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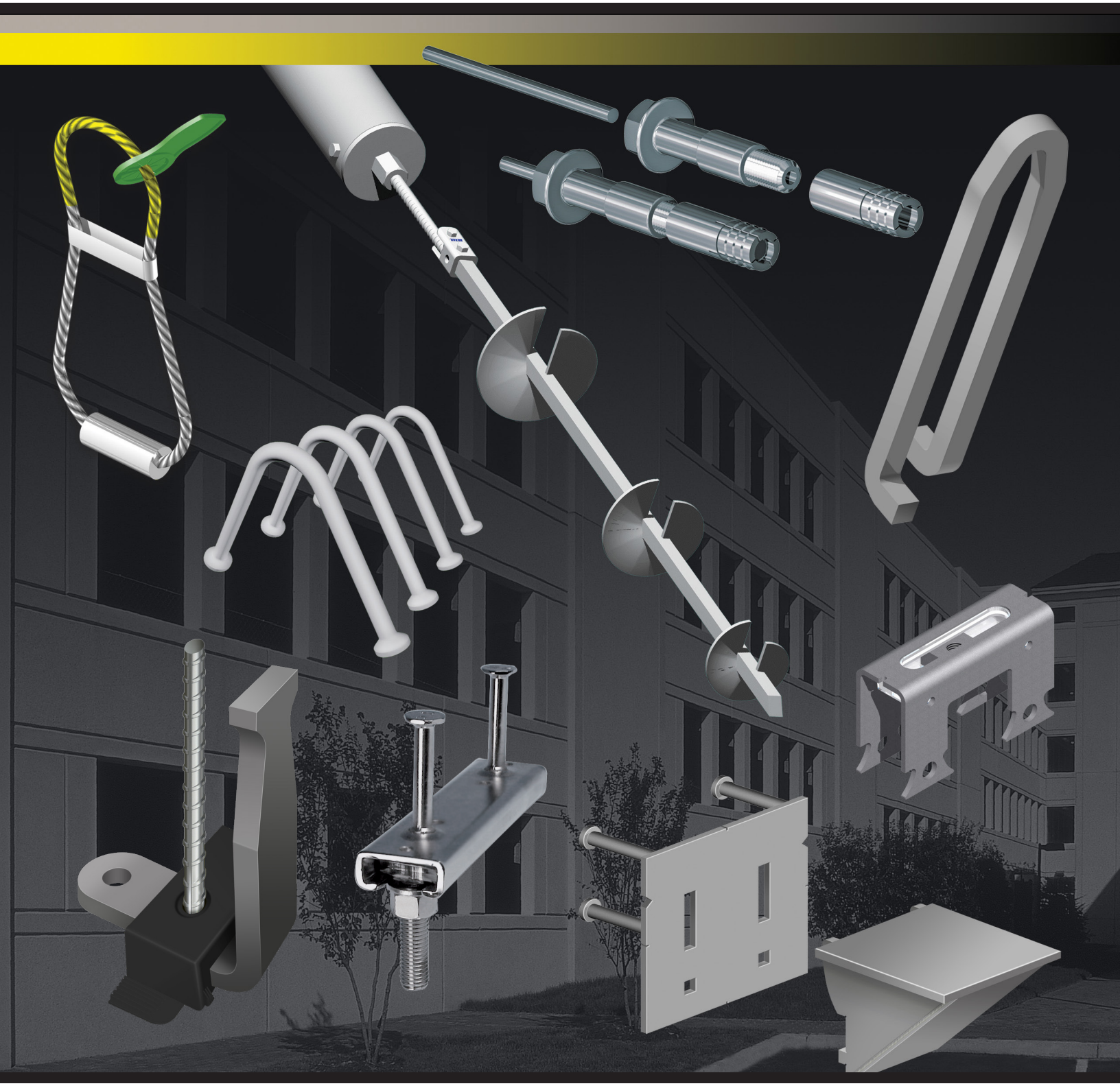
MEADOW BURKE TECHNICAL MANUAL

Precast



MeadowBurke®

Leviat®
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We are one team.
We are Leviat.

Leviat is the new name of CRH's construction accessories companies worldwide.

Under the Leviat brand, we have united the expertise, skills and resources of Meadow Burke and its sister companies to create a world leader in fixing, connecting and anchoring technology.

The products you know and trust, including Meadow Burke, will remain an integral part of Leviat's comprehensive brand and product portfolio. As Leviat, we can offer you an extended range of specialist products and services, greater technical expertise, a larger and more agile supply chain and better, faster innovation.

By bringing together CRH's construction accessories family as one global organisation, we are better equipped to meet the needs of our customers, and the demands of construction projects, of any scale, anywhere in the world.

This is an exciting change. Join us on our journey.

Read more about Leviat at Leviat.com

Our product brands include:

MeadowBurke

HALFEN

thermomass

3,000	60	25	4
employees	locations	countries	continents

Imagine. Model. Make.

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Product Safety Considerations

Meadow Burke guarantees the products it manufactures when used by qualified, experienced and properly supervised workmen adhering to the safety factor standards detailed below. Misuse, misapplication or lack of proper supervision and/or inspection can result in serious accidents. If you have unusual applications or are uncertain about a product application, contact your Meadow Burke Service Center for clarification and carefully field test the application prior to general use.

When using a Meadow Burke product take time to carefully consider the application, applied loads, required safety factors, safe working loads and all field conditions to ensure complete safety of all persons involved.

PRODUCT SAFETY FACTORS

Safety factors are determined by the degree of risk involved in the use of the product and are established by the American Concrete Institute (ACI), Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI). Safety factors specific to precast concrete construction are shown in the following table, other saftey factors may be shown.

Safety Factor	Product Intended Use
5 to 1	Reusable Hardware for lifting and handling
4 to 1	Inserts/Anchors for lifting and handling
3 to 1	Permanent connections
1.5 to 1	Hold Downs for prestressing strands

All products displayed in this publication have the applicable safety factor used to derive their safe working loads. This does not relieve the user of the responsibility to carefully calculate and determine the actual loads that will be applied in a specific product application. If the user determines that a safety factor differs from what is printed in this publication is needed, the following equation may be used to raise or lower a safe working load:

$$\text{Adjusted Safe Work Load} = \frac{\text{Published Safe Working Load (Published Safety Factor)}}{\text{(New Required Safety Factor)}}$$

If there are any doubts, questions or concerns about safe working loads and/or safety factors, contact your Meadow Burke Service Center.

WELDING CONSIDERATIONS

Meadow Burke cannot control field conditions or field workmanship; therefore it cannot guarantee any Meadow Burke product that has been altered in any way after it has left the manufacturing facility. This includes welding, bending, filing, etc. Never weld to a casting unless authorized by a qualified engineer. Welding to a casting can cause localized embrittlement that greatly reduces the load-carrying capacity of the casting. Tack welding to wire products can have the same effect.

WORN WORKING PARTS

All construction-related working parts are subject to wear, misuse, overloading, corrosion, alteration, etc. which may affect the performance of the product. Therefore, all working parts must be regularly inspected to determine if the product can remain in service. The frequency of inspection is based on how often the product is used, period of use and the environment in which it is used.

PRODUCT DESIGN AND SAFE WORKING LOAD CHANGES

As a manufacturer of quality concrete accessories, Meadow Burke reserves the right to change product designs and/or product safe working load ratings at any time without prior notice to prospective users. Any such changes will only be made to improve the product or to increase product safety.

Product and Coating Finishes

Products manufactured by Meadow Burke can be supplied in several different coatings or finishes to meet specific corrosion resistance requirements. Note that if no coating or finish is specified when placing an order, the product will be supplied with the standard plain finish.

AVAILABLE FINISHES AND COATINGS

PLAIN – Unprotected steel sometimes referred to as black, basic or raw steel. It will corrode or rust when exposed to the elements.

ELECTRO-PLATE – A bright shiny or sometimes dull finish generally 0.0002 to 0.001 inch thick zinc coating. The degree of corrosion protection will vary based on the severity of the environment in which it is used. Meadow Burke electro-plated products comply with the ASTM B-633 standard.

ASTM B-633 ELECTRO-PLATE COATING OF ZINC ON STEEL		
Service Condition	Exposure	Coating Thickness
SC-4	Very Severe	0.0010 inch
SC-3	Severe	0.0005 inch
SC-2	Moderate	0.0003 inch
SC-1	Mild	0.0002 inch

HOT DIP GALVANIZE – Semi-bright to very dull finish. It is a much heavier coating than electro-plate. Hot dip galvanize (HDG) provides a higher degree of corrosion resistance than electro-plate, but is not suitable for threaded or tight-fitting products. Meadow Burke hot dip galvanized protected products comply with ASTM A-123 or ASTM A-153.

ASTM A-123 – Used for products that are fabricated from rolled, pressed, punched and forged steel shapes, plate, bar, wire or strips 0.125 inch thick and heavier. Zinc finish thickness will vary from 0.002 to 0.005 inch thick.

ASTM A-123 HOT DIP GALVANIZE ON IRON AND STEEL		
Product Type	Product Thickness	Coating Thickness
Wire	0.142" to 0.186" dia.	0.002 inch
Wire	0.187" to 0.249" dia.	0.003 inch
Wire	0.250" dia. or larger	0.004 inch
Steel or Plate	0.030" to 0.062" thick	0.002 inch
Steel or Plate	0.063" to 0.124" thick	0.003 inch
Steel or Plate	0.125" or thicker	0.004 inch

ASTM A-153 – A coating process for iron and steel products that utilizes a spinning technique to remove excess zinc. Bolts may be processed under this ASTM specification. Coating will vary in thickness from 0.002 to 0.006 inch depending on the "class" specified by the user.

ASTM A-153 HOT DIP GALVANIZE ON IRON AND STEEL HARDWARE		
Product Type	Product Thickness	Coating Thickness
Castings	A	0.0034 inch
3⁄16" and over thickness and over 15" Length	B1	0.0034 inch
Under 3⁄16" thickness and over 15" Length	B2	0.0026 inch
Any thickness and 15" and under Length	B3	0.0022 inch

WARNING: ***Products manufactured from high carbon steel that is electro-plated or hot dip galvanized must be properly heat treated to minimize embrittlement. Failure to properly heat-treat these products may cause a compromise of their safe working loads and result in a premature failure of the product.***

Product Coatings and Finishes (cont.)

EPOXY COATING – A shiny epoxy coating applied to a finished product utilizing an electrostatic or fluidized bed. The coating thickness will vary from 0.005 to 0.012 inch. Epoxy coating is a very effective protection from hostile environments such as around or over salt water and chemically contaminated areas.

STAINLESS STEEL – Stainless steel offers high corrosion resistance in any environment. Type 304 stainless steel is generally used (unless otherwise specified) by Meadow Burke. It is non-magnetic and can be painted with no special preparation.

CAUTION: *Corrosion may occur on exposed metal products when architectural precast members are etched or acid washed. The amount of corrosion will be dependent on the acidity of the wash and/or the type of chemicals used.*

Embrittlement Information

Carbon steels, cold-worked steels and heat treated steels are susceptible to embrittlement in both electro-plating and hot dip galvanizing operations.

A) Any severely cold-worked steel must be stress-relieved from strain aging by baking prior to electroplating or hot dip galvanizing.

B) Any steel with significant high strength or high carbon content is susceptible to hydrogen embrittlement during electro-plating or hot dip galvanizing. It must be baked after the coating is applied to drive out excessive hydrogen.

WARNING: ***Products manufactured from high carbon steel that is electro-plated or hot dip galvanized must be properly heat treated to minimizeembrittlement. Failure to properly heat treat these products may cause a compromise of their safe working loads and result in a premature failure of the product.***

Applicable ASTM documents:

ASTM A-143	“Safe Guarding Against Embrittlement”
ASTM A-153	“Zinc Coating (hot dip) on Iron and Steel Hardware”
ASTM A-165	“Electro-Deposited Coatings of Cadmium on Steel”
ASTM B-633	“Electro-Deposited Coatings of Zinc”

Example Coating Specifications:

Electro-Plate – “Electro-Plate to ASTM B-633 Specification. Service Condition SC-4.
Provide embrittlement relief, if necessary.
Hot Dip Galvanize – “Hot Dip Galvanize to ASTM A-153, Class A.
Provide embrittlement relief, if necessary.”

Safety and Technical

Failure of an insert/anchor or the concrete can occur in a variety of ways; such as concrete shear cone failure, insert mechanical failure, coil penetration failure and edge lifting failures.

CONCRETE SHEAR CONE FAILURE

The concrete shear cone is the area of concrete around the insert/anchor that fails due to the concrete's inability to contain the stresses of the applied load. The approximation of break strength in uncracked concrete assuming a full shear cone is given by the following formula for a single anchor:

$$N_{cb} = \frac{A_{Nc}}{A_{Nco}} \psi_{ed,N}\psi_{c,N}\psi_{cp,N}N_b \qquad \text{(D-4)}$$

Where

$$A_{Nco} = 9h_{ef}^2 \qquad \text{(D-6)}$$

$$N_b = k_c\lambda\sqrt{f'_c}h_{ef}^{1.5} \qquad \text{(D-7)}$$

$$N_b = 16\lambda\sqrt{f'_c}h_{ef}^{5/3} \qquad \text{(D-8)}$$

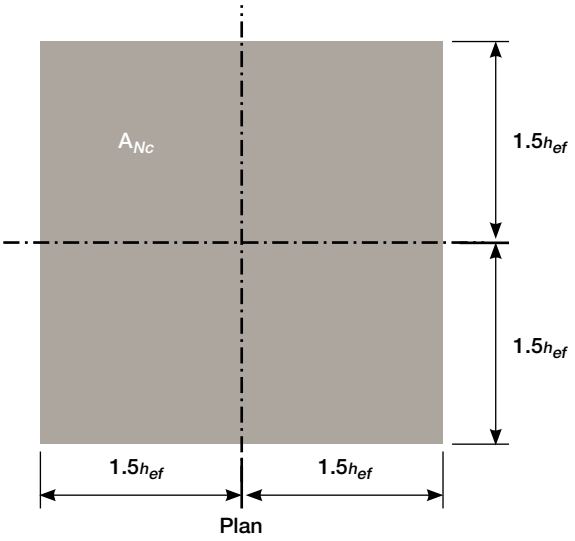
$\psi_{c,N}$ = 1.25 for cast-in anchors

$\psi_{cp,N}$ = 1.0 (D-12)

$$\psi_{cp,N} = 0.7+0.3\,\frac{C_{a,\,min}}{1.5h_{ef}} \qquad \text{(D-11)}$$

$k_c = 24$

λ = *1.0 for Normal Weight Concrete, 150 pcf*



$A_{Nc} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h^2_{ef}$

Figure RD.5.2.1

h_{ef} = *effective depth of the anchor, use equation D-7 for anchors less than 11" and equation D-8 for anchors greater than or equal to 11"*

The equation above is the ultimate pullout strength of an anchor in tension in uncracked concrete as given by ACI 318-08 Appendix D. Meadow Burke does not recommend the use of LRFD design methodology when designing anchors for lifting and forming.

LRFD design methodology is intended for in-service conditions only and not for temporary conditions such as lifting, forming and bracing. The end-user of the product will under design the lifting system using this method while over design a forming system. It is recommended that the above – pullout strength be reduced by the desired safety factor as recommended by page 2 of this catalog.

CONDITIONS AFFECTING SHEAR CONE CAPACITIES:

1. A shear cone is assumed to radiate a 35º cone. Field experience indicates that the cone may actually radiate as much as a 20º cone, which would increase the required corner distance to 2*Length of insert.
2. Sustained vibrations will reduce N_{cb} by thirty percent (30%).
3. N_{cb} decreases with decreasing unit weight of the concrete. For light weight concrete, 120 psf or less, l = 0.70.
4. For cracked concrete conditions, reduce N_{cb} by 20%.

Insert and Concrete Failures (cont.)

INSERT/ANCHOR MECHANICAL FAILURES

Insert and anchor safe working loads (SWL) displayed in this publication are based on the mechanical properties of the product. Generally, it is the capacity of the insert wire or anchor body that determines the mechanical capacity.

The user of Meadow Burke products must always check to ensure that enough concrete cover is available to provide a full shear cone and compare the mechanical strength of the insert/anchor to the available concrete shear cone. The lesser of the two values will determine the safe working load of that specific application.

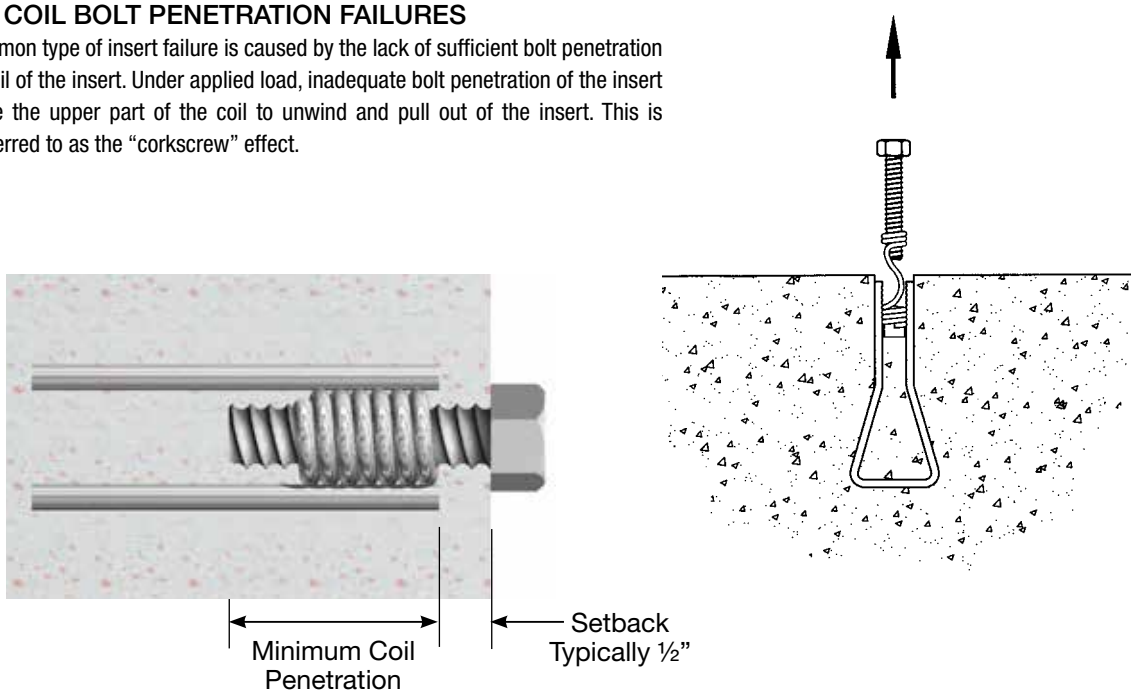
TYPICAL WIRE SIZES AND STRENGTHS

Nominal Diameter		Wire Grade	AISI & SAE Number	Approx. Min. Yield Tension		Approx. Min. Ult. Tension		Approx. Min. Shear	
inches	mm			lbs.	kN	lbs.	kN	lbs.	kN
0.444	11.1	MHC	C1035	10650	47	16000	71	16670	47
0.440	11.1	LC	C1008	10650	47	13500	60	9000	40
0.375	9.5	LC	C1018	7740	34	9600	43	6400	28
0.340	8.6	MHC	C1035	6060	28	9000	40	6000	26
0.306	7.8	LC	C1018	5150	23	7400	33	4930	22
0.306	7.8	LC	C1008	5150	23	6750	19	4500	20
0.283	7.2	LC	C1012	4410	20	5400	24	3600	16
0.262	6.6	LC	C1008	3780	17	4350	18	2770	12
0.223	5.7	MHC	C1035	2740	12	4600	20	3070	13
0.218	5.5	LC	C1008	2620	12	3000	12	1870	8

Wire displayed above and all wire used by Meadow Burke in the fabrication of inserts comply with ASTM-1064 standards, with a minimum yield strength from 70 ksi.

MINIMUM COIL BOLT PENETRATION FAILURES

The most common type of insert failure is caused by the lack of sufficient bolt penetration through the coil of the insert. Under applied load, inadequate bolt penetration of the insert coil will cause the upper part of the coil to unwind and pull out of the insert. This is commonly referred to as the “corkscrew” effect.



Insert and Concrete Failures (cont.)

COIL BOLT CONSIDERATIONS

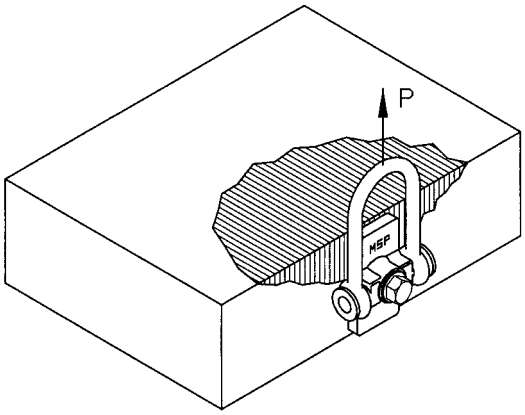
1. Failure to properly tighten a coil bolt can result in the inability of the coil bolt to fully penetrate the coil of the insert.
2. Excessive insert setback in the concrete can result in the inability of the coil bolt to fully penetrate the coil of the insert.
3. Worn threads on a coil bolt will render the bolt ineffective and will result in inadequate thread engagement.
4. A coil bolt of inadequate length to fully penetrate the insert coil will produce a corkscrew type of failure. The insert coil cannot carry the required load when only partially engaged.
5. Reference the Minimum Coil Penetration Table on page 90.

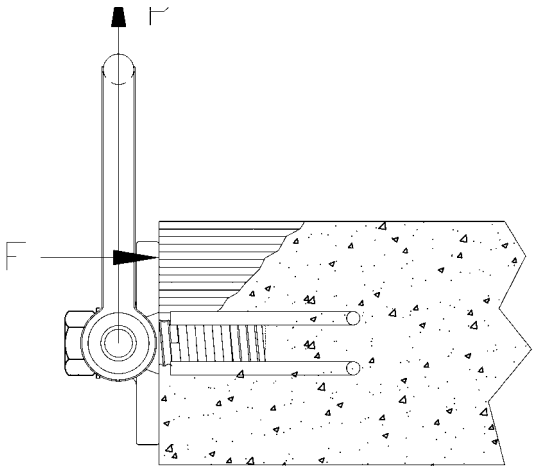
IMPORTANT: In precast concrete plant operations, coil bolts should be periodically inspected and replaced if signs of wear or bending are present. Worn or bent bolts should be immediately discarded. Never use a worn or bent bolt for any purpose and never attempt to straighten a bent bolt.

EDGE LIFTING FAILURES

When an insert/anchor is located in the edge of a concrete panel for the purpose of lifting and handling of the panel, the concrete on the topside of the insert/anchor will carry the entire applied load unless special provisions are implemented. The upward force on an insert, from the bolt and compressive force from the lifting plate, combine to quickly overload the concrete on the topside of the insert/anchor. The loss of the concrete above the insert/anchor can result in the insert breaking and loss of the panel.

One means of increasing edge lift capacity is to strengthen the concrete over the insert with shear bars or stirrup assemblies. This process will reinforce the concrete, preventing total loss of the concrete and allow the insert/anchor to remain in the panel. Always use the proper style and capacity insert/anchor for edge lifting. Never use a two-strut insert. A properly selected insert/anchor will not break if the concrete above it fails. This will allow the panel to be positioned with only minor patching required.





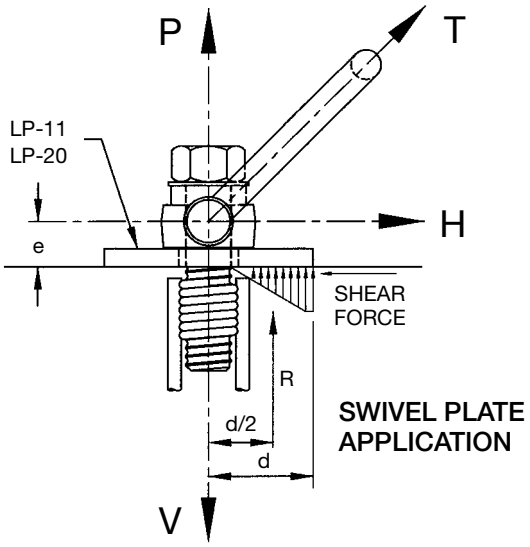
LIFTING HARDWARE CONSIDERATIONS

All lifting hardware is subject to wear, abuse, bending, overloading, alterations and corrosion. The user of these products must continually inspect the product to determine its usable condition. If the product shows any of the problems noted above or is not in good working condition, the product should be discarded or returned to Meadow Burke for repair and/or service. Based on how often the product is used, period of use and the environment in which it is used must determine the frequency of inspections.

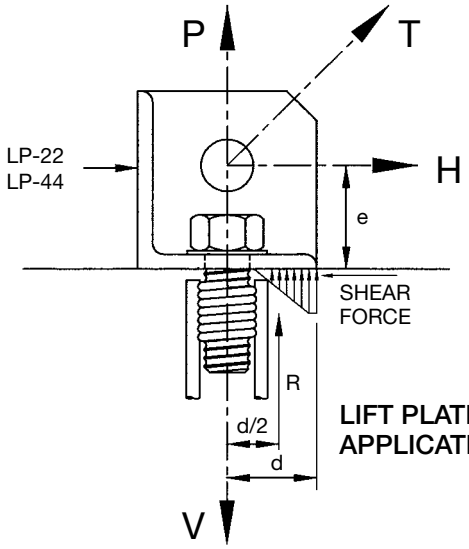
Insert and Concrete Failures (cont.)

LIFTING PLATES

When using lifting plates in conjunction with cast-in-place inserts, a combination of forces with small lever arms become factors with which to be concerned. Reference the sketches shown below. Dimension "d" is an assumed constant subject to the location of "R", the resultant force exerted by the reaction of the plate on the concrete.



