

Concrete Inserts

B3019 - Adjustable Metal Deck Ceiling Bolt

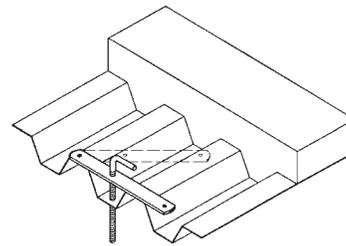
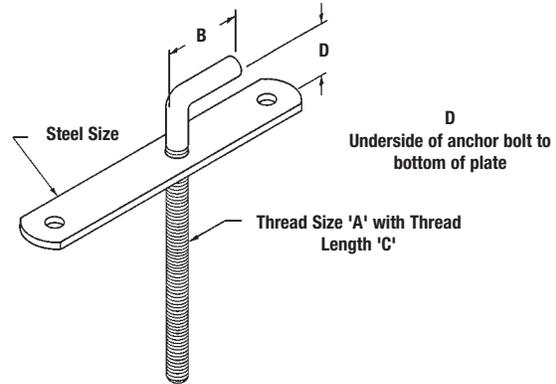
Size Range: 3/8"-16 thru 3/4"-10 rod

Material: Steel

Function: For use in metal deck formed concrete to attach hanger rods. Allows for pre-positioning of hanger rods in poured concrete decks.

Finish: Plate: Plain Steel. Rod: Electro-Galvanized. Contact Cooper B-Line for alternative finishes and materials.

Order By: Part number and finish. Contact B-Line for custom rod lengths.



Part No.	Thread A	B		Thread Length C		D		Steel Size		Design Load		Approx. Wt./100	
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kN)	Lbs.	(kg)
B3019-3/8	3/8"-16	2 1/2"	(63.5)	6 3/8"	(161.9)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	730	(3.25)	80	(36.3)
B3019-1/2	1/2"-13	2 1/2"	(63.5)	6 1/2"	(165.1)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	1350	(6.00)	99	(44.9)
B3019-5/8	5/8"-11	2 1/2"	(63.5)	6 3/4"	(171.4)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	2160	(9.61)	129	(58.5)
B3019-3/4	3/4"-10	2 1/2"	(63.5)	6 3/16"	(157.2)	2 1/4"	(57.1)	1/4" x 3" x 10"	(6.3 x 76.2 x 254.0)	3230	(14.37)	238	(107.9)

For maximum load rating, install plate on top of deck ribs.

Fig. 109AF - Concrete Insert - Hanger Application (Cooper B-Line B2501)

Size Range: 3/8"-16 thru 7/8"-9 rod

Material: Steel

Function: Designed to be embedded in concrete to provide a point of support.

Approvals: Underwriters Laboratories listed in the USA (UL) and Canada (cUL) for 3/8" and 1/2". Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

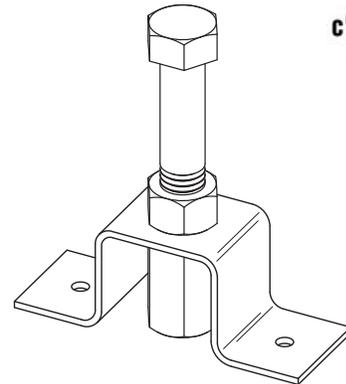
Finish: Plain anchor bolt with Electro-Galvanized hardware and plate.

Order By: Part number, rod size and finish.

