Hilti X-U Nails

Submission Folder

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Universal nail X-U

APPLICATIONS

- All fastenings on concrete (soft / medium / hard) or steel
- Setting up forming boards and safety barriers

ADVANTAGES

- One nail for almost any application
- Fully-knurled point for higher application limits on steel and suitability for use on hard concrete

Technical data	
Point type	Ballistic, Entirely knurled
For use with	DX 2, DX 351, DX 5

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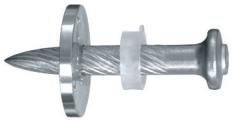
Universal nail for steel X-U P8

Ordering designation	Fastener shank length	Fastener shank diameter	Sales pack quantity	Item number
X-U 16 P8	16 mm	4 mm	100 pc	**237330**
X-U 22 P8	22 mm	4 mm	100 pc	**237332**
X-U 27 P8	27 mm	4 mm	100 pc	**237333**
X-U 32 P8	32 mm	4 mm	100 pc	**237334**
X-U 37 P8	37 mm	4 mm	100 pc	**237335**
X-U 42 P8	42 mm	4 mm	100 pc	**237336**
X-U 47 P8	47 mm	4 mm	100 pc	**237337**

Please visit Hilti website for the latest item numbers and related products

Universal nail with steel washer X-U P8 S



Ordering designation	Shank length	Shank diameter	Washer diameter	Sales pack quantity	Item number
X-U 16 P8 S23	16 mm	4 mm	23 mm	500 pc	**3450949**

Please visit Hilti website for the latest item numbers and related products

Powder-actuated tool DX 5 NEW

APPLICATIONS

- Fastening wood to concrete, sand-lime block or steel
- Fastening sheet metal to concrete, sand-lime block or steel
- Attaching drainage foils and membranes to concrete or CMU block
- Installing wall or brick ties
- Fastening various items such as cable conduits and cable ties to steel and concrete in electrical installation work

ADVANTAGES

- Easy to use and maintain
- Compact, sleek design allows access in narrow spaces
- Ergonomically designed grip and tool nose
- Maximum nail length 62 mm, or 72 mm for wood-to-concrete applications

Technical data	
Power (max.)	325 J
Weight	3.37 kg
Base materials	Concrete, Steel
Automatic piston return	Yes
Noise (pressure) level at work station: LpA, 1s[1)]	101 dB (A)
Dimensions (LxWxH)	478 x 72 x 180 mm
Max. fastener driving rate	450 / h
Cartridge type	6.8/11 M10
Fastener intake	Single
Fastener length range	12 - 72 mm

[1)] Declared measured values of noise characteristics according to 2006/42/EC Machinery Directive in conjunction with E DIN EN 15895

Fleet Management

Bluetooth™

Ordering designation	Package contents	Sales pack quantity	Item number
DX 5 F8	1x Basic unit DX 5_01, 1x Fastener guide X-5-460-F8 assy, 1x Piston X-5-460-P8, 1x Cleaning kit X-5-460-Clean, 1x Case	1 pc	**3612972**

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DX cartridge 6.8/11 M10

APPLICATIONS

- For use with DX 2, DX 5, DX 460, DX 351, DX 450, DX 36, DX A40, DX A41

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Ordering designation	Cartridge type	Cartridge power level	Sales pack quantity	Item number
6.8/11 M10 red	.27 calibre short	Heavy	100 pc	**416474**
6.8/11 M10 yellow	.27 calibre short	Medium-light	100 pc	**416473**

Please visit Hilti website for the latest item numbers and related products

Accessories for DX 460 & DX 5

Ordering designation	Sales pack quantity	Item number
Buffer X-5-460-B 	1 pc	**373330**[1)]
Fastener guide X-5-460-F10 	1 pc	**373319**[1)]
Fastener guide X-5-460-F8 	1 pc	**304529**
Fastener guide X-5-460 F8GR 	1 pc	**386012**[1)]
Fastener guide X-5-460 F8N15 	1 pc	**304530**[1)]
Fastener guide X-5-460-F8S12 	1 pc	**373317**[1)]
Fastener guide X-5-460-F8SS 	1 pc	**373318**[1)]
Piston X-5-460-P10	1 pc	**373300**[1)]
Piston X-5-460-P8	1 pc	**373297**
Piston X-5-460-P8W	1 pc	**373298**[1)]
Piston X-5-460-PGR	1 pc	**305448**[1)]
Protective cap X-SGF 	1 pc	**304416**
Washer holder X-5-460-WH23/36 packed 	1 pc	**373331**[1)]
Pole Tool X-PT 7ft for DX 5 	1 pc	**3579594**
Receptacle X-PT 5 assy 	1 pc	**2150263**
Cleaning kit DX-5-460 	1 pc	**372810**

[1)] For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Powder-actuated tool DX 351

APPLICATIONS

- Quick and convenient for fastening applications such as drywall track attachment, electrical, plumbing and HVAC installation work
- Installing threaded studs to concrete or steel
- Fastening suspended ceilings

ADVANTAGES

- Automatic piston return and cartridge advance
- Very user-friendly: light, low recoil, low noise
- Pole tool available for overhead applications

Fleet Management

Technical data	
Power (max.)	245 J
Weight	2.2 kg
Base materials	Concrete, Steel
Automatic piston return	Yes
Noise (pressure) level at work station: LpA, 1s[1)]	99 dB (A)
Dimensions (LxWxH)	404 x 56 x 164 mm
Max. fastener driving rate	700 / h
Cartridge type	6.8/11 M10
Fastener intake	Single
Fastener length range	12 - 47 mm

[1)] Declared measured values of noise characteristics according to 2006/42/EC Machinery Directive in conjunction with E DIN EN 15895

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Ordering designation	Package contents	Sales pack quantity	Item number
DX 351 M+E	1x Powder-actuated tool DX 351 M+E,1x Piston X-P8S-351, 1x Fastener guide X-FG8ME351 assy, 1x Cleaning kit DX 351, 1x Case	1 pc	**373182**

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DX cartridge 6.8/11 M10

APPLICATIONS

- For use with DX 2, DX 5, DX 460, DX 351, DX 450, DX 36, DX A40, DX A41

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Ordering designation	Cartridge type	Cartridge power level	Sales pack quantity	Item number
6.8/11 M10 red	.27 calibre short	Heavy	100 pc	**416474**
6.8/11 M10 yellow	.27 calibre short	Medium-light	100 pc	**416473**

Please visit Hilti website for the latest item numbers and related products

Accessories for DX 351

Ordering designation	Sales pack quantity	Item number
Fastener guide X-FG8ME351 	1 pc	**362174**[1)]
Piston X-P8S-351 packed	1 pc	**406929**
Protective cap X-SGF 	1 pc	**304416**
Pole Tool X-PT 7ft for DX 351 	1 pc	**3579452**
Receptable X-PT351 	1 pc	**333312**
Cleaning kit DX 351 	1 pc	**2003832**

[1)] For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Semi-automatic powder-actuated tool DX 2 NEW

APPLICATIONS

- Attaching drywall framing to concrete
- Fastening wood to concrete and steel
- Attaching kicker plates to concrete

ADVANTAGES

- Easy to use and maintain
- Compact, sleek design allows access in narrow spaces
- Ergonomically designed grip and tool nose
- Maximum nail length 62 mm, or 72 mm for wood-to-concrete applications

Fleet Management

DESIGN AWARD 2015

Technical data	
Power (max.)	245 J
Weight	2.4 kg
Base materials	Concrete, Steel
Automatic piston return	No
Noise (pressure) level at work station: LpA, 1s[1)]	104 dB (A)
Dimensions (LxWxH)	345 x 50 x 157 mm
Max. fastener driving rate	450 / h
Cartridge type	6.8/11 .27 caliber short, 6.8/11 M10
Fastener intake	Single
Fastener length range	14 - 62 mm

