BLUE BANGER HANGER® *Cast-In-Place, Internally-Threaded Inserts*

SIMPSON StrongTie ANCHOR SYSTEMS

Blue Banger Hanger® internally-threaded inserts are cast into the underside of the concrete deck after being fastened to the top of wood forms or metal deck. Once the concrete has cured, the anchor provides an attachment point for threaded rod used to hang electrical, mechanical and plumbing utilities. The Blue Banger Hanger insert is the only pre-pour insert to offer the patented multi-thread design which allows one size insert to handle multiple diameters of threaded rod.

FEATURES:

- Quick and easy installation saves time and money- no assembly required.
- Patented multi-thread design allows each hanger to accept multiple diameters of threaded rod. Three sizes of hangers can handle all applications, reducing contractor and distributor inventories.
- Multi-thread design allows threaded rod size to be changed after the anchor is in the concrete.
- Machined steel insert with large flanged head provides high tension and shear loads for overhead attachments.
- Positive attachment to form keeps the hanger vertical and in the correct position.
- Internal threads eliminate the cost of rod couplers.
- The head is stamped with the Simpson Strong-Tie® "≠" sign for easy identification before the concrete pour.

Patented multi-thread design allows one product to handle up to three rod diameters.

MATERIAL: Carbon steel

FINISH: Yellow-zinc dichromate

CODES: Factory Mutual 3024378 (except roof deck insert); Underwriters Laboratories File EX3605 (except roof deck insert); See pipe size limit tables.

Blue Banger Hanger®
Metal Deck Insert (BBMD)
U.S. Patent 6,240,697B1

Blue Banger Hanger®
Roof Deck Insert (BBRD)
U.S. Patent 6,240,697B1

Blue Banger Hanger Product Data

Hanger Type	For Rod Diameter (in.)	Deck Hole Diameter (in.)	Model No.	Carton Qty.
Metal Deck Insert	¼, ⅜, ½	13⁄16-⅞	BBMD2550	100
	⅜, ½, ⅝	1⅛-1 3⁄16	BBMD3762	50
	⅝, ¾	1 3⁄16-1¼	BBMD6275	50
Roof Deck Insert	¼, ⅜, ½	⅞	BBRD2550	50
Wood Form Insert	¼, ⅜, ½	N/A	BBWF2550	200
	⅜, ½, ⅝		BBWF3762	150
	⅝, ¾		BBWF6275	150

Blue Banger Hanger®
Wood Form Insert (BBWF)
U.S. Patent 6,240,697B1

DRILL EXTENSIONS:

Drill extensions allow holes to be drilled for Blue Banger Hanger® insert installation without having to repeatedly bend down. An ideal way to save installation time and reduce worker fatigue. Available for use with hole saws and step drills.

Drill Extensions

Description	Model No.
2' extension for use with hole saws	BBDEHS
2' extension for use with ⅜" shank step drills	BBDE37
2' extension for use with ½" shank step drills	BBDE50

Hole saws and step drills not included.

Multiple rod diameters are easily accommodated with the Blue Banger Hanger®.

Step Drill Bit Extension
(bit not included)

Hole Saw Bit Extension
(bit not included)

BLUE BANGER HANGER® - METAL DECK INSERT

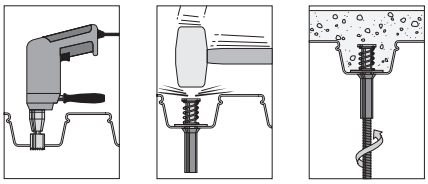
FEATURES:

- 3" plastic sleeve keeps internal threads clean.
- Extended length of the sleeve allows easy location of the insert even with fireproofing on the underside of the deck. Also provides guidance to align threaded rod with the internal threads.
- Installed height of 2" allows the insert to be used on top of, or between, deck ribs.
- Compression spring keeps the insert perpendicular to the deck, even if it is bumped or stepped on after installation.
- Multi-thread design: Each insert accepts 2–3 rod diameters.