SWIVEL PLATE APPLICATION



LIFT PLATE APPLICATION

Lifting Plates Considerations:

1. If the lifting plate is loosely tightened, the location of "R" will be at the extreme edge/corner of the plate and "d" becomes plate width divided by 2.
2. If the lifting plate is properly tightened down with the attachment bolt, the generally accepted stress pattern on the plate will be triangular or trapezoidal.
3. During initial and low loads the "R" force moves from the toe of the plate towards the center of the plate. As the load increases, the plate attempts to flex. The maximum movement is most likely to the midpoint of the plate, between the bolt centerline and the toe of the plate. Taking a conservative approach, "d divided by 2" is the theoretical location of the "R" force, thus resulting in a higher load to be added to the vertical component load.
4. Using basic equations, a pair of force couples must be equal to zero:
   $H(e) = V(d/2)$ and $V = (2e/d)H$
   V = vertical force on the insert.
   H = horizontal force on the lifting plate.

VALUES FOR (2e/d)			
Type of Lifting Plate	Bolt Diameter		$(\frac{2e}{d})$
	in.	mm.	
LP-11	¾"	19	.80
LP-11	1"	25	.80
LP-20	1"	25	1.0
LP-20	1-¼"	31	.85
LP-20	1-½"	38	.85
LP-22	¾"	19	3.25
LP-22	1"	25	3.25
LP-44	1"	25	2.36
LP-44	1-¼"	31	2.36
LP-44	1-½"	38	2.36

Example: If Meadow Burke Lift Plate Swivel (LP11), 1" diameter lifting plate is pulled at an angle producing 3000 lbs. vertical load and 3000 lbs. horizontal load, then applying the above information:

$V = (\frac{2e}{d})\,H = 0.8\,(3000) = 2400$ lbs. additional load on the insert due to the horizontal force component.

Total Applied Load = L_A = Vertical component load + $(\frac{2e}{d})\,H$

$L_A = 3000 + 2400$

$= 5400$ lbs. Total Tension Load

Must use an insert with a SWL greater than 5400 lbs.

Insert and Concrete Failures (cont.)

Lifting plate example calculation: Values for (2e/d) H-Reference Table on page 8.
If a 1" diameter Meadow Burke Swivel Lift Plate (6440) is pulled at an angle producing 3,000 lbs. vertical load and 3,000 lbs. horizontal load, then the application of the information on the previous page would be as such:

V = (2e/d)H = 0.80 x 3,000 = 2,400 lbs. additional load on the insert due to the horizontal force component.
Total applied load = L_A
L_A = vertical component load + (2e/d)H
L_A = 3,000 + 2,400 lbs.
L_A = 5,400 lbs. total tension load.
In this example, an insert with a safe working load greater than 5,400 lbs. must be used.

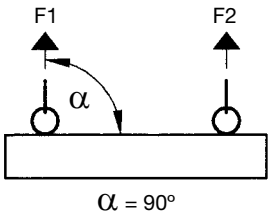
INCLINED SLINGS

When rigging is selected where the sling lines are inclined, it is important to measure the incline angle α (alpha). The angle will cause an increase in the anchor loading due to the horizontal force components.

Reference the sketched examples:

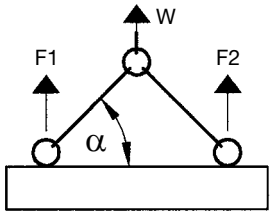
1. The incline angle is 90° and from the table below, the load factor is 1.0.
   Therefore, F1 load = 1.0 x weight of the concrete element divided by 2.
2. The incline angle is 45° and from the table below, the load factor is 1.42.
   Therefore, F1 load = 1.42 x weight of the concrete element divided by 2.
3. The incline angle is 60° and from the table below, the load factor is 1.16.
   Therefore, F1 load = 1.16 x weight of the concrete element divided by 2.

SLING ANGLE LOAD FACTORS					
Sling Angle ∝	90°	75°	60°	45°	30°
Load Factor	1.00	1.04	1.16	1.42	2.00



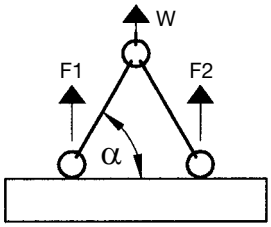
α = 90°

#1 - 90° Sling Angle



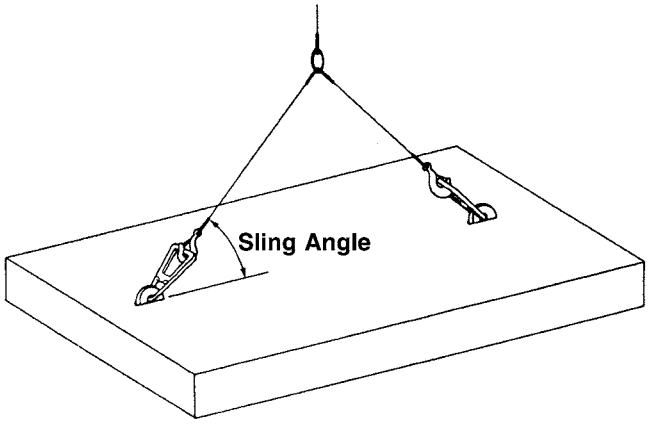
α = 90°

#2 - 45° Sling Angle



α = 90°

#3 - 60° Sling Angle



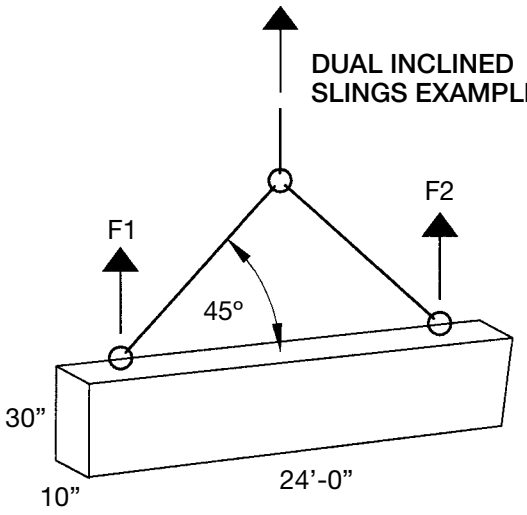
Insert and Concrete Failures (cont.)

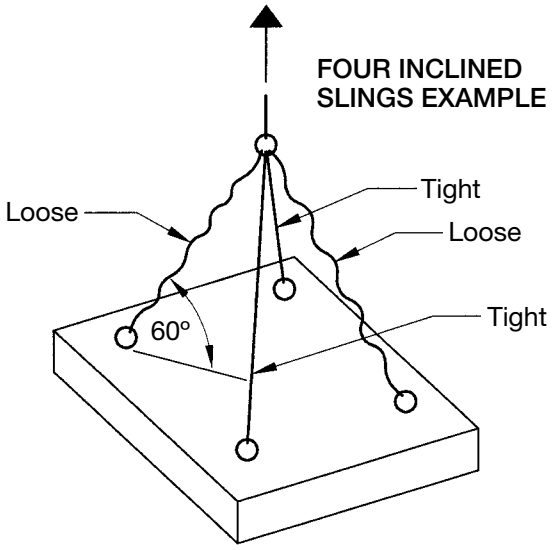
Example Dual Inclined Slings Calculations:
Determine the anchor load, anchor size and concrete psi required for a rectangular concrete beam 10" deep, 30" wide and 24' long. The beam has form adhesion at the bottom surface only and a sling incline angle of 45°.

Concrete dead weight	= 10"/12" x 30"/12" x 24' x 150 lbs.	= 7,500 lbs.
Form adhesion	= 10"/12" x 24' x 25 lbs.	= 500 lbs.
Combined load (CL)		= 8,000 lbs.

Now apply the load factor for the 45° inclined sling angle and realizing that
F1 = F2 = CL/2 then; F1 = 8,000/2 x 1.42 = 5,680 lbs. per anchor.

To adequately lift and handle, the example beam would require an anchor like the 4-ton x 5-½" long DogBone Anchor rated at 6,000 lbs. safe working load in 2,500 psi concrete.





Example Four Inclined Slings Attached at Slab Corners Calculations:
When four fixed length slings are used to lift and handle a concrete element, often one of the slings will be longer than the rest. This will force two of the embedded anchors to carry the total load and the other two anchors to do little more than keep the slab balanced.

Determine the anchor load, anchor size and concrete psi required for a slab 12' x 10' x 16" using a sling incline angle of 60° and having form adhesion at the bottom surface only.

Concrete dead weight	= 12' x 10' x 16"/12" x 150	= 24,000 lbs.
Form adhesion (concrete form)	= 12' x 10' x 20 lbs.	= 2,400 lbs.
Combined load (CL)		= 26,400 lbs.
F1 = 26,400/2 (only two anchors working) x 1.16 per anchor		= 15,312 lbs. per anchor

To adequately lift and handle, the example slab would require an anchor like the 8-ton x 13-⅜" long DogBone Anchor rated at 16,000 lbs. safe working load in 1,500 psi concrete.

Rapid Lift System

The Meadow Burke Rapid Lift System has proven itself to be a safe, trouble-free, quality precast lifting and handling system. It offers many advantages, such as a broad selection of anchors, easy installation and outstanding maneuverability to handle any precast application.

Rapid Lift Technical Information

INSPECTION/MAINTENANCE REQUIREMENTS

NEW RING CLUTCH INVENTORY – Generally inspect for overall appearance. Make sure there are no bent parts, welds or sign of excessive heating on any parts. Make sure ring clutches have stop pins and bushings. Make sure the ring clutch handle does not come out of the casting when rotated to the open position. Make sure product date stamps are 1978 or newer.

INVENTORY RETURNED FROM JOB SITE OR OTHER SOURCES – Generally inspect for overall appearance. Make sure there are no bent parts, welds or sign of excessive heating on any parts. A clutch handle that is slightly bent (15° or less) can be straightened cold. Make sure ring clutches have stop pins and bushings. Make sure the ring clutch handles do not come out of the casting when rotated to the open position. Make sure the lifting bail is not bent. Check lanyard for fraying. Make sure product date stamps are 1978 or newer.

ADDITIONAL INSPECTIONS FOR CABLE BAIL CLUTCHES – Check the wire rope for bends, kinks, loosing of outer layers in the free length, squeezing in the free length, squeezing in the support area, tuberculation, damage or wear of the rope or end connectors and excessive wire ruptures (4 ruptures in 3 diameters of the rope, 6 in 6 diameters, 16 in 30 diameters, etc).

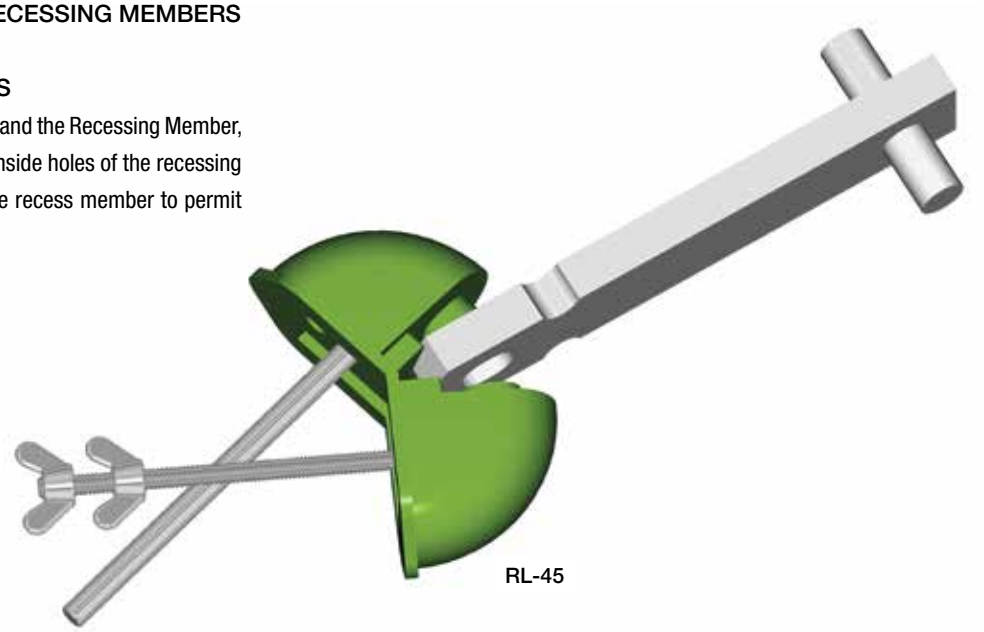
WHEN TO SCRAP RING CLUTCH/HANDLE – If the bail is bent more than 10° or shows evidence of having been straightened more than once, scrap the unit. If a weld cannot be repaired, the unit should be scrapped. If the clutch itself is bent, the clutch must be destroyed. Scrap the handle if it is bent more than 15°.

CABLE BAIL CLUTCHES – If the wire rope is compromised according to the inspection criteria listed above, it must be replaced. The replacement wire rope shall be of a similar or larger size as the original. It should be replaced, spliced, tested and certified for load equal to 4 times the rated load stamped on the clutch casting by a company specializing in wire rope replacement.

INSTALLING AND REMOVING RECESSING MEMBERS

PLASTIC RECESSING MEMBERS

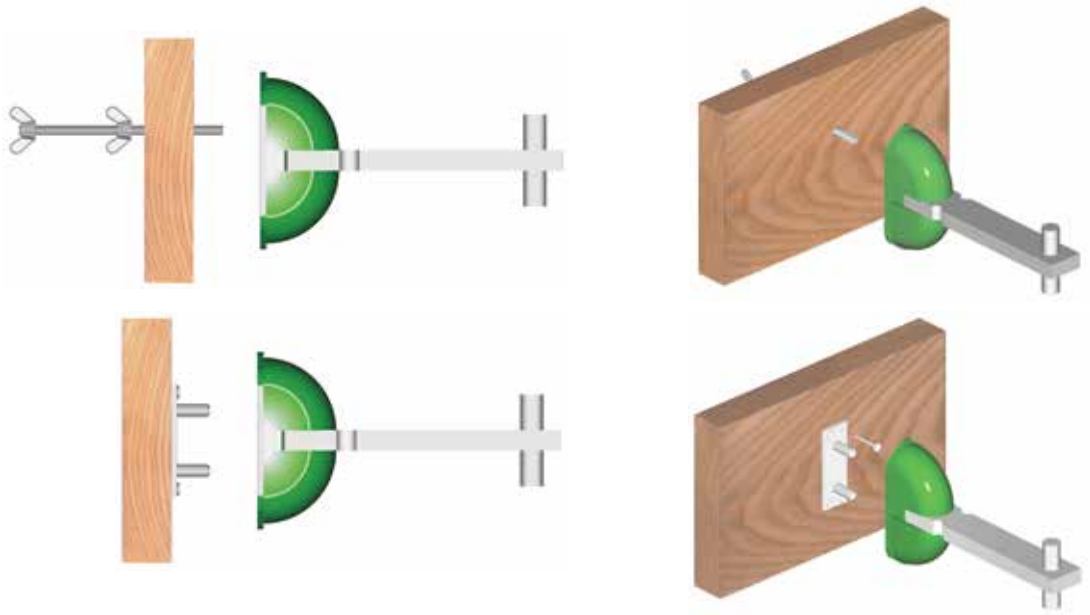
ASSEMBLY – To assemble the anchor and the Recessing Member, insert two rods or screwdrivers into the inside holes of the recessing member and scissor the rods to open the recess member to permit insertion of the anchor.



RL-45

Rapid Lift Technical Information (cont.)

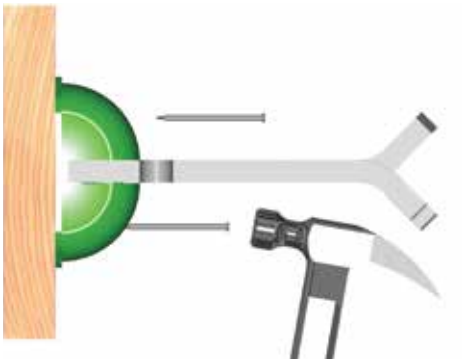
Nailing to formwork – Position the anchor/recessing member assembly in its assigned location and nail it to the formwork. The outside holes in the recessing member can be utilized for this purpose or a Holding Plate can be nailed to the formwork to support the assembly.

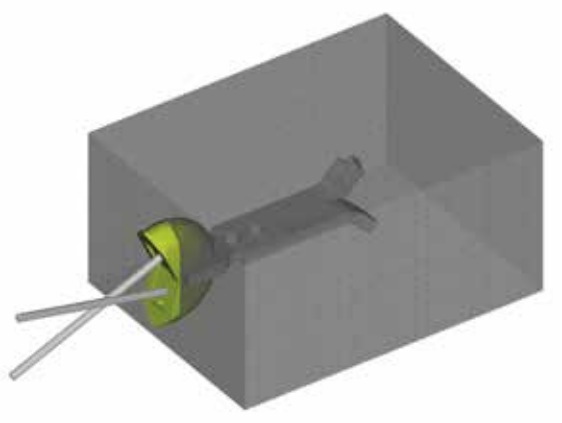


Holding Plate attachment – The anchor/recessing member assembly may be attached in four different methods using the Holding Plate: nailed, as noted above, bolted, welded or taped.

- Bolting the unit to the formwork requires a properly placed hole to be drilled in the formwork. A L-Rod or bolt/wing nut assembly is inserted through the drilled hole to securely attach the anchor/recess assembly to the form.
- On a multi-use metal form, the Holding Plate can be tack welded in its proper position to hold the anchor/recessing member.
- Taping the holding plate can be accomplished using a good quality, commercial grade double back tape.

Stripping – To strip a plastic recessing member, insert two rods or screwdrivers into the two innermost holes of the recessing member. A scissoring motion of the rods will lift one side of the recessing member and it can then be extracted from the concrete.



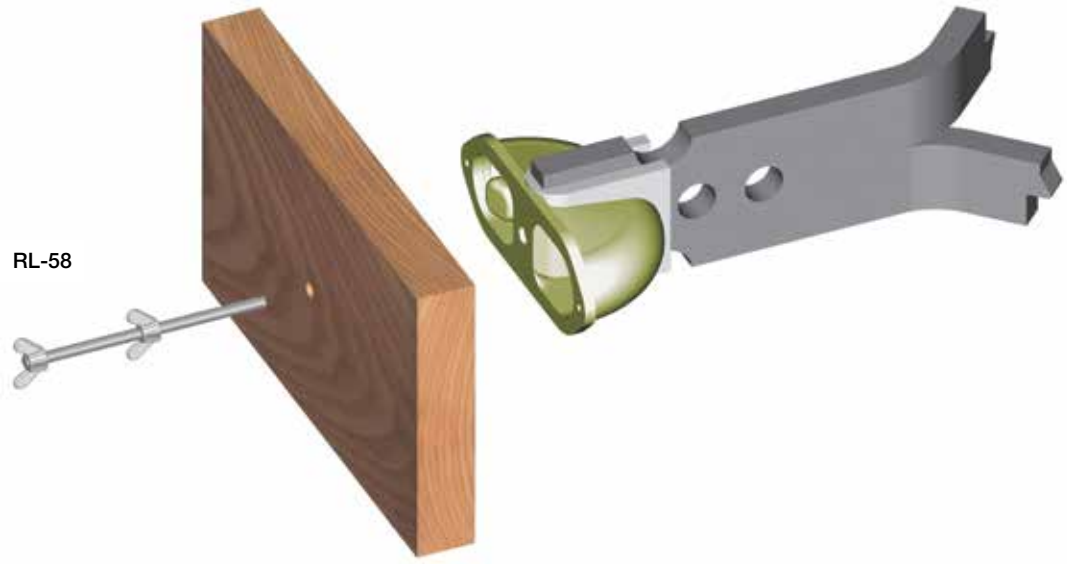


Rapid Lift Technical Information (cont.)

METAL RECESSING MEMBERS

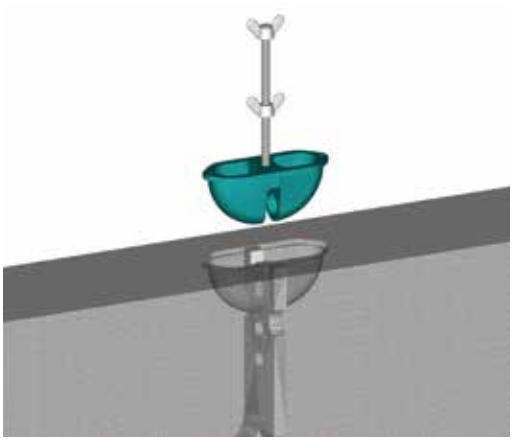
ASSEMBLY – To assemble the anchor and metal recessing member, first fold the foam strip over the head of the anchor and then press the foam-covered head of the anchor into the recessing member slot. Insert the tapered end of the steel wedge into the top of the recessing member and through the eye of the anchor and wedge tightly.

METAL RECESSING MEMBER PLACEMENT – A wing nut assembly can be effectively used to secure the metal recessing member/anchor assembly to the form. Drill a properly placed hole in the form and thread the bolt assembly through the hole. Screw the bolt in the center hole of the recessing member until it is tight against the head of the anchor. Secure the assembly against the form by turning the loose-running wing nut. Nailing the recessing member, using the holes provided on both ends of the unit, will prevent the assembly from turning during concrete placement. In applications using multi-use metal forms, the metal recessing member can be tack welded to the form. When constructing a multi-use metal form, it is important that an access hole is placed for the insertion/removal of the steel wedge (for easy placement of wedge steel recess member, the multi use must be cut out to accept the bolt).



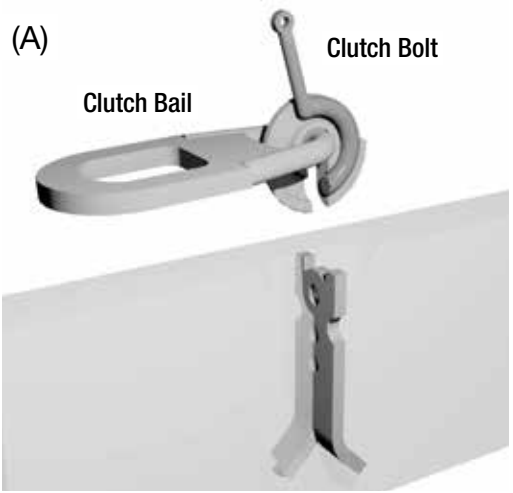
Rapid Lift Technical Information (cont.)

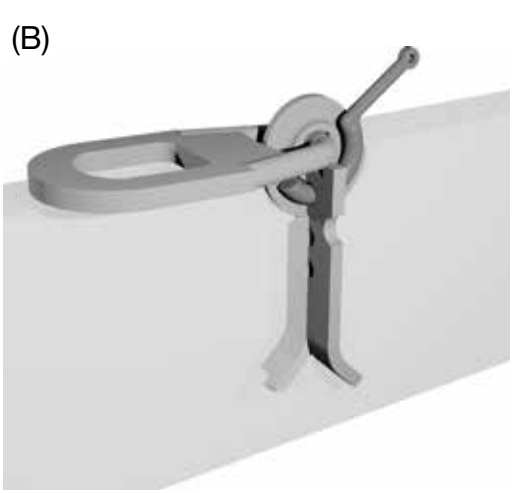
STRIPPING – Unscrew the bolt and strip the form to expose the recessing member. Tap the small end of the tapered wedge with a hammer to loosen the wedge so it can be withdrawn by hand. Now screw the setting bolt into the recessing member and continue screwing, using the fixed wing nut, until the recessing member is loosened from the anchor and can be removed.



RING CLUTCH INSTALLATION

ANCHOR ATTACHMENT – Make sure that the curved bolt handle is in the open position. Position the ring clutch above, and centered over the head of the anchor. Drop the ring clutch down into the void formed by the recessing member. Rotate the curved bolt through the anchor engagement hole into its closed position. Installation is complete, ready to lift.



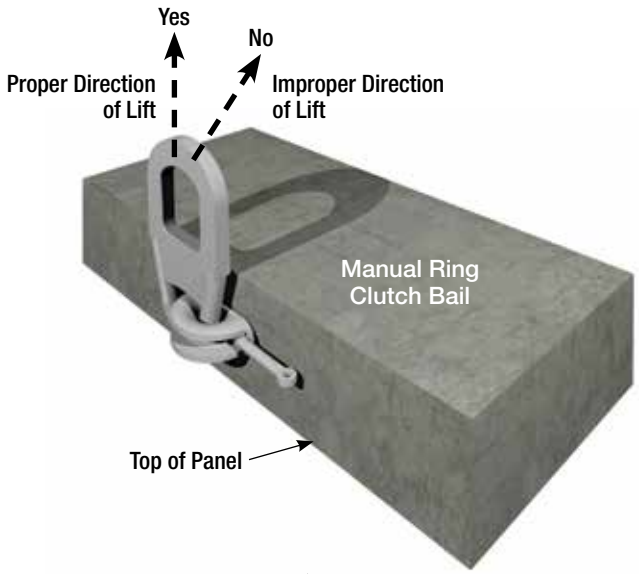


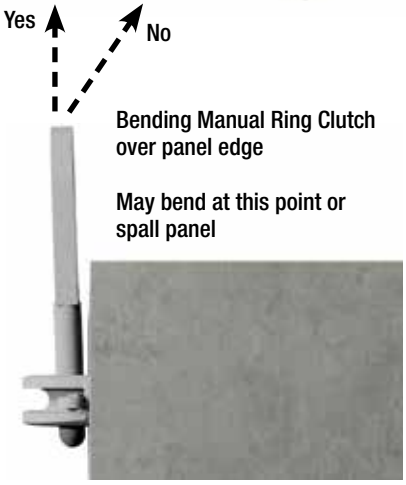
Rapid Lift Technical Information (cont.)

BAIL POSITIONING – Make sure that the bail does not get into a "locked" position under the ring clutch, as shown in the sketch. In this situation, the bail and/or ring clutch might bend under load and as the precast unit nears vertical, the bail can unlock itself and cause a severe impact load. Always position the lifting cable directly over the ring clutch to avoid alignment problems.

