}	Shear load V_{rec}
X-ECT 40 MX, X-ECT MX, X-ECT FR MX	0.040 kN	0.040 kN
X-EKSC MX	0.032 kN	0.032 kN

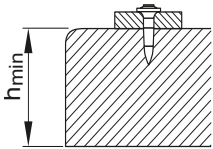
- copper pipes and plastic pipes, e.g. PEX pipes
- pipes filled with 90°C hot fluid
- tests according to Kiwa standard BRL-K506

Recommended tension and shear load for fastening cable trunking

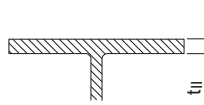
Designation	Tension load N_{rec}	Shear load V_{rec}
X-ET MX	0.10 kN	0.10 kN

Application recommendation

Thickness of base material



Concrete (for nails
and threaded studs)
 $h_{min} = 60 \text{ mm}$

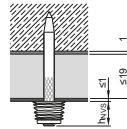


Steel
 $t_{II} \geq 4.0 \text{ mm}$ (for nails)
 $t_{II} \geq 6.0 \text{ mm}$ (for
threaded studs)

Thickness of fastened material

Wooden track: $t_I \leq 25 \text{ mm}$

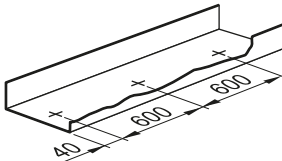
Metal track: $t_I \leq 2 \text{ mm}$



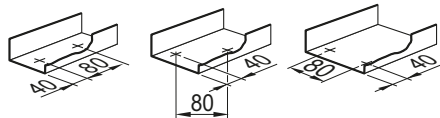
Deflection head:
 $t_{I,tot.} \leq 21 \text{ mm}$ (gypsum strip
+ metal track and sealant)

Spacing and edge distances (mm)

Spacing along track

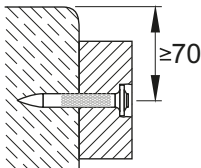


All track ends (cut-outs for doors),
secure with 2 nails

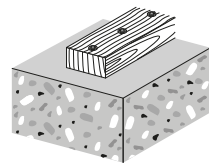
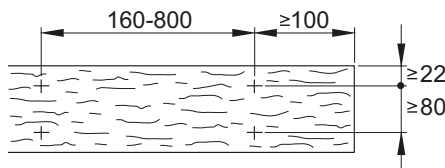


Fastener spacing max. 30 cm for proprietary
light non-load-bearing partition walls with
fire classification

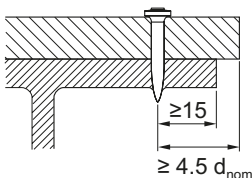
Distance to edge of concrete / sand-lime masonry



Spacing between nails when fastening wood to concrete

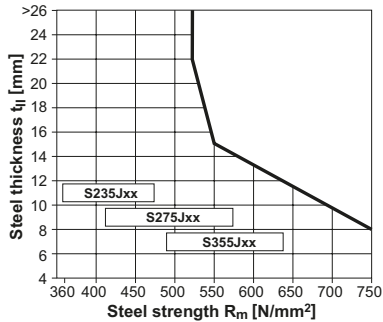


Distance to edge of fastened material (steel base material)

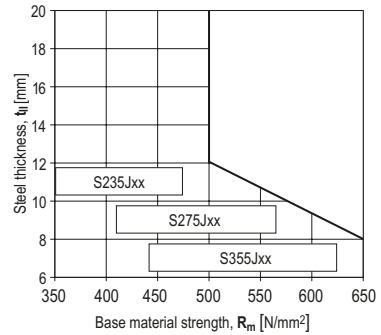


Application limits

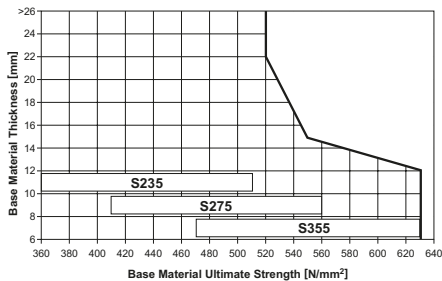
X-S 14 G3 MX



X-M6-7-14 G3 P7, X-W6-12-14 G3 P7



For temporary tacking of composite decks



Design conditions

- Single layer sheet with a maximum thickness of 1.25 mm.
- Sheeting grade up to S450 acc. to EN 10346.
- Minimum base material thickness: 6 mm
- Minimum steel grade: S235 acc. to EN 10025-2

Corrosion information



- The intended use only comprises fastenings which are not directly exposed to external weather conditions or moist atmospheres, i.e. only intended for dry indoor areas.
- For more details, please refer to following technical document: Hilti Corrosion Handbook.