INSTALLATION:

- Drill a hole in the metal deck using the appropriate diameter bit as referenced in the table.
- Insert the hanger into the hole and strike the top so that the plastic sleeve is forced through the hole and expands against the bottom side of the deck. The anchor can also be installed by stepping on it.

Metal Deck Insert Installation Sequence



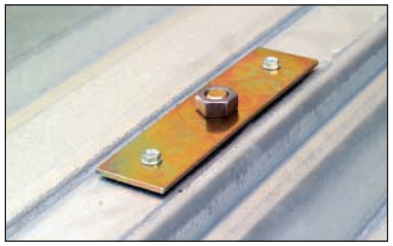
BLUE BANGER HANGER® - METAL ROOF DECK INSERT

FEATURES:

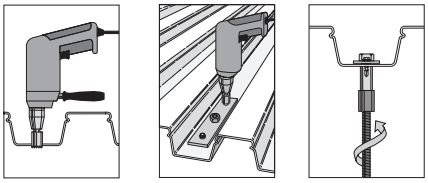
- Low profile design doesn't interfere with roofing material
- Plastic sleeve allows for easy identification and keeps internal threads clean.
- Positive attachment to the roof deck prevents spinning and keeps the hanger in position.
- Pre-staked screws allow quick installation.
- Multi-thread design: The insert accepts 3 rod diameters.

INSTALLATION:

- Drill a hole in the metal deck using the appropriate diameter bit as referenced in the table.
- Insert the hanger into the hole and fasten to the deck with the two pre-staked, self-drilling sheet metal screws provided.



Metal Roof Deck Insert Installation Sequence



BLUE BANGER HANGER® - WOOD FORM INSERT

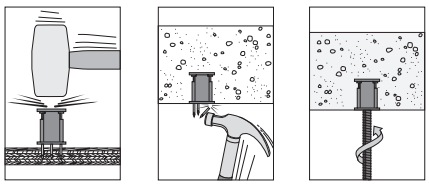
FEATURES:

- Blue plastic ring acts as an insert locator when forms are removed.
- Plastic ring creates a countersunk recess to keep internal threads clean from concrete residue.
- Nails snap off with the swipe of a hammer after the forms are removed.
- Multi-thread design: Each insert accepts 2–3 rod diameters.

INSTALLATION:

- Strike the top of the hanger and drive the 3 mounting nails into the forming material until the bottom of the hanger is flush with the plywood. The hanger should be sitting 90° perpendicular to the forming material.
- Once concrete is hardened, and forms are stripped, strike the mounting nails to break them off.

Wood Form Insert Installation Sequence



Wood Form Insert: Tension Loads in Normal-Weight Concrete

Model No.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Tension Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Ultimate lbs. (kN)	Tension Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Allowable lbs. (kN)	Tension Load Based on Rod Strength: A307 (SAE 1018), Allowable lbs. (kN)
BBWF2550	¼	2 (51)	7 (178)	8 (203)	6,820 (30.3)	1,705 (7.6)	940 (4.2)
	⅜						2,105 (9.4)
	½						3,750 (16.7)
BBWF3762	⅜	2 (51)	7 (178)	8 (203)	7,360 (32.7)	1,840 (8.2)	2,105 (9.4)
	½						3,750 (16.7)
	⅝						5,875 (26.1)
BBWF6275	⅝	2 (51)	7 (178)	8 (203)	7,420 (33.0)	1,855 (8.3)	5,875 (26.1)
	¾						8,460 (37.6)

See Notes Below

Roof Deck Insert: Tension Loads in Metal Deck

Model No.	Drill Bit Dia. in.	Threaded Rod Dia. in.	Allowable Tension Load lbs. (kN): 1½" Deck	Allowable Tension Load lbs. (kN): 3" Deck
BBRD2550	13/16-⅞	¼	150 (0.7)	300 (1.3)
		⅜		
		½		