CORRECT

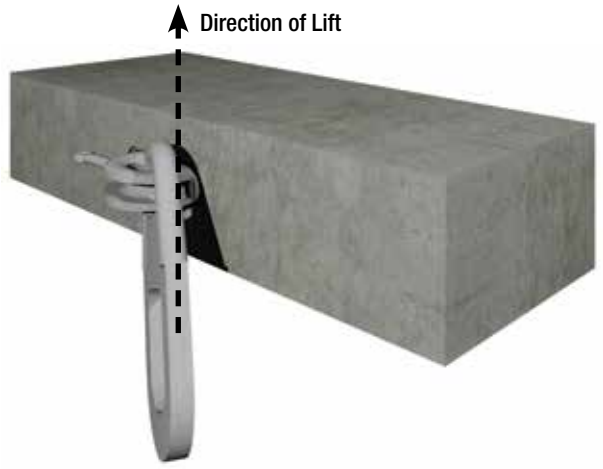
Correct – By not having the lift line directly over the Ring Clutch and a load is applied in a direction towards the bottom of the panel, the Clutch may bend over the panel edge.

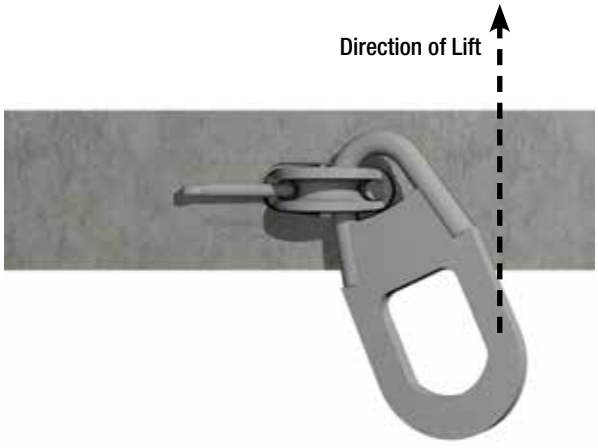




WRONG

Wrong – The Clutch, if positioned below the ring clutch, as shown, may lock itself in a position preventing free movement of the unit. In this position the ball might bend during lift. As the panel is lifted the Clutch may bend. As the panel reaches a more vertical position, the Clutch will unlock itself resulting in an impact load.



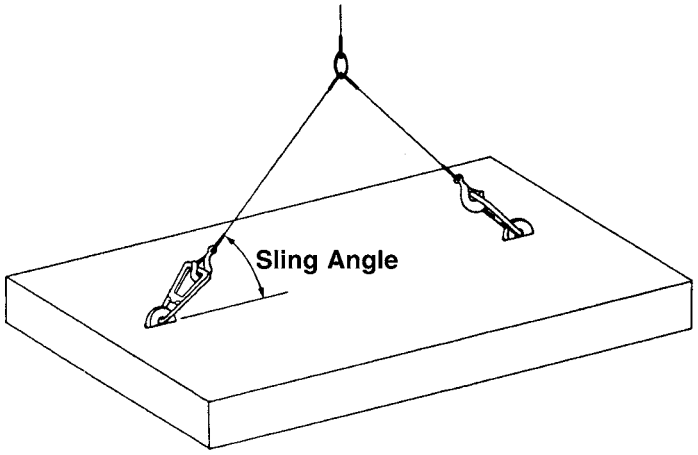


Rapid Lift Technical Information (cont.)

SLING ANGLE FACTOR

Additional forces come to bear on an anchor from oblique pulls caused by the sling angle. Sling angles at less than 90° from perpendicular, increase the load on the anchor. Angles less than 30° are not safe and must not be used. To calculate the load on the anchor, refer to the accompanying table. Move across the table to the sling angle being used and multiply the corresponding magnification factor by the dead load of the precast element.

SLING ANGLE LOAD FACTORS					
Sling Angle	90º	75º	60º	45º	30º
Load Factor	1.00	1.04	1.16	1.42	2.00



ADJUSTING FOR CONCRETE STRENGTH

Note: These factors are for use with tension applications only. Do not use these factors for shear applications without consulting with the Meadow Burke Service Center to make sure there are no other limitations.

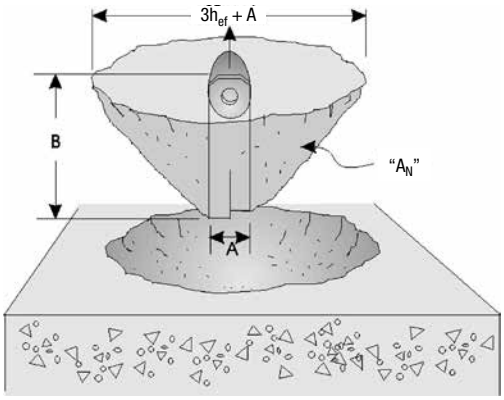
To convert the allowable tension load for an unreinforced anchor from listed concrete strength of 3,500 psi to a greater or lesser concrete strength, multiply 3,500 psi by the factor indicated below. Note: To maintain the needed 4:1 safety factor the new value must be less than 25% of the listed ultimate mechanical value of the selected anchor.

SLING ANGLE LOAD FACTORS	
To Increase For Greater Concrete Strength	
CONVERT FROM	MULTIPLY BY
3,500 PSI TO 4,000 PSI	1.07
3,500 PSI TO 4,500 PSI	1.13
3,500 PSI TO 5,000 PSI	1.19
To Decrease For Lesser Concrete Strength	
CONVERT FROM	MULTIPLY BY
3,500 PSI TO 3,000 PSI	0.92
3,500 PSI TO 2,500 PSI	0.84
3,500 PSI TO 2,000 PSI	0.75

Rapid Lift Technical Information (cont.)

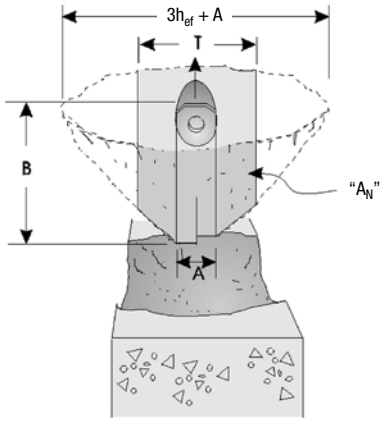
SHEAR CONE CONDITIONS

Condition 1: Full Shear Cone Condition – This applies to anchors located in a concrete panel at a distance of at least $(3h_{ef} + A)/2$ (full shear cone width) from the edges. Determine the A (width) and B (length) dimensions of your anchor using the Anchor Embedment Data Table on page 20. Then go to the Table of "A_{Nc}" Values on page 20. Move across the top row (Anchor Width A) to your anchor's width dimension. Drop down to the next row (Anchor Depth h_{ef}) and find the length dimension of your anchor. Drop down one more row (A_{Nc0} Values) and the value under your "h_{ef}" dimension is the "A_{Nco}" value for your anchor.



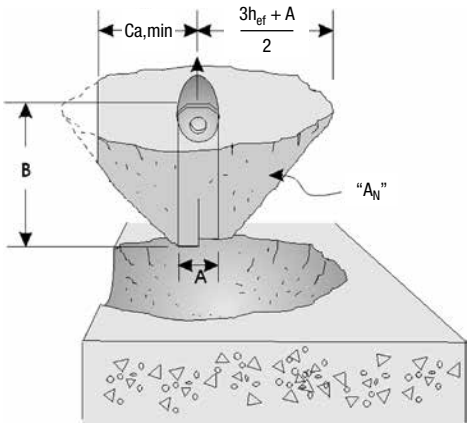
Plug the "A_{NO}," "A_{Nco}" value and concrete strength into the appropriate formula on page 5 to determine anchor's ultimate pullout strength. Divide the pullout strength by four (4) to obtain the required 4:1 safety factor.

Condition 2: Partial Shear Cone – This applies to anchors located in a concrete panel at a distance of less than $(3h_{ef} + A)/2$ from the edges, as shown in condition 2 to the left. Determine the A (width), h_{ef} (length) and T (panel thickness) dimensions. Then go to the Table of "A_{Nc}" Values on page 20. Move across the top row (Anchor Width A) to your anchor's width dimension. Drop down to the next row (Anchor Depth h_{ef}) and find the length dimension of your anchor. Drop down the column of "A_{Nc}" Values to the value opposite your T dimension. This is the "A_{Nc}" value for your anchor.



Plug the"A_{NO}", "A_{NCO}" value and the concrete strength into the appropriate formula on page 5 to determine anchor's ultimate pullout strength. Divide the pullout strength by four (4) to obtain the required 4:1 safety factor.

Condition 3: Partial Shear Cone – This applies to anchors located in a concrete panel at a distance of more than $(3h_{ef} + A)/2$ from one edge, but at a lesser amount from another edge. Determine the A (width), h_{ef} (length) and T/2 dimensions from the anchor to the closest edge. Then go to the Table of "A_{Nc}" Values on page 20. Move across the top row (Anchor Width A) to your anchor's width dimension. Drop down to the next row (Anchor Depth hef) and find the length dimension of your anchor. Drop down the column of "A_{Nc}" Values to the value opposite your T dimension. Read the value listed under the appropriate "T" column and the "A_{Nco}" value under the $3h_{ef} + A$ column. Add the two together and multiply by 0.5.



Plug the "A_{Nc}," "A_{Nco}" value and the concrete strength into the appropriate formula on page 5 to determine anchor's ultimate pullout strength. Divide the pullout strength by four (4) to obtain the required 4:1 safety factor.

Rapid Lift Technical Information (cont.)

EMBEDDED ANCHOR STRENGTH CALCULATIONS

The embedded strength of many of the Rapid Lift anchors can be calculated using the tables and formulas on the following pages. Note that the Plate Anchor and Flat Foot Anchor will not obtain full ultimate mechanical strength if the recommended additional reinforcement is not used. Also note that it is not necessary to apply these formulas and tables to Two-Hole Anchors, Erection Anchors or Tech Erection Anchors utilizing extra reinforcement.

These anchor applications will achieve ultimate capacity at 1,500 psi. The following tabular data and formulas are based on industry accepted Precast Concrete Institute (PCI) calculations for pullout strength of embedded anchors. Some modification to the formulas has been done to more closely agree with actual testing of Rapid Lift anchors.

TABLE DATA CALCULATION INFORMATION					
Ring Clutch System	Clutch I.D.	Anchor Item Number	Anchor "A" Dimension	Anchor "B" Dimension	$3h_{ef} + A$
SPREAD ANCHOR					
1-Ton	1.25T	79050	1-¼"	4-¾"	16"
2-Ton	2.5T	79110	1-¼"	4"	14"
2-Ton	2.5T	79059	1-¼"	5-½"	18"
4-Ton	5T	79113	1-½"	4"	14"
4-Ton	5T	79114	1-½"	4-¾"	16"
4-Ton	5T	79115	1-½"	6-¾"	21"
4-Ton	5T	79116	1-½"	6-¼"	22"
4-Ton	5T	79117	1-½"	9-½"	30"
8-Ton	10T	79319	2-½"	11"	36"
8-Ton	10T	79119	2-½"	11"	36"
22-Ton	22T	79172*	3-⅛"	15"	48"
22-Ton	22T	79174*	3-⅛"	18-⅞"	60"
ERECTION ANCHOR					
1-Ton	1.25T	79046	1-3⁄16"	4-¾"	16"
2-Ton	2.5T	79047	2"	8"	26"
4-Ton	5T	79048	2-½"	10-½"	34"
8-Ton	10T	79349	3-¾"	12-13⁄16"	43"
8-Ton	10T	79049	3-¾"	12-13⁄16"	43"
TECH ERECTION ANCHOR					
2-Ton	2.5T	79527	2"	8"	26"
4-Ton	5T	79548	2-½"	10-½"	34"
8-Ton	10T	79589	3-¾"	12-13⁄16"	43"
FLAT FOOT ANCHOR					
2-Ton	2.5T	79052	1-¼"	2-¾"	10"
2-Ton	2.5T	79053	1-¼"	3-⅜"	12"
2-Ton	2.5T	79058	1-¼"	2-¾"	10"
2-Ton	2.5T	79400	1-¼"	3-⅜"	12"
PLATE ANCHOR					
2-Ton	2.5T	79128	1-¼"	2-¼"	8"
4-Ton	5T	79044	1-½"	4-⅜"	15"
8-Ton	10T	79042	2-½"	7-⅛"	24"

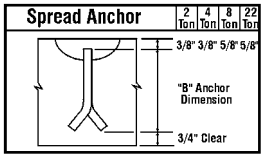
*Available on special order or limited quantities on hand.

TABLE DATA CALCULATION INFORMATION

ANCHOR WIDTH	2T							4T											6T	6T/8T			22T	
ANCHOR WIDTH A (in)	1-¼						2	1-½									2-½		3-¾	2-½			3-⅛	
ANCHOR DEPTH hef (in)	2-¼	1-¾	3-⅜	4	4-¾	5-½	8	3	3-½	4	4-¼	5-¼	6-¼	6-¾	7-¼	9-½	9-½	10-½	12-13⁄16	6-¼	7-⅛	11	15	18-⅞
A_{Nco}	72	100	141	189	256	333	688	118	153	192	213	310	425	489	558	922	959	1146	1714	445	563	1250	2272	3516
Thickness "T"																								
3	24	28	34	39	46	53	75	30	35	39	42	51	60	64	69	89	89	98	121	62	70	105	142	177
3-½	28	33	39	46	54	62	88	35	41	46	49	59	70	75	80	104	104	114	141	72	81	122	165	206
4	32	38	45	53	62	71	101	41	47	53	56	68	80	86	92	119	119	131	161	83	93	140	189	236
4-½	35	42	51	59	69	79	113	46	52	59	62	76	89	96	103	133	133	147	181	93	105	157	213	265
5	39	47	56	66	77	88	126	51	58	66	69	84	99	107	114	148	148	163	202	103	116	174	236	294
5-½	43	52	62	72	85	97	138	56	64	72	76	93	109	118	126	163	163	179	222	113	128	192	260	324
6	47	56	68	79	92	106	151	61	70	79	83	101	119	128	137	178	178	196	242	124	140	209	284	353
6-½	51	61	73	85	100	115	163	66	76	85	90	110	129	139	149	193	193	212	262	134	151	227	307	383
7	55	66	79	92	108	123	176	71	81	92	97	118	139	150	160	207	207	228	282	114	163	244	331	412
7-½	59	70	84	98	115	132	188	76	87	98	104	127	149	160	172	222	222	245	302	155	174	262	354	442
8	63	75	90	105	123	141	201	81	93	105	111	135	159	171	183	237	237	261	323	165	186	279	378	471
8-½	67	80	96	112	131	150	214	86	99	112	118	143	169	182	194	252	252	277	343	175	198	296	402	500
9	71	84	101	118	138	159	226	91	105	118	125	152	179	192	206	267	267	294	363	186	209	314	425	530
9-½		89	107	125	146	167	239	96	110	125	132	160	189	203	217	281	281	310	383	196	221	331	449	559
10		94	113	131	154	176	251	101	116	131	139	169	199	214	229	296	296	326	403	206	233	349	473	589
10-½		98	118	138	161	185	264	106	122	138	146	177	209	224	240	311	311	343	423	217	244	366	496	618
11			124	144	169	194	276	111	128	144	153	186	219	235	252	326	326	359	443	227	256	384	520	648
11-½			129	151	177	203	289	116	134	151	160	194	229	246	263	341	341	375	464	237	267	401	543	677
12			135	158	185	212	302		140	158	167	203	239	257	275	356	356	392	484	248	279	419	567	707
13				171	200	229	327		151	171	180	219	258	278	297	385	385	424	524	268	302	453	614	765
14				184	215	247	352			184	194	236	278	299	320	415	415	457	564	289	326	488	662	824
15					231	264	377				208	253	298	321	343	444	444	489	605	309	349	523	709	883
16					246	282	402					270	318	342	366	474	474	522	645	330	372	558	756	942
17						300	427					287	338	363	389	504	504	555	685	351	395	593	803	1001
18						317	452					304	358	385	412	533	533	587	726	371	419	628	851	1060
19							477						378	406	435	563	563	620	766	392	442	663	898	1119
20							503						398	428	458	593	593	653	806	413	465	698	945	1178
21							528						417	449	480	622	622	685	847	433	488	732	992	1236
22							553							470	503	652	652	718	887		512	767	1040	1295
23							578								526	681	681	750	927		535	802	1087	1354
24							603								549	711	711	183	968		558	837	1134	1413
30																889	899	979	1209			1046	1418	1766
36																			1451				1701	2120
42																			1693				1985	2473
48																							2268	2826
54																								3179

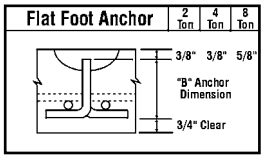
1. Above values include anchor setback in concrete.
2. Above values to be used in conjunction with the equations printed on pag 5, and reduced by 4 for lifting.
3. $C_{a,min} = T/2$

Rapid Lift Technical Information (cont.)



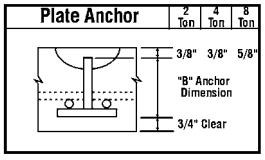
RL-23

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	5-⅛"	79110
4-Ton	7-⅜"	79116
8-Ton	12-3⁄16"	79119
22-Ton	20-¼"	79774



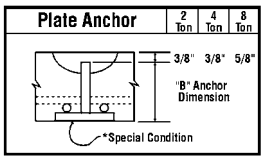
RL-21

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	3-⅞"	79058



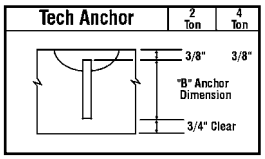
RL-24

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	3-⅜"	79128
4-Ton	5-½"	79044
8-Ton	8-½"	79042



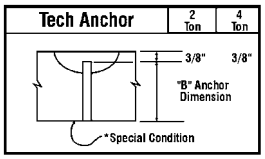
RL-24

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	2-⅝"	79128
4-Ton	4-¾"	79044
8-Ton	6-⅞"	79042



RL-25

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	3-⅝"	79523
4-Ton	4-⅜"	79544



RL-25

Ring Clutch System	Minimum Panel Thickness	Anchor Selection for Min Panel Thickness
2-Ton	2-⅞"	79523
4-Ton	3-⅞"	79544

GUIDE TO MINIMUM PANEL THICKNESS

Minimum Panel Thickness: The minimum thickness of concrete that is required to properly install Rapid-Lift Anchors (dimensions vary with anchor selection).

The minimum Panel Thickness is the sum of the following dimensions: The anchor length ("B" dimension), the surface to anchor dimension (⅜" for 2 and 4-ton series anchors, and ⅝" for the 8-ton series anchors) and the ¾" minimum of concrete cover below the bottom of the anchor.

¾" concrete cover beneath the feet of all types of spread anchors is required to obtain listed working loads.

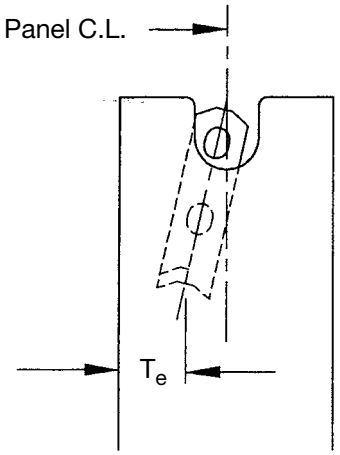
*The RL-25 Tech Anchor and RL-24 Plate Anchor may be placed directly on the form. These are the ONLY Rapid-Lift Anchors that may be installed in this manner. However, the anchor base plate will be visible and exposed after the precast member is removed from the form. Rust may occur if not galvanized.

Rapid Lift Technical Information (cont.)

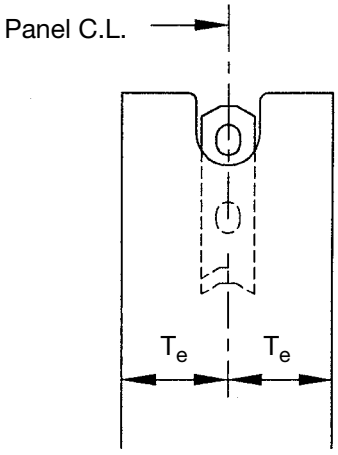
RAPID LIFT ANCHORS USED IN THIN WALL SECTIONS

Care must be taken when locating anchors in thin wall sections. Improper installation and/or misalignment can seriously reduce the safe working load of the anchor.

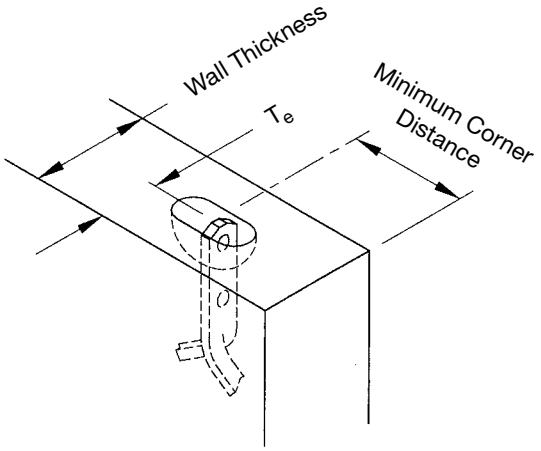
- Anchors must be positioned on the centerline of the panel.
- Use supports, spacers or tie the anchor to the rebar mat to make certain of proper positioning.



This sketch shows a misaligned, improperly positioned anchor. The actual edge distance (Te) is considerably reduced so there must be a corresponding reduction in the safe working load of the anchor.



This sketch shows proper positioning of the anchor on the centerline of the panel. This allows the full wall thickness to be used in the safe working load selection.



T_e = Edge Thickness
(½ Wall Thickness)

The sketch above shows an anchor application and corner relationship. Safe working loads for indicated corner distances are displayed in the table on page 34.

Rapid Lift Technical Information (cont.)

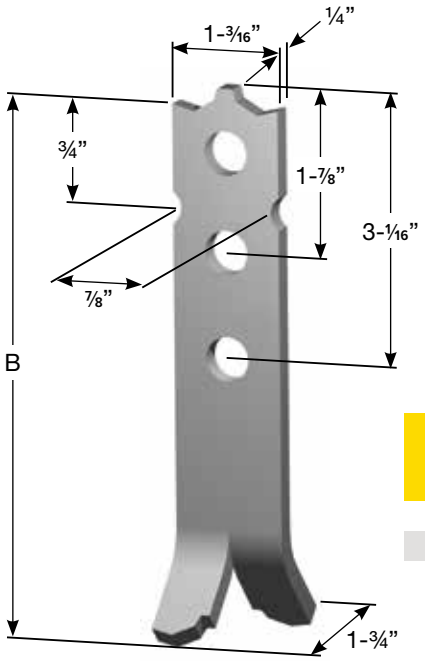
RL-2 ONE TON ERECTION ANCHOR
1-Ton Only

The RL-2 One Ton Anchor is specifically designed to lift and handle thin-wall precast concrete elements, such as architectural panels. The One Ton Anchor is designed to restrict the rotation of the ring clutch to prevent spalling of the concrete during the lifting process. **Hot dip galvanize is the only finish available on this anchor.**

See the One Ton Ring Clutch on page 53, the One Ton Recessing Member on page 55.

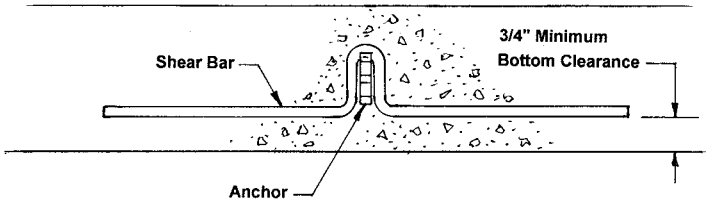
Note: In order to achieve the shear values shown in the table, the use of an optional shear bar is required.

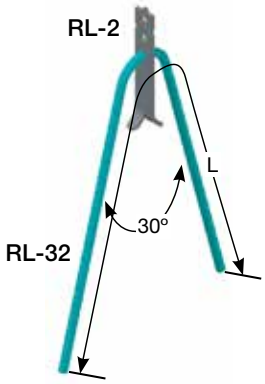
* The RL-2 One Ton Erection Anchor



Weight Per Piece (lbs)
.36
.57

The RL-31 Shear Bar (.375 ø) provides additional shear strength to prevent spalling.





RL-32	
Item #	79169
Tension Bar Size	.306” Dia.
Concrete Strength	“L” Dim.
1,500-3,000psi	2’- 4”

The RL-32 Tension Bar provides simple and economical reinforcement for the erection anchor during tension lifts.

RL-2 RAPID LIFT ONE TON ANCHOR DATA								
Nominal Anchor Load	Clutch I.D.	Item Number	B (in.)	Minimum Panel Thickness (in.)	Shear 4:1 Safety Factor (lbs)	Tension w/o Tension Bar 4:1Safety Factor (lbs)	Tension w/ Tension Bar 4:1Safety Factor (lbs)	Minimum Corner Distance (in.)
1T	1.25T	79046G	4-¾	3	611	1160	2000	12

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.
1. Given full embedment, reinforcement and 3,500 psi concrete, the One Ton Erection Anchor will achieve pullout strength equal to its ultimate mechanical strength.

To order, specify: quantity, name, item number and finish.

Rapid Lift System Anchors

High Capacity Available

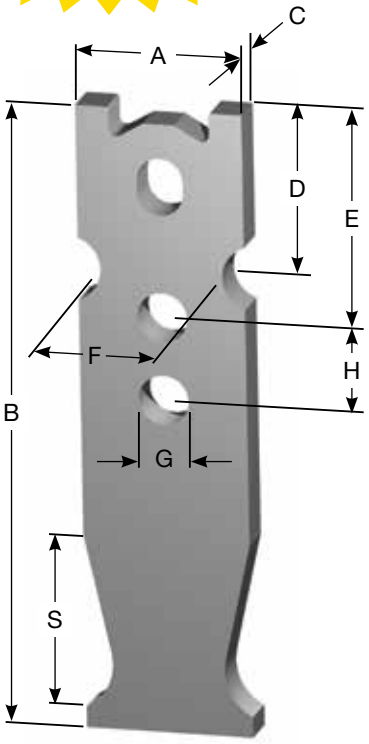
RL-3 TECH ERECTION ANCHOR
2-Ton, 4-Ton and 8-Ton

The RL-3 Rapid Lift Tech Erection Anchor is designed for safe edge lifting and rotation of thinwall precast elements. The anchor is designed with two ears on the head of the anchor to restrict the rotation of the ring clutch. As a result, lateral forces are transmitted directly to the anchor instead of to the concrete to prevent spalling.