[1)] Declared measured values of noise characteristics according to 2006/42/EC Machinery Directive in conjunction with E DIN EN 15895

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Ordering designation	Package contents	Sales pack quantity	Item number
DX 2	1x Powder-actuated tool DX 2, 1x Round brush 5/8, 1x Round brush, 1x Spares pack DX 2 packed, 1x Case	1 pc	**2084169**

Please visit Hilti website for the latest item numbers and related products

DX cartridge 6.8/11 M10

APPLICATIONS

- For use with DX 2, DX 5, DX 460, DX 351, DX 450, DX 36, DX A40, DX A41

Order Now

Ordering designation	Cartridge type	Cartridge power level	Sales pack quantity	Item number
6.8/11 M10 red	.27 calibre short	Heavy	100 pc	**416474**
6.8/11 M10 yellow	.27 calibre short	Medium-light	100 pc	**416473**

Please visit Hilti website for the latest item numbers and related products

Accessories for DX 2

Ordering designation		Sales pack quantity	Item number
Piston DX 2 kit 1 x piston 2/DNI, 1 x spring clip DX 2		1 pc	**2103082**
Spares pack DX 2 packed 2x spring clip, 2x ball, 1x piston lock		1 pc	**2094647**
Fastener guide X-2-F8 packed		1 pc	**2094644**[1)]
Baseplate X-2-S packed		1 pc	**2094645**[1)]
Piston guide DX 2 packed		1 pc	**2094646**[1)]
Stabilizer plate X-2-STAB packed		1 pc	**2094648**[1)]
Pole Tool X-PT 7ft for DX 2		1 pc	**3579451**
Receptacle X-PT 2		1 pc	**2094657**
Cleaning kit DX 2 3x metal cleaning brush, 1x black cleaning cloth		1 pc	**2097040**

[1)] For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Other Accessories for DX tools

Ordering designation		Sales pack quantity	Item number
Pipe X-PT 1ft		1 pc	**254685**
Pipe X-PT 3ft		1 pc	**254684**
Grip section X-PT assy		1 pc	**254687**
Tool bag X-PT CT		1 pc	**388152**
Spray 66ml		1 pc	**308976**
Safety glasses PP EY-CA NCH clear		1 pc	**2065449**[1)]

[1)] For detailed stock availability and lead time information please contact your Hilti representative.

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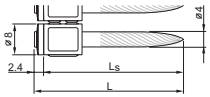
X-U Nail for fastening to concrete and steel

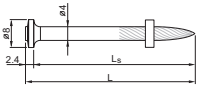
Product data

Dimensions

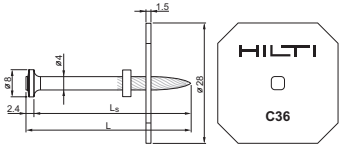
X-U__MX



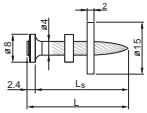
X-U __ P8



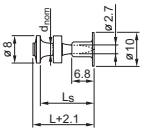
X-U __ P8 S36



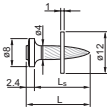
X-U __ P8 S15



X-U 15 P8TH



X-U __ S12



Material specifications

Carbon steel shank:	HRC 58, HRC 59 (X-U 15)
Zinc coating:	5–20 µm

Recommended fastening tools

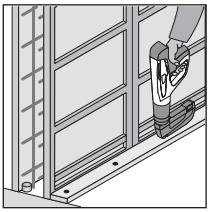
- See fastener program in the next pages.

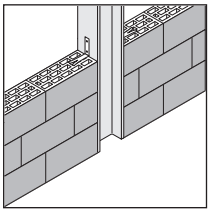
Approvals

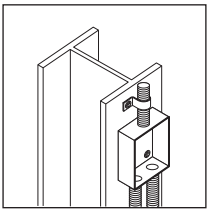
ICC ESR-2269 (USA), DIBt Z-14.4-517 (Germany), DNV-GL, ABS, LR 97/00077, IBMB 4927/2020, ETA 16-0082 (DIBt, 25.08.2016), UKTA-0836-22/6559 (BBA, 23.02.2023)

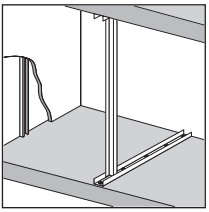
Not all information presented in this product data sheet might be subject to approval / certificate content. Please refer to approval/certificate for further information.

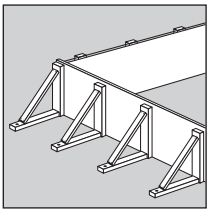
Applications

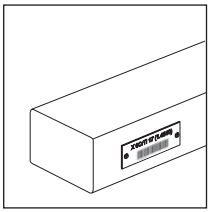

System formwork

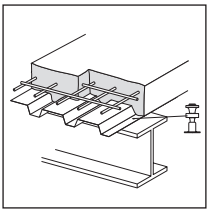

Wall-tie to steel and concrete

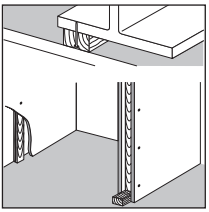

Mechanical and electrical fixtures


Drywall track to concrete and steel


Conventional formwork


Tagging labels


Tacking of metal decks

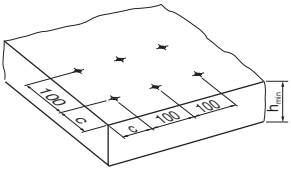

Sill plates / 2x4 wood to concrete and steel

The intended use for safety relevant and permanent applications only comprises fastenings which are not directly exposed to external weather conditions or moist atmospheres.

X-U Nail for fastening wood/insulation and steel to concrete

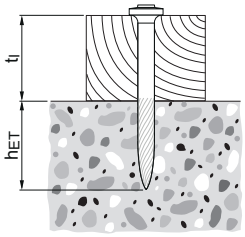
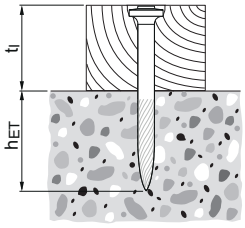
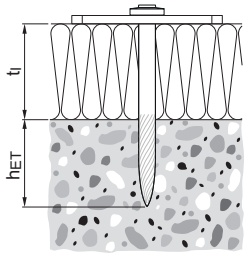
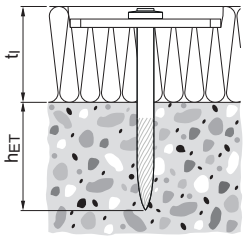
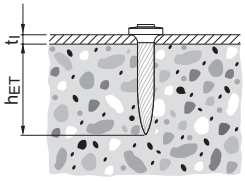
Application recommendation

Base material thickness and fastener positioning in base material



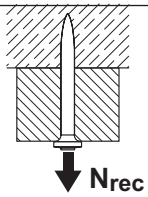
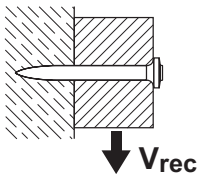
Base material thickness:	h_{min} = 80 mm
Edge distance:	c ≥ 70 mm
Spacing:	s ≥ 100 mm

Fastener shank length recommendation

	Fastening type	Fastener shank length	Penetration depth
	Wood to concrete	$L_s = h_{ET} + t_I$ t_I = 15–57 mm	$h_{ET} \geq 14$ mm
	Wood to concrete, head flush with surface	$L_s = h_{ET} + t_I - 3$ mm t_I = 15–57 mm	$h_{ET} \geq 14$ mm
	Insulation to concrete	$L_s = h_{ET} + t_I$	$h_{ET} \geq 14$ mm
	Insulation to concrete	$L_s = h_{ET} + t_I - 5$ mm	$h_{ET} \geq 14$ mm
	Steel to concrete	$L_s = h_{ET} + t_I$	$h_{ET} \geq 22$ mm