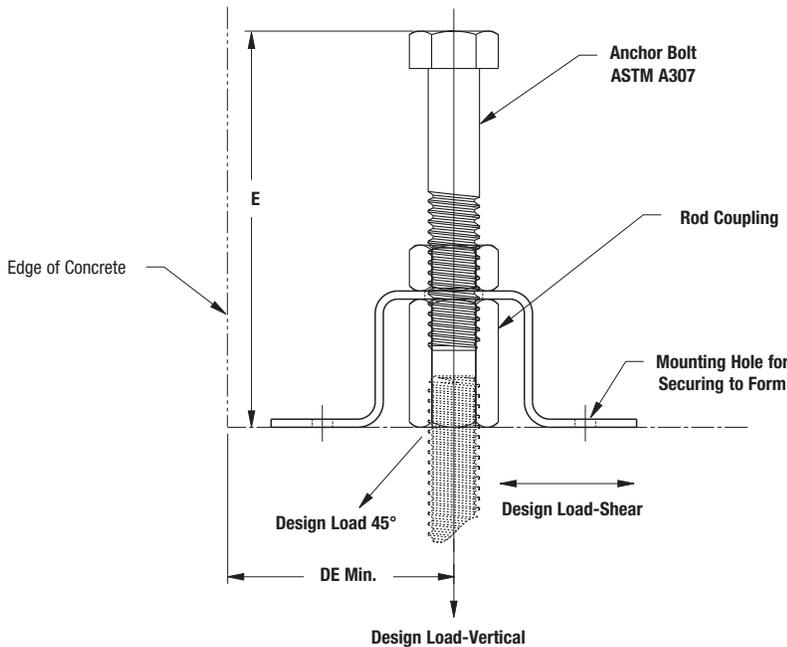
Note: The hex or jam nut has NO value in determining the loads. Their function is to assist in locking the coupling snug to the bottom of the deck form preventing the concrete from leaking into the coupling threads. Any other suitable locking device may be substituted if desired.



Component of State of California OSHPD Approved Seismic Restraints System



Concrete Inserts



Part No.	Approx. Wt./100	
	lbs.	(kg)
109AF-3/8	38.1	(17.3)
109AF-1/2	54.7	(24.8)
109AF-5/8	82.2	(37.3)
109AF-3/4	113.8	(51.6)
109AF-7/8	130.6	(59.2)

Part No.	Rod Size	Design Load Vertical		Design Load Shear		Design Load 45°		Embedment Depth E		DE Min.							
		Hard Rock lbs.	Light Wt. lbs. (kN)	Hard Rock lbs.	Light Wt. lbs. (kN)	Hard Rock lbs.	Light Wt. lbs. (kN)	in.	(mm)	in.	(mm)						
109AF-3/8	3/8"-16	1255	(55.82)	735	(3.28)	978	(4.35)	733	(3.26)	777	(3.45)	525	(2.33)	3 1/2"	(88.9)	2"	(50.8)
109AF-1/2	1/2"-13	2321	(10.32)	1392	(6.19)	978	(4.35)	733	(3.26)	980	(4.36)	679	(3.02)	3 1/2"	(88.9)	2"	(50.8)
109AF-5/8	5/8"-11	780	(3.47)	468	(2.08)	1278	(5.68)	958	(4.26)	688	(3.06)	445	(1.98)	4"	(101.6)	2"	(50.8)
109AF-3/4	3/4"-10	1346	(5.99)	806	(3.58)	1278	(5.68)	958	(4.26)	927	(4.12)	619	(2.75)	4"	(101.6)	2 1/2"	(63.6)
109AF-7/8	7/8"-9	2321	(10.32)	1391	(6.19)	1278	(5.68)	958	(4.26)	1166	(5.18)	803	(3.57)	4"	(101.6)	6"	(152.4)

Max. Recommended Loads shown include safety factor of 5.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Fig. 109AF - Concrete Insert - Brace Application (B-Line B2501)

Component of State of California OSHPD Approved Seismic Restraints System



Size Range: 3/8"-16 thru 7/8"-9 rod

Material: Steel

Function: Designed to be embedded in concrete to provide a point of support.