Due to the stress caused by the shear lift on the concrete; it is necessary to add reinforcement in the direction of the lift. The RL-31 Rapid Lift Shear Bar is designed for this purpose and is available. See sketch below. See additional Shear Bar information on page 38.

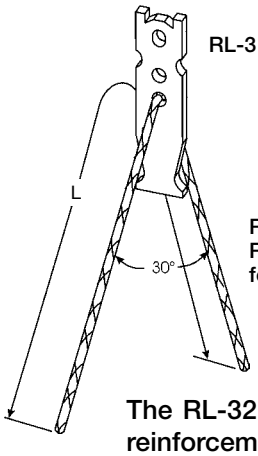
Anchor dimensions are shown in the table below. Safe working loads and other pertinent information is displayed in the table on the next page. The RL-3 Tech Erection Anchor is available in plain or hot dip galvanize finish.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 53, and the Tension Bars on page 38.



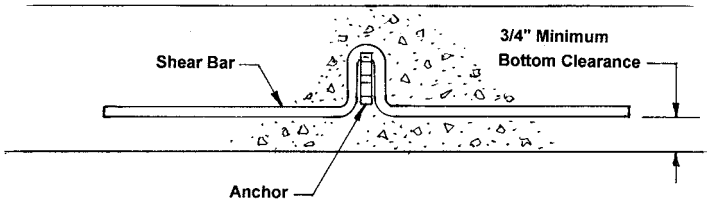
RL-3 RAPID LIFT TECH ERECTION ANCHOR DIMENSIONS

Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	E	F	G	H	S	Ultimate Mechanic Load (lbs)	Weight Each Piece (lbs)
2T/2.5T	2.5T	79527	2"	8"	3/8"	1-3/16"	2-1/4"	1-3/8"	9/16"	1-1/8"	2"	16,000	1.59
4T/5T	5T	79548	2-1/2"	9-1/2"	5/8"	2-1/2"	3-3/16"	1-13/16"	3/4"	1-1/4"	2-5/8"	32,000	4.21
8T/10T	10T	79589	3-3/4"	12-1/2"	3/4"	3-1/8"	4"	2-7/16"	1"	1-3/4"	3-5/8"	64,000	9.17



The RL-32 Tension Bar provides simple and economical reinforcement for the erection anchor during tension lifts.

The RL-31 Shear Bar (.375 ø) provides additional shear strength to prevent spalling.



Rapid Lift System Anchors

RL-3 TECH ERECTION ANCHOR

RL-3 2-TON, 4-TON, 8-TON								
Ring Clutch System	Clutch I.D.	Standard Item Number	Panel Thickness (in)	Shear w/ Shear Bar 4:1 Safety Factor (lbs)	Tension w/o Tension Bar 4:1 Safety Factor (lbs)	Standard Tension w/ Tension Bar 4:1 Safety Factor (lbs)	High Capacity Tension w/ Tension Bar 4:1 Safety Factor (lbs)	Min Corner Distance (in)
2T/2.5T	2.5T	79527	4" min.	1,490	3,190	4,000	5,000	12
2T/2.5T	2.5T	79527	5"	2,110	3,900	4,000	5,000	12
2T/2.5T	2.5T	79527	5-½"	2,130	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	6"	2,520	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	7"	2,870	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	8"	3,160	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	9"	3,420	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	10"	3,640	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	11"	3,840	4,000	4,000	5,000	12
2T/2.5T	2.5T	79527	12"	4,000	4,000	4,000	5,000	12
4T/5T	5T	79548	5-½" min.	2,670	4,970	8,000	10,000	12
4T/5T	5T	79548	6"	2,990	5,170	8,000	10,000	12
4T/5T	5T	79548	7"	3,170	6,030	8,000	10,000	12
4T/5T	5T	79548	8"	3,430	6,910	8,000	10,000	12
4T/5T	5T	79548	9"	3,650	7,750	8,000	10,000	12
4T/5T	5T	79548	10"	3,860	8,000	8,000	10,000	12
4T/5T	5T	79548	11"	3,930	8,000	8,000	10,000	12
4T/5T	5T	79548	12"	4,010	8,000	8,000	10,000	12
8T/10T	10T	79589	7-½" min.	4,010	7,220	16,000	20,000	18
8T/10T	10T	79589	8"	4,010	7,690	16,000	20,000	18
8T/10T	10T	79589	9"	4,120	8,640	16,000	20,000	18
8T/10T	10T	79589	10"	4,280	9,580	16,000	20,000	18
8T/10T	10T	79589	11"	4,420	10,610	16,000	20,000	18
8T/10T	10T	79589	12"	4,550	11,680	16,000	20,000	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.

1. To obtain the shear values shown, it is necessary to use the appropriate Meadow Burke shear bar or equal.
2. Given full embedment, reinforcement and minimum compressive strength concrete; Tech Erection Anchors should achieve a pull out strength equal to their ultimate mechanical strength.
3. Minimum anchor spacing is double the corner distance for unreinforced anchors.

To order, specify: quantity, name, item number and finish.

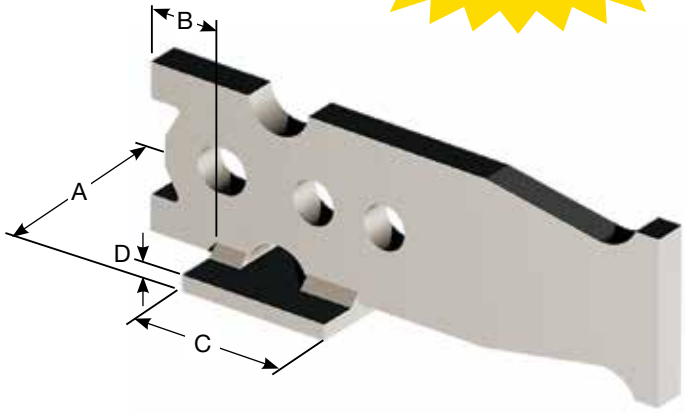
Rapid Lift System Anchors

RL-4 RAPID LIFT TECH ERECTION ANCHOR WITH SHEAR PLATE
STD: 2-Ton, 4-Ton and 8-Ton
High Capacity: 2.5-Ton, 5-Ton and 10-Ton

High Capacity Available

The RL-4 Tech Erection Anchor with Plate is similar in design and use to the RL-3 Tech Erection Anchor, but has the added shear plate to eliminate the need for a shear bar. This design feature gives the anchor a smaller height envelope allowing it to be used in thinner concrete panels. This anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 51, and the Tension Bars on page 38.



RL-4 TECH ERECTION ANCHOR WITH PLATE									
Ring Clutch System	Clutch I.D.	Item Number Standard	Item Number High Capacity	A	B	C	D	Weight (lbs)	Minimum Panel Thickness
2T/2.5T	2.5T	79527SP	79527SPHC	2-½"	¾"	3"	¼"	2.12	3-½"
4T/5T	5T	79548SP	79548SPHC	2-½"	1-¼"	3"	⅜"	4.93	4"
8T/10T	10T	79589SP	79589SPHC	3"	1-⅝"	3-½"	⅜"	10.33	7"

See Standard RL-3 Tech Erection Anchor for all other dimensions.

RL-4 2-TON, 4-TON, 8-TON								Standard	High Capacity	
Ring Clutch System	Clutch I.D.	Item Number Standard	Item Number High Capacity	Panel Thickness (in)	SHEAR 2.66:1 Safety Factor (lbs)	SHEAR 4:1 Safety Factor (lbs)	TENSION w/o Tension Bar 4:1 Safety Factor (lbs)	TENSION w/ Tension Bar 4:1 Safety Factor (lbs)	TENSION w/ Tension Bar 4:1 Safety Factor (lbs)	Min Corner Distance (in)
2T/2.5T	2.5T	79527SP	79527SPHC	3-½" min.	2150	1430	2640	4000	5000	12
2T/2.5T	2.5T	79527SP	79527SPHC	4"	2930	1950	3190	4000	5000	12
2T/2.5T	2.5T	79527SP	79527SPHC	4-½"	3040	2020	3550	4000	5000	12
2T/2.5T	2.5T	79527SP	79527SPHC	5"	3160	2100	3900	4000	5000	12
4T/5T	5T	79548SP	79548SPHC	4" min.	2710	1800	3400	8000	10,000	12
4T/5T	5T	79548SP	79548SPHC	4-½"	3710	2470	3860	8000	10,000	12
4T/5T	5T	79548SP	79548SPHC	5"	4000	2660	4730	8000	10,000	12
4T/5T	5T	79548SP	79548SPHC	5-½"	4160	2770	4970	8000	10,000	12
4T/5T	5T	79548SP	79548SPHC	6"	4290	2860	5170	8000	10,000	12
8T/10T	10T	79589SP	79589SPHC	7" min.	6030	4010	7100	16,000	20,000	18
8T/10T	10T	79589SP	79589SPHC	7-½"	6030	4010	7220	16,000	20,000	18
8T/10T	10T	79589SP	79589SPHC	8"	6030	4010	7690	16,000	20,000	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.

1. The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.
2. Given full embedment, reinforcement and minimum compressive strength concrete; Tech Erection Anchors should achieve a pullout strength equal to their ultimate mechanical strength.
3. Minimum anchor spacing is double the corner distance for unreinforced anchors.

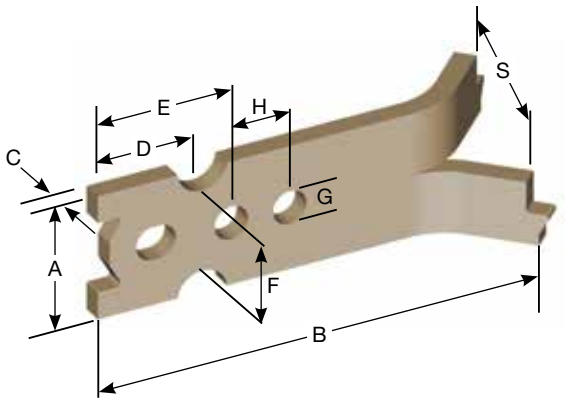
To order, specify: quantity, name, item number and finish.

Rapid Lift System Anchors

RL-6 ERECTION ANCHOR
2-Ton, 4-Ton and 8-Ton

The RL-6 Erection Anchor is similar in design and use to the standard RL-3 Tech Erection Anchor, but has a "split-foot" design to widely disperse applied loads and to enhance pullout capability. Refer to the accompanying Tables for size, availability and safe working loads. The RL-6 Erection Anchor is available in plain and hot dip galvanize finish.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.



RL-6 ERECTION HEAD ANCHOR

Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	E	F	G	H	S	Ultimate Mechanical Load (lbs)	Weight Each Piece (lbs)
2T/2.5T	2T/2.5T	79047	2"	8"	3/8"	1-13/16"	2-1/4"	1-3/8"	9/16"	1-1/8"	2-3/4"	16,000	1.59
4T/5T	4T/5T	79048	2-1/2"	10-1/2"	5/8"	2-1/2"	3-3/16"	1-13/16"	3/4"	1-1/4"	3-3/8"	32,000	4.21
8T/10T	8T/10T	79349	3-3/4"	12-13/16"	5/8"	3-1/8"	4"	2-7/16"	1"	1-3/4"	5"	48,000	7.64
8T/10T	8T/10T	79349	3-3/4"	12-13/16"	3/4"	3-1/8"	4"	2-7/16"	1"	1-3/4"	5"	64,000	9.17

RL-6 2-TON, 4-TON, 8-TON

Ring Clutch System	Clutch I.D.	Item Number	Panel Thickness in Inches	SHEAR w/ Shear Bar 2.66:1 Safety Factor	SHEAR w/ Shear Bar 4:1 Safety Factor	TENSION w/o Tension Bar 4:1 Safety Factor	TENSION w/ Tension Bar 4:1 Safety Factor	Min Corner Distance (in)
2T/2.5T	2.5T	79047	4" min.	2250 lbs.	1490 lbs.	3190 lbs.	4000 lbs.	12
2T/2.5T	2.5T	79047	5"	3160	2110	3900	4000	12
2T/2.5T	2.5T	79047	5-1/2"	3460	2130	4000	4000	12
2T/2.5T	2.5T	79047	6"	3780	2520	4000	4000	12
2T/2.5T	2.5T	79047	7"	4000	2870	4000	4000	12
2T/2.5T	2.5T	79047	8"	4000	3160	4000	4000	12
4T/5T	5T	79048	5-1/2" min.	4020	2670	4970	8000	12
4T/5T	5T	79048	6"	4490	2990	5170	8000	12
4T/5T	5T	79048	7"	4670	3170	6030	8000	12
4T/5T	5T	79048	8"	5140	3430	6910	8000	12
4T/5T	5T	79048	9"	5490	3650	7750	8000	12
4T/5T	5T	79048	10"	5790	3860	8000	8000	12
4T/5T	5T	79048	11"	5910	3930	8000	8000	12
4T/5T	5T	79048	12"	6030	4010	8000	8000	12
8T/10T	10T	79349	7-1/2" min.	6030	4010	7220	16,000	18
8T/10T	10T	79349	8"	6030	4010	7690	16,000	18
8T/10T	10T	79349	9"	6190	4120	8640	16,000	18
8T/10T	10T	79349	10"	6430	4280	9580	16,000	18
8T/10T	10T	79349	11"	6650	4420	10,610	16,000	18
8T/10T	10T	79349	12"	6650	4550	11,680	16,000	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.

1. The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.
2. To obtain the shear values shown, it is necessary to use the appropriate Meadow Burke Shear Bar or equal.
3. Given full embedment, reinforcement and minimum compressive strength concrete; Erection Anchors should achieve a pullout strength equal to their ultimate mechanical strength.
4. Minimum anchor spacing is double the corner distance for unreinforced anchors.

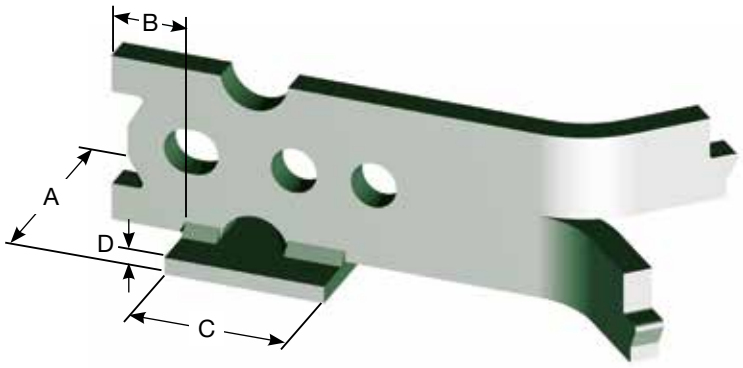
To order, specify: quantity, name, item number and finish.

Rapid Lift System Anchors

RL-7 ERECTION ANCHOR WITH SHEAR PLATE 2-Ton, 4-Ton and 8-Ton

The RL-7 Erection Anchor with Plate is similar in design and use to the RL-6 Erection Anchor, but has the added shear plate to eliminate the need for a shear bar. This design feature gives the anchor a smaller height envelope allowing it to be used in thinner concrete panels. The anchor is available in the sizes shown in the table in plain or hot dip galvanize finish.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 53, and the Tension Bars on page 38.



RL-7 ERECTION ANCHOR WITH PLATE								
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	Weight (lbs)	Minimum Panel Thickness
2T/2.5T	2.5T	79147	2-½"	¾"	3"	¼"	2.12	3-½"
4T/5T	5T	79148	2-½"	1-¼"	3"	⅜"	4.93	4"
8T/10T	10T	79149	3"	1-⅝"	3-½"	⅜"	8.30	7"
8T/10T	10T	79149	3"	1-⅝"	3-½"	⅜"	10.33	7"

See standard RL-6 Erection Anchor for all other applicable dimensions.

RL-7 2-TON, 4-TON, 6-TON, 8-TON								
Ring Clutch System	Clutch I.D.	Item Number	Panel Thickness (in)	SHEAR 2.66:1 Safety Factor (lbs)	SHEAR 4:1 Safety Factor (lbs)	TENSION w/o Tension Bar 4:1 Safety Factor (lbs)	TENSION w/ Tension Bar 4:1 Safety Factor (lbs)	Min Corner Distance (in)
2T/2.5T	2.5T	79147	3-½" min.	2150	1430	2640	4000	12
2T/2.5T	2.5T	79147	4"	2930	1950	3190	4000	12
2T/2.5T	2.5T	79147	4-½"	3040	2020	3550	4000	12
2T/2.5T	2.5T	79147	5"	3160	2100	3900	4000	12
4T/5T	5T	79148	4" min.	2710	1800	3400	8000	12
4T/5T	5T	79148	4-½"	3710	2470	3860	8000	12
4T/5T	5T	79148	5"	4000	2660	4730	8000	12
4T/5T	5T	79148	5-½"	4160	2770	4970	8000	12
4T/5T	5T	79148	6"	4290	2860	5170	8000	12
8T/10T	10T	79149	7" min.	6030	4010	7100	12,000	18
8T/10T	10T	79149	7-½"	6030	4010	7220	12,000	18
8T/10T	10T	79149	8"	6030	4010	7690	12,000	18
8T/10T	10T	79149	7" min.	6030	4010	7100	16,000	18
8T/10T	10T	79149	7-½"	6030	4010	7220	16,000	18
8T/10T	10T	79149	8"	6030	4010	7690	16,000	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.

1. The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.
2. Given full embedment, reinforcement and minimum compressive strength concrete; Erection Anchors should achieve a pullout strength equal to their ultimate mechanical strength.
3. Minimum anchor spacing is double the corner distance for unreinforced anchors.

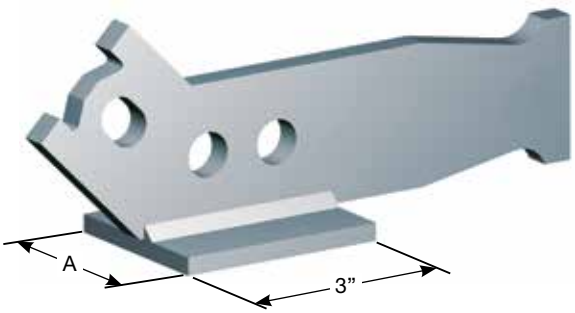
To Order, Specify: quantity, name, item number and finish.

Rapid Lift System Anchors

RL-9 45° TECH ERECTION ANCHOR
2-Ton, 4-Ton and 8-Ton

The RL-9 Tech Erection Anchor - 45° is an adaptation of the regular Tech Erection Anchor for use with panels where the lifting edge is cast at a 45° angle. The anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

NOTE: A RL-32 Tension Bar is required with this anchor.



See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.

RL-9 45° TECH ERECTION ANCHOR - 45° DATA

Ring Clutch System	Clutch I.D.	Item Number	A	Panel Thickness (in)	Shear 4:1 Safety Factor	Tension w/ Tension Bar 4:1 Safety Factor	Min Corner Distance (in)
2T/2.5T	2.5T	79527SP-45	2.5	6½”	2150	3400	12
4T/5T	5T	79548SP-45	2.75	8”	3500	5400	12
8T/10T	10T	79589SP-45	3	9”	5600[3,4]	7400	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.
1. Given full embedment, reinforcement and minimum compressive strength concrete; Erection Head Anchors should achieve a pull out strength equal to their ultimate mechanical strength.
2. This insert requires 2” concrete below or underneath the shear plate.
3. Load based on 2500 PSI compressive concrete strength.
4. 4 Shear value can be increased by the ration of square roots of the compressive strength up to the maximum tension capacity of 7400 lbs.

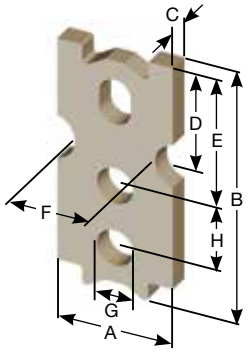
To Order, Specify: quantity, name, item number and finish.

High Capacity Available

RL-10 ERECTION HEAD ANCHOR
2-Ton, 4-Ton and 8-Ton

The RL-10 Erection Head Anchor is designed to be used in conjunction with the Tension Bar in thin-wall sections. It is an ideal choice for spall-free performance in A-frame or tilt table applications.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.



RL-10 ERECTION HEAD ANCHOR

Ring Clutch System	Clutch I.D.	Standard Item Number	High Capacity Item Number	A	B	C	D	E	F	G	H	Starndard Allowable Reinforced Tension Load SF 4:1 (lbs)	High Capacity Allowable Reinforced Tension Load SF 4:1 (lbs)	Weight Each Piece (lbs)	Min Panel Thickness (in)	Min Corner Distance (in)
2T/2.5T	2.5T	79403	79403HC	2”	4 1/4”	3/8”	1 13/16”	2 3/8”	1 3/8”	5/8”	1 3/32”	4000	5000	0.70	4	12
4T/5T	5T	79075	79075HC	2 1/2”	7 7/16”	5/8”	2 1/2”	3 3/16”	1 7/8”	3/4”	1 1/4”	8000	10,000	2.76	5	12
8T/10T	10T	79385	--	3 3/4”	13 1/4”	5/8”	3 1/8”	4”	2 7/16”	1”	1 3/4”	12,000	--	7.64	7	18
8T/10T	10T	79185	79185HC	3 3/4”	13 1/4”	3/4”	3 1/8”	4”	2 7/16”	1”	1 3/4”	16,000	20,000	9.17	7	18

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.
1. To obtain the shear values shown, it is necessary to use the appropriate Meadow Burke shear bar or equal.
2. Given full embedment, reinforcement and minimum compressive strength concrete; Erection Head Anchors should achieve a pull out strength equal to their ultimate mechanical strength.

To Order, Specify: quantity, name, item number and finish.

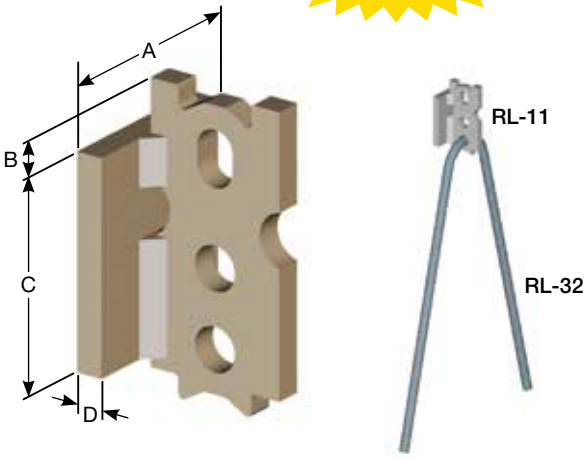
Rapid Lift System Anchors

High Capacity Available

RL-11 ERECTION HEAD ANCHOR WITH PLATE
2-Ton, 4-Ton and 8-Ton

The RL-11 Erection Head Anchor with Plate is similar in design and use to the RL-10 Erection Head Anchor, but has the added shear plate to provide additional shear capability and eliminate the need for a shear bar. This design feature gives the anchor a smaller height envelope allowing it to be used in thinner concrete panels. The anchor is available in the sizes shown in plain or hot dip galvanize finish.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 53, and the Tension Bars on page 38.



RL-11 RAPID LIFT ERECTION HEAD WITH PLATE ANCHOR										
Ring Clutch System	Clutch I.D.	Item Number	High Capacity Item Number	A	B	C	D	Minimum Panel Thickness	Shear 4:1 S.F. (lbs)*	Min Corner Distance (in)
2T/2.5T	2.5T	79403SP	79403SPHC	2 ½”	¾”	3”	¼”	4”	1235*	12
4T/5T	5T	79075SP	79075SPHC	2 ½”	1 ¼”	3”	⅜”	5 ½”	2670*	12
8T/10T	10T	79185SP	79185SPHC	3”	1 ⅝”	3 ½”	⅜”	7”	4010*	18

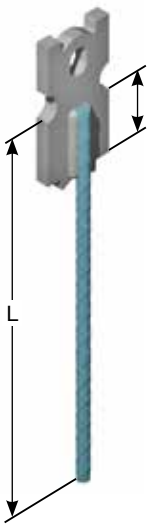
Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi.
1. Given full embedment, tension bar reinforcement, and minimum compressive strength concrete; Erection Head Anchors achieve a pull out strength equal to their ultimate mechanical strength.

* Shear capacity is less than the standard erection anchor due to the shorter length. The 8-ton erection head two-hole anchor loads are equal to the standard erection anchor due to length.

To Order, Specify: quantity, name, item number and finish.

RL-10 ERECTION HEAD ANCHOR with WELDED REBAR					
Item Number		79403	79075	79385	79185
Rebar Size	Inch	#5*	#7*	#8*	#10*
	Metric	#16*	#22*	#25*	#32*
Concrete Strength		“L” Dimension			
1,500 psi		30”	48”	79”	104”
2,000 psi		26”	42”	69”	90”
3,000 psi		21”	34”	57”	74”

* Grade 60 Rebar



Weld Length:
1¾” @ 79403 - ⅜” fillet welds (2)
4” @ 79075 - ⅜” fillet welds (2)
5” @ 79385 - ⅜” fillet welds (2)
5” @ 79185 - ⅝” fillet welds (2)

Rapid Lift System Anchors

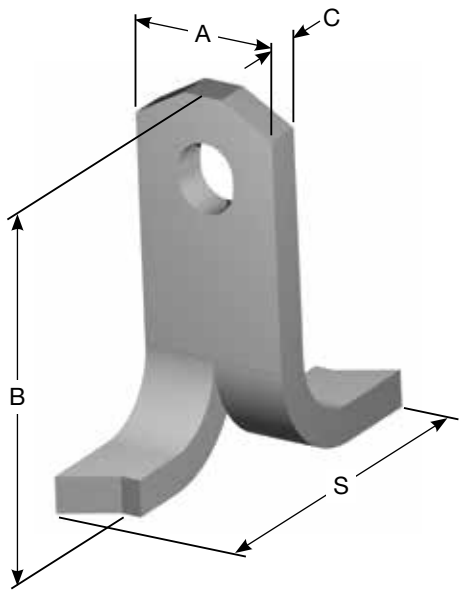
RL-21 FLAT FOOT ANCHOR
2-Ton

The RL-21 Flat Foot Anchor is designed for back stripping and lifting thin-wall precast elements. The legs of the anchor extend out sufficiently to accommodate recommended additional reinforcing steel. See recommended reinforcing method and sketch below. Refer to the table for anchor dimensions and safe working loads. The Flat Foot Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.