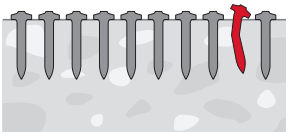
Performance data

Recommended resistance under tension and shear load for fastening wood/insulation to concrete

Embedment depth h_{ET}	Tension load N_{rec} 		Shear load V_{rec} 	
	Soft/medium concrete	Tough concrete	Soft/medium concrete	Tough concrete
≥ 14 mm	0.10	–	0.10	–
≥ 18 mm	0.20	–	0.20	–
≥ 20 mm	0.30	–	0.30	–
≥ 25 mm	0.40	0.10 kN	0.40	0.10 kN

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

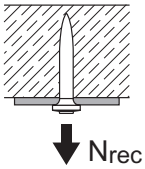
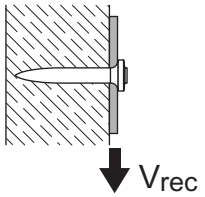
Stick rate estimation



Designation	Soft/medium concrete	Tough concrete
X-U	84–92 %	80–90 %

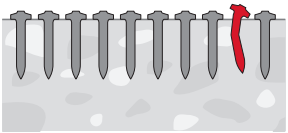
- The stick rate indicates the percentage of nails that were driven correctly to carry a load.
- Stick rate can vary from the above values depending on job site conditions.

Recommended resistance under tension and shear load for fastening steel to concrete

Embedment depth h_{ET}	Tension load N_{rec} 		Shear load V_{rec} 	
	Soft/medium concrete	Tough concrete	Soft/medium concrete	Tough concrete
≥ 18 mm	0.20 kN	0.10 kN	0.40 kN	0.20 kN
≥ 20 mm	0.30 kN	0.15 kN	0.50 kN	0.30 kN
≥ 25 mm	0.40 kN	0.20 kN	0.80 kN	0.40 kN

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

Stick rate estimation

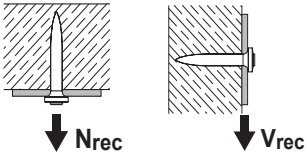


Designation	Soft/medium concrete	Tough concrete
X-U	95–99 %	90–95 %

- 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.

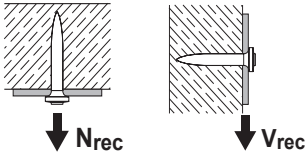
Fastening sheet metal attachments to concrete

Recommended Load (from local testing data)



Embedment h_{ET} [mm]	N_{rec} [kN]	V_{rec} [kN]
≥ 25	2.03	2.37

Remarks: Valid for concrete with strength of $f_{cc} \leq 60$ N/mm^2.



Embedment h_{ET} [mm]	N_{rec} [kN]	V_{rec} [kN]
≥ 20	1.48	2.14

Remarks: Valid for concrete with strength of $f_{cc} \leq 30$ N/mm^2.

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
- Valid for predominantly static loading.
- To limit penetration of nail and to increase pull-over load, use nails with washers.
- Recommended loads calculated based on a safety factor of 3 (Reference to BD Factor of Safety for anchor, actual FOS subject to Engineering Judgement)

System recommendation

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

Cartridge recommendation for fastening wood/insulation to concrete

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX , DX 351 MX[1)] DX 5 F8, DX 460 F8, DX 351 F8[1)], DX 2[1)]
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Soft/medium concrete	titanium ■ (1-8)	green ■, yellow ■, red ■
Tough concrete	titanium ■ (4-8), black ■ (6-8)	red ■, black ■

Cartridge recommendation for fastening steel to concrete

Base material	Cartridge color (tool power level)	
	Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX, DX 351 MX[1)] DX 5 F8, DX 460 F8, DX 351 F8[1)], DX 2[1)]
	Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
Soft/medium concrete	titanium ■ (1-8)	green ■, yellow ■, red ■
Tough concrete	titanium ■ (4-8), black ■ (6-8)	red ■, black ■

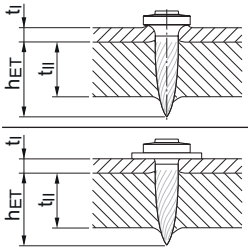
[1)] Black cartridges do not apply for this tool.

- 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.

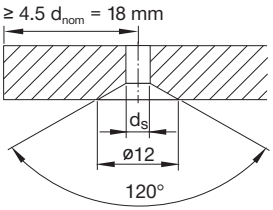
X-U Nail for fastening steel to steel

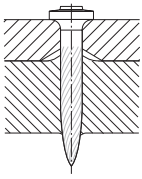
Application recommendation

Fastener shank length recommendation

	Fastening type	Fastener shank length	Penetration depth
	Steel to steel	$L_s = h_{ET} + t_I$ not pre-drilled: $t_I \leq 3$ mm pre-drilled: 3 mm < $t_I \leq 6$ mm	$h_{ET} = 12 \pm 2$ mm

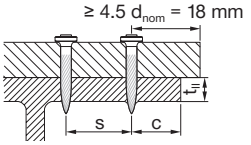
Condition for fastened material thickness: 3 mm < tI ≤ 6 mm





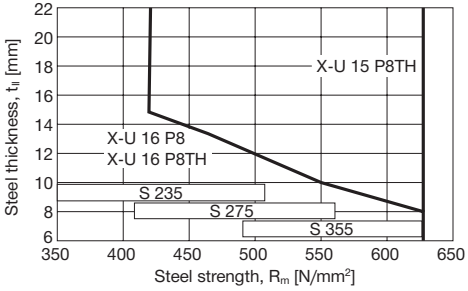
If a gap between the fastened part and the base material is unacceptable, the fastened part needs to be prepared with drilled holes.

Base material properties and fastener positioning in base material



Base material thickness:	$t_{II} \geq 6.0$ mm
Edge distance:	$c \geq 15$ mm
Spacing:	$s \geq 20$ mm
Type:	Rolled shapes

Application limitation



- Steel sheeting with 0.75 mm ≤ t_I ≤ 1.25 mm
- On higher steel grades, fastening with single nails (P8 or P8TH) may yield better results (e.g. less shear breaks) than fastening with collated nails (MX or MXSP) due to better nail guidance.

Performance data

Recommended resistance under tension and shear load

Fastening of steel sheets and other steel parts with X-U 16 and X-U 19

t_I	X-U _ P8/MX N_{rec}	X-U _ S12 N_{rec}	V_{rec}
0.75 mm	1.0 kN	1.4 kN	1.2 kN
1.00 mm	1.2 kN	1.8 kN	1.8 kN
1.25 mm	1.5 kN	2.2 kN	2.6 kN
≥ 2.00 mm	2.0 kN	2.2 kN	2.6 kN

Tacking of steel sheets with X-U 15

according to ECCS-recommendation N73, „Good Construction Practice for Composite Slabs”

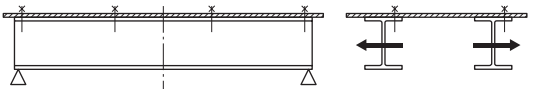
t_I	N_{rec}	V_{rec}
0.75–1.25 mm	0.6 kN	0.8kN

Conditions

- Valid for steel sheet with minimum tensile strength ≥ 360 N/mm².
- For intermediate sheet thicknesses, use recommended load for next smaller thickness.
- In case of a design based on the characteristic resistance, recommended values have to be multiplied by two: $N_{Rk} = N_{rec} \cdot 2.0$, $V_{Rk} = V_{rec} \cdot 2.0$
- For X-U 16 S12:
  Base material thickness $t_{II,min}$ = 8 mm for $t_I \geq 1.50$ mm
  Base material thickness $t_{II,min}$ = 6 mm for $t_I \leq 1.25$ mm
- Other fastened parts: clips, brackets, etc.
- Redundancy (multiple fastening) must be provided.
- Valid for predominantly static loading

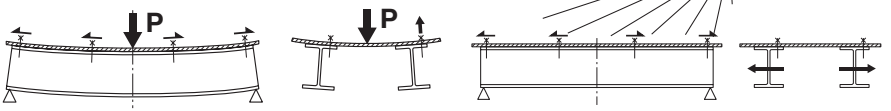
Forces of constraint

When fastening large pieces of steel, the possibility of shear loadings from forces of constraint should be considered. Avoid exceeding V_{rec} for the fastener shank!



