

Top-Flange Hangers LBV/BA/B/HB

I-Joist and Structural Composite Lumber Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

The BA hanger is a cost-effective hanger used for structural composite lumber and high-capacity I-joists. When modifications are not needed, such as slope or skew, the BA performs similarly to the B hanger at a significant cost savings. When used with I-joists, the positive angle nailing at the joist seat allows the hanger to be used without web stiffeners.

The LBV, B and HB hangers are also available for I-joists and structural composite lumber but have the ability to be fabricated with slopes and skews to match field conditions.

See Top Flange tables on pp. 218–227.

Material: See tables on pp. 218–227.

- For modified hangers, gauge may increase from that specified for non-modified hangers. Hanger configurations, height and fastener quantity may increase from the tables depending on joist size, skew and slope.

Finish: LBV, B, BA and HB — Galvanized; all saddle hangers and all welded sloped and special hangers — Simpson Strong-Tie® gray paint. LBV, B, BA and HB may be ordered hot-dip galvanized; specify HDG.

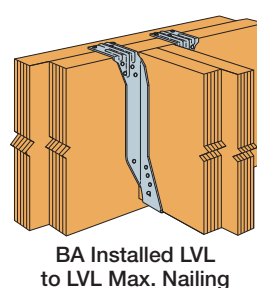
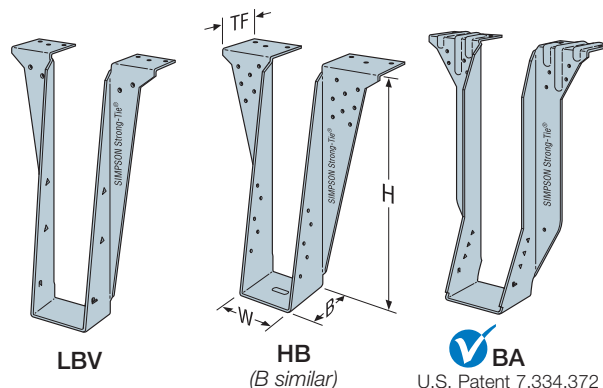
Installation:

- Use all specified fasteners; see General Notes and nailer table.
- LBV, B, BA and HB may be used for weld-on applications. Weld size to match material thickness (approximate thickness shown). The minimum required weld to the top flanges is $\frac{1}{8}$ " x 2" fillet weld to each side of each top flange tab for 14 and 12 gauge and $\frac{3}{16}$ " x 2" fillet weld to each side of each top flange tab for 7 gauge and 10 gauge. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated, see p. 21, note m for weld information. Weld on applications produce the maximum allowable down load listed. For uplift loads refer to technical bulletin T-C-WELDUPLFT at strongtie.com.
- LBV hangers do not require the use of web stiffeners for non-sloped or non-skewed applications.
- B and HB hangers require the use of web stiffeners. BA min. nailing does not require web stiffeners. BA max. nailing requires the use of web stiffeners.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- Refer to technical bulletin T-C-SLOPEJUST at strongtie.com for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes ($\leq \frac{3}{4}:12$).
- For modified hangers, fastener quantity may increase from the tables depending on joist size, skew and slope.
- Bevel cut the carried member for skewed applications.
- Web stiffeners are required for all B and HB hangers and also for modified LBV hangers when supporting I-joists.

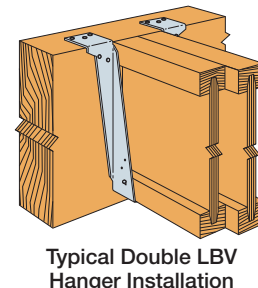
Options:

- BA is not modifiable. See modifications on pp. 122–123.
- Other widths are available; specify W dimension (the minimum W dimension is $1\frac{1}{16}$ ").
- The coating on special B hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- Refer to technical bulletin T-C-BSERIES at strongtie.com for the complete line of LBV, BA, B and HB hangers, including models not shown here, their available modification combinations and their associated reduction factors.

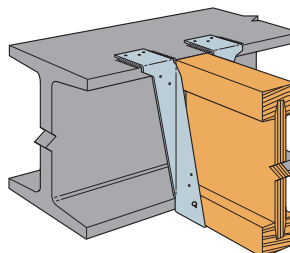
Codes: See p. 14 for Code Reference Key Chart



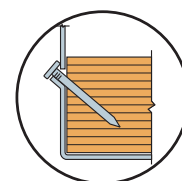
BA Installed LVL to LVL Max. Nailing



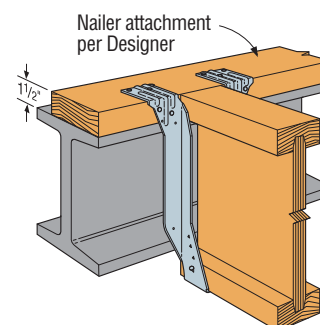
Typical Double LBV Hanger Installation



BA, B, HB and LBV are acceptable for weld-on applications (LBV shown). See Installation Information.