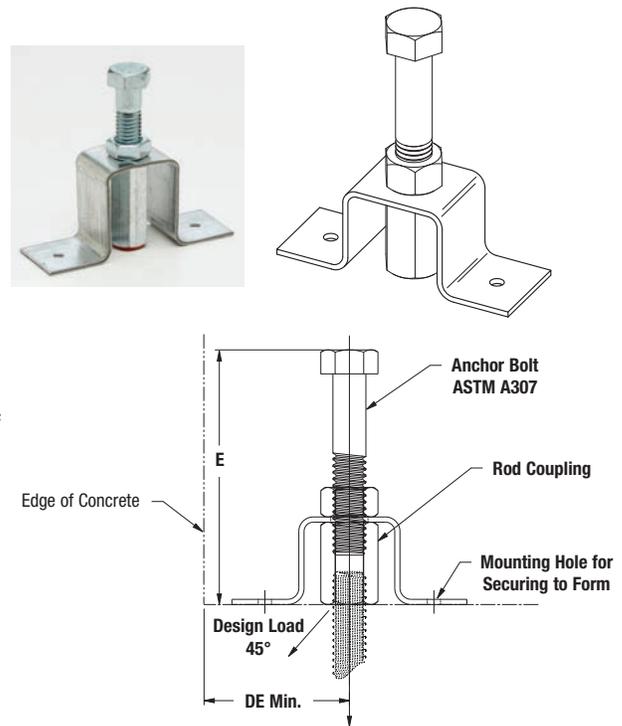
Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (**OSHPD**). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish: Electro-Galvanized anchor bolt with Electro-Galvanized hardware and plate.

Order By: Figure number, rod size and finish.

Note: The hex or jam nut has NO value in determining the loads. Their function is to assist in locking the coupling snug to the bottom of the deck form preventing the concrete from leaking into the coupling threads. Any other suitable locking device may be substituted if desired.

Qualifies as an acceptable alternate seismic brace fastener per Section 9.3.5.9.6 Certification calculations for this application are available upon request. See dimensions and installation Detail below.



Concrete Inserts

Part No.	Rod Size	Max. Horizontal Seismic Load With Brace At 45°		Embedment Depth E		DE Min.		Approx. Wt./100	
		in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kg)
109AF-3/8	3/8"-16	925	(4.11)	3 1/2"	(88.9)	2"	(50.8)	38.1	(17.3)
109AF-1/2	1/2"-13	925	(4.11)	3 1/2"	(88.9)	2"	(50.8)	54.7	(24.8)
109AF-1/2	1/2"-13	950	(4.22)	4"	(101.6)	2"	(50.8)	54.7	(24.8)
109AF-5/8	5/8"-11	1250	(5.56)	4"	(101.6)	2"	(50.8)	82.2	(37.3)
109AF-5/8	5/8"-11	1424	(6.33)	5"	(127.0)	2"	(50.8)	82.2	(37.3)
109AF-3/4	3/4"-10	1275	(5.67)	4"	(101.6)	2"	(50.8)	113.8	(51.6)
109AF-3/4	3/4"-10	1424	(6.33)	6"	(152.4)	2"	(50.8)	113.8	(51.6)
109AF-7/8	7/8"-9	1330	(5.91)	4"	(101.6)	2"	(50.8)	130.6	(59.2)
109AF-7/8	7/8"-9	1424	(6.33)	7"	(177.8)	2"	(50.8)	130.6	(59.2)

Seismic bracing design load calculated in compliance with the requirements of IBC 2009 / CBC 2010.

Part No.	Rod Size	Max. Horizontal Seismic Load With Brace At 45°		Embedment Depth E		DE Min.		Approx. Wt./100	
		in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kg)
109AF-3/8	3/8"-16	781	(3.47)	3 1/2"	(88.9)	2"	(50.8)	38.1	(17.3)
109AF-1/2	1/2"-13	781	(3.47)	3 1/2"	(88.9)	2"	(50.8)	54.7	(24.8)
109AF-1/2	1/2"-13	807	(3.59)	4"	(101.6)	2"	(50.8)	54.7	(24.8)
109AF-5/8	5/8"-11	999	(4.44)	4"	(101.6)	2"	(50.8)	82.2	(37.3)
109AF-5/8	5/8"-11	1275	(5.67)	5"	(127.0)	2"	(50.8)	82.2	(37.3)
109AF-3/4	3/4"-10	1029	(4.57)	4"	(101.6)	2"	(50.8)	113.8	(51.6)
109AF-3/4	3/4"-10	1424	(6.33)	6"	(152.4)	2"	(50.8)	113.8	(51.6)
109AF-7/8	7/8"-9	1074	(4.78)	4"	(101.6)	2"	(50.8)	130.6	(59.2)
109AF-7/8	7/8"-9	1424	(6.33)	7"	(177.8)	2"	(50.8)	130.6	(59.2)