Deflection due to primary loading

Temperature effect



System recommendation

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

Cartridge recommendation for X-U 16 P8, X-U 16 P8 TH, X-U 16 MX

Base material		Cartridge color (tool power level)	
		Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX, DX 351 MX[1)] DX 5 F8, DX 460 F8, DX 351 F8[1)], DX 2[1)]
		Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
S235 to S275	$6 \le t_{II} < 10$ mm	titanium ■ (4-8)	red ■
	$10 \le t_{II} \le 20$ mm	titanium ■ (6-8), black ■ (7-8)	red ■, black ■
S355	$6 \le t_{II} \le 8$ mm	titanium ■ (6-8), black ■ (7-8)	red ■, black ■

Cartridge recommendation for X-U 15 P8TH

Base material		Cartridge color (tool power level)	
		Tool type: DX 6 F8	Tool type: DX 5 F8, DX 460 F8, DX 351 F8[1)], DX 2[1)]
		Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
S235 to S355	$6 \le t_{II} < 12$ mm	titanium ■ (2-5)	yellow ■
	$12 \le t_{II} \le 20$ mm	titanium ■ (4-8)	red ■

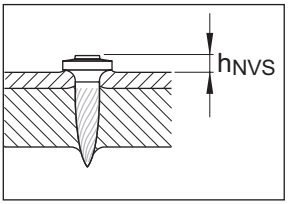
[1)] Black cartridges do not apply for this tool.

- 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

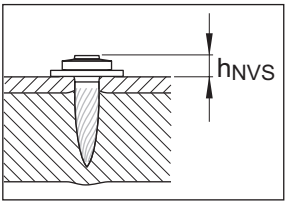
Setting depth control

X-U __ P8/MX



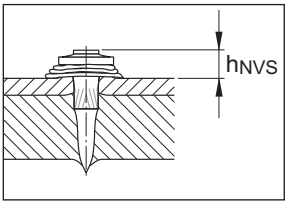
h_{NVS} = 2.5–4.5 mm

X-U __ S12



h_{NVS} = 4.0–5.5 mm

X-U _ P8TH / MXSP



h_{NVS} = 4.0–6.0 mm

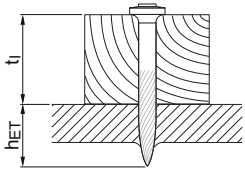
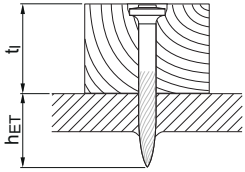
X-U Nail for fastening wood to steel

Application recommendation

Base material properties

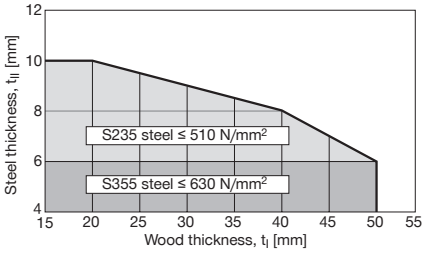
Base material thickness: $t_{II} \geq 4.0$ mm

Fastener shank length recommendation

	Fastening type	Fastener shank length	Penetration depth
	Wood to steel	$L_s = h_{ET} + t_I$ t_I = 15–57 mm	$h_{ET} \geq 8$ mm
	Wood to steel, head flush with surface	$L_s = h_{ET} + t_I - 3$ mm t_I = 15–57 mm	$h_{ET} \geq 8$ mm

Application limitation

For X-U 22 P8 to X-U 62 P8

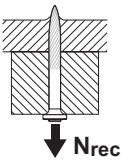


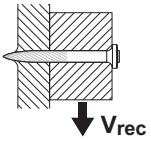
- On higher steel grades, fastening with single nails may yield better results (e.g. less shear breaks) than fastening with collated nails due to better nail guidance.

Performance data

Recommended resistance under tension and shear load

Designation	Tension load N_{rec}	Shear load V_{rec}
X-U	0.3 kN	0.60 kN





Conditions:

- For safety-relevant fastenings sufficient redundancy of the entire system is required.
- In case soft material is fastened, its strength determines the loads.
- To limit penetration of nail and to increase pull-over load, use nails with washers.
- Observance of edge distance and fastener spacing in compliance with recognized standards EN 1995 (see approval).
- With respect to details of fastening wood, chipboard or OSB members to steel base material, it is refered to the German approval DIBt Z-14.4-517.

System recommendation

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

Cartridge recommendation for X-U 22 P8 to X-U 62 P8

Base material		Cartridge color (tool power level)	
		Tool type: DX 6 MX DX 6 F8	Tool type: DX 5 MX, DX 460 MX, DX 351 MX[1)] DX 5 F8, DX 460 F8, DX 351 F8[1)], DX 2[1)]
		Cartridge type: 6.8/11 M	Cartridge type: 6.8/11 M
S235 to S355	$4 \le t_{II} < 6$ mm	titanium ■ (1-5)	green ■, yellow ■
	$6 \le t_{II} \le 10$ mm	titanium ■ (4-8), black ■ (7-8)	yellow ■, red ■, black ■

[1)] 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.

Fastener program

Fastener	Item no.	L_S	Powder-actuated tools					Description
			DX 6 MX, DX 5 MX, DX 460 MX	DX 6 F8, DX 5 F8 DX 460 F8	DX 2	DX 351 MX	DX 351 F8	
X-U 16 MX	237344	16 mm	■			■		Sheet metal on steel
X-U 19 MX	237345	19 mm	■			■		Sheet metal on steel
X-U 22 MX	237346	22 mm	■			■		Wood on concrete/steel
X-U 27 MX	237347	27 mm	■			■		Wood on concrete/steel
X-U 32 MX	237348	32 mm	■					Wood on concrete/steel
X-U 37 MX	237349	37 mm	■					Wood on concrete/steel
X-U 42 MX	237350	42 mm	■					Wood on concrete/steel
X-U 47 MX	237351	47 mm	■					Wood on concrete/steel
X-U 52 MX	237352	52 mm	■					Wood on concrete/steel
X-U 57 MX	237353	57 mm	■					Wood on concrete/steel
X-U 62 MX	237354	62 mm	■					Wood on concrete/steel
X-U 72 MX	237356	72 mm	■					Wood on concrete/steel
X-U 16 P8	237330	16 mm		■	■		■	Sheet metal on steel
X-U 19 P8	237331	19 mm		■	■		■	Sheet metal on steel
X-U 22 P8	237332	22 mm		■	■		■	Wood on concrete/steel
X-U 27 P8	237333	27 mm		■	■		□	Wood on concrete/steel
X-U 32 P8	237334	32 mm		■	■		□	Wood on concrete/steel
X-U 37 P8	237335	37 mm		■	■		□	Wood on concrete/steel
X-U 42 P8	237336	42 mm		■	■		□	Wood on concrete/steel
X-U 47 P8	237337	47 mm		■	■		□	Wood on concrete/steel
X-U 52 P8	237338	52 mm		■	■			Wood on concrete/steel
X-U 57 P8	237339	57 mm		■	■			Wood on concrete/steel
X-U 62 P8	237340	62 mm		■	■			Wood on concrete/steel
X-U 72 P8	237342	72 mm		■	■			Wood on concrete/steel
X-U 16 P8TH	237329	16 mm		■	■		■	Sheet metal on steel, *)
X-U 19 P8TH	385781	19 mm		■	■		■	Sheet metal on steel, *)
X-U 27 P8TH	385782	27 mm		■	■		□	Sheet metal on concrete, *)
X-U 15 MXSP	383466	16 mm	■			□		Sheet metal on steel
X-U 15 P8TH	237328	16 mm		■	□		□	Sheet metal on steel
X-U 27 P8S15	237371	27mm		■	■		□	High pull-over strength
X-U 32 P8S15	237372	32 mm		■	■		□	High pull-over strength

