



X-HSN 24 DATA SHEET

Diaphragm decking nail

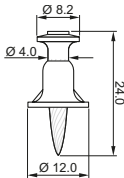


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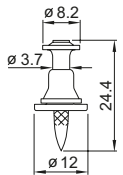
Product data

Dimensions

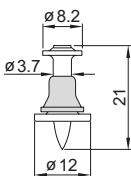
X-HSN 24



X-EDNK22 THQ12 M



X-EDN19 THQ12 M



Material specifications

Carbon steel shank:	HRC 55.5
Zinc coating:	5–13 µm

Recommended fastening tool

Tools:	Collated nails:
DX 860-HSN, DX 9-HSN	X-HSN 24, red magazine strip X-EDNK22 THQ12 M, grey magazine strip X-EDN19 THQ12 M, white magazine strip

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

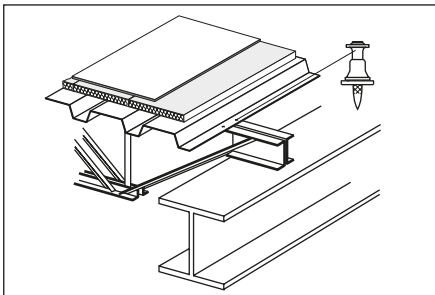
Approvals and certificates

FM, SDI, UL, ICC, ABS, LR

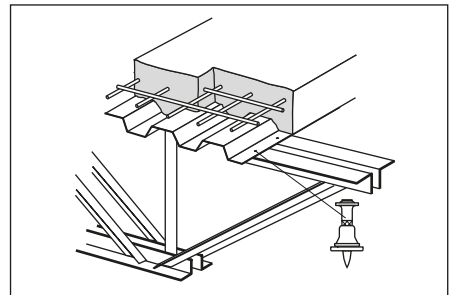
- Not all information presented in this product data sheet might be subject to approval/certificate content. Please refer to approval/certificate for further information.

Applications

Examples



Roof decking (diaphragm design)



Floor decking (diaphragm design)

Performance data
Design data for use in the USA – Diaphragm strength

Approvals provide load tables or calculation procedures for determination of the allowable strength (in lbs/ft or kN/m) of a steel deck diaphragm. The allowable diaphragm strength depends on the type, strength and thickness of the decking, the span of the decking, the type and pattern of the deck to frame fasteners (X-HSN24, X-EDNK22 or X-EDN19) and the type and spacing of the sidelap connectors (e.g. Hilti sidelap connectors S-SLC 01 and S-SLC 02).

For more details it is referred to the technical literature of Hilti North America (“Steel Deck Fastening Systems” Hilti North America Product Technical Guide) and the “Decking Design Center” offered on the website www.us.hilti.com as well as the respective approvals.

Recommended shear bearing loads V_{rec}

Sheeting thickness t_f		X-HSN24, X-EDNK22 and X-EDN19	
[Gauge]	[mm]	V_{rec} [lbs]	[kN]
22	0.76	500	2.20
20	0.91	600	2.64
18	1.21	785	3.45
16	1.52	975	4.29

- Valid for steel sheet with a minimum tensile strength of 45 ksi (310 N/mm²). Values refer to failure controlled by the single sheet metal attached.
- For intermediate sheet thicknesses, linear interpolation is allowed.
- Recommended loads include safety factor 3.0 applied to mean shear resistance Q_f . An equation for Q_f is published in the SDI (Steel Deck Institute) Diaphragm Design Manual, 3rd edition.

Recommended tension load N_{rec}

Sheeting thickness t_f		X-HSN24, X-EDNK22		X-EDN19	
[Gauge]	[mm]	N_{rec} [lbs]	[kN]	N_{rec} [lbs]	[kN]
22	0.76	355	1.56	340	1.52
20	0.91	435	1.95	340	1.52
18	1.21	435	1.95	340	1.52
16	1.52	435	1.95	340	1.52

- Valid for steel sheet with minimum tensile strength of 45 ksi (310 N/mm²). Values are either controlled by pullover of sheet or by minimum value of fastener pullout of base metal.
- Values require fastener point penetration for X-EDNK22 and X-EDN19, of $1/8$ (12.7 mm). Higher recommended values be applicable for X-HSN24 (see Hilti North America “Steel Deck Fastening Systems”)
- Recommended loads include a safety factor 3.0 applied to mean pullover resistance or a safety factor 5.0 applied to the mean value of pullout resistance.