Reinforcing Recommendation:
Crisscross the legs of the anchor with four (4) 18" lengths of #4 rebar as shown in the sketch.

NOTE: A minimum ¾" concrete cover below the anchor is required to achieve posted working loads.



RL-21 FLAT FOOT ANCHOR DATA

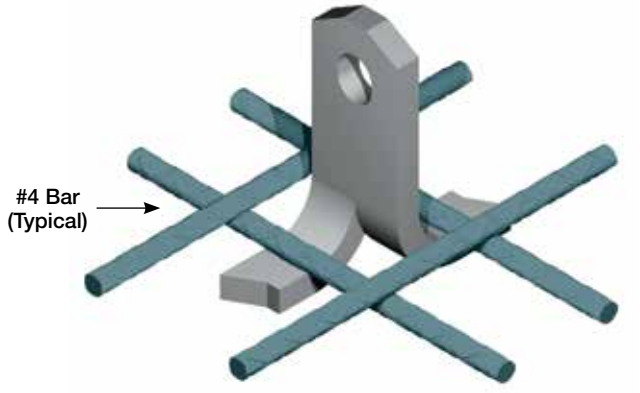
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	S	Allowable Unreinforced Tension Load 4:1 SF (lbs)[1]	Allowable Reinforced Tension Load 4:1 SF (lbs)[2]	Ultimate Mechanical Load Tension (lbs)	Weight Per Piece (lbs)
2T/2.5T	2.5T	79052	1 ¼"	2 ¾"	3/16"	4"	1,325	2,000	8,000	0.32
2T/2.5T	2.5T	79053	1 ¼"	3 3/8"	3/16"	4"	1,893	2,000	8,000	0.36
2T/2.5T	2.5T	79058	1 ¼"	2 ¾"	3/8"	4"	1,325	4,000	16,000	0.46
2T/2.5T	2.5T	79400	1 ¼"	3 3/8"	3/8"	4"	1,893	4,000	16,000	0.56
4T/5T	5T	79157	Discontinued: See Plate Anchor Item 45847, page 36.							
8T/10T	10T	79055	Discontinued: See Plate Anchor Item 79054, page 36.							

1. Tension values shown are based on 3,500 psi standard weight concrete and a minimum edge distance of (2B+A)/2.
2. Tension values shown are based on 3,000 psi standard weight concrete, a minimum edge distance of 10" and #4 rebar cut to 18" lengths reinforcing the anchor as shown in the sketch.

To Order, Specify: quantity, name, item number and finish.

The "flat feet" of the anchor extend 2" or more on each side of the anchor to accommodate the recommended reinforcing steel.

NOTE: The flat foot anchor has allowable face shear loads that are equal to or greater than unreinforced face tension loads for anchors located in a panel or concrete unit at a distance of at least 2B+A from the edges.



Rapid Lift System Anchors

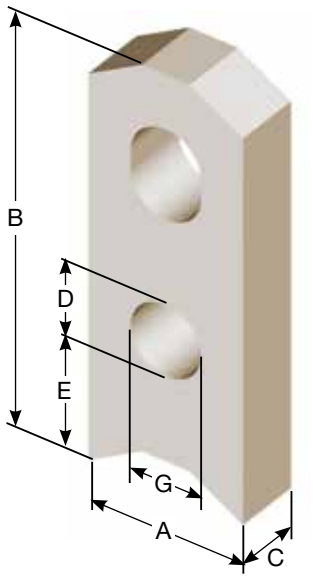
High Capacity Available

RL-22 TWO HOLE ANCHOR
Standard: 2-Ton, 4-Ton, 8-Ton and 22-Ton
High: 2.5-Ton, 5-Ton, 10-Ton

The RL-22 Two Hole Anchor is effectively used for stripping panels from tilt tables and transporting panels. It is also a good choice in applications where spread-type anchors can't be used and in panels constructed with lightweight concrete. It is designed with a secondary hole that can accept additional rebar or a Tension Bar to increase lifting capacity and to distribute lifting loads deep into the concrete. The Two Hole Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

Minimum reinforcing length (L) is needed to develop the full strength of the anchor.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 53, and the Tension Bars on page 38.



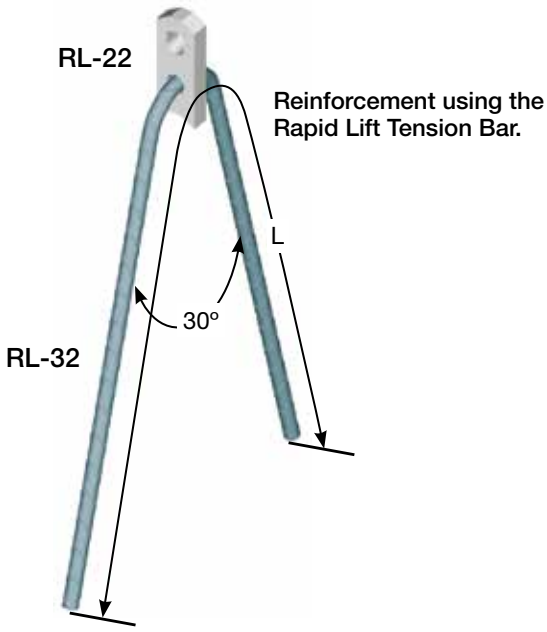
RL-22 RAPID LIFT TWO HOLE ANCHOR										Standard	High Capacity		
Ring Clutch System	Clutch I.D.	Item Number	High Capacity Item Number	A	B	C	D	E	G	Allowable Reinforced Tension Load 4:1 SF (lbs)	TENSION w/ Tension Bar 4:1 Safety Factor (lbs	Weight Each (lbs)	Minimum Panel Thickness (in)
2T/2.5T	2.5T	79122	79122HC	1 ¼"	4"	⅜"	¾"	9/16"	9/16"	4,000	--	0.46	2¾"
2T/2.5T	2.5T	79190	--	1 ¼"	2¾"	⅜"	9/16"	⅝"	9/16"	4,000	--	0.40	2¾"
4T/5T	5T	79124	79124HC	1 ½"	5 ½"	⅝"	13/16"	13/16"	11/16"	8,000	10,000	1.30	4
8T/10T	10T	79125	79125HC	2 ½"	7"	¾"	1 3/16"	1 7/16"	1"	16,000	20,000	3.06	5
22T/26T	26T	79176	--	3 ⅛"	11¾"	1"	1 13/16"	1 13/16"	1 ⅜"	44,000	--	8.80	7

Table is based on dead load only, 150 PCF. Refer to table below for tension bar length at desired concrete strength. Minimum concrete compression strength = 1500 psi.

To Order, Specify: quantity, name, item number and finish.

TYPICAL TWO HOLE ANCHOR REINFORCEMENT
RL-32 Tension Bar

RL-32 TENSION BAR for STANDARD and HIGH CAPACITY							
Load Group		2-Ton	2.5 Ton	4-Ton	5-Ton	8-Ton	10-Ton	22-Ton
Rebar Size	Inch	#3	#4	#4	#5	#6	#7	#9
	Metric	#10	#13	#13	#16	#19	#22	#29
Concrete Strength (psi)		"L" Dimension (overall length of rebar)						
1,500		3'-0"	4'-0"	4'-0"	4'-5"	6'-0"	7'-6"	12'-0"
2,000		2'-9"	3'-6"	3'-6"	3'-10"	5'-6"	6'-7"	9'-6"
2,500		2'-8"	3'-0"	3'-0"	3'-6"	5'-0"	6'-0"	9'-3"
3,000		2'-6"	3'-0"	3'-0"	3'-3"	4'-6"	5'-6"	9'-0"
4,000		2'-0"	2'-6"	2'-6"	3'-0"	3'-7"	4'-10"	9'-0"
5,000		2'-0"	2'-2"	2'-2"	2'-6"	3'-3"	4'-5"	9'-0"



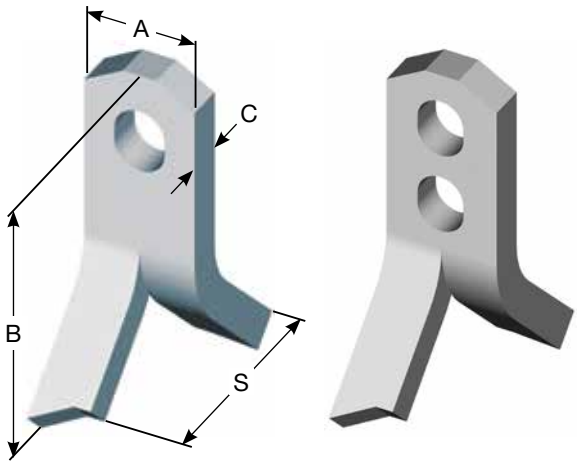
Rapid Lift System Anchors

RL-23 SPREAD ANCHOR
2-Ton, 4-Ton, 8-Ton and 22-Ton

The RL-23 Spread Anchor is designed with a spread-foot that produces exceptional pull out capacity. This versatile anchor can be used in the face, back or edge of panels for back stripping and rotation from horizontal to vertical. This anchor can be pulled in any direction as long as minimum edge distance is maintained. However spalling may occur when pulling in shear perpendicular to the long side of the void. A minimum ¾" concrete cover below the anchor is recommended. The Spread Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.

NOTE: The spread anchor has allowable face shear loads that are equal to or greater than the face tension loads for anchors located in a panel or concrete unit at a distance of 3B+A from the edge. In order to achieve these loads, shear has to be applied parallel to long side of void.



RL-23 SPREAD ANCHOR DATA										
Ring Clutch System	Clutch I.D.	Item Number	Additional Hole	A	B	C	S	Allowable Unreinforced Tension Load 4:1 SF (lbs)	Ultimate Mechanical Load Tension (lbs)	Weight Per Piece (lbs)
2T/2.5T	2.5T	79050	No	1 ¼"	4 ¾"	3/16"	2 ¾"	2,000	8,000	0.32
2T/2.5T	2.5T	79110	No	1 ¼"	4"	⅜"	2 ¾"	2,530	16,000	0.49
2T/2.5T	2.5T	79059	No	1 ¼"	5 ½"	⅜"	2 ¾"	4,000	16,000	0.73
4T/5T	5T	79113	No	1 ½"	4"	½"	3 ⅜"	2,670	24,000	0.96
4T/5T	5T	79114	No	1 ½"	4 ¾"	½"	3 ⅜"	3,590	24,000	1.12
4T/5T	5T	79115	No	1 ½"	6 ¾"	½"	3 ⅜"	6,720	32,000	1.40
4T/5T	5T	79116	No	1 ½"	6 ¼"	⅝"	3 ⅜"	5,850	32,000	1.61
4T/5T	5T	79117	Yes	1 ½"	9 ½"	⅝"	3 ⅜"	8,000	32,000	2.48
8T/10T	10T	79319	Yes	2 ½"	11"	⅝"	5 ¼"	12,000	48,000	4.48
8T/10T	10T	79119	Yes	2 ½"	11"	¾"	5 ¼"	16,000	64,000	5.37
22T/26T	26T	79172	Yes	3 ⅛"	15"	¾"	6 ¼"	32,800	136,000	9.59
22T/26T	26T	79174	Yes	3 ⅛"	18 ⅞"	1"	6 ¼"	44,000	176,000	16.07

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi and a minimum edge distance of (2B+A)/2 for tension loads.
* In order to achieve these loads, shear has to be long side of void.

Refer to pages 40 and 41 for anchor capacities in thin wall applications.

To Order, Specify: quantity, name, item number and finish.

Rapid Lift System Anchors

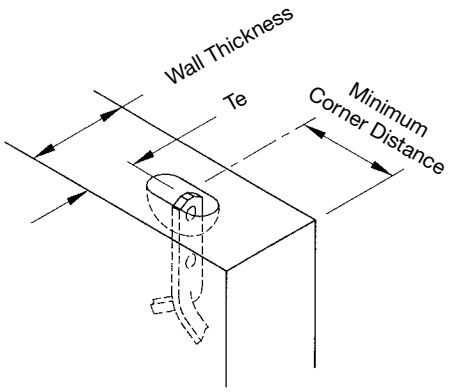
RAPID LIFT SPREAD ANCHORS USED IN THIN WALL SECTIONS

Care must be taken when locating anchors in thin wall sections. Improper installation and/or misalignment can seriously reduce the safe working load of the anchor.

- Anchors must be positioned on the centerline of the panel.
- Use supports, spacers or tie the anchor to the rebar mat to make sure of proper positioning.

This sketch shows proper positioning of the anchor on the centerline of the panel. This allows the full wall thickness to be used in the safe working load selection.

When used in conjunction with the RL-32 Tension Bar, the RL-23 Anchor will achieve the full mechanical capacity when installed in a thin wall.



Te = Actual Edge Thickness
(½ Wall Thickness)

SINGLE RL-23 SPREAD ANCHOR TENSILE CAPACITIES IN THIN WALLS (CONT.)

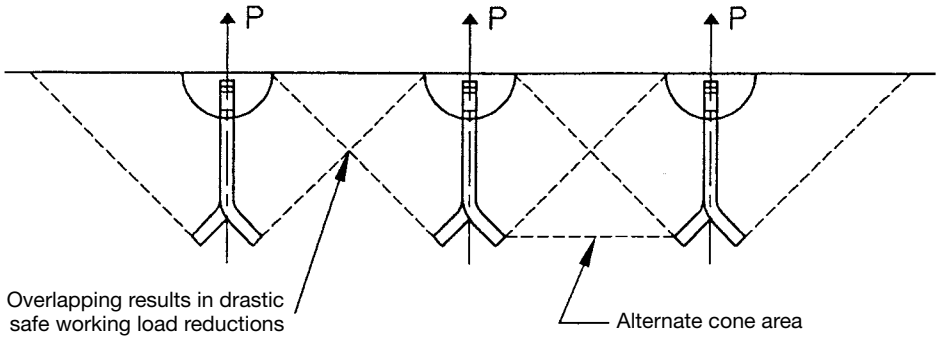
RL-23 TENSILE CAPACITY							
Rapid Lift Anchor Ton & Length	Critical Wall Thickness	Actual Edge Thickness (T_e)	Tensile Safe Working Load Per Anchor				
			Actual Corner Distance				
	Inches	Inches	8 Inches	12 Inches	18 Inches	24 Inches	30 Inches
2 Ton X 4”	4	2”	1,400 lbs	1,600 lbs	1,600 lbs	1,600 lbs	1,600 lbs
	5	2½”	1,700	2,000	2,000	2,000	2,000
	6	3”	2,000	2,200	2,300	2,300	2,300
	7	3½”	2,200	2,500	2,600	2,600	2,600
	8	4”	2,400	2,700	2,800	2,800	2,800
	9	4½”	2,500	2,700	2,800	2,800	2,800
2 Ton X 5½”	4	2”	1,800	2,000	2,200	2,200	2,200
	5	2½”	2,300	2,500	2,800	2,800	2,800
	6	3”	2,700	2,900	3,300	3,300	3,300
	7	3½”	3,100	3,400	3,700	3,700	3,700
	8	4”	3,400	3,800	4,000	4,000	4,000
	9	4½”	3,800	4,000	4,000	4,000	4,000
4 Ton X 6¼”	4	2”	2,100	2,300	2,500	2,500	2,500
	5	2½”	2,600	2,900	3,200	3,200	3,200
	6	3”	3,200	3,500	3,800	3,800	3,800
	7	3½”	3,600	4,000	4,400	4,400	4,400
	8	4”	4,100	4,500	4,900	4,900	4,900
	9	4½”	4,500	5,000	5,400	5,400	5,400
4 Ton X 9½”	4	2”	3,000	3,200	3,400	3,600	3,800
	5	2½”	3,800	4,000	4,300	4,500	4,800
	6	3”	4,500	4,800	5,200	5,400	5,800
	7	3½”	5,300	5,600	6,000	6,300	6,700
	8	4”	6,000	6,400	6,800	7,200	7,600
	9	4½”	6,700	7,200	7,600	8,000	8,000
6 Ton or 8 Ton X 11”	5	2½”	4,000	4,600	4,800	5,100	5,400
	6	3”	4,800	5,500	5,800	6,100	6,500
	7	3½”	5,600	6,500	6,800	7,100	7,600
	8	4”	6,400	7,400	7,800	8,200	8,700
	9	4½”	7,100	8,300	8,800	9,200	9,700
	10	5”	7,900	9,200	9,700	10,000	10,800

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 4,500 psi concrete.

Rapid Lift System Anchors

MULTIPLE RL-23 SPREAD ANCHOR TENSILE CAPACITES IN THIN WALLS

When multiple anchors are placed in a thin wall panel, caution must be exercised to prevent the anchor shear cone planes from overlapping. If overlapping is unavoidable, the anchor safe working load must be reduced. If a spacing of six times the length of the anchor or more is maintained, the anchor shear cones will not overlap and maximum tensile capacities can be achieved. Reference the following sketch and accompanying table.



RL-23 TENSILE CAPACITY							
Rapid Lift Anchor Ton & Length	Critical Wall Thickness	Actual Edge Thickness (T_e)	Tensile Safe Working Load Per Anchor				
			Anchor Spacing				
	Inches	Inches	8 Inches	24 Inches	30 Inches	36 Inches	48 Inches
2 Ton X 4”	4	2”	1,300 lbs	1,500 lbs	1,600 lbs	1,600 lbs	1,600 lbs
	5	2 ½”	1,600	1,900	2,000	2,000	2,000
	6	3”	1,900	2,200	2,300	2,300	2,300
	7	3 ½”	2,100	2,500	2,600	2,600	2,600
	8	4”	2,200	2,600	2,700	2,700	2,700
	9	4 ½”	2,300	2,700	2,800	2,800	2,800
2 Ton X 5 ½”	4	2”	1,600	1,800	2,000	2,200	2,200
	5	2 ½”	2,000	2,200	2,500	2,700	2,700
	6	3”	2,300	2,600	3,000	3,200	3,200
	7	3 ½”	2,600	3,000	3,400	3,700	3,700
	8	4”	2,900	3,400	3,800	4,000	4,000
	9	4 ½”	3,200	3,700	4,000	4,000	4,000
4 Ton X 6 ¼”	4	2”	1,700	1,900	2,400	2,500	2,500
	5	2 ½”	2,100	2,400	3,000	3,200	3,200
	6	3”	2,500	2,800	3,500	3,800	3,800
	7	3 ½”	2,900	3,300	4,100	4,400	4,400
	8	4”	3,300	3,700	4,600	4,900	4,900
	9	4 ½”	3,600	4,100	5,100	5,400	5,400
4 Ton X 9 ½”	4	2”	2,100	2,500	2,900	3,400	3,900
	5	2 ½”	2,600	3,100	3,700	4,300	4,800
	6	3”	3,100	3,700	4,400	5,100	5,800
	7	3 ½”	3,600	4,300	5,100	5,900	6,700
	8	4”	4,100	4,900	5,800	6,700	7,700
	9	4 ½”	4,600	5,500	6,500	7,500	8,000
6 Ton or 8 Ton X 11”	5	2 ½”	2,400	3,500	4,000	4,500	5,100
	6	3”	2,800	4,200	4,800	5,500	6,200
	7	3 ½”	3,300	4,900	5,600	6,400	7,200
	8	4”	3,800	5,600	6,400	7,300	8,200
	9	4 ½”	4,200	6,300	7,200	8,200	9,200
	10	5”	4,700	6,900	8,000	9,000	10,200

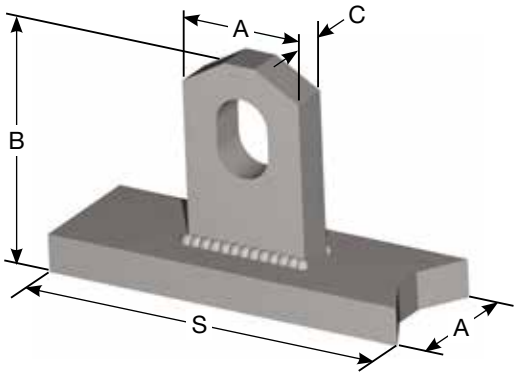
Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 4,500 psi concrete.

Rapid Lift System Anchors

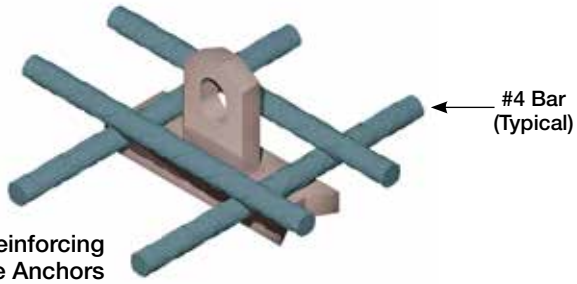
RL-24 PLATE ANCHOR
2-Ton, 4-Ton and 8-Ton

The RL-24 Plate Anchor is designed with a plate welded to the bottom to provide high pullout strength with a low profile. This design makes the anchor ideal for face and back lifts of thin-wall units and stripping, handling and erection applications. The Plate Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

See Ring clutches on page 46, 47, and 48, and the Recessing Members on page 49, 50 and 53.



Reinforcing Recommendation:
Crisscross the lower plate of the anchor with four (4) 18" long #4 rebar as shown in the sketch.



Typical method of reinforcing Plate Anchors

NOTE: The Plate Anchor has allowable face shear loads that are equal to or greater than the unreinforced face tension loads for anchors located in a panel or concrete unit at a distance of at least 3B+A from the edges.

RL-24 RAPID LIFT PLATE ANCHOR DATA

Ring Clutch System	Clutch I.D.	Item Number	A	B	C	S	Allowable Unreinforced Tension Load 4:1 SF (lbs)[1]	Allowable Reinforced Tension Load 4:1 SF (lbs)[2]	Ultimate Mechanical Load Tension (lbs)	Weight Per Piece (lbs)
2T/2.5T	2.5T	79128	1 ¼"	2 ¼"	⅜"	3 ¾"	952	4,000	16,000	0.71
4T/5T	5T	45846[3]	1 ½"	3"	⅝"	3"	5,000	5,650	32,000	1.21
4T/5T	5T	45847[3]	1 ½"	3 ½"	⅝"	3"	5,100	5,750	32,000	1.31
4T/5T	5T	79044	1 ½"	4 ⅜"	⅝"	3 ⅞"	6,500	7,300	32,000	1.91
8T/10T	10T	79054	2 ½"	6 ¼"	¾"	5"	10,650	11,550	64,000	4.29
8T/10T	10T	79042	2 ½"	7 ⅛"	¾"	5"	13,600	14,450	64,000	5.55

1. Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi and a minimum edge distance of (3B+A)/2.
2. Tension values shown are based on 3,000 psi standard weight concrete, a minimum edge distance of 10" and #4 rebar cut to 18" lengths reinforcing the anchor as shown in the sketch.
3. Available with plate anchor base.

To Order, Specify: quantity, name, item number and finish.

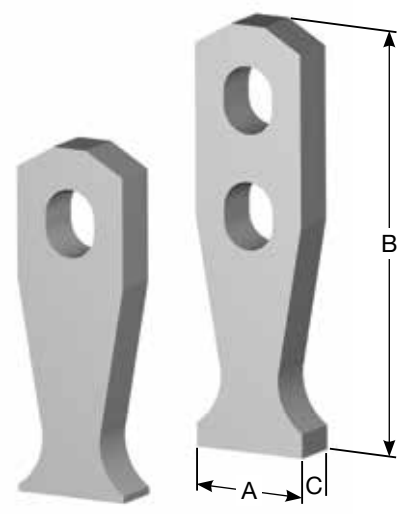
RL-60 PLATE ANCHOR BASE
4-Ton

The RL-60 Plate Anchor Base is a plastic base designed for use with specific RL-24 Plate Anchor 4-Ton units (item numbers 45846 and 45847) to hold and position the anchors in face lift applications.

To Order, Specify: quantity, name and item number.

Rapid Lift System Anchors

RL-25 TECH ANCHOR
2-Ton and 4-Ton



The RL-25 Tech Anchor has been developed with a unique foot design to increase tension capacity without adding extra reinforcement. Longer sizes of the anchor are supplied with a secondary hole to accommodate the addition of a tension bar for use when required. The Tech Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59, and the Tension Bars on page 44.

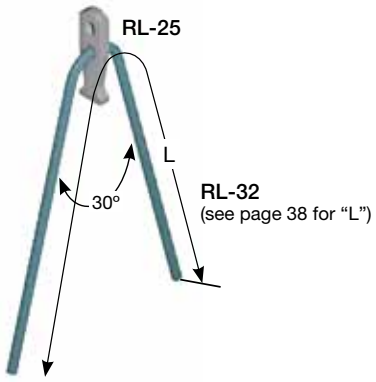
NOTE: The tech anchor has allowable face shear loads that are equal to or greater than the face tension loads for anchors located in a panel or concrete unit at a distance of 3B+A from the edge.