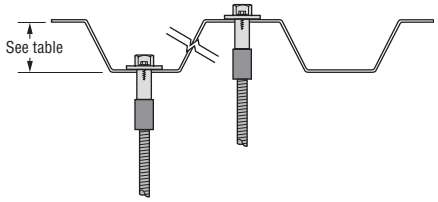
1. The allowable loads are based on a factor of safety of 4.0.
2. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
3. Acceptability of deck deflection due to imposed loads must be investigated separately.
4. Threaded-rod strength must be investigated separately.
5. Anchors may be installed in the top or bottom flute of the metal deck.
6. Deck shall be 20-gauge minimum.

Wood Form Insert: Shear Loads in Normal-Weight Concrete

Model No.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Shear Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Ultimate lbs. (kN)	Shear Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Allowable lbs. (kN)	Shear Load Based on Rod Strength: A307 (SAE 1018), Allowable lbs. (kN)
BBWF2550	½	2 (51)	7 (178)	8 (203)	8,750 (38.9)	2,185 (9.7)	1,930 (8.6)
BBWF3762	⅝	2 (51)	7 (178)	8 (203)	10,700 (47.6)	2,675 (11.9)	3,025 (13.4)
BBWF6275	¾	2 (51)	7 (178)	8 (203)	10,460 (46.5)	2,615 (11.6)	4,360 (19.4)

See Notes Below

Typical Roof Deck Insert Installation in Metal Deck



Wood Form Insert: Tension Loads in Sand-Lightweight Concrete

Model No.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Tension Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Ultimate lbs. (kN)	Tension Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Allowable lbs. (kN)	Tension Load Based on Rod Strength: A307 (SAE 1018), Allowable lbs. (kN)
BBWF2550	¼	2 (51)	7 (178)	8 (203)	4,280 (19.0)	1,070 (4.8)	940 (4.2)
	⅜						2,105 (9.4)
	½						3,750 (16.7)
BBWF6275	⅝	2 (51)	7 (178)	8 (203)	4,400 (19.6)	1,100 (4.9)	5,875 (26.1)
	¾						8,460 (37.6)

See notes below.

*See page 10 for an explanation of the load table icons

Wood Form Insert: Shear Loads in Sand-Lightweight Concrete

Model No.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Shear Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Ultimate lbs. (kN)	Shear Load Based on Concrete Strength: f'c ≥ 3000 psi (20.7 MPa) Concrete, Allowable lbs. (kN)	Shear Load Based on Rod Strength: A307 (SAE 1018), Allowable lbs. (kN)
BBWF2550	½	2 (51)	7 (178)	8 (203)	8,600 (38.2)	2,150 (9.6)	1,930 (8.6)
BBWF6275	¾	2 (51)	7 (178)	8 (203)	9,260 (41.2)	2,315 (10.3)	4,360 (19.4)

1. Allowable load must be the lesser of the concrete or steel strength.
2. The allowable loads based on concrete strength are based on a factor of safety of 4.0.
3. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
4. Mechanical and plumbing design codes may prescribe lower allowable loads. Verify with local codes.
5. Minimum concrete slab thickness = 2x embedment depth.

Metal Deck Insert: Tension Loads in Normal-Weight or Sand-Lightweight Concrete over Metal Deck

Model No.	Drill Bit Dia. in.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Tension Load Based on Concrete Strength (Install in High Flute) f'c ≥ 3000 psi (20.7 MPa) Concrete		Tension Load Based on Concrete Strength (Install in Low Flute) f'c ≥ 3000 psi (20.7 MPa) Concrete		Tension Load Based on Rod Strength A307 (SAE 1018)
						Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
BBMD2550	13/16-7/8	1/4	2 (51)	7½ (191)	8 (203)	9,320 (41.5)	2,330 (10.4)	3,210 (14.3)	800 (3.6)	940 (4.2)
		3/8								2,105 (9.4)
		1/2								3,750 (16.7)
BBMD3762	1 1/8-1 3/8	3/8	2 (51)	7½ (191)	8 (203)	10,540 (46.9)	2,635 (11.7)	3,440 (15.3)	860 (3.8)	2,105 (9.4)
		1/2								3,750 (16.7)
		5/8								5,875 (26.1)
BBMD6275	1 3/16-1 3/8	5/8	2 (51)	7½ (191)	8 (203)	12,360 (55.0)	3,090 (13.7)	3,445 (15.3)	860 (3.8)	5,875 (26.1)
		3/4								8,460 (37.6)

*See page 10 for an explanation of the load table icons

See notes below.