Fastener	Item no.	L_S	Powder-actuated tools					Description
			DX 6 MX, DX 5 MX, DX 460 MX	DX 6 F8, DX 5 F8 DX 460 F8	DX 2	DX 351 MX	DX 351 F8	
X-U 32 P8S36	237374	32 mm		■	■		□	Soft material on concr./steel
X-U 52 P8S36	237376	52 mm		■	■		□	Soft material on concr./steel
X-U 72 P8S36	237379	72 mm		■	■			Soft material on concr./steel

■ = recommended, □ = feasible

*) firm hold down

Fastener	Item no.	L_S	Powder-actuated tools					Description
			DX 460 F8S12	DX 5 F8S12	DX 462 F8S12			
X-U 16 S12	237357	16 mm	■	■	■			High pull-over strength
X-U 19 S12	237358	19 mm	■	■	■			High pull-over strength
X-U 22 S12	237359	22 mm	■	■	■			High pull-over strength
X-U 27 S12	237360	27 mm	■	■	■			High pull-over strength
X-U 32 S12	237361	32 mm	■	■	■			High pull-over strength

■ = recommended, □ = feasible

*) firm hold down

STANGERS

REPORT ON TENSILE LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 22 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 20 May 2024

Date of Report: 29 May 2024

Our Job No.: 150.8

Report No.: SI2405/01651

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

Stanger Asia Limited
Room 503-504,
5/F Fuk Shing Commercial Building,
28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : Kwok Wai Hung**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Tensile Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2405/01651
Address	: 701-704, 7/F, Tower A,	Test Date	: 20/05/2024
	: Manulife Financial Center,	Report Date	: 29/05/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based
Test Location	: Peng Che, Fanling		on ASTM E1190: 21
Type of Nail	: X-U 22 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	5.42	F2	16	4.43	F2
2	4.32	F2	17	4.57	F2
3	4.87	F2	18	5.15	F2
4	5.52	F2	19	5.49	F2
5	5.48	F2	20	5.33	F2
6	5.21	F2	21	4.81	F2
7	4.81	F2	22	4.51	F2
8	4.73	F2	23	5.26	F2
9	4.99	F2	24	4.98	F2
10	5.12	F2	25	4.88	F2
11	5.60	F2	26	5.07	F2
12	5.43	F2	27	5.13	F2
13	4.82	F2	28	4.74	F2
14	4.71	F2	29	5.04	F2
15	5.01	F2	30	4.44	F2

Minimum failure load (kN)	:	4.32
Maximum failure load (kN)	:	5.60
Average failure load (kN)	:	5.00
Standard deviation (kN)	:	0.35

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C30/10 Age at test : 12 days

C) Shank diameter 4.0 mm

D) Shank length 22 mm

E) Fixture thickness 2.0 mm

F) Edge distance 60 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail

F2 = Failure in structural member in a shear cone F3 = Pull out of nail

F4 = Sign of any separation, plastic deformation or deleterious effect on nail

F5 = Failure in structural member with crack radiates outward from nail

F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Kwok Wai Hung

Approved Signatory Siu Wing Ki

Checked By Mia Lee

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

STANGERS

REPORT ON SHEAR LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 22 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 28 May 2024

Date of Report: 29 May 2024

Our Job No.: 150.8

Report No.: SI2405/01652

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

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28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : Kwok Wai Hung**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Shear Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2405/01652
Address	: 701-704, 7/F, Tower A,	Test Date	: 28/05/2024
	: Manulife Financial Center,	Report Date	: 29/05/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based on ASTM E1190: 21
Test Location	: Peng Che, Fanling		
Type of Nail	: X-U 22 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	6.82	F5	16	6.33	F5
2	6.79	F5	17	6.41	F5
3	7.05	F5	18	7.14	F5
4	6.91	F5	19	6.45	F5
5	6.72	F5	20	6.61	F5
6	7.25	F5	21	6.92	F5
7	7.11	F5	22	7.03	F5
8	6.43	F5	23	6.99	F5
9	6.52	F5	24	6.82	F5
10	7.05	F5	25	6.51	F5
11	6.93	F5	26	6.44	F5
12	7.15	F5	27	7.08	F5
13	7.22	F5	28	6.53	F5
14	6.91	F5	29	6.83	F5
15	7.01	F5	30	6.94	F5

Minimum failure load (kN)	:	6.33
Maximum failure load (kN)	:	7.25
Average failure load (kN)	:	6.83
Standard deviation (kN)	:	0.27

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C30/10 Age at test : 20 days

C) Shank diameter 4.0 mm

D) Shank length 22 mm

E) Fixture thickness 2.0 mm

F) Edge distance 60 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail

F2 = Failure in structural member in a shear cone F3 = Pull out of nail

F4 = Sign of any separation, plastic deformation or deleterious effect on nail

F5 = Failure in structural member with crack radiates outward from nail

F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Kwok Wai Hung

Approved Signatory
Siu Wing Ki

Checked By Mia Lee

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

STANGERS

REPORT ON TENSILE LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 27 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 28 August 2024

Date of Report: 03 September 2024

Our Job No.: 150.8

Report No.: SI2409/03727

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

Stanger Asia Limited
Room 503-504,
5/F Fuk Shing Commercial Building,
28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : Wong Tsz San**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Tensile Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2409/03727
Address	: 701-704, 7/F, Tower A,	Test Date	: 28/08/2024
	: Manulife Financial Center,	Report Date	: 03/09/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based on ASTM E1190: 21
Test Location	: Peng Che, Fanling		
Type of Nail	: X-U 27 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	6.05	F2	16	6.06	F2
2	6.12	F2	17	6.09	F2
3	6.15	F2	18	5.81	F2
4	6.09	F2	19	5.88	F2
5	6.11	F2	20	6.10	F2
6	6.18	F2	21	6.05	F2
7	6.20	F2	22	6.03	F2
8	6.01	F2	23	5.97	F2
9	5.97	F2	24	5.78	F2
10	6.13	F2	25	5.99	F2
11	5.89	F2	26	6.14	F2
12	6.00	F2	27	6.10	F2
13	6.05	F2	28	6.21	F2
14	5.88	F2	29	6.18	F2
15	5.97	F2	30	6.07	F2

Minimum failure load (kN)	:	5.78
Maximum failure load (kN)	:	6.21
Average failure load (kN)	:	6.04
Standard deviation (kN)	:	0.11

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C30/10 Age at test : 82 days

C) Shank diameter 4.0 mm

D) Shank length 27 mm

E) Fixture thickness 2.0 mm

F) Edge distance 60 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail
F2 = Failure in structural member in a shear cone F3 = Pull out of nail
F4 = Sign of any separation, plastic deformation or deleterious effect on nail
F5 = Failure in structural member with crack radiates outward from nail
F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Wong Tsz San

Checked By Mia Lee

Approved Signatory
Siu Wing Ki

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

STANGERS

REPORT ON SHEAR LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 27 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 28 August 2024

Date of Report: 03 September 2024

Our Job No.: 150.8

Report No.: SI2409/03728

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

Stanger Asia Limited
Room 503-504,
5/F Fuk Shing Commercial Building,
28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : Wong Tsz San**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Shear Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2409/03728
Address	: 701-704, 7/F, Tower A,	Test Date	: 28/08/2024
	: Manulife Financial Center,	Report Date	: 03/09/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based on ASTM E1190: 21
Test Location	: Peng Che, Fanling		
Type of Nail	: X-U 27 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	7.00	F5	16	6.99	F5
2	7.15	F5	17	6.85	F5
3	7.23	F5	18	7.13	F5
4	6.95	F5	19	7.14	F5
5	7.12	F5	20	7.06	F5
6	6.89	F5	21	7.08	F5
7	7.11	F5	22	6.98	F5
8	7.31	F5	23	7.17	F5
9	6.95	F5	24	7.20	F5
10	7.21	F5	25	6.88	F5
11	7.14	F5	26	7.13	F5
12	7.11	F5	27	7.01	F5
13	7.10	F5	28	7.03	F5
14	7.21	F5	29	6.95	F5
15	7.03	F5	30	6.99	F5

