

# Allowable Loads for Top Mount Hangers Installed on Wood Nailers

MiTek-USP Top Mount Hangers have been tested installed to various nailers. Wood nailers may be installed to the top of steel beams, concrete and masonry walls. This document outlines the allowable loads for common top mount hangers installed on 2x, 2-ply 2x, 3x and 4x nailers.

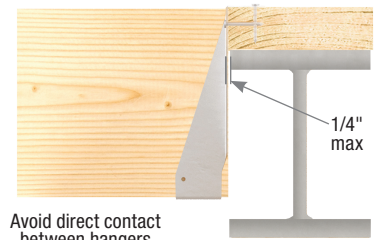
### Correct Hanger Attachment to Nailer

A nailer or sill plate is considered to be any wood member attached to a steel beam, concrete block wall, concrete stem wall, or other structure unsuitable for nailing, which is used as a nailing surface for top mount hangers to hold beams or joists.

### Nailer Sized Correctly

Top flange of hanger is fully supported and recommended nails have full penetration into nailer, resulting in a carried member hanging safely at the proper height.

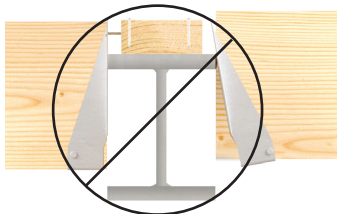
The nailer must be sized to fit the support width as shown and be of sufficient thickness to satisfy recommended top flange nailing requirements. A design professional must specify nailer attachment to steel beams.



Avoid direct contact between hangers and steel beams which may cause squeaks

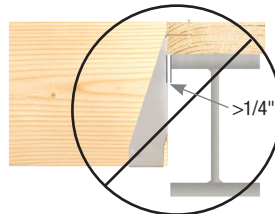
**Correct Attachment**

### Improper Installation:



**! Too Narrow**

Top flange not fully supported can cause nail breakout. Or, by fully supporting top flange, hanger is tilted back, causing lifting of carried member which results in uneven surfaces and squeaky floors.



**! Too Wide**

Loading can cause cross grain breaking of nailer. The recommended nailer overhang is 1/4" maximum per side.



**! Too Thin**

Top flange nailing cannot fully penetrate nailer, causing reduced allowable loads. Never use hangers which require multiple face nails since the allowable loads are dependent on all nail holes being used.

MiTek USP Series	Nailer Size	Fastener Schedule					DF/SP		SPF/HF	
		Nailer			Joist		Allowable Loads (Lbs.) <sup>1</sup>		Allowable Loads (Lbs.) <sup>1</sup>	
		Top Qty	Face Qty	Type <sup>3,4</sup>	Qty	Type <sup>3,4</sup>	Download 100%	Uplift 160% <sup>2</sup>	Download 100%	Uplift 160% <sup>2</sup>
BPH	2x	4	2	10d x 1-1/2	4	10d x 1-1/2	2080	230	1790	200
	3x	4	4	16d x 2-1/2	4	10d x 1-1/2	2360	535	2030	460
	(2) 2x	4	4	10d	4	10d x 1-1/2	2310	535	1985	460
	4x	4	4	16d	4	10d x 1-1/2	2245	535	1930	460
HBPH	2x	6	2	10d x 1-1/2	10	16d	2540	--	2135	--
	3x	6	6	16d x 2-1/2	10	10d	4500	--	3780	--
	(2) 2x	6	8	10d	10	16d	4140	1610	3480	1350
	4x	6	10	16d	10	16d	5745	1610	4825	1350
HLBH	2x	3	4	10d x 1-1/2	6	10d x 1-1/2	6115	--	5135	--
	3x	3	6	16d x 2-1/2	6	10d	6825	--	5735	--
	(2) 2x	3	8	10d	6	10d x 1-1/2	4385	--	3685	--
	4x	3	8	NA16D-RS	6	10d x 1-1/2	9600	1115	6900	935
KGLT	2x	4	--	WS15	8	WS15	5210	--	4375	--
	3x	4	2	WS15	8	WS15	6655	--	5590	--
	(2) 2x	4	4	WS3	8	WS3	6430	--	5400	--
	4x	4	6	WS3	8	WS3	6040	1925	5075	1615

- 1) Allowable loads are valid for hanger height  $\leq 20"$ . For hanger height  $\geq 22"$ , consult MiTek Engineering.
- 2) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
- 3) **NAILS:** 10d x 1-1/2 nails are 0.148" x 1-1/2" long, 10d nails are 0.148" dia x 3" long, NA16D-RS nails are 0.148" x 3-1/2" long, 16d x 2-1/2" nails are 0.162" dia. x 2-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.
- 4) **SCREWS:** WS15 Wood Screws are 1/4" dia. x 1-1/2" long and are not included with KGLT hangers. WS3 Wood Screws are 1/4" dia. x 3" long and are included with KGLT hangers.

Updated product information is designated in **blue font**.