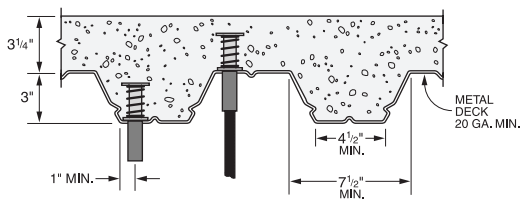
Metal Deck Insert: Shear Loads in Normal-Weight or Sand-Lightweight Concrete over Metal Deck

Model No.	Drill Bit Dia. in.	Threaded Rod Dia. in.	Embed. Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. Spacing in. (mm)	Shear Load Based on Concrete Strength (Install in High Flute) f'c ≥ 3000 psi (20.7 MPa) Concrete		Shear Load Based on Concrete Strength (Install in Low Flute) f'c ≥ 3000 psi (20.7 MPa) Concrete		Shear Load Based on Rod Strength A307 (SAE 1018)
						Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
BBMD2550	13/16-7/8	1/2	2 (51)	7½ (191)	8 (203)	9,720 (43.2)	2,430 (10.8)	2,790 (12.4)	700 (3.1)	1,930 (8.6)
BBMD3762	1 1/8-1 3/8	5/8	2 (51)	7½ (191)	8 (203)	9,400 (41.8)	2,350 (10.4)	3,360 (14.9)	840 (3.7)	3,025 (13.4)
BBMD6275	1 3/16-1 3/8	3/4	2 (51)	7½ (191)	8 (203)	9,720 (43.2)	2,430 (10.8)	3,360 (14.9)	840 (3.7)	4,360 (19.4)

*See page 10 for an explanation of the load table icons

1. Allowable load must be the lesser of the concrete or rod strength.
2. The allowable loads based on concrete strength are based on a factor of safety of 4.0.
3. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
4. Anchors may be installed off-center in the flute, up to 1" from the edge of flute.
5. Shear loads shall be applied flush with metal deck surface.
6. Deck shall be 20-gauge minimum.
7. Mechanical and plumbing design codes may prescribe lower allowable loads. Verify with local codes.

Typical Metal Deck Installation



Wood Form Insert: Factory Mutual and Underwriters Laboratories Pipe Size Limits

Model No.	Rod Dia. in.	FM Max. Nominal Pipe Size in.	UL Max. Nominal Pipe Size in.
BBWF2550	1/4	N/L	4
	3/8	4	4
	1/2	8	8
BBWF3762	3/8	4	4
	1/2	8	8
	5/8	N/L	8
BBWF6275	5/8	N/L	
	3/4		

1. N/L = Not listed for this pipe size.

Metal Deck Insert: Factory Mutual and Underwriters Laboratories Pipe Size Limits

Model No.	Rod Dia. in.	FM Max. Nominal Pipe Size		UL Max. Nominal Pipe Size	
		Install in High Flute in.	Install in Low Flute in.	Install in High Flute in.	Install in Low Flute in.
BBMD2550	1/4	N/L	N/L	4	4
	3/8	4	4	4	4
	1/2	8	N/L	8	4
BBMD3762	3/8	4	4	4	4
	1/2	8	N/L	8	4
	5/8	N/L	N/L	8	4
BBMD6275	5/8	12	N/L	12	N/L
	3/4	12	N/L	12	N/L

1. N/L = Not listed for this pipe size.