LBV features positive angle nailing, no web stiffeners are required.



BA, B, HB and LBV are acceptable for nailer applications. (BA shown on 2x nailer)

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I-Joist and Structural Composite Lumber Hangers (cont.)

Nailer Table

The table indicates the maximum allowable loads for LBV, BA, B and HB hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

Model No.	Nailer	Top Flange Nailing	Uplift ¹ (160)	Allowable Loads	
				DF/SP	SPF/HF
LBV	2x	(10) 10d x 1½"	265	2,280	2,085
	(2) 2x	(10) 10d	265	1,955	1,530
	3x	(10) 16d x 2½"	265	2,490	—
	4x	(10) 16d	265	2,590	—
	Steel	(6) 0.157 x ⅝" PAT	—	3,105	3,105
BA	2x	(10) 10d x 1½"	265	2,220	1,755
	(2) 2x	(14) 10d	265	2,695	2,235
	3x	(14) 16d x 2½"	265	3,230	—
	4x	(14) 16d	265	3,230	—
	Steel	(6) 0.157 x ⅝" PAT	—	3,695	3,695
B	(2) 2x	(14) 10d	710	3,615	2,770
	3x	(14) 16d x 2½"	825	3,725	—
	4x	(14) 16d	825	3,800	—
HB	4x	(22) 16d	1,550	5,500	—

- Uplift values are for DF/SP members only. LBV and BA hangers resist more uplift when web stiffeners are used. Refer to technical bulletin T-C-NAILERUPLFT at strongtie.com for additional information.
- See p. 210 for reductions on modified hangers on nailers.
- B hangers require (6) 10d x 1½" joist nails to achieve published loads. For joist members 2½" or wider, 16d x 2½" joist nails should be installed for additional uplift loads on the 3x and 4x nailer applications of 970 lb. and 1,010 lb., respectively.
- Steel nailer allowable loads apply to steel header material with thickness between ¼" and ¾" with minimum F_y = 36 ksi. Design of steel header by Designer.
- 0.157" x ⅝" long powder-actuated fastener = PDPAT-62KP. A red (level 5) or purple (level 6) load may be required to achieve specified penetration. See installation on p. 207.

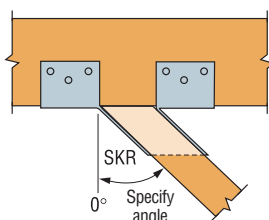
Nails: 16d = 0.162" dia. x 3½" long; 16d x 2½" = 0.162" dia. x 2½" long; 10d = 0.148" dia. x 3" long; 10d x 1½" = 0.148" dia. x 1½" long. See pp. 26–27 for other nail sizes and information.

B Series with Various Header Applications

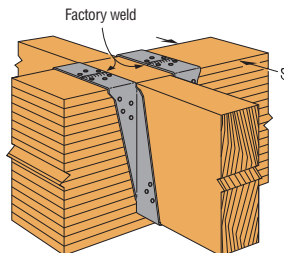
Model Series	Fasteners			Allowable Loads Header Type								Code Ref.
	Top	Face	Joist	Uplift ³ (160)	LVL8	PSL	LSL	DF/SP	SPF/ HF	I-Joist ⁹		
										DF/SCL	SPF/HF	
LBV (Min.)	(6) 10d x 1 ½"	(4) 10d x 1 ½"	(2) 10d x 1 ½"	265	2,295	2,610	2,270	1,790	1,835	1,495	1,340	I19, L14, FL
	(6) 10d	(4) 10d	(2) 10d x 1 ½"	265	2,295	2,610	2,645	2,310	2,060	—	—	
	(6) 16d	(4) 16d	(2) 10d x 1 ½"	265	2,910	2,885	3,190	2,590	2,060	—	—	
LBV (Max.)	(6) 10d x 1 ½"	(4) 10d x 1 ½"	(6) 10d x 1 ½"	635	2,295	2,610	2,270	1,790	1,835	1,495	1,350	
	(6) 10d	(4) 10d	(6) 10d x 1 ½"	785	2,295	2,610	2,645	2,310	2,060	—	—	
	(6) 16d	(4) 16d	(6) 10d x 1 ½"	895	2,910	2,885	3,190	2,590	2,060	—	—	
BA (Min.)	(6) 10d x 1 ½"	(10) 10d x 1 ½"	(2) 10d x 1 ½"	—	—	—	—	—	—	1,495	1,495	
	(6) 10d	(10) 10d	(2) 10d x 1 ½"	265	3,230	3,630	4,005	3,080	2,425	—	—	
	(6) 16d	(10) 16d	(2) 10d x 1 ½"	265	4,015	3,705	4,005	3,435	2,665	—	—	
BA (Max.)	(6) 10d	(10) 10d	(8) 10d x 1 ½"	1,170	3,555	3,630	4,120	3,625	2,465	—	—	
	(6) 16d	(10) 16d	(8) 10d x 1 ½"	1,170	4,715	4,320	4,500	3,800	2,665	—	—	
B ²	(6) 10d	(8) 10d	(6) 10d x 1 ½"	990	3,555	3,195	3,640	3,625	2,190	—	—	
	(6) 16d	(8) 16d	(6) 16d x 2 ½"	1,010	4,135	3,355	4,500	3,800	2,650	—	—	
HB ²	(6) 16d	(16) 16d	(10) 16d x 2 ½"	2,610	5,815	5,640	6,395	5,650	3,820	—	—	