## Customer Service & Technical Assistance

Phone: 1-800-328-5934 • Fax: 1-952-898-8605 • Email: USPcustomerservice@mii.com

# Allowable Loads for Top Mount Hangers Installed on Wood Nailers

MiTek USP Series	Nailer Size	Fastener Schedule					DF/SP		SPF/HF	
		Nailer			Joist		Allowable Loads (Lbs.) <sup>1</sup>		Allowable Loads (Lbs.) <sup>1</sup>	
		Top Qty	Face Qty	Type <sup>5</sup>	Qty	Type <sup>5</sup>	Download 100%	Uplift 160% <sup>2</sup>	Download 100%	Uplift 160% <sup>2</sup>
KHW	3x	4	--	16d x 2-1/2	2	10d	4415	--	3525	--
MSH (18 Gauge)	2x	4	--	10d x 1-1/2	4	10d x 1-1/2	1245	--	1045	--
	3x	4	--	10d x 1-1/2	4	10d x 1-1/2	1245	--	1045	--
	(2) 2x	4	2	10d	4	10d x 1-1/2	1950	--	1540	--
	4x	4	2	10d	4	10d x 1-1/2	1950	--	1540	--
MSH (16 or 14 Gauge)	2x	4	2	10d x 1-1/2	6	10d x 1-1/2	2355	--	1860	--
	3x	4	2	10d x 1-1/2	6	10d x 1-1/2	2355	--	1860	--
	(2) 2x	4	2	16d x 2-1/2	6	10d x 1-1/2	2080	--	1745	--
	4x	4	2	16d x 2-1/2	6	10d x 1-1/2	2080	--	1745	--
PHM	2x	2	--	10d x 1-1/2	2	10d x 1-1/2	3010	--	2140	--
	3x	2	--	16d x 2-1/2	2	10d x 1-1/2	3060	--	2140	--
	(2) 2x	2	--	10d	2	10d x 1-1/2	3060	--	2140	--
	4x	2	--	16d	2	10d x 1-1/2	3060	--	2140	--
PHXU <sup>3</sup> widths > 2-3/4" to < 3-1/2"	2x	4	--	10d x 1-1/2	6	10d x 1-1/2	2585	--	2170	--
	3x	4	2	16d x 2-1/2	6	10d x 1-1/2	3855	--	3150	--
	(2) 2x	4	2	10d	6	10d x 1-1/2	3590	--	3015	--
	4x	4	4	16d	6	10d x 1-1/2	4420	870	3150	730
PHXU widths ≥ 3-1/2"	2x	4	--	10d x 1-1/2	6	10d	2765	--	2325	--
	3x	4	2	16d x 2-1/2	6	10d	3895	--	3270	--
	(2) 2x	4	2	10d	6	10d	3785	--	3180	--
	4x	4	4	16d	6	10d x 1-1/2	5285	970	4545	835
	4x	4	4	16d	6	10d	5285	1120	4545	940
SW <sup>4</sup> widths ≥ 2-9/16"	2x	2	--	10d x 1-1/2	2	10d x 1-1/2	1635	--	1115	--
	3x	2	--	16d x 2-1/2	2	10d x 1-1/2	2390	--	2010	--
	(2) 2x	2	--	16d x 2-1/2	2	10d x 1-1/2	2390	--	2010	--
	4x	2	--	16d x 2-1/2	2	10d x 1-1/2	2390	--	2010	--
SWH	2x	2	--	10d x 1-1/2	2	10d	2600	--	1770	--
	3x	2	--	16d x 2-1/2	2	10d	3305	--	2280	--
	(2) 2x	2	--	16d x 2-1/2	2	10d	3305	--	2280	--
	4x	2	--	16d x 2-1/2	2	10d	3305	--	2280	--
TFI	2x	4	2	10d x 1-1/2	2	10d x 1-1/2	1985	215	1665	180
	3x	4	6	16d x 2-1/2	2	10d x 1-1/2	2715	215	2075	180
	(2) 2x	4	6	10d	2	10d x 1-1/2	2715	215	2075	180
	4x	4	2	16d	2	10d x 1-1/2	2560	215	2075	180
TFL	4x	4	6	16d	2	10d x 1-1/2	3245	215	2075	180
	2x	4	2	10d x 1-1/2	2	10d x 1-1/2	1270	130	1090	110
	3x	4	2	16d x 2-1/2	2	10d x 1-1/2	1600	130	1260	110
	(2) 2x	4	2	10d	2	10d x 1-1/2	1280	130	1100	110
THO	4x	4	2	16d	2	10d x 1-1/2	1745	130	1260	110
	2x	4	2	10d x 1-1/2	2	10d x 1-1/2	1235	230	950	195
	3x	4	2	16d x 2-1/2	2	10d x 1-1/2	1235	230	950	195
	(2) 2x	4	2	16d x 2-1/2	2	10d x 1-1/2	1235	230	950	195
THO (Double)	4x	4	2	16d	2	10d x 1-1/2	1235	230	950	195
	2x	4	2	10d x 1-1/2	2	10d	1455	230	1250	195
	3x	4	2	16d x 2-1/2	2	10d	2335	230	1815	195
	(2) 2x	4	2	10d	2	10d	2370	230	1815	195
4x	4	2	16d	2	10d	2525	230	1815	195	

- 1) Allowable loads are valid for hanger height ≤ 20". For hanger height ≥ 22", consult MiTek Engineering.
  - 2) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
  - 3) PHXU hangers with a width of less than 2-3/4" are limited to 4,350 lbs of download.
  - 4) SW hangers with a width of less than 2-9/16" are limited to 2,315 lbs. of download.
  - 5) **NAILS:** 10d x 1-1/2 nails are 0.148" x 1-1/2" long, 10d nails are 0.148" dia x 3" long, NA16D-RS nails are 0.148" x 3-1/2" long, 16d x 2-1/2" nails are 0.162" dia. x 2-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.
  - 6) **SCREWS:** WS15 Wood Screws are 1/4" dia. x 1-1/2" long and are not included with KGLT hangers. WS3 Wood Screws are 1/4" dia. x 3" long and are included with KGLT hangers.
- Updated product information is designated in **blue font**.

## Customer Service & Technical Assistance

Phone: 1-800-328-5934 • Fax: 1-952-898-8605 • Email: USPcustomerservice@mii.com