RL-25 TECH ANCHOR - FACE TENSION DATA

Ring Clutch System	Clutch I.D.	Item Number	Extra Hole	A	B	C	Minimum Panel Thickness	Tension Load 2:1 SF (lbs)	Tension Load 4:1 SF (lbs)	Ultimate Mechanical Strength (lbs)	Weight Per Piece (lbs)
2T/2.5T	2.5T	79523	No	1 ¼"	2 7/16"	⅜"	3"	4,955	2,480	16,000	0.17
2T/2.5T	2.5T	79524	No	1 ¼"	3 7/16"	⅜"	4"	5,000	2,885	16,000	0.3
2T/2.5T	2.5T	79525	Yes	1 ¼"	4 15/16"	⅜"	5 ½"	5,000	4,000	16,000	0.5
4T/5T	5T	79544	No	1 ½"	3 7/16"	⅝"	4"	8,610	4,305	32,000	0.6
4T/5T	5T	79545	No	1 ½"	4 7/16"	⅝"	5"	10,000	5,445	32,000	0.9
4T/5T	5T	79546	Yes	1 ½"	5 7/16"	⅝"	6"	10,000	7,215	32,000	1.1

Table is based on dead load only, 150 PCF and a standard concrete compressive strength of 3,500 psi normal weight and a minimum edge distance of 2B+A. Anchors in edge tension that are reinforced with a tension bar will achieve the full rated load in 1,500 psi concrete.

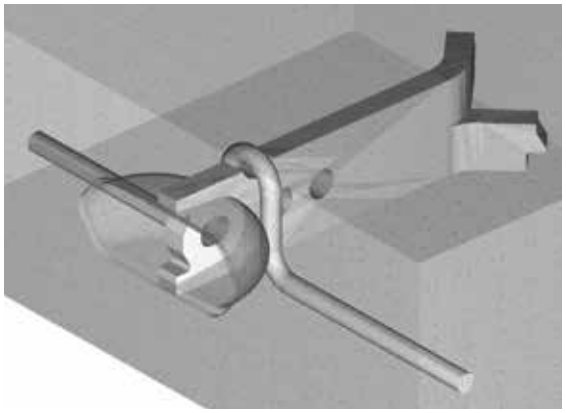
To Order, Specify: quantity, name, item number and finish.



RL-25 TECH ANCHOR IN EDGE TENSION DATA

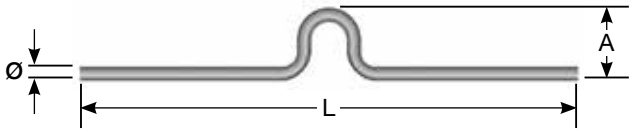
Ring Clutch System	Clutch I.D.	Item Number	Extra Hole	A	B	C	Minimum Panel Thickness	Tension Load 2:1 SF (lbs)	Tension Load 4:1 SF (lbs)	Ultimate Mechanical Strength (lbs)	Weight Per Piece (lbs)
2T/2.5T	2.5T	79529	Yes	1 ¼"	9 ½"	⅜"	3 ½"	6,560	3,280	16,000	1.1
2T/2.5T	2.5T	79529	Yes	1 ¼"	9 ½"	⅜"	4 ½"	7,600	3,800	16,000	1.1
2T/2.5T	2.5T	79529	Yes	1 ¼"	9 ½"	⅜"	5 ½"	8,000	4,000	16,000	1.1
4T/5T	5T	79549	Yes	1 ½"	9 ½"	⅝"	4"	5,340	2,670	32,000	2.2
4T/5T	5T	79549	Yes	1 ½"	9 ½"	⅝"	5"	8,950	4,475	32,000	2.2
4T/5T	5T	79549	Yes	1 ½"	9 ½"	⅝"	6"	12,660	6,330	32,000	2.2

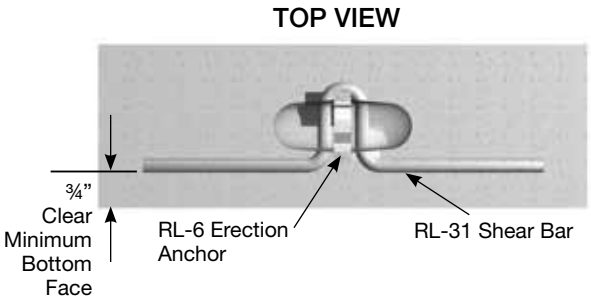
Rapid Lift System Anchors

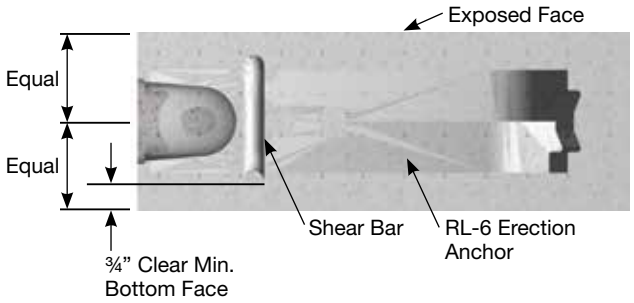


RL-31 SHEAR BAR
1-Ton, 2-Ton, 4-Ton and 8-Ton

The RL-31 Shear Bar is used to provide simple and economical reinforcement for erection anchors during the rotation of edge-lifted panels. The unit fits over the anchor to spread the shear stress and prevent spalling of the concrete.







RL-31 SHEAR BAR DATA							
Ring Clutch System	Clutch I.D.	Item Number	Ø	A	L	Minimum Panel Thickness	Weight (lbs)
1T/1.25T	1.25T	79139	⅜"	1 ⅝"	13"	3"	0.44
2T/2.5T	2.5T	79140	½"	2 ½"	14 ¾"	4"	0.98
4T/5T	5T	79141	½"	3 5/16"	14 ¾"	5 ½"	1.07
8T/10T	10T	79142	½"	4 15/16"	14 ¾"	5 ½"	1.23

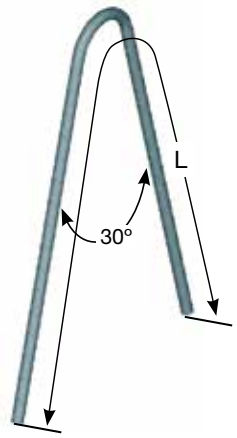
To Order, Specify: quantity, name and item number.

RL-32 TENSION BAR
2-Ton, 4-Ton, 8-Ton and 22-Ton

The RL-32 Tension Bar is used in conjunction with an erection anchor to increase tension-lifting capacity by transferring the tension loads deeply into the concrete member.

To Order, Specify: quantity, name, rebar size (inch) and length "L."

RL-32 TENSION BAR for STANDARD and HIGH CAPACITY							
Load Group		2-Ton	2.5 Ton	4-Ton	5-Ton	8-Ton	10-Ton	22-Ton
Rebar Size	Inch	#3	#4	#4	#5	#6	#7	#9
	Metric	#10	#13	#13	#16	#19	#22	#29
Concrete Strength (psi)		"L" Dimension (overall length of rebar)						
1,500		3'-0"	4'-0"	4'-0"	4'-5"	6'-0"	7'-6"	12'-0"
2,000		2'-9"	3'-6"	3'-6"	3'-10"	5'-6"	6'-7"	9'-6"
2,500		2'-8"	3'-0"	3'-0"	3'-6"	5'-0"	6'-0"	9'-3"
3,000		2'-6"	3'-0"	3'-0"	3'-3"	4'-6"	5'-6"	9'-0"
4,000		2'-0"	2'-6"	2'-6"	3'-0"	3'-7"	4'-10"	9'-0"
5,000		2'-0"	2'-2"	2'-2"	2'-6"	3'-3"	4'-5"	9'-0"



Rapid Lift System Anchors

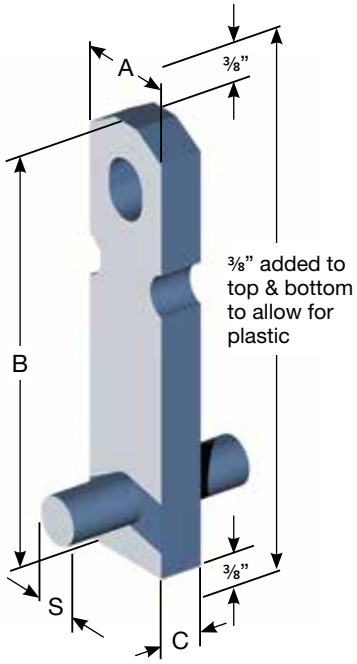
RL-26 T-BAR ANCHOR
4-Ton

The RL-26 T-Bar Anchor gets its name from the horizontal bar running through the bottom portion of the anchor to form an inverted T. This design produces exceptional pullout strength for use in back-stripping and panel rotation applications. The T-Bar Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish. This anchor uses the standard 4-Ton recess members and for face lift applications can be furnished assembled with the T-Bar Anchor Base/Void/Cover as seen below.

Note: The Base/Void/Cover package mentioned above can be purchased as a separate package or can be ordered and installed at the factory. If you want the package installed at the factory, it must be specified at the same time the anchor order is placed.

The T-Bar Anchor uses Rapid Lift 4-Ton or Super Lift II (Tilt-Up system) accessories. To use the T-Bar Anchor with the Anchor Base/Void/Cover package, order the anchors by panel thickness. For example: for a six-inch panel use a 5-¼" anchor. The anchor plus ⅜" setback and the ⅜" for the base equals 6" for the slab thickness.

See Ring Clutches on page 52 and Recessing Members on 55, 56, and 59.



To order Super-Lift II Anchors, slab thickness should equal anchor height with plastic assembled.

RL-26 T-BAR ANCHOR DATA

Ring Clutch System	Clutch I.D.	Item Number w/o Plastic RL-26	Item Number Assembled RL-29	A	B	C	S	Allowable Unreinforced Tension Load 4:1 SF (lbs)	Ultimate Mechanical Strength (lbs)	Weight Per Piece (lbs)	Weight Per Piece w/ Plastic (lbs)
4T/5T	5T	45848	45SL050	1 ½"	4 ¼"	⅝"	11/16"	5,500	32,000	1.16	1.49
4T/5T	5T	45850	45SL060	1 ½"	5 ¼"	⅝"	11/16"	8,000	32,000	1.38	1.71
4T/5T	5T	45852	45SL070	1 ½"	6 ¼"	⅝"	11/16"	8,000	32,000	1.64	1.97
4T/5T	5T	45854	45SL080	1 ½"	7 ¼"	⅝"	11/16"	8,000	32,000	1.91	2.24

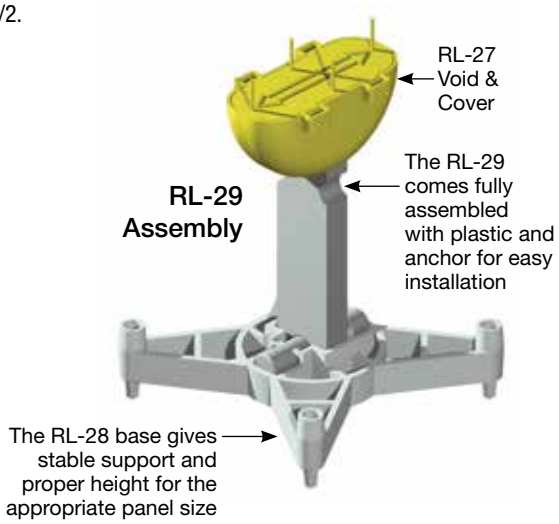
Tension values are based on 3,500 psi concrete and a minimum edge distance of (2B+A)/2.

To Order, Specify: quantity, name, item number and finish.

RL-31 SHEAR BAR

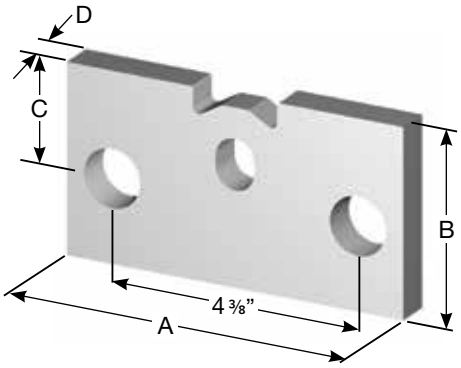
- The total assembly (RL-29) is available with the plastic installed at the factory.
- The plastic package (RL-41) base/void/cover is available without anchor.
- Each item (RL-26, RL-27, RL-28) is separately available from the factory.

To Order, Specify: quantity, name and item number.



Rapid Lift System Anchors

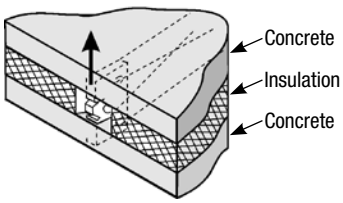
RL-14 SANDWICH PANEL ERECTION ANCHOR
4-Ton and 8-Ton with Minimum 8" Panel Thickness

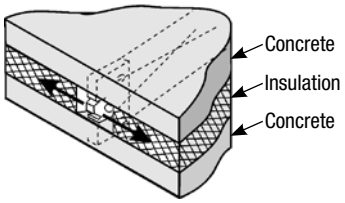


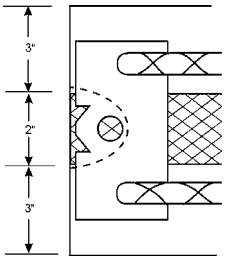
The RL-14 Sandwich Panel Erection Anchor is designed to effectively lift and handle precast concrete sandwich panels. The Sandwich Panel Erection Anchor is easy to install and requires no special lifting equipment, only the standard 4 or 8-Ton ring clutch. Its unique design distributes the lifting loads evenly into both wythes of the panel and absorbs shear loads without spalling the concrete. The Sandwich Panel Erection Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish. The Sandwich Panel Erection Anchor requires proper reinforcement, as shown in the product sketch. Refer to Sandwich Panel Erection Anchor Reinforcement Details on page 47.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 57.

RL-14 SANDWICH PANEL ERECTION ANCHOR DATA								
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	Ultimate Mech. Load Tension (lbs)	Weight Per Piece (lbs)
4T/5T	5T	79077	6"	3 1/4"	1 13/16"	5/8"	32,000	2.86
8T/10T	10T	79184	6"	4 3/4"	3 3/8"	3/4"	64,000	5.05



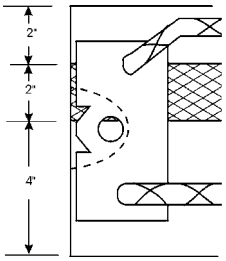




8" SANDWICH PANEL
(3" X 2" X 3")

RL-14 8" SANDWICH PANEL (3" X 2" X 3")			
Ring Clutch System	Tension (lbs)	Shear Parallel to Anchor Width SF = 2.66:1 (lbs)	Shear Perpendicular to Anchor Width SF = 4:1 (lbs)
4T/5T	8,000	5,170	8,000
8T/10T	16,000	4,500	9,400

RL-14 8" SANDWICH PANEL (4" X 2" X 2")			
Ring Clutch System	Tension (lbs)	Shear Parallel to Anchor Width SF = 2.66:1 (lbs)	Shear Perpendicular to Anchor Width SF = 4:1 (lbs)
4T/5T	8,000	4,950	8,000
8T/10T	16,000	5,200	10,500



8" SANDWICH PANEL
(4" X 2" X 2")

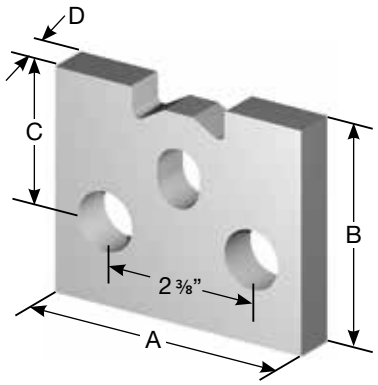
1. 4-Ton Anchors require 3,300 PSI concrete compressive strength to achieve shear strength.
2. 8-Ton Anchors require 4,500 PSI concrete compressive strength to achieve shear strength.

The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.
4-Ton anchor: Given full embedment, reinforced with two #3 rebar 2'-6" long bent as shown on page 47 and minimum compressive strength of 3,300 psi concrete; the 4-Ton Sandwich Anchor should achieve a pullout strength equal to their ultimate mechanical strength.
8-Ton anchor: Given full embedment, reinforced with two #5 rebar 3'-6" long bent as shown on page 47 and minimum compressive strength of 4,500 psi concrete; the 8-Ton Sandwich Anchor should achieve a pullout strength equal to their ultimate mechanical strength.

To Order, Specify: quantity, name, item number and finish.

Rapid Lift System Anchors

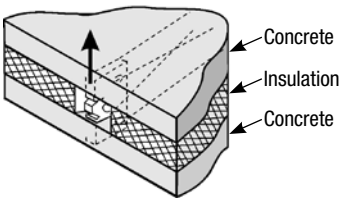
RL-15 SANDWICH PANEL ERECTION ANCHOR
4-Ton with 2" Maximum Insulation Thickness

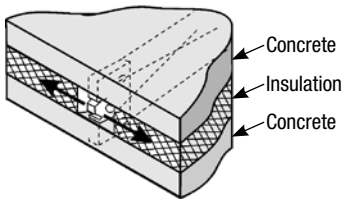


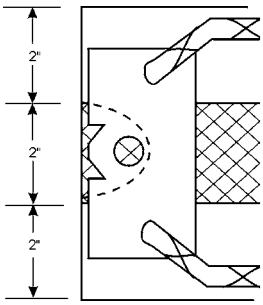
The RL-15 Sandwich Panel Erection Anchor is a smaller version of the sandwich anchor designed to effectively lift and handle precast concrete sandwich panels with a maximum insulation thickness of 2". It is easy to install and requires no special lifting equipment, only the standard 4-Ton ring clutch. Its unique design distributes the lifting loads evenly into both wythes of the panel and absorbs shear loads without spalling the concrete. The Sandwich Panel Erection Anchor is available in the sizes shown in the table and in plain or hot dip galvanize finish. The Sandwich Panel Erection Anchor requires proper reinforcement, as shown in the product sketch. Refer to Sandwich Panel Erection Anchor Reinforcement Details below.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59.

RL-15 SANDWICH PANEL ERECTION ANCHOR DATA								
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	Ultimate Mech. Load Tension (lbs)	Weight Per Piece (lbs)
4T/5T	5T	79217	4"	3 1/4"	2 1/16"	5/8"	32,000	1.95





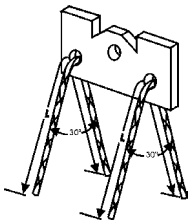


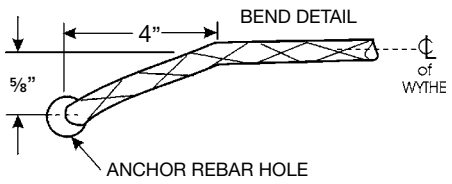
6" SANDWICH PANEL (2" X 2" X 2")			
Ring Clutch System	Tension (lbs)	Shear Parallel to Anchor Width SF = 2.66:1 (lbs)	Shear Perpendicular to Anchor Width SF = 4:1 (lbs)
4T/5T	6,500	1,125	3,750

The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.

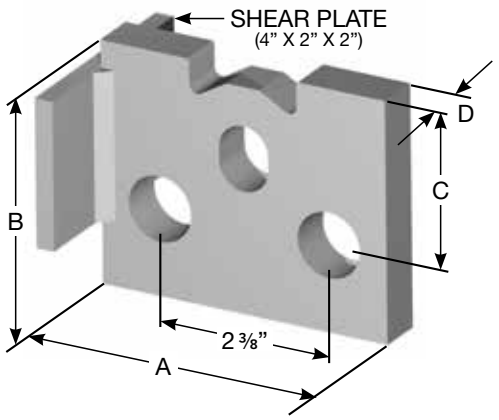
To Order, Specify: quantity, name, item number and finish.

SANDWICH PANEL ERECTION ANCHORS REINFORCEMENT DETAILS FOR RL-14 & RL-15								
Item Number	Ring Clutch System	Panel Thickness			Minimum Panel Thickness	Reinforcement Required		
		Bottom Wythe	Insulation	Top Wythe		Rebar Size & Length	Bend Required Bottom	Bend Required Top
79077	4T/5T	3"	2"	3"	8"	#3 X 2'-6"	NO	NO
79077	4T/5T	4"	2"	2"	8"	#3 X 2'-6"	NO	YES
79217	4T/5T	2"	2"	2"	8"	#3 X 7'-0"	YES	YES
79184	8T/10T	3"	2"	3"	8"	#5 X 3'-6"	NO	YES
79184	8T/10T	4"	2"	2"	8"	#5 X 3'-6"	NO	YES





Rapid Lift System Anchors

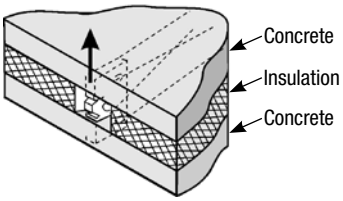


RL-16 SANDWICH PANEL ERECTION ANCHOR WITH PLATE
4-Ton and 8-Ton with 2" Insulation Thickness

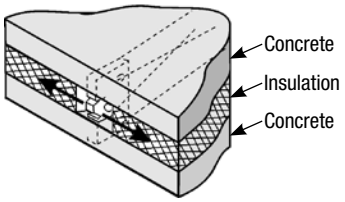
The RL-16 Sandwich Panel Erection Anchor with Plate is designed to effectively lift and handle 2" x 2" x 2" prestressed sandwich panels. Two shaped reinforcement bars distribute the tension stress evenly into both concrete wythes and the shear plate absorbs the shear stress without spalling the concrete. Refer to the reinforcement bar information shown below. The Sandwich Panel Erection Anchor with Plate is available in plain or hot dip galvanize finish.

See Ring Clutches on page 46, 47, and 48, the Recessing Members on 49, 50 and 53.

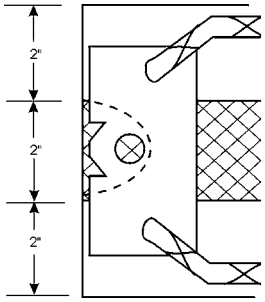
RL-16 SANDWICH PANEL ERECTION ANCHOR W/PLATE DATA								
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	Ultimate Mech. Load Tension (lbs)	Weight Per Piece (lbs)
4T/5T	5T	79220	4"	3 1/4"	2 1/16"	5/8"	32,000	2.38
8T/10T	10T	79184SP	6"	4 3/4"	3 3/8"	3/4"	64,000	5.2



Shear Parallel to Anchor



Shear Perpendicular to Anchor



6" SANDWICH PANEL (2" X 2" X 2")				
Ring Clutch System	Concrete Strength (psi)	Tension (lbs)	Shear Parallel to Anchor Width SF = 2.66:1 (lbs)	Shear Perpendicular to Anchor Width SF = 4:1 (lbs)
4T/5T	3,000	7,580	2,500	4,520
4T/5T	3,500	7,580	2,700	4,890
4T/5T	4,000	7,580	2,890	5,230

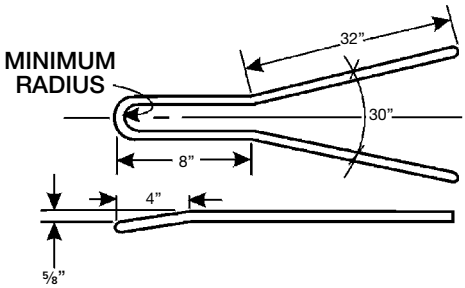
The 2.66:1 safety factor is commonly used for back stripping operations. Increased safety factor may be required for unusual live loads or cable magnification.

To Order, Specify: quantity, name, item number and finish.

Load Table				
Panel Thickness	Safety Factor	SWL Tension in 4,500 psi Concrete	SWL Shear Perpendicular to Anchor	SWL Shear Parallel to Anchor
4x2x2	4:1	16,000 lbs	10,500 lbs	3,450 lbs
3x2x3	4:1	16,000 lbs	9,400 lbs	2,950 lbs

RL-16 SANDWICH PANEL ERECTION ANCHORS W/ PLATE REINFORCEMENT DETAILS								
Item Number	Ring Clutch System	Panel Thickness			Minimum Panel Thickness	Reinforcement Required		
		Bottom Wythe	Insulation	Top Wythe		Rebar Size & Length	Bend Required Bottom	Bend Required Top
79220	4T/5T	2"	2"	2"	6"	#3 X 7'-0"	YES	YES
79184SP	8T/10T	3"	2"	3"	8"	#6 X 3'-6"	NO	NO

Reinforcement detail for 79217 & 79220



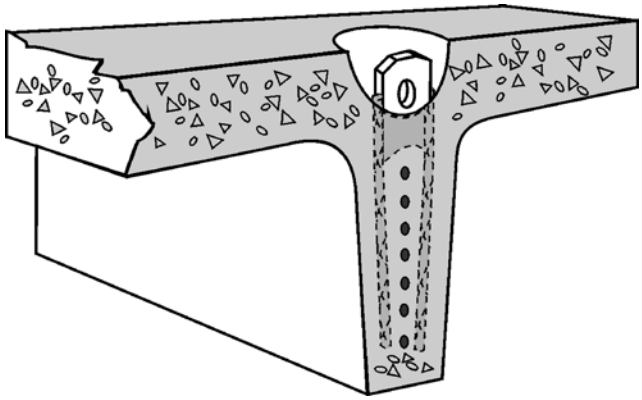
Rapid Lift System Anchors

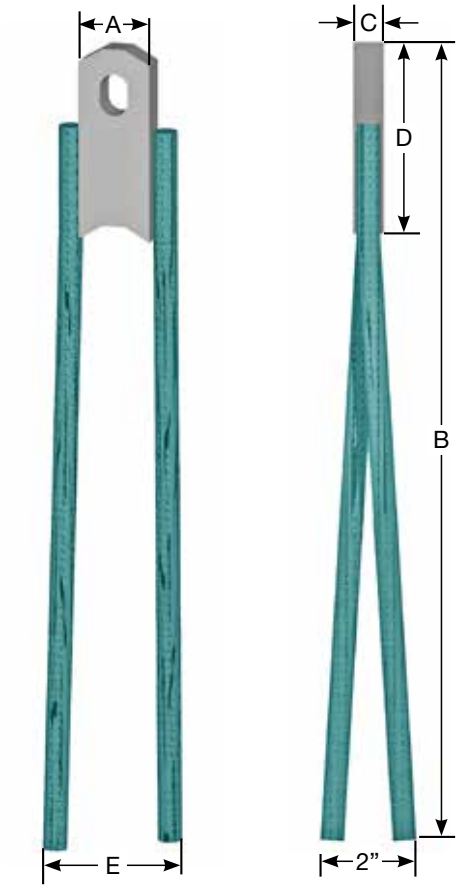
RL-61 DOUBLE-T ANCHOR
4-Ton, 8-Ton and 22-Ton

The RL-61 Double-T Anchor is designed mainly to lift and handle precast single or double tees, but can also be used effectively on columns, beams, girders, etc. The recessed anchor allows quick and easy finishing; no lifting strands to cut or burn off, only a simple patch of the recess. The Double-T Anchor is available in plain and hot dip galvanize finish. Refer to the table for standard sizes and safe working loads. Longer lengths are available on special order.