Seismic bracing design load calculated in compliance with the requirements of IBC 2012 / CBC 2013.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Concrete Inserts

B2499 - Concrete Insert (TOLCO Fig. 107F)

Size Range: 5/8"-11 thru 1 1/2"-6 rod

Material: Steel

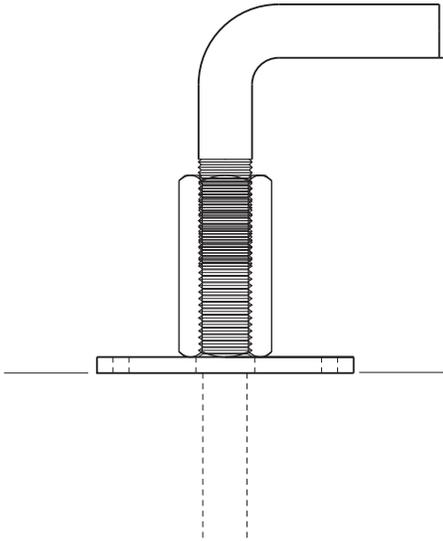
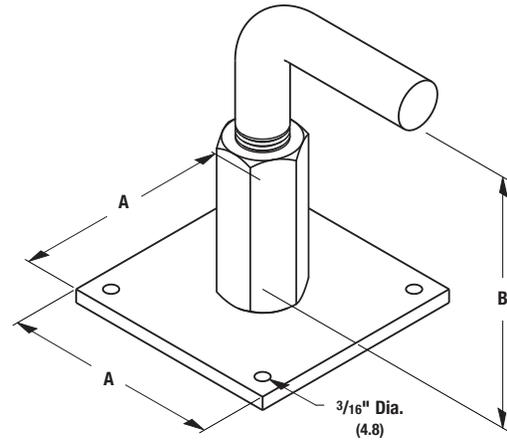
Function: Designed to be embedded in concrete to provide a point of support for 5/8"-11 thru 1 1/2"-6 rod or bolt sizes .

Finish: Plain anchor bolt with Electro-Galvanized coupling. Contact B-Line for alternative finishes and materials.

Note: For rod sizes 3/8"-16 and 1/2"-13, refer to Fig. 109AF.

Order By: Part number and rod size.

For 1 1/8"-7, 1 1/4"-6, and 1 1/2"-6 consult factory.



Concrete Inserts

Part No.	Rod Size	A		Min. Embedment B		Max. Recommended Loads (In 3000 lb. (13.34kN) Hard Rock Concrete)		Approx. Wt./100	
		in.	(mm)	in.	(m)	lbs.	(kN)	lbs.	(kg)
B2499-5/8	5/8"-11	3"	(76.2)	3 1/2"	(88.9)	1810	(8.05)	118.0	(53.5)
B2499-3/4	3/4"-10	3"	(76.2)	3 1/2"	(88.9)	2710	(12.05)	154.0	(69.8)
B2499-7/8	7/8"-9	3"	(76.2)	4"	(101.6)	3770	(16.77)	210.0	(95.3)
B2499-1	1"-8	3"	(76.2)	4"	(101.6)	4960	(22.06)	276.0	(125.2)

Consult factory for specifications on rod sizes 1 1/8"-7, 1 1/4"-6, and 1 1/2"-6

B2500 - Light Duty Spot Insert (TOLCO Fig. 310)

Material: Steel

Function: Designed to be embedded in concrete to attach 1/4"-20 to 7/8"-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the knockout can be removed from the insert. The N2500 insert nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert but should not be forced further to avoid damaging the insert.