Minimum failure load (kN)	:	6.85
Maximum failure load (kN)	:	7.31
Average failure load (kN)	:	7.07
Standard deviation (kN)	:	0.11

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C30/10 Age at test : 82 days

C) Shank diameter 4.0 mm

D) Shank length 27 mm

E) Fixture thickness 2.0 mm

F) Edge distance 60 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail

F2 = Failure in structural member in a shear cone F3 = Pull out of nail

F4 = Sign of any separation, plastic deformation or deleterious effect on nail

F5 = Failure in structural member with crack radiates outward from nail

F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Wong Tsz San

Checked By Mia Lee

Approved Signatory

Siu Wing Ki

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

STANGERS

REPORT ON SHEAR LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 27 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 28 August 2024

Date of Report: 03 September 2024

Our Job No.: 150.8

Report No.: SI2409/03730

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

Stanger Asia Limited
Room 503-504,
5/F Fuk Shing Commercial Building,
28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : WongTsz San**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Shear Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2409/03730
Address	: 701-704, 7/F, Tower A,	Test Date	: 28/08/2024
	: Manulife Financial Center,	Report Date	: 03/09/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based on ASTM E1190: 21
Test Location	: Peng Che, Fanling		
Type of Nail	: X-U 27 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	7.33	F5	16	7.16	F5
2	7.23	F5	17	7.22	F5
3	7.12	F5	18	7.52	F5
4	7.25	F5	19	7.28	F5
5	7.12	F5	20	7.23	F5
6	7.56	F5	21	7.33	F5
7	7.15	F5	22	7.46	F5
8	7.32	F5	23	7.15	F5
9	7.35	F5	24	7.36	F5
10	7.13	F5	25	7.49	F5
11	7.34	F5	26	7.55	F5
12	7.46	F5	27	7.45	F5
13	7.23	F5	28	7.33	F5
14	7.26	F5	29	7.55	F5
15	7.17	F5	30	7.56	F5

Minimum failure load (kN)	:	7.12
Maximum failure load (kN)	:	7.56
Average failure load (kN)	:	7.32
Standard deviation (kN)	:	0.15

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C60/10 Age at test : 82 days

C) Shank diameter 4.0 mm

D) Shank length 27 mm

E) Fixture thickness 2.0 mm

F) Edge distance 70 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail

F2 = Failure in structural member in a shear cone F3 = Pull out of nail

F4 = Sign of any separation, plastic deformation or deleterious effect on nail

F5 = Failure in structural member with crack radiates outward from nail

F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Wong Tsz San

Approved Signatory Siu Wing Ki

Checked By Mia Lee

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

STANGERS

REPORT ON TENSILE LOAD TEST ON POWER-ACTUATED FASTENERS INSTALLED IN STRUCTURAL MEMBER

NAIL TYPE : X-U 27 P8

REFEFRENCE STANDARD : GUIDELINE BASED ON ASTM E1190:21

Date of Test: 28 August 2024

Date of Report: 03 September 2024

Our Job No.: 150.8

Report No.: SI2409/03729

Prepared for:

Hilti (Hong Kong) Ltd.
701-704A & 708 A&B, 7/F Tower A,
Manulife Financial Centre,
223 Wai Yip Street,
Kwun Tong, Kowloon,
Hong Kong

Prepared by:

Stanger Asia Limited
Room 503-504,
5/F Fuk Shing Commercial Building,
28 On Lok Mun Street,
Fanling, New Territories,
Hong Kong

Reported By:	**Report Certified By:**
Mia Lee **Tested by : Wong Tsz San**	**Siu Wing Ki** **On Behalf of Stanger Asia Limited**

*Note: Please contact 8228 8118 or hksales@hilti.com to obtain the full report.

Tensile Load Test on Power-Actuated Fasteners Installed in Structural Member

STANGERS

Customer	: Hilti (Hong Kong) Ltd	Report No.	: SI2409/03729
Address	: 701-704, 7/F, Tower A,	Test Date	: 28/08/2024
	: Manulife Financial Center,	Report Date	: 03/09/2024
	: 223, Wai Yip Street, Kwun Tong, Kowloon	Page No.	: Page 3 of 3
Project	: -	Test method.	: Guideline based on ASTM E1190: 21
Test Location	: Peng Che, Fanling		
Type of Nail	: X-U 27 P8		

Sample No	Failure Load (kN)	Failure mode note H	Sample No	Failure Load (kN) note H	Failure mode
1	6.22	F2	16	6.10	F2
2	6.11	F2	17	6.21	F2
3	6.24	F2	18	6.51	F2
4	6.11	F2	19	6.21	F2
5	6.55	F2	20	6.22	F2
6	6.14	F2	21	6.32	F2
7	6.31	F2	22	6.45	F2
8	6.34	F2	23	6.14	F2
9	6.12	F2	24	6.35	F2
10	6.33	F2	25	6.44	F2
11	6.41	F2	26	6.51	F2
12	6.22	F2	27	6.44	F2
13	6.25	F2	28	6.32	F2
14	6.12	F2	29	6.54	F2
15	6.10	F2	30	6.55	F2

Minimum failure load (kN)	:	6.10
Maximum failure load (kN)	:	6.55
Average failure load (kN)	:	6.30
Standard deviation (kN)	:	0.15

Notes :

A) Test Apparatus : Pull off tester S/N : DT02-004-0144

B) Grade of substrate member : C60/10 Age at test : 82 days

C) Shank diameter 4.0 mm

D) Shank length 27 mm

E) Fixture thickness 2.0 mm

F) Edge distance 70 mm

G) Nail spacing 100 mm

H) Fastener power 3.0

I) Failure Modes P = No sign of nail failure and/or structural member F1 = Breaking of nail

F2 = Failure in structural member in a shear cone F3 = Pull out of nail

F4 = Sign of any separation, plastic deformation or deleterious effect on nail

F5 = Failure in structural member with crack radiates outward from nail

F6 = Other failure mode(s) :

J) Loading rate Expected average ultimate load for the test series divided by 45 s

Tested By Wong Tsz San

Approved Signatory Siu Wing Ki

Checked By Mia Lee

Room 705-706, 7/F., Fuk Shing Commercial Building, 28 On Lok Mun Street, On Lok,Tsuen, Fanling, New Territories, HONG KONG. Tel: 852-2682 1203 Fax: 852-2682 0046 E-mail address: stanger@stanger.com.hk

Labour Department
Occupational Safety and Health Branch
Occupational Safety and Health Training Centre

勞工處
職業安全及健康部
職業安全及健康訓練中心

Your reference 來函編號:
Our reference 本處檔案編號: (31) in OSTC/EQP/COFT/4A
Tel. number 電話號碼: 2940 7067
Fax number 傳真機號碼: 2940 6251

Mr Jackie SIU, Marketing Manager
Hilti (Hong Kong) Limited
17/F, Tower 6
China Hong Kong City
33 Canton Road
Tsim Sha Tsui
Kowloon

20 JUN 2005

Dear Mr SIU,

Approval of Cartridge-Operated Fixing Tool,
Hilti Model DX 460

I refer to your application of 25 February 2004 for approval of a cartridge-operated fixing tool, namely Hilti Model DX 460 ("the tool").

I am pleased to inform you that the Commissioner for Labour has approved the tool. A copy of the Government Notice G.N. 2705 in the Gazette published on 10 June 2005 No. 23 Vol. 9 is enclosed for your reference.