See Ring Clutches on page 52, 53, and 54, the Recessing Members on 55, 56 and 59.

Double-T Anchors are designed for use on 18" and deeper precast concrete Tee sections. Reference the table for standard sizes and dimensions. Longer legs can be provided on special order, but will not increase the allowable tension load of the anchor.





RL-61 RAPID LIFT DOUBLE-T ANCHOR DATA										
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	E	Allowable Tension Load 4:1 SF (lbs)	Ultimate Mechanical Load Tension (lbs)	Weight Per Piece (lbs)
4T/5T	5T	79132	1 ½"	15 ¾"	⅝"	4"	2 ¼"	8,000	32,000	3.00
8T/10T	10T	79126	2 ½"	22	¾"	4"	3 ¾"	16,000	64,000	7.00
8T/10T	10T	79126HC	2 ½"	22 ¼"	¾"	4"	3 ⅞"	20,000	80,000	7.00
22T/26T	26T	79179	3 ⅛"	22 ¼"	13⁄16"	5 ¾"	5 ⅛"	28,000	112,000	9.00

Tension values are based on 3,500 psi standard weight concrete.

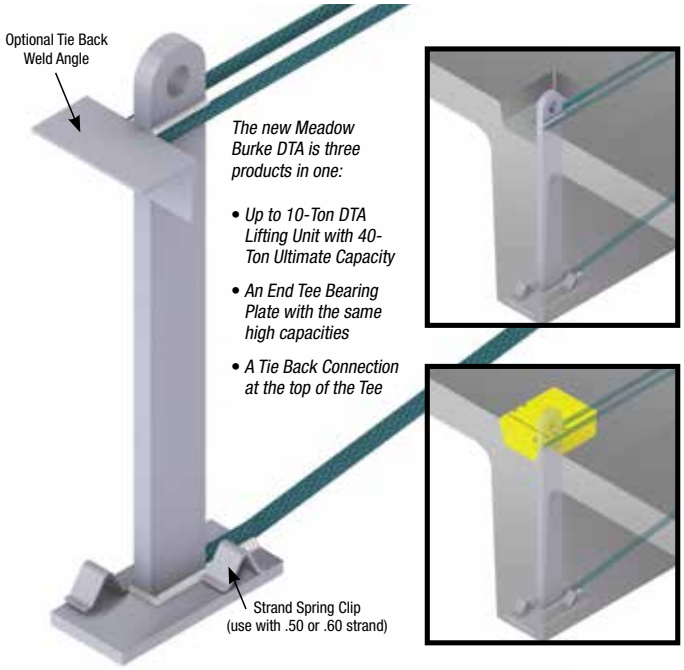
To Order, Specify: quantity, name, item number and finish.

Optional Bullet T-Caps are available in bulk for field assembly or can be ordered installed on the anchor. For factory installation, it must be specified when ordering the anchors.

Optional Bullet T-Cap
Item no. 79030

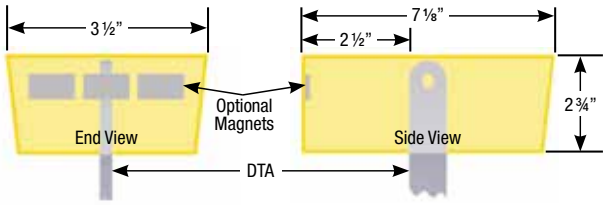
MB Double Tee Anchor

Double Tee 17 KIP and 20 KIP Anchor



DTA Recess Member and Accessories:

The DTA Recess Member is manufactured using durable reusable plastic. When installed, the recess locks into the DTA lift head eye opening, securing it in place during concrete placement. The DTA and recess assembly is positioned just below the top of the pour, allowing the finishing equipment to pass over without interference. To remove the recess, simply press down on the small lid section and open the large lid section. Then spread the locking fins away from the lifting head and lift out recess. The generous draft on the sides of the recess, facilitate easy removal.



DTA Recess Member Magnetic Option: the DTA Magnets can be added to aid in securing the recess to a steel bulkhead form. One, two or three magnets may be added depending on the conditions. These are permanent magnets that can be reused after the plastic recess requires replacement. Simply remove the magnets and insert into the new DTA Recess.

DOUBLE TEE ANCHOR ACCESSORIES		
PRODUCT DESCRIPTION	PRODUCT CODE	WEIGHT (LBS)
Plastic Recess Member (48 per box)	DTARM	32 (LBS)
DTA Magnet (20 per box)	1101173	1 (LBS)

The MB Double Tee Lifting Anchor (DTA) is a three in one solution for end bearing, lifting / erection and tie back connections.

- Bearing: The ½" base plate of the DTA is also used as a bearing plate for the double tee.
- Lifting: The DTA is capable of ultimate mechanical loads of 80,000# each, yielding 20,000# SWL.
- Tie-Back: The DTA lift head and the optional Weld Angle facilitates an easy and efficient tie-back connection. Custom angles available.

Additional Benefits:

- Standard and Custom Anchor Heights for any standard double tee or dapped tee.
- DTA Heights from 15.5" to 36" or more. Custom heights available.
- Full 80,000# ultimate all heights (Adequate tee end reinforcement design required – see test data).
- DTA is completely recessed below top of tee: easier pouring, storing and shipping.
- Self Draining recess is opened to the end of tee. End connections are also recessed.
- No cutting or patching: may be covered with a precast curb or grouted.
- May be used to lift beams, lintels and spandrels.

NOTE: Use with double row of strand only. For use with single row, convert to a stagger strand layout, by placing alternate stands on opposite sides of vertical lift plate of the DTA. To achieve the safe working load of the DTA, the double tee end must be properly reinforced to withstand loads from its own self-weight. A full test report is available online at *www.meadowburke.com/products/precast.aspx*

Compatible Ring Clutches

RL-35 RING CLUTCH 8 / 10 TONS		
ITEM #	PRODUCT DESCRIPTION	UNIT WEIGHT (LBS)
79003	8/10 Ton Ring Clutch	19.87

(see page 52)

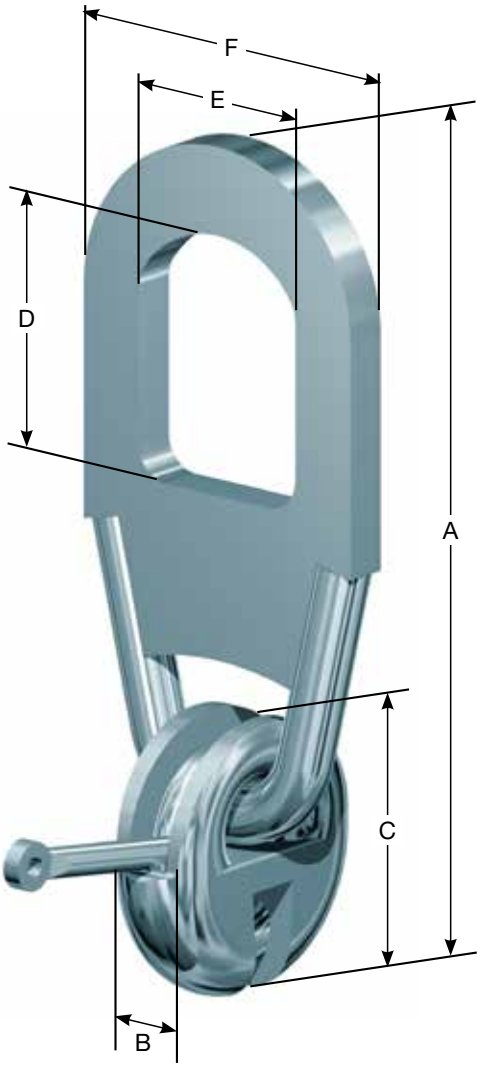
SUPER-LIFT III RING CLUTCH		
ITEM #	PRODUCT DESCRIPTION	UNIT WEIGHT (LBS)
45803	Super-Lift III Ring Clutch Assembly	14.06

(see page 54)

Rapid Lift System Ring Clutches

RL-35 RING CLUTCH
2/2.5-Ton, 4/5-Ton, 8/10-Ton and 22-Ton

The RL-35 Ring Clutch is an assembly consisting of a main clutch body, a curved bolt/handle and bail. The design of the ring clutch allows a full 360° rotation of the bail around the main body. The installation of the unit is quick and easy; simply rotate the curved bolt/handle to the open position, drop the main body into the anchor recess and rotate the bolt/handle to the closed position. See page 54 for ring clutch bolt. See page 18 for ring clutch maintenance information.



RL-35 RAPID LIFT RING CLUTCH DATA										
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	E	F	Weight Per Piece (lbs)	Clutch Capacity (ton)
2T/2.5T	2.5T	79001	10 7/16"	1 1/16"	3 1/8"	2 3/4"	2 1/4"	3 5/8"	3.65	2.5
4T/5T[1]	5T	79002	13"	1 7/16"	4 1/8"	3 3/16"	2 9/16"	4 1/2"	8.65	5
8T/10T**	10T	79003	16 3/4"	2"	5 15/16"	4 9/16"	3 9/16"	5 13/16"	19.87	10
22T/26T*[2]	26T	79170	23 7/8"	2 3/16"	8 1/4"	7 1/4"	4 3/4"	8 13/16"	55.0	22

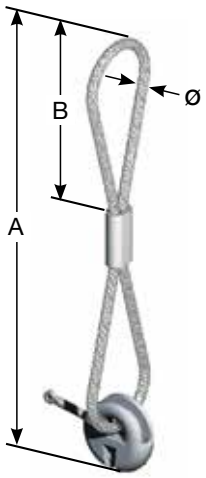
1. Super Lift II Ring Clutch may be used, if a longer handle is required.
2. Available on special order or limited to quantity on hand. Special orders take 8 to 10 weeks.
   ** May be used with DTA (Double Tee Anchor), page 45.
3. Clutch capacities are rated at a 5:1 safety factor; and apply only to clutches manufactured after 1/1/2000.

To Order, Specify: quantity, name and item number.

Rapid Lift System Ring Clutches

RL-38 CABLE RING CLUTCH
1-Ton, 2-Ton, 4-Ton and 8-Ton

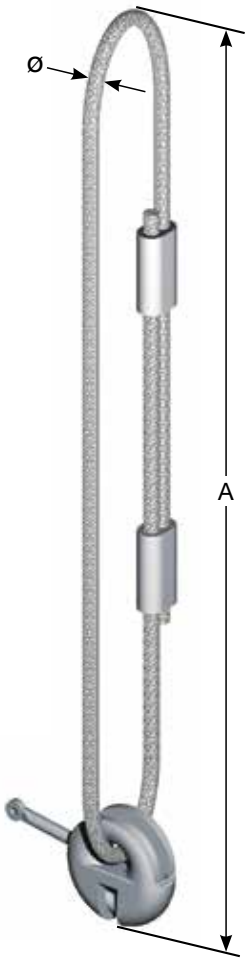
The RL-38 Cable Ring Clutch is identical in use to the standard ring clutch, but is fabricated with a wire cable bail for more versatility. It is often an effective answer for difficult lifting and rotation challenges. See page 21 and 22 for additional ring clutch installation information. See page 18 for ring clutch maintenance information.



RL-38 Cable Ring Clutch
1-Ton, 2-Ton, 4-Ton
and 8-Ton

RL-39 CABLE RING CLUTCH
22-Ton

The RL-39 Cable Ring Clutch is a heavy duty version of the cable ring clutch for use where high loads are present. See page 21 and 22 for additional ring clutch installation information. See page 18 for ring clutch maintenance information.



RL-39 Cable Ring Clutch
22-Ton

RL-38 & RL-39 CABLE RING CLUTCH DATA								
Item	Ring Clutch System	Clutch I.D.	Item Number	A	B	Cable Diameter Ø	Weight per Piece	Clutch Capacity (ton)
RL-38	1T	1.25T	79216	12½"	8¼"	8 mm	2.0 lbs	1
RL-38	2T	2.5T	79001CB	22"	11⅞"	14 mm	5.0	2
RL-38	4T	5T	79002CB	23⅜"	11¾"	18 mm	8.0	4
RL-38	8T	10T	79003CB	27¾"	12¾"	22 mm	19.0	8
RL-39*	22T	26T	79170CB	62"	N/A	32 mm	67.0	22

1. Available on special order or limited quantity on hand. Special orders take 8 to 10 weeks.
2. Not to be used with High Capacity System Anchors.
3. Clutch capacities are rated at a 5:1 safety factor.

To Order, Specify: quantity, name and item number.

Rapid Lift System Ring Clutches

RL-36 RING CLUTCH BOLT
1/1.25-Ton, 2/2.25-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-36 Ring Clutch Bolt is available for replacement purposes, when required. Refer to the table for size and item number. Refer to page 18 for additional ring clutch maintenance information.

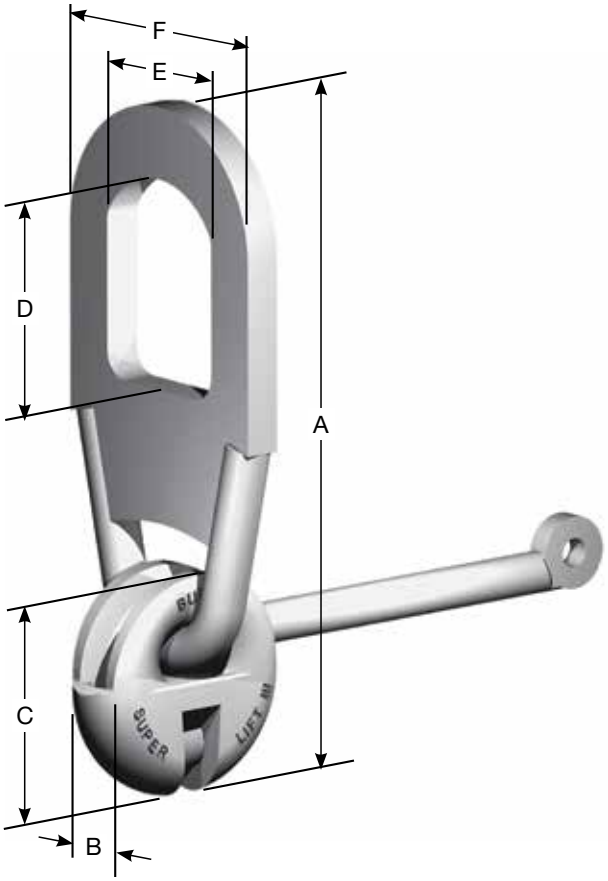
RL-36 RING CLUTCH BOLT DATA		
Nominal Anchor Load	Clutch I.D.	Item Number
1T/1.25T	1.25T	79165
2T/2.5T	2.5T	79005
4T & 5T	5T	79006
8T/10T	10T	79007
22T/26T	26T	79009

To Order, Specify: quantity, name and item number.

SUPER-LIFT III RING CLUTCH

The Super-Lift III Ring Clutch is an assembly consisting of a main clutch body, a curved bolt/handle and bail. It is very similar to the Rapid Lift Ring Clutch, but has a much longer handle. The installation of the unit is quick and easy; simply rotate the curved bolt/handle to the open position, drop the main body into the anchor recess and rotate the bolt/handle to the closed position. See pages 21 and 22 for additional ring clutch installation information. See page 18 for ring clutch maintenance information.

NOTE: May be used with DTA (Double Tee Anchors), page 51.



SUPER LIFT III RING CLUTCH										
Ring Clutch System	Clutch I.D.	Item Number	A	B	C	D	E	F	Unit Weight	Clutch Capacity
SL-III	22-Kip	45803	14"	1⅞"	5"	3⅜"	2¾"	5"	14.06	11 Ton

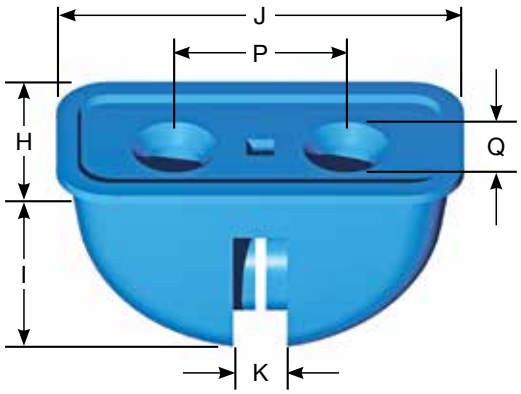
1. Clutch capacities are rated at a 5:1 safety factor.

To Order, Specify: quantity, name and item number.

Rapid Lift System Recessing Members

RL-40 RECESS MEMBER – 2 HOLE
1-Ton and 1.25-Ton only – Blue Color

The RL-40 Recess Member – 2 Hole is a reusable plastic unit furnished for use with the 1-Ton Rapid Lift. Erection methods are designed for architectural precasters. As with all Recess Members, it functions to attach the anchor to the form, protect the anchor recess during concrete placement and form a void to allow the lifting clutch to engage the head of the anchor. See page 18 for typical recess member installation and stripping information.

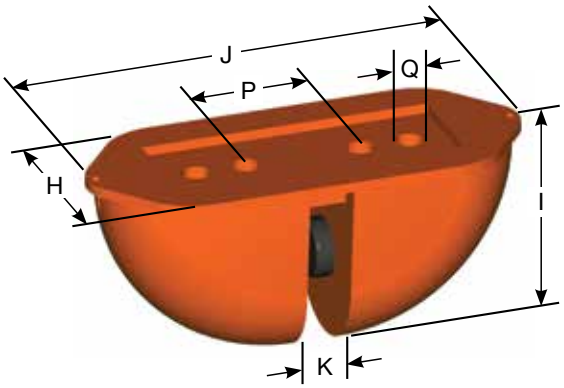


To Order, Specify: quantity, name and item number.

RL-40 RECESS MEMBER - 2 HOLE										
Ring Clutch System	Clutch I.D.	Item Number	Recess Color	H	I	J	K	P	Q	Weight Per Piece (lbs)
1T/1.25T	1.25T	79056	Blue	1 1/8"	1 3/8"	2 3/8"	1/4"	1"	8 mm	0.1

RL-45 RECESS MEMBER – 4 HOLE
2/2.25-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-45 Recess Member – 4 Hole is the standard reusable plastic recess plug used in most Rapid Lift applications. Refer to the table for sizes and color-coding. Note that the 2-Ton narrow (Red) recess member is for use only with the 2-Ton Spread Anchor and the 2-Ton Flat Foot Anchor. See page 18 for typical recess member installation and stripping information.



RL-45 RECESS MEMBER - 4 HOLE										
Ring Clutch System	Clutch I.D.	Item Number	Recess Color	H	I	J	K	P	Q	Weight Per Piece (lbs)
2T/2.5T	2.5T	79200	Yellow	1 11/16"	1 3/4"	4 1/16"	3/8"	1 3/16"	10 mm	0.18
2T/2.5T[2]	2.5T	79051	Red	1 11/16"	1 3/4"	4 1/16"	3/16"	1 3/16"	10 mm	0.19
4T/5T	5T	79062	Orange	2 1/16"	2 5/16"	5 3/16"	5/8"	1 11/32"	10 mm	0.44
8T/10T	10T	79121	Green	3 1/8"	3 5/16"	7 13/32"	3/4"	1 31/32"	12 mm	1.43
22T/26T[1]	22T	79166	Blue	4 9/16"	4 5/8"	9 3/16"	1"	2 3/4"	12mm/16mm	3.96

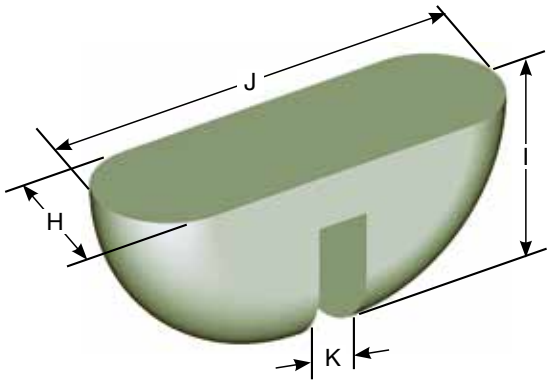
1. Available on special order or limited quantity on hand.
2. Use with the 2-Ton Spread Anchor (79050), 2-Ton Flat Foot Anchors (79052) and (79053).

To Order, Specify: quantity, name and item number.

Rapid Lift System Recessing Members

RL-50 RECESS MEMBER – DISPOSABLE
4/5-Ton and 8-Ton/10-Ton

The RL-50 Recess Member-Foam is available for use with the 4/5 and 8/10-Ton Rapid Lift applications and is simply nailed in place on the form.

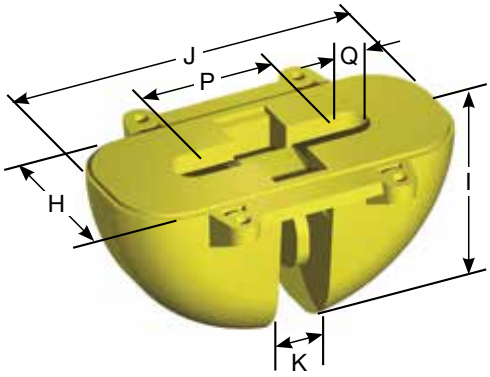


RL-50 FOAM DISPOSABLE RECESS MEMBER
4/5-Ton and 8/10-Ton

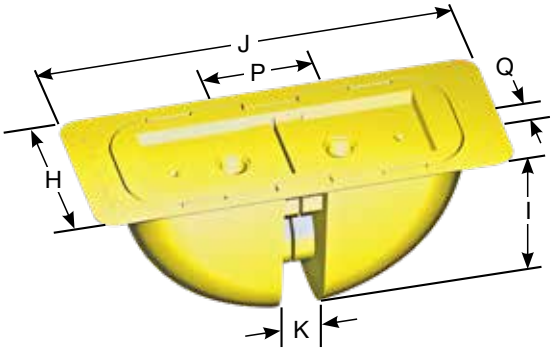
RL-50 FOAM DISPOSABLE RECESSING MEMBER DATA							
Ring Clutch System	Clutch I.D.	Item Number	H	I	J	K	Weight Per Piece (lbs)
4T/5T	5T	79767	1¾"	2⅜"	4¼"	⅝"	0.05
8T/10T	10T	79768	2¼"	3¼"	6½"	¾"	0.08

RL-53 RECESS MEMBER – DISPOSABLE
2/2.5-Ton, 4/5-Ton and 8/10-Ton

The RL-53 Recess Member – Disposable is available for use with the 2/2.5, 4/5 and 8/10-Ton Rapid Lift applications. 8/10 ton plastic disposable recess members utilize a ⅜" diameter coil nut embedded in the member for attachment purposes.



RL-53 Plastic Disposable Recess Member
2/2.5-Ton & 4/5-Ton



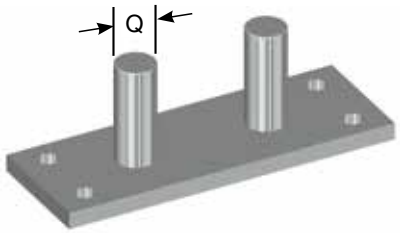
RL-53 Plastic Disposable Recess Member
8/10-Ton with ⅜" coil attachment nut and magnetic holding plate.

RL-53 PLASTIC DISPOSABLE RECESSING MEMBER DATA										
Ring Clutch System	Clutch I.D.	Item Number	Recess Color	H	I	J	K	P	Q	Weight Per Piece (lbs)
2T/2.5	2.5T	79066	Yellow	2"	1½"	3 5⁄16"	⅜"	1½"	5⁄16"	0.13
4T/5T*	5T	79067	Yellow	2½"	2¼"	4 5⁄16"	⅝"	1 1⁄32"	½"	0.20
4T/5T	5T	79065	Yellow	2⅞"	2"	4¼"	⅝"	N/A	N/A	0.30
8T/10T	10T	79063	Yellow	3⅛"	3¼"	7⅞"	13⁄16"	1 31⁄32"	½"	0.47

*Use with erection head anchors and tech erection anchors.

To Order, Specify: quantity, name and item number.

Rapid Lift System Accessories



RL-46 HOLDING PLATE
1/1.25-Ton, 2/2.25-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-46 Holding Plate can be used in various ways to attach and firmly hold a recess member to the form. It can be nailed or screwed to the form utilizing the furnished holes in the plate. For a permanent, reusable application involving metal forms, the holding plate can be welded in place. For a quick once-off application, the holding plate can be held in place with a good commercial grade double-back tape.

Centering it over the protruding pins of the holding plate and sliding the recess member onto the pins, easily accomplishes recess member installation. See additional installation and stripping information on pages 18 and 19.

RL-46 HOLDING PLATE DATA				
Ring Clutch System	Clutch I.D.	Item Number	Q	Weight Per Piece
1T/1.25	1.25T	79162	8 mm	0.15 lbs
2T/2.5	2.5T	79160	10 mm	0.16
4T/5T	5T	79144	10 mm	0.26
8T/10	10T	79111	12 mm	0.60
22T/26T	22T	79177	16 mm	1.30

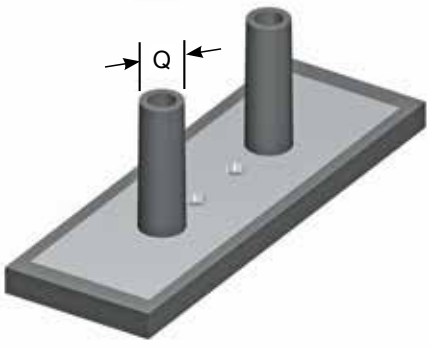
To Order, Specify: quantity, name and item number.