Approvals: Underwriters Laboratories Listed for maximum pipe size 6" (150). Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

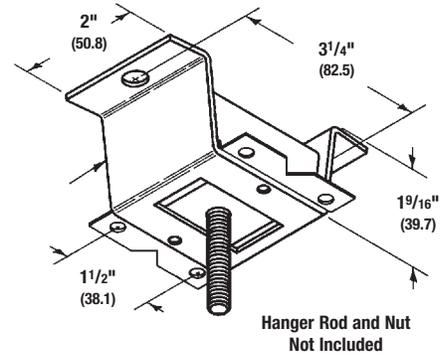
Weight: Approx. Wt./100 - 46 Lbs. (20.8kg)

Finish: Electro-Galvanized.

Order By: Part number and finish.
(Order N2500 nuts separately).

Design Load: Loading based on a straight pull of 600 Lbs. (2.67kN).

Note: Before installation ensure that concrete is sufficient to carry the load.



Material Thickness
12 Gauge (2.6)



N2500 - Steel Insert Nut (TOLCO Fig. 310N)

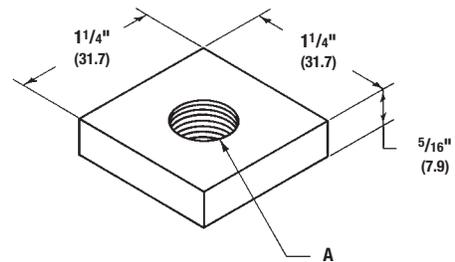
Size Range: 1/4"-20 through 7/8"-9.

Material: Steel

Function: Designed for use with B2500 spot insert.

Finish: Plain or Electro-Galvanized.

Order By: Part number and size.



Part No.	Tap Size A	Approx. Wt./100	
		Lbs.	(kg)
N2500-1/4	1/4"-20	14	(6.3)
N2500-3/8	3/8"-16	13	(5.9)
N2500-1/2	1/2"-13	12	(5.4)
N2500-5/8	5/8"-11	11	(5.0)
N2500-3/4	3/4"-10	11	(5.0)
N2500-7/8	7/8"-9	10	(4.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Concrete Inserts

B3014 - Malleable Iron Insert (TOLCO Fig. 309)

Material: Malleable Iron

Function: Designed to be embedded in concrete to attach $\frac{3}{8}$ "-16 to $\frac{7}{8}$ "-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the B3014N nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

Approvals: Underwriters Laboratories Listed when used with B3014N Insert Nut. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 18 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

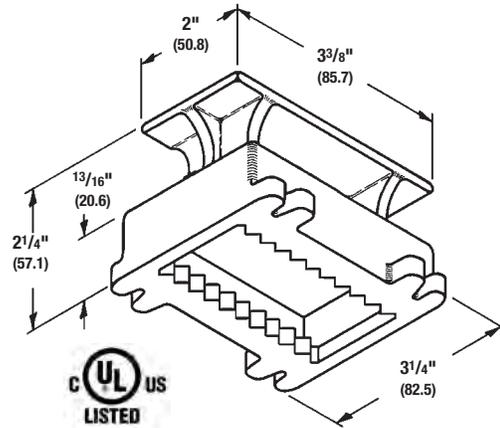
Weight: Approx. Wt./100 - 166 Lbs. (75.3kg)

Finish: Plain or Electro-Galvanized.

Order By: Part number and finish.
(Order B3014N nuts separately).

Design Load: Design Loads based on B3014N malleable iron insert nut below.

Note: Before installation ensure that concrete is sufficient to carry the load.



Horizontal Adjustment:
For $\frac{3}{8}$ "-16, $\frac{1}{2}$ "-13, $\frac{5}{8}$ "-11 rods - Adjustment is $\frac{1}{4}$ " (4.4)
For $\frac{3}{4}$ "-10, $\frac{7}{8}$ "-9 rods - Adjustment is $\frac{1}{16}$ " (3.02)



Concrete Inserts

B3014N - Malleable Iron Insert Nut (TOLCO Fig. 309N)

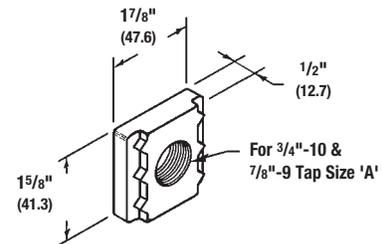
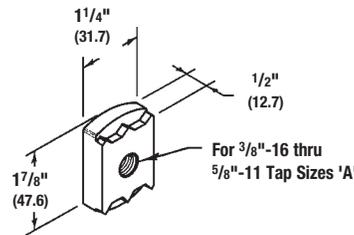
Size Range: $\frac{3}{8}$ "-20 through $\frac{7}{8}$ "-9.