Should you have any question, please contact our Occupational Safety Officer (Training) Mr. LING Kin-chiu at 2940 7054.

Yours sincerely,

(WONG Che Keung)
for Permanent Secretary for Economic Development and Labour (Labour)/
Commissioner for Labour

Encl.

68 Chung On Street
13/F, City Landmark I
Tsuen Wan, NT

新界荃灣眾安街 68 號
荃灣城市中心一期 13 樓

第 **2705** 號公告　　工廠及工業經營條例 (第 59 章)

工廠及工業經營 (槍彈推動打釘工具) 規例

現公布根據《工廠及工業經營 (槍彈推動打釘工具) 規例》第 19 條的規定，下列槍彈推動打釘工具已獲認可：

喜利得 DX 460 型

2005 年 6 月 10 日

勞工處處長
(何鐵英代行)

G.N. 2705

FACTORIES AND INDUSTRIAL UNDERTAKINGS ORDINANCE (Chapter 59)

FACTORIES AND INDUSTRIAL UNDERTAKINGS (CARTRIDGE-OPERATED FIXING TOOLS) REGULATIONS

It is hereby notified that, under regulation 19 of the Factories and Industrial Undertakings (Cartridge-Operated Fixing Tools) Regulations, the following cartridge-operated fixing tool has been approved:—

Hilti Model DX 460

10 June 2005

HO Tit-ying for *Commissioner for Labour*

Labour Department 勞工處

Occupational Safety and Health Training Centre 職業安全及健康訓練中心
Your reference 來函編號： NIL
Our reference 本處檔案編號： (20) in OSTC/EQP/COFT/3
Tel. number 電話號碼： 2940 7076
Fax number 傳真機號碼： 2940 6251

By Fax (2764 3234) and By Post

12 APR 2001

Mr. Leo LEUNG,
Marketing Manager,
Hilti (Hong Kong) Limited,
17/F., Tower 6,
China Hong Kong City,
33 Canton Road,
Tsimshatsui,
Kowloon.

Dear Sir,

Approval of Cartridge-Operated Fixing Tool namely Hilti Model DX 351

I refer to your application on 28.3.2000 for approval of a cartridge-operated fixing tools, namely Hilti Model DX351.

I am pleased to inform you that the Commissioner for Labour has approved the tools. A copy of the Government notice G.N. 5104 published in the Gazette No. 31 Vol. 4 on 4.8.2000 is enclosed for your reference.

Should you have any question, please contact me on 2940 7076.

Yours faithfully,

(MAN Chi-tak)
for Commissioner for Labour

13/F., City Landmark I,
68 Chung On Street,
Tsuen Wan, N.T.

新界荃灣眾安街六十八號
荃灣城市中心一期 13 字樓

第 5104 號公告 工廠及工業經營條例 (第 59 章)

工廠及工業經營 (槍彈推動打釘工具) 規例

現公布根據《工廠及工業經營 (槍彈推動打釘工具) 規例》第 19 條的規定，下列槍彈推動打釘工具已獲認可：

喜利得 DX 351 型

2000 年 8 月 4 日

勞工處處長
(曾健和代行)

L.N. 14 of 1987

FACTORIES AND INDUSTRIAL UNDERTAKINGS (CARTRIDGE-OPERATED FIXING TOOLS) REGULATIONS

(Chapter 59)

FACTORIES AND INDUSTRIAL UNDERTAKINGS (CARTRIDGE-OPERATED FIXING TOOLS) (AMENDMENT OF SCHEDULE) NOTICE 1987

Made under regulation 19

1. This notice may be cited as the Factories and Industrial Undertakings (Cartridge-Operated Fixing Tools) (Amendment of Schedule) Notice 1987. Citation.

2. The Schedule to the principal regulations is amended by inserting after item 27 the following— Amendment of Schedule. (Cap. 59, sub. leg.)

"28. Hilti Model DX 36M".

Made this 7th day of January 1987.

J. C. A. HAMMOND,
Commissioner for Labour.

Explanatory Note

This notice adds Hilti Model DX 36M to the list of approved cartridge-operated fixing tools for use in construction work or other industrial undertakings.

工廠暨工業經營(彈藥推動打釘工具)規例
(香港法例第五十九章)

一九八七年工廠暨工業經營(彈藥推動打釘工具)
(修訂附表)公告

註　釋

本公告規定在核准彈藥推動打釘工具名單內加列「Hilti Model DX 36M」一項。這類工具用於建築工程或其他工業經營。

1. Importance messages: "Cartridge-operated Fixing Tools" (COFT) regulations from Labour Department

第59R章
工廠及工業經營(槍彈推動打釘工具)規例 - 擇要

釋義

"槍彈"(cartridge)指設計供工具用的能產生推進氣體的槍彈；

"間接推動工具"(indirect-acting tool)
指推動力通過有限軸向運行的居間活塞始傳達至釘上的工具；

"認可工具"(approved tool)
指處長根據第19條認可的任何工具，包括該工具的任何部分；(1988年第329號法律公告)

只可使用認可工具

承建商、東主及操作員的責任
除認可工具外，不得在工業經營中使用其他工具

槍彈

任何槍彈，除符合製造商就個別類型及個別式樣的工具而定的規格者外，均不得在該工具的操作中使用。

釘

(1)任何的釘，除符合製造商就個別類型及個別式樣的工具而定的規格者外，均不得在該工具的操作中使用。
(2)任何的釘，包括其帽及環，其尺寸須與工具的身管口徑配合。

操作員須持有合資格證明書

(1)除持有合資格證明書的人外，其他人不得使用工具。
(2)合資格證明書的格式須經處長批准。

罪行及罰則

(1) 在任何建築地盤或任何其他工業經營內，如有違反第4、5、6、7、8、9、10、11、12、13、14或16條的任何條文之事，或就該建築地盤或工業經營有違反上述各條的任何條文之事，則在該建築地盤從事建築工程的承建商，或該工業經營的東主，即屬犯罪，可處罰款$50000。
(2)任何操作員違反第6、7、9(2)或(3)、11、13、14(2)或15條的任何條文，即屬犯罪，可處罰款$10000。
(3)任何人違反第17條的任何條文，即屬犯罪，可處罰款$50000

Chapter 59 FACTORIES AND INDUSTRIAL UNDERTAKINGS ORDINANCE – ABSTRACT

Interpretation

"cartridge" (槍彈) means a propellant gas producing cartridge designed for use in a tool;
"indirect-acting tool" (間接推動工具) means a tool in which the driving force is transmitted to the pin by means of an intervening piston with limited axial movement;
"approved tool" (認可工具) means a tool, including any part thereof, approved by the Commissioner under regulation 19; (L.N. 329 of 1988)

Only approved tools to be used

DUTIES OF CONTRACTORS, PROPRIETORS AND OPERATORS
No tool other than an approved tool shall be used in an industrial undertaking

Cartridges

No cartridges other than those which correspond to the manufacturer's specifications for the particular type and make of tool shall be used in the operation of that tool.

Pins

(1) No pins other than those which correspond to the manufacturer's specifications for the particular type and make of tool shall be used in the operation of that tool.
(2) Pins, including their caps or rings, shall be of a size in conformity with the bore of the barrel of the tool.

Operators to hold certificates of competency

(1) A tool shall not be used other than by a person who holds a certificate of competency.
(2) A certificate of competency shall be in a form approved by the Commissioner

Offences and penalties

9 The contractor engaged in construction work on a construction site or the proprietor of any other industrial undertaking in or in respect of which any of the provisions of regulation 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 16 is contravened commits an offence and is liable to a fine of $50000. (2) An operator who contravenes any of the provisions of regulation 6, 7, 9(2) or (3), 11, 13, 14(2) or 15 commits an offence and is liable to a fine of $10000.
(3) Any person who contravenes any of the provisions of regulation 17 commits an offence and is liable to a fine of $50000.