Design data for use in Europe

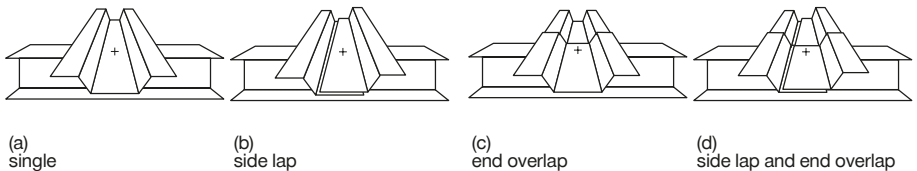
Currently, the X-HSN24, X-EDNK22 and the X-EDN19 fasteners are only used in North America. Therefore, no design data is published evaluated in strict compliance with the provisions for European Technical Approvals.

For European markets, the fastener X-ENP2K-20 L15 in connection with the fastening tools DX 76 or DX 76 PTR are recommended for sheet metal fastenings to thin base materials (3 to 6 mm).

Application recommendation
Fastening tool DX 860-HSN, DX 9-HSN

Fastener	Base material properties		Ultimate tensile strength	
	Thickness [inch]	[mm]	[ksi]	[N/mm ²]
X-EDNK22	$\frac{1}{8}''$ to $\frac{1}{4}''$	3.2 to 6.35	58 to 91	400-630
X-EDN 19	$\frac{3}{16}''$ to $\frac{5}{16}''$	4.8 to 8.0	58 to 91	400-630
	$\frac{5}{16}''$ to $\frac{3}{8}''$	8.0 to 9.5	58 to 68	400-470

- Comment on fastening tool DX 460-SM and DX 5-SM: This fastening tool is recommended for base material thickness from $\frac{3}{16}''$ to $\frac{3}{8}''$ (4.8 to 8.0 mm). The same strength limits apply as with the DX 860-HSN and DX 9-HSN.
- X-HSN24 covers full range of the fasteners X-EDNK22 and X-EDN19.

Thickness of fastened material, fastener patterns, spacings and edge distance


As part of a steel deck diaphragm, all four fastening types (a), (b), (c) and (d) are executed with the X-HSN 24, X-EDNK22 and the X-EDN19. The sheet metal thickness typically varies between 22 Gauge (0.76 mm) and 16 Gauge (1.52 mm).

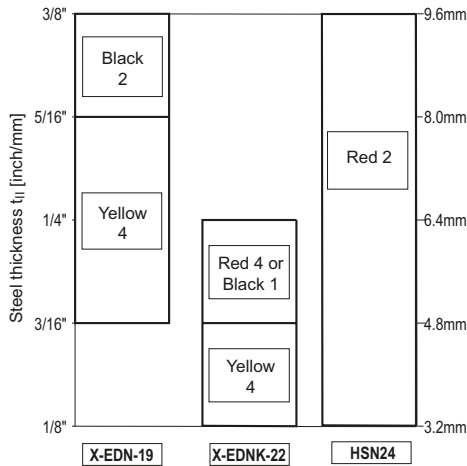
Dependent on the base material thickness and the frame fastener pattern, restrictions on the use of thicker decking might apply. For corresponding details of these provisions, it is referred to the quoted technical literature published by Hilti North America. This literature also contains details with respect to fastener patterns, spacings and edge distance adequately addressing the specifics of the diaphragm components used in the North American market.

Corrosion information

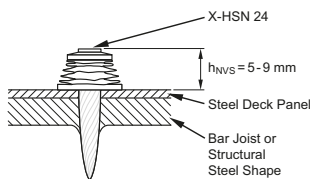
- The intended use only comprises fastenings which are not directly exposed to external weather conditions or moist atmospheres.
- For more details, please refer to following technical document: Hilti Corrosion Handbook.

Fastener program and system recommendation

Fasteners	Designation	Item no.	Tool
Collated nails	X-HSN24	2042971	
	X-EDNK22 THQ12 M, grey magazine strip	34133	DX 860-HSN DX 9-HSN
	X-EDN19 THQ12 M, white magazine strip	34134	

Cartridge selection and tool energy setting


Fine adjustment by installation tests on site.

Quality assurance
Fastening inspection
X-HSN 24

X-EDNK22 THQ12 / X-EDN19 THQ12