Fastener program and system recommendation

Fastener program


Nails

Designation	Item no.	Shank length	Shank diameter	Base material	Length recommendation		
X-S 14 G3 MX	2101547	14 mm	3 mm	Steel			
X-P 17 G3 MX	2101046	17 mm	3 mm	Concrete / Sand-lime masonry	↑ ↑ ↑ ↑ ↑ ↑ ↑	↑ ↑ ↑ ↑ ↑ ↑ ↑	↑ ↑ ↑ ↑ ↑ ↑ ↑
X-P 20 G3 MX	2101047	20 mm	3 mm				
X-P 24 G3 MX	2101048	24 mm	3 mm				
X-C 20 G3 MX	2100955	20 mm	3 mm				
X-C 27 G3 MX	2100956	27 mm	3 mm				
X-C 32 G3 MX	2100957	32 mm	3 mm				
X-C 39 G3 MX	2100958	39 mm	2.6 mm				

Threaded studs

Designation	Item no.	Thread size	Thread length	Shank length	Shank diameter	Base material
X-M6-7-14 G3 P7	2101052	M6	7 mm	14 mm	3 mm	Steel
X-M6-7-24 G3 P7	2101053	M6	7 mm	24 mm	3 mm	Concrete
X-W6-12-14 G3 P7	2101054	W6	12 mm	14 mm	3 mm	Steel
X-W6-12-20 G3 P7	2101055	W6	12 mm	20 mm	3 mm	Concrete

Fastener selection

	Base material			
	Hollow Brick	Concrete Wall/Floor	Concrete Ceiling	Steel
Track fastening	X-C 27 G3 MX X-C 20 G3 MX	X-C 20 G3 MX	X-C 20 G3 MX X-P 17 G3 MX	X-S 14 G3 MX
Wood fastening	X-C 39 G3 MX X-C 32 G3 MX		---	---
Electrical fastening	X-C 27 G3 MX X-C 20 G3 MX	X-C 20 G3 MX	X-C 20 G3 MX X-P 17 G3 MX	X-S 14 G3 MX
Modul fastening	X-C 20 G3 MX		X-C 20 G3 MX X-P 17 G3 MX	X-S 14 G3 MX
Tape fastening	X-C 20 G3 MX		X-C 20 G3 MX X-P 17 G3 MX	X-S 14 G3 MX
Equipment fastening	X-W6-12-20 G3 P7 X-M6-7-24 G3 P7			X-W6-12-14 G3 P7 X-M6-7-14 G3 P7
Gas can	GC 40/GC 41/GC 42			

For more details and information, please contact your nearest Hilti representative.

Fastening quality assurance

Fastener stand-off for fastening to concrete and sand-lime masonry

	Designation	Fastener stand-off
	X-C_G3 MX X-P_G3 MX	h_{NVS} 2-5 mm

Fastener stand-off for fastening to concrete and sand-lime masonry

	Designation	Fastener stand-off
	X-C_G3 MX X-P_G3 MX	h_{NVS} 2-3 mm

Fastener stand-off for fastening deflection head to concrete

	Designation	Board thickness	Fastener stand-off
	X-C 36 G3 MX	t_i	h_{NVS}
		12.5 mm	≤ 12 mm
		15 mm	≤ 9 mm
19 mm	≤ 5 mm		

Fastener stand-off for fastening to steel

	Designation	Fastener stand-off
	X-S 14 G3 MX	h_{NVS} 2-9 mm

Fastener stand-off for cable claps

	Designation	Fastener stand-off	
		h_{NVS}	
		Concrete	Steel
	X-EKB 4/8 MX	6-11 mm	6-9 mm
	X-EKB 16 MX	6-11 mm	6-9 mm
	X-ECT MX	6-11 mm	6-9 mm
	X-UCT MX	6-11 mm	6-9 mm
	X-ECH MX	6-11 mm	6-9 mm
	X-EKS MX	6-11 mm	6-9 mm
	X-EKSC MX	6-11 mm	6-9 mm
	X-FB MX	7-11 mm	7-9 mm
	X-DFB MX	7-11 mm	7-9 mm
	X-ECC MX	7-11 mm	7-9 mm
X-EHS MX	7-11 mm	7-9 mm	
X-ET MX	5-10 mm	5-9 mm	



- Fastener stand-off h_{NVS} for X-ET MX is measured against the cable trunk.
- 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.

Fastener program

Item no. and description

Designation	Item no.	Description
X-S 14 G3 MX	2156392, 2156393	Nails for fastening to steel
X-P 17 G3 MX	2156216, 2156219	Nails for fastening to concrete
X-P 20 G3 MX	2156217, 2156390	
X-P 24 G3 MX	2156218, 2156391	
X-C 20 G3 MX	2123993	
X-C 24 G3 MX	2123994	
X-C 27 G3 MX	2224568	
X-C 30 G3 MX	2149988	
X-C 36 G3 MX	2149989	
X-FG G3	2102280	Fastener guide for use with nails or studs only
X-FG G3-ME	2102281	Fastener guide for use with nails + elements or only studs