Buildings Department
屋宇署

YOUR REF 來函檔號: 729-519
OUR REF 本署檔號: (3) in BD/GR/SEG/PPA(G)
FAX 圖文傳真: 2626 1762
TEL 電話: 2626 1583

Hilti (Hong Kong) Limited
17/F, Tower 6,
China Hong Kong City,
33 Canton Road,
Tsimshatsui,
Kowloon.

4 June, 1997

Attention: Mr. Denny Wu

Dear Sir,

Procedures for building materials submission

I refer to your letter dated 19 May, 1997 concerning the above.

2. Please be advised that there is no provision under the Buildings Ordinance for the Building Authority to approve any proprietary building products. Under the Buildings Ordinance, authorized persons and/or registered structural engineers are required to supervise building works including the selection and installation of proprietary building products and to certify compliance with the Buildings Ordinance upon completion of works. They are therefore responsible for ensuring the health and structural safety requirements, inter alia, of these building products in the building projects which they have been appointed by the developer to co-ordinate and supervise. It is also their responsibility to ensure these products have been installed in accordance with the manufacturers' specifications and complied with the Buildings Ordinance and Regulations.

3. In establishing the acceptability of the proprietary products in building works, reference may be made to the performance standards laid down in Building (Construction) Regulations 1990 and the current Practice Note for Authorized Persons and Registered Structural Engineers 140 in which performance requirements for compliance are given. Reliance may also be placed on the test/assessment report prepared by a recognized laboratory or an equivalent establishment.

4. Before the proprietary products are installed in a building project, the authorized person and/or registered structural engineer appointed for the project should be approached by the manufacturers or their agents for advice and guidance. **Prior approval/acceptance from the Buildings Department is not required.**

5. Generally, all relevant information supporting the use of the proprietary products in building works under the Buildings Ordinance should be submitted associated with the prescribed plans for approval on project basis.

/ Notwithstanding....

Buildings Department
屋宇署

YOUR REF 來函檔號: 729-519
OUR REF 本署檔號: (3) in BD/GR/SEG/PPA(G)
FAX 圖文傳真: 2626 1762
TEL 電話: 2626 1583

6. Notwithstanding the above, the proprietary building products to which 'No objection' letters have been given are still recognized as accepted constructional materials to be used in building works under the Buildings Ordinance provided that all conditions specified in the letters are satisfied. You are informed that the procedures currently adopted by the Building Authority for processing statutory approval of plans which involve the use of these proprietary building products remain unchanged.

7. It is a fact that the 'No objection' letter giving general acceptance to a proprietary building product is based on the technical information submitted to this Department at the time of its application. Should there be any significant modification to these technical information, the product will certainly be considered as 'new' product. The acceptability of such proprietary product in building works should be evaluated by the authorized person and/or registered structural engineer appointed for the project as mentioned above.

8. Should you have any further queries to the above, please feel free to contact the undersigned or Mr. T.C. Kan of this office at phone no. 2626 1583.

Yours faithfully,

(K.S. Chang)
Technical Secretary/Structural
for Building Authority.

tck/

12/F 18/F Pioneer Centre, 750 Nathan Road, Mongkok, Kowloon, Hong Kong 香港九龍旺角彌敦道七五〇號始創中心十二樓至十八樓

Attn. : To whom it may concern

Date : 1 April 2025
Ref. : 084/DF/SC/25

Subject : Country of Origin- Hilti X-U Nails

Dear Sir / Madam,

Enclosed please find the information of Hilti X-U Nails.

Brand Name : Hilti

Model Name : Hilti X-U Nails

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Spencer Cheung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Spencer Cheung (+852 9732 1231)

Country of Origin : Liechtenstein

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,

Spencer Cheung
Head of Product Leadership Strategy

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong
Kowloon | Hong Kong
P +852-8228 8118 I **F** +852-2954 1751
www.hilti.com.hk

23 Jan 2025
REF: 006/DX/DY/25

Attn: To whom it may concern

Subject: X-U Universal nail

Hilti has always been devoted in innovating and improving our products. We are pleased to introduce you **X-U Universal nail (i.e. Steel/masonry/concrete nails),** which is **equivalent performance to X-P Universal nail**. X-U already launched in Hong Kong market while X-P will be phased out until stock lasts in 2026.

Please refer to the below table for more details:

Phased-out item		Phased-in item	
2150366	Performance nail X-P 22 P8	237332	Universal nail X-U 22 P8
2150367	Performance nail X-P 27 P8	237333	Universal nail X-U 27 P8
2150368	Performance nail X-P 34 P8	237334	Universal nail X-U 32 P8
2150369	Performance nail X-P 40 P8	237335	Universal nail X-U 37 P8
		237336	Universal nail X-U 42 P8
2173875	Performance nail X-P 47 P8	237337	Universal nail X-U 47 P8
2173876	Performance nail X-P 52 P8	237338	Universal nail X-U 52 P8
2173877	Performance nail X-P 57 P8	237339	Universal nail X-U 57 P8
2173878	Performance nail X-P 62 P8	237340	Universal nail X-U 62 P8
2173879	Performance nail X-P 72 P8	237342	Universal nail X-U 72 P8
,2150380	Performance nail X-P 22 MX	237346	Universal nail X-U 22 MX
2150381	Performance nail X-P 27 MX	237347	Universal nail X-U 27 MX
2150382	Performance nail X-P 34 MX	237348	Universal nail X-U 32 MX
		237349	Universal nail X-U 37 MX
2150383	Performance nail X-P 40 MX	237350	Universal nail X-U 42 MX
2173900	Performance nail X-P 47 MX	237351	Universal nail X-U 47 MX
2173901	Performance nail X-P 52 MX	237352	Universal nail X-U 52 MX
2173902	Performance nail X-P 57 MX	237353	Universal nail X-U 57 MX
2173903	Performance nail X-P 62 MX	237354	Universal nail X-U 62 MX
2173904	Performance nail X-P 72 MX	237356	Universal nail X-U 72 MX

Should you have further questions, please do not hesitate to contact our Technical Representatives or Customer Service Hotline at 8228-8118.

Yours Faithfully,

Dennis Yeung
Head of Product Leadership Strategy, F&P

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong
Kowloon | Hong Kong
P +852-8228 8118 I **F** +852-2954 1751
www.hilti.com.hk

Hilti X-U P8 Steel/Concrete Nails Job Reference

Year	Project Name	Customer Name	Project type
2023	11 MIDDLE RD - KIMPTON HONG KONG	CR CONSTRUCTION COMPANY LIMITED	Hospitality
2023	11 MIDDLE RD - KIMPTON HONG KONG	CR CONSTRUCTION COMPANY LIMITED	Hospitality
2023	HKIA 3508 TERMINAL 2	SUMMAN ENGINEERING LIMITED	Transport
2024	11 MIDDLE RD - KIMPTON HONG KONG	CR CONSTRUCTION COMPANY LIMITED	Hospitality
2024	11 MIDDLE RD - KIMPTON HONG KONG	CR CONSTRUCTION COMPANY LIMITED	Hospitality
2024	391 CHAI WAN RD	GOLDENWALL ENGINEERING LIMITED	Residential
2024	391 CHAI WAN RD	GOLDENWALL ENGINEERING LIMITED	Residential
2024	391 CHAI WAN RD	GOLDENWALL ENGINEERING LIMITED	Residential
2024	FORMER EXCELSIOR REDEVELOP - PROJECT BLUE	GAMMON ENGINEERING & CONSTRUCTION	Office
2024	POLICE SCHOOL RD HKU DORM (459)	GOLDENWALL ENGINEERING LIMITED	Residential
2025	New - Office - 71 How Ming Street, Kwun Tong	GAMMON ENGINEERING & CONSTRUCTION	Office
2025	TUNG CHUNG EAST STATION & ASSOC. TRACKS (CONTRACT N	LUEN YAU CONSTRUCTION COMPANY	Transport