Material: Malleable Iron

Standard Finish: Plain or Electro-Galvanized

Service: Designed for use with the B3014 malleable iron insert shown above.

Ordering: Part number and finish.



Part No.	Tap Size 'A'	UL Max. Pipe Size	Design Load*		Approx. Wt./100	
			Lbs.	(kN)	Lbs.	(kg)
B3014N- $\frac{3}{8}$	$\frac{3}{8}$ "-16	4"	730	(3.25)	22	(10.0)
B3014N- $\frac{1}{2}$	$\frac{1}{2}$ "-13	8"	1350	(6.00)	22	(10.0)
B3014N- $\frac{5}{8}$	$\frac{5}{8}$ "-11	10"	1400	(6.23)	20	(9.1)
B3014N- $\frac{3}{4}$	$\frac{3}{4}$ "-10	10"	1400	(6.23)	29	(13.1)
B3014N- $\frac{7}{8}$	$\frac{7}{8}$ "-9	10"	1400	(6.23)	29	(13.1)

* When used with B3014 Malleable Iron Insert.



B2505 thru B2508 - Spot Insert

Material: Steel (Stainless steel available on B2505 only)

Standard Finish: Plain or Pre-Galvanized

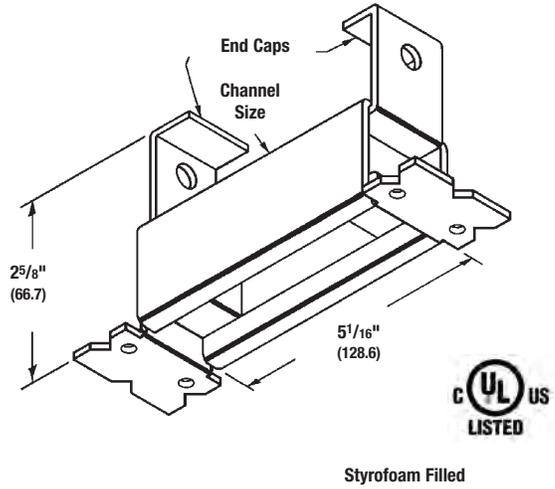
Function: Designed to be embedded in concrete to attach 1/4"-20 to 7/8"-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

Approvals: Underwriters Laboratories Listed. Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Order By: Part number and finish. When supporting 10" (254mm) pipe, order B2505 Insert with 5/8"-11 channel nuts.

Note: For appropriate channel nut selection, see page 16. Before installation ensure that concrete is sufficient to carry the load.



Part No.	Channel Size	End Cap Part No.	Design Load		Max. Pipe Size		Approx. Wt./100	
			Lbs.	(kN)	in.	(mm)	Lbs.	(kg)
B2505	B22	B3322	1200	(5.34)	10"	(250)	96	(43.5)
B2506	B32	B3332	1000	(4.45)	8"	(200)	88	(39.9)
B2507	B42	B3342	1000	(4.45)	8"	(200)	77	(34.9)
B2508	B52	B3352	1000	(4.45)	8"	(200)	69	(31.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Concrete Inserts

B2503 - Heavy Duty Spot Insert

Material: Steel

Standard Finish: Electro-Galvanized

Function: Designed to be embedded in concrete where heavy loads are required in curtain wall applications. Styrofoam end caps prevent concrete seepage into the channel.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Design Load: 5000 Lbs. (22.2kN).
Loading based on two N225 channel nuts spaced 3" (76.2mm) on center and a minimum of 2" (50.8mm) from the end of the insert.

Weight: Approx. Wt./100 - 42 Lbs. (19.0kg)

Order By: Part number and finish. Channel nuts are sold separately, see page 16 for appropriate selection.