- This table assumes joists with F_{cL} = 750 psi. For other joists, check that bearing and joist nails are adequate.
- Loads for Bs and HBs assume a joist width of 2½" or greater.
- Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
- Loads may not be increased for short-term loading.
- Web stiffeners required when more than two joist nails are used.
- SCL (structural composite lumber) is LVL (laminated veneer lumber), LSL (laminated strand lumber) and Parallam® PSL.
- Code values are based on DF/SP header species.
- Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce-Pine-Fir or similar less dense veneers, use the values found in the SPF/HF column.
- DF I-joists include flanges made from solid sawn Douglas Fir, LVL made primarily of Douglas Fir/Southern Pine, or LSL. For flanges with thicknesses from 1⅞" to 1⅝", use 0.85 of the I-joist header load. For flanges with thicknesses from 1⅝" to 1¼", use 0.75 of the I-joist header load.

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Top View B Hanger Skewed Right



Typical BD Saddle Installation

Saddle Hanger

Saddle hangers are made to order; add "D" to model (e.g. BD412); specify S (for saddle) dimension. They may be used for most conditions except at end wall locations and are preferred for nailer applications. Minimum S dimension (saddle width) is 3⅞". Minimum supporting member width is 3½". Minimum nailer thickness apply. Saddle hangers achieve catalog load listed. Saddle hangers on stud walls do not achieve catalog loads.

Top-Flange Hangers LBV/BA/B/HB

I-Joist and Structural Composite Lumber Hangers (cont.)

B Series Modifications and Associated Load Reductions¹

Hanger	Condition	Seat						Top Flange	
		Sloped Down 45° Max.	Sloped Up 45° Max.	Skewed 45° Max.	Sloped Down and Skewed	Sloped Up and Skewed		Top Flange Sloped 35° Max.	Top Flange Bent Open or Closed 30° Max.
LBV	Min. height →	6	6	6	9¼	14	9¼	14	11¼
	All widths	1.00	0.91	1.00	0.90	1.00	0.91	0.91	(90-a) / 90
B	Min. height →	6	6	6	9¼	14	9¼	14	14
	W < 2½"	0.82	0.66	0.95	0.54	0.82	0.64	0.64	(90-a) / 90
	W ≥ 2½"	0.80	0.95	1.00	0.70	1.00	0.80	0.80	(90-a) / 90
HB	Min. height →	8	8	8	11¼	14	11¼	14	14
	W < 2½"	0.84	0.70	1.00	0.47	0.84	0.62	0.69	(90-a) / 90
	W ≥ 2½"	0.87	0.70	0.96	0.59	0.87	0.70	0.70	(90-a) / 90

1. Reduction factors are not cumulative. Use the lowest factor that applies.

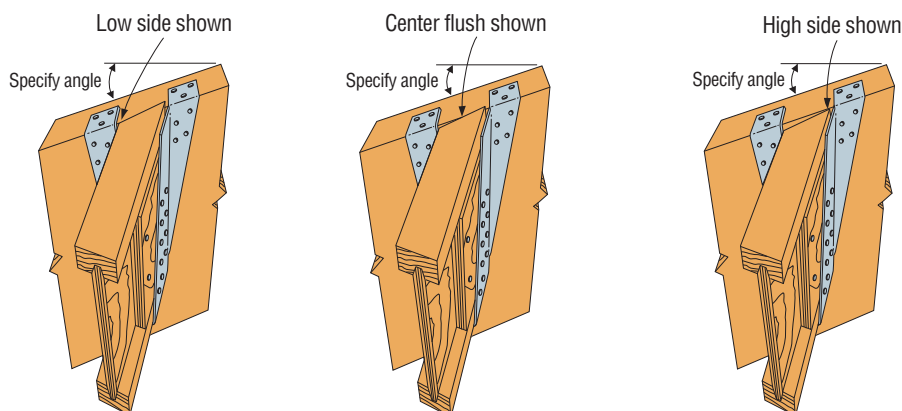
2. Web stiffeners required for sloped or skewed conditions.

3. For straight-line interpolation, "a" is the specified angle.

Reduction Factor Instructions

Allowable Download = Lower of (Seat or Top Flange) × (Table Load)

Allowable Uplift = 0.90 × (Table Load) for B with W < 2½"
 = 0.71 × (Table Load) for HB with W < 2½"
 = 1.00 × (Table Load) for all others



B hanger sloped down and skewed left with sloped top flange Installation.
 When ordering, specify low side flush, center flush or high side flush.