RAPID LIFT HOLDING PLATE – MAGNETIC
8/10-Ton

The Holding Plate – Magnetic is available to quickly set and securely hold a Rapid Lift anchor in a metal form without hole drilling or welding.

RAPID LIFT HOLDING PLATE - MAGNETIC					
Ring Clutch System	Clutch I.D.	Item Number	Q	Material	Weight (lbs)
8T/10	10T	79188	⅜"	Steel	0.5

To Order, Specify: quantity, name and item number.



Rapid Lift System Accessories

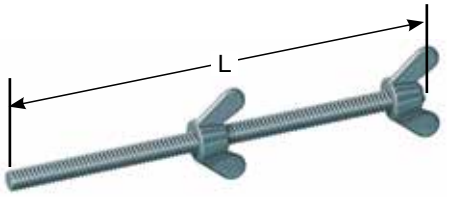
RAPID LIFT BOLTS/WING NUTS

The Rapid Lift System provides various types of attachment bolts for attaching recess members to the form. Selection depends on application and/or personal preference.

RL-47 L-Rod Style is available for use with 1/1.25, 2/2.5, 4/5, 8/10 and 22/26-Ton plastic recess members. It functions much the same as the wing nut style above, but utilizes an "L" shaped handle to thread the unit. Refer to the table for applicable thread size.

RL-47

RL-48 Wing Nut Style Bolt is available for use with 1/1.25, 2/2.5, 4/5, 8/10 and 22/26-Ton plastic recess members. It is installed by inserting the bolt through the form and threaded into the recess member. It also draws the recess member tight to the form utilizing the free-running wing nut. Refer to the table for applicable thread size.



RL-48

RL-47 & RL-48 L-ROD/BOLT & WING NUT ASSEMBLY					
Ring Clutch System	Clutch I.D.	Item Number	L	D	Weight Per Piece (lbs)
1T/1.25	1.25T	79022	6 3/8"	8 mm	0.15
2T/2.5	2.5T	79202	5 7/8"	3/8" Coil	0.50
4T/5T	5T	79202	5 7/8"	3/8" Coil	0.50
8T/10	10T	79404	5 7/8"	12 mm	0.50
22T/26T	22T	79088	6 9/16"	16mm	0.86

To Order, Specify: quantity, name and item number.

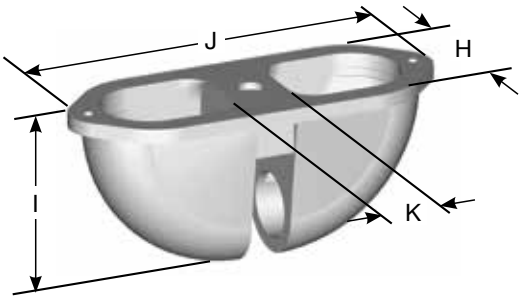
RL-49 BAYONET STYLE BOLT is available for use with 2/2.5, 4/5, 8/10and 22/26-Ton plastic recess members. It is installed by inserting the bolt through the form into the back of the recess member. It is given a 90° turn with the fixed wing nut at the end of the bolt and the recess member is drawn tight to the form with the free-running wing nut. Refer to the table for applicable thread size.

RL-49

RL-49 BOLT & WING NUT BAYONET ASSEMBLY					
Ring Clutch System	Clutch I.D.	Item Number	L	D	Weight Per Piece (lbs)
2T/2.5	2.5T	79102	6"	8 mm	0.18
4T/5T	5T	79102	6"	8 mm	0.18
8T/10	10T	79129	6 5/8"	12 mm	0.50
22T/26T	22T	79129	6 5/8"	12 mm	0.50

To Order, Specify: quantity, name and item number.

Rapid Lift System Recessing Members



RL-55 RECESS MEMBER – STEEL
2/2.5-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-55 Recess Member – Steel is designed for high re-use applications and/or where heavy pressure and temperatures are encountered. Replacement wedges and foam strips are available, see below. See typical installation and stripping information on page 20.

RL-55 RAPID LIFT STEEL/IRON RECESSING MEMBERS

Ring Clutch System	Clutch I.D.	Item Number	H	I	J	K	Weight Per Piece (lbs)
2T/2.5	2.5T	79078	1 7/16"	1 11/16"	4"	½" Coil	0.69
4T/5T	5T	79100	1 7/8"	2 1/4"	4 15/16"	½" Coil	1.25
8T/10	10T	79015	2 3/4"	3 1/4"	7 1/4"	16 mm	3.50
22T/26T	22T	79171	4 ½"	4 3/4"	8 7/8"	16 mm	13.0

To Order, Specify: quantity, name and item number.

RL-57 STEEL RECESS MEMBER WEDGE
2/2.5-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-57 Wedge is available when replacement is required. It is used in conjunction with the steel recess member to firmly capture and hold the anchor in the recess member. See data below.

RL-57 RECESS MEMBER WEDGE DATA

Ring Clutch System	Clutch I.D.	Item Number	Weight Per Piece (lbs)
2T/2.5	2.5T	79017	0.13
4T/5T	5T	79084	0.38
8T/10	10T	79085	0.94
22T/26T	22T	79173	2.16

To Order, Specify: quantity, name and item number.

RL-59 STEEL RECESS MEMBER FOAM STRIP
2/2.5-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The RL-59 Foam Strip is available in bulk for use in conjunction with the steel recess member. Refer to page 14 for additional steel recess member installation information. Packaged and sold in carton lots only.

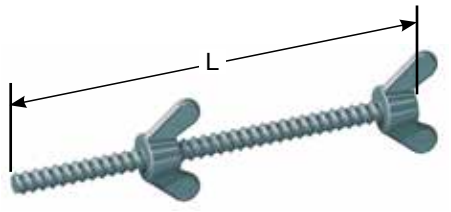
RL-59 RECESS MEMBER FOAM STRIP DATA

Ring Clutch System	Clutch I.D.	Item Number	Pkg./Ctn.	Weight Per Package (lbs)
2T/2.5	2.5T	79087	1000	5.00
4T/5T	5T	79069	1000	5.00
8T/10	10T	79091	500	10.00
22T/26T	22T	79175	100	20.00

To Order, Specify: quantity, name and item number.

Rapid Lift Bolts/Wing Nuts

RL-58 Wing Nut Coil Bolt is used with 2/2.5, 4/5, 8/10 and 22/26-Ton steel recess members. It functions the same as the wing nut bolt above. Refer to the table on the following page for applicable thread size.



RL-58

RL-58 COIL BOLT & BOLT WING NUT ASSEMBLY					
Ring Clutch System	Clutch I.D.	Item Number	L	D	Weight Per Piece (lbs)
2T/2.5	2.5T	79131	5 ¾"	½" Coil	0.50
4T/5T	5T	79131	5 ¾"	½" Coil	0.50
8T/10	10T	79088	6 9⁄16"	16 mm	0.50
22T/26T	22T	79088	6 9⁄16"	16 mm	0.86

To Order, Specify: quantity, name and item number.

RAPID LIFT PRECAST PATCH
2/2.5-Ton, 4/5-Ton and 8/10-Ton

The Precast Patch is designed as a simple alternative to patching the recess formed by the anchor void. The plastic patch installs quickly and gives a long-lasting seal with a matte finish, in case painting is required. One size fits all, Item Number – 45612.

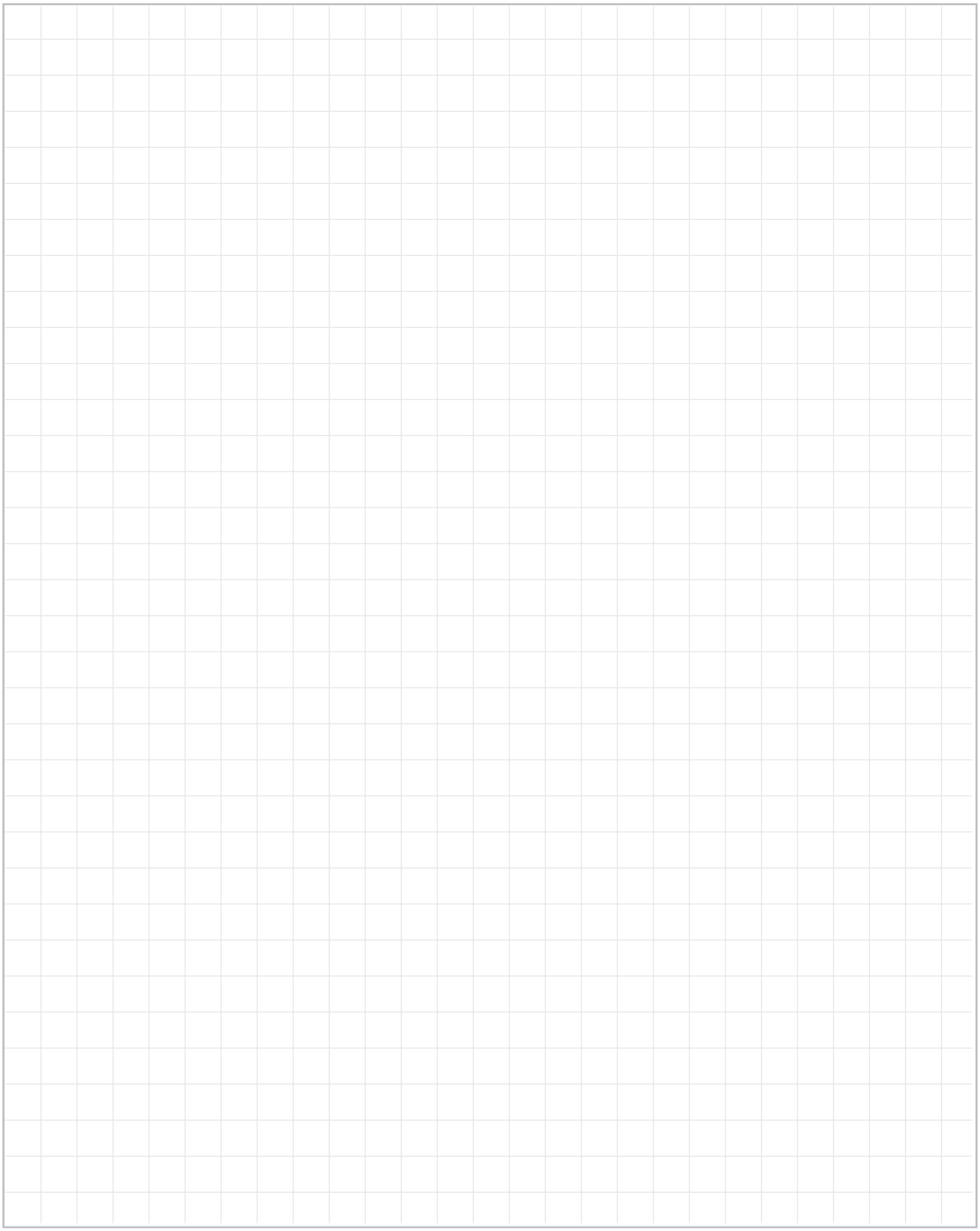
To Order, Specify: quantity, name and item number.

RAPID LIFT SEALING COVER
2/2.5-Ton, 4/5-Ton, 8/10-Ton and 22/26-Ton

The Rapid Lift Sealing Cover is a strong, lightweight plug available as a temporary cover for cast in place Rapid Lift anchors.

RAPID LIFT SEALING COVER	
2T/2.5	79031
4T/5T	79032
8T/10	79033
22T/26T	79178

To Order, Specify: quantity, name and item number.



MB DogBone® Lifting System

The Meadow Burke DogBone Lifting System is a quality system designed to lift and handle the concrete elements quickly, safely and economically. This versatile system offers effortless lifter to anchor attachment and disconnect in a wide range of capabilities.

MB DogBone System Technical Information

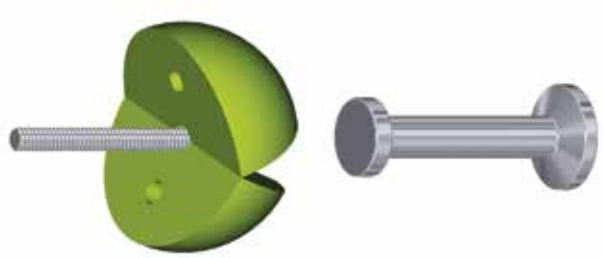
LIFTING BODY/CLUTCH MAINTENANCE

Meadow Burke recommends that users of the DogBone System schedule regular inspections to determine the safe usability of the lifting units. If any factor is present that may affect or compromise the safety performance of the unit, such as excess wear, overloading, misuse, alteration, application of heat, etc., the unit must be serviced or permanently removed from service. Under no circumstance should the unit be modified, heated, welded or filed.

Do not attempt to straighten a bent eye link. Bent eye links should be replaced with a new eye link and new pivot pin. Replacement parts are available through your nearest Meadow Burke office.

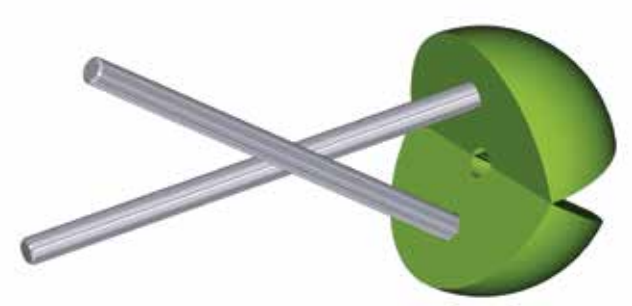
ASSEMBLING THE DOGBONE PLASTIC RECESS FORMER AND ANCHOR

Recess formers and anchors can easily be assembled. Simply squeeze the recess former across the flat surface to open the recess former in a clamshell effect. Insert the anchor into the opening and release the pressure on the recess former. This allows the recess former to close around the head of the anchor and securely hold it in place.



DOGBONE PLASTIC RECESS FORMER STRIPPING

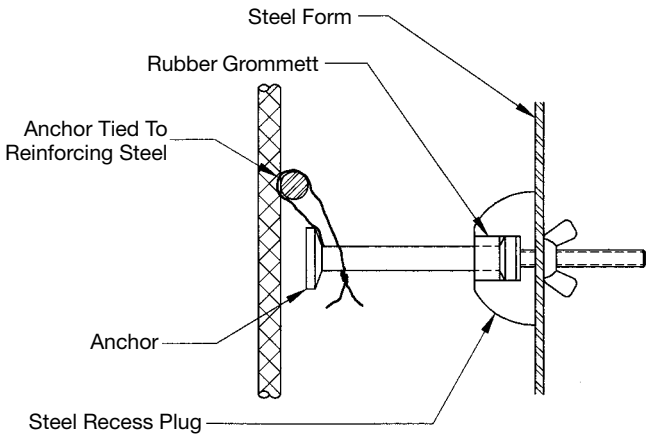
Once the form has been removed to expose the recess former, insert two small rods or two screw drivers into the two holes provided in the recess former. A scissoring action with the two implements will lift one side of the recess former. Grasp the lifted side of the recess former and pull the unit out of the concrete.



MB DogBone System Technical Information

SETTING THE ANCHOR/RECESS FORMER ASSEMBLY

Run the recess former bolt through a properly placed drilled hole in the form. Draw the recess former bolt tight to the form with a free-running wing nut. The exposed end of the anchor can be tied to the rebar mat or supported by a rebar support.



LIFTING CLUTCH INSTALLATION

Anchor attachment – Turn the lifting clutch upside down, positioned and centered over the head of the anchor. Drop the lifting clutch down into the void formed by the recess former. Rotate the lifting unit around the head of the anchor until the unit contacts the surface of the concrete. Installation is complete, ready to lift.

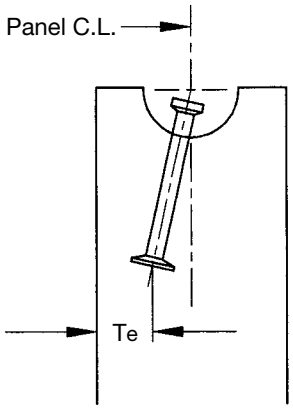
BAIL POSITIONING – Always position the lifting cable directly over the lifting clutch to avoid alignment problems.

MB DogBone System Technical Information

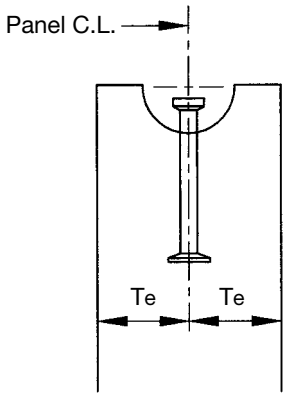
MB DOGBONE ANCHORS USED IN THIN WALL SECTIONS

Care must be taken when locating anchors in thin wall sections. Improper installation and/or misalignment can seriously reduce the safe working load of the anchor. A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

- Anchors must be positioned on the centerline of the panel.
- Use rebar supports, spacers or tie the anchor to the rebar mat to make certain of proper positioning.

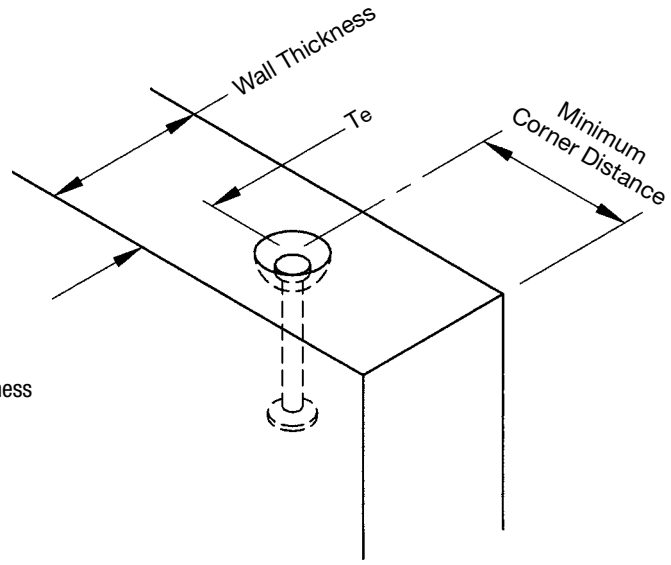


This sketch shows a misaligned, improperly positioned anchor. The actual edge distance (Te) is considerably reduced so there must be a corresponding reduction in the safe working load of the anchor.



This sketch shows proper positioning of the anchor on the centerline of the panel. This allows the full wall thickness to be used in the safe working load selection.

The sketch below shows an anchor application and corner relationship. Safe working loads for indicated corner distances are displayed in the following table.



Te = Actual Edge Thickness
(½ Wall Thickness)

MB DogBone System Anchors

DB 52 MB DOGBONE ANCHOR
1-Ton, 2-Ton, 4-Ton, 6-Ton, 8-Ton, 12-Ton and 16-Ton in Face Lift Applications

All DB-52 DogBone Anchors are manufactured from high quality, high strength steel. They are continually tested at a specified sampling rate during production and each anchor head is clearly marked with its safe working load.

The accompanying table shows standard anchor sizes and safe working loads in various concrete strengths. Note that in some cases the anchor does not reach full capacity in the lower strength concretes. This is an important consideration when selecting the proper anchor application. In general, concrete strengths of 2,100 psi to 3,500 psi are necessary to develop stated anchor safe working loads. The safe working loads displayed in the table applies for any directional loading. Loading on the anchor can be perpendicular, horizontal or any angle in between. Only available in hot-dipped galvanized.

DB-52 MB DOGBONE ANCHOR CAPACITIES WHEN USED IN FACE OF FLAT SLAB

Anchor Size	Concrete Strength				Edge Distance Tension (in)	Edge Distance Shear (in)
	1500 PSI	2500 PSI	3500 PSI	5000 PSI		
1T x 2 ½	1600	2000	2000	2000	5	12
1T x 3 ⅜	1900	2000	2000	2000	7	12
1T x 4 ¾	2000	2000	2000	2000	10	12
2T x 2 ³⁄₁₆	1550	1900	2350	2800	5	12
2T x 3 ⅜	2100	2700	3250	3900	7	12
2T x 4 ¾	3250	4000	4000	4000	10	15
2T x 5 ½	4000	4000	4000	4000	11	17
2T x 6 ¾	4000	4000	4000	4000	11	17
2T x 11	4000	4000	4000	4000	11	17
4T x 3 ¾	2550	3250	3950	4700	8	12
4T x 4 ¼	3000	3850	4550	5450	9	13
4T x 4 ¾	3650	4700	5600	6700	10	15
4T x 5 ½	4550	5850	6950	8000	11	17
4T x 7 ⅛	6900	8000	8000	8000	15	22
4T x 9 ½	8000	8000	8000	8000	19	29
4T x 13 ⅜	8000	8000	8000	8000	19	29
8T x 4 ¾	4050	5200	6200	7450	10	15
8T x 6 ¾	7000	9000	10,750	12,850	14	21
8T x 8 ½	9300	12,000	14,250	16,000	15	24
8T x 10	11,450	14,750	16,000	16,000	20	30
8T x 13 ⅜	16,000	16,000	16,000	16,000	27	41
16T x 9 ⅞	11,750	15,150	17,950	21,500	20	30
16T x 19 ⅝	32,000	32,000	32,000	32,000	40	48

1. All safety factors are approx. 4:1.
2. No safety factors in this table have been reduced to achieve higher working loads.
3. 16 ton SWL are at full 4:1 safety factors in compliance with ACI 347 and OSHA. Complies with ASTM-572.
4. Minimum corner distance = 1.5* edge distance for shear loaded towards the edge.

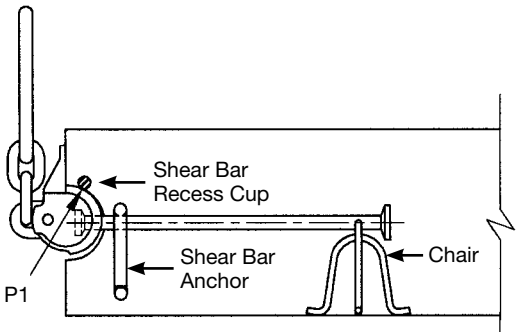
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

To order, specify: quantity, name, item number and finish.

MB DogBone System Anchors

DB-52 DOGBONE ANCHOR EDGE LIFT APPLICATIONS

In edge lift applications the DogBone Anchor must be used in combination with two properly installed shear bars. The shear bars (anchor and cup) transfer a portion of the shear stress back into the anchor and into the concrete panel. Note: in this application the sling angle must be perpendicular to the surface of the concrete.



DB-52 MB DOGBONE ANCHOR CAPACITIES WHEN USED IN FACE OF FLAT SLAB					
Anchor Size	Min. Anchor Length	Min. Wall Thickness	Top Edge Distance (T^E)[2]	Min. Corner Distance	Shear SWL 4:1 Safety Factor[1]
2T	6 ¾	4	2 ½	18	3000
	6 ¾	5	3	24	3200
	6 ¾	6	3 ½	24	3500
4T	9 ½	6	3 ½	24	3500
	9 ½	7	4	24	4000
8T	13 ⅜	7	4	24	4500
	13 ⅜	8	4 ½	24	5000

[1]Minimum concrete strength at 4000 psi.
[2]See above for proper anchor location and required reinforcing.
A minimum concrete coverage underneath the foot of the anchor of 1” has to be established in order to achieve the published values.

SINGLE DOGBONE ANCHOR TENSILE CAPACITIES IN THIN WALL SECTIONS

DB-52 1-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	8 Inches	12 Inches	18 Inches	24 Inches	30 Inches
1 Ton X 4 ¾”	2 ½”	1 ¼”	1000 lbs	1200 lbs	1300 lbs	1300 lbs	1300 lbs
	2 ¾”	1 ⅜”	1100	1300	1400	1400	1400
	3”	1 ½”	1200	1400	1600	1600	1600
	3 ½”	1 ¾”	1400	1700	1800	1800	1800
	4”	2”	1600	1900	2000	2000	2000
	4 ½”	2 ¼”	1800	2000	2000	2000	2000

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1” has to be established in order to achieve the published values.

DB-52 2-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	6 Inches	12 Inches	18 Inches	24 Inches	30 Inches
2 Ton X 6 ¾”	3”	1 ½”	1700 lbs	1800 lbs	2000 lbs	2200 lbs	2200 lbs
	3 ¼”	1 ⅝”	1900	2000	2200	2400	2400
	3 ½”	1 ¾”	2000	2200	2400	2600	2600
	4”	2”	2300	2500	2700	3000	3000
	5”	2 ½”	2900	3100	3400	3700	3700
	6”	3”	3500	3700	4000	4000	4000
2 Ton X 11”	3”	1 ½”	2100	2700	2900	3100	3100
	3 ¼”	1 ⅝”	2300	2900	3200	3400	3400
	3 ½”	1 ¾”	2500	3200	3400	3600	3600
	4”	2”	2900	3600	3900	4000	4000
	5”	2 ½”	3600	4000	4000	4000	4000
	6”	3”	4000	4000	4000	4000	4000

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1” has to be established in order to achieve the published values.

MB DogBone System Anchors

DB-52 SINGLE DOGBONE ANCHOR TENSILE CAPACITIES IN THIN WALL SECTIONS (CONT.)

DB-52 4-TON & 8-TON TENSILE CAPACITY (cont.)

DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	10 Inches	15 Inches	20 Inches	24 Inches	30 Inches
4 Ton X 9 ½"	3 ¾"	1 ⅞"	2900 lbs	3200 lbs	3400 lbs	3500 lbs	3800 lbs
	4"	2"	3100	3400	3600	3600	4000
	5"	2 ½"	3600	4300	4600	4800	5100
	6"	3"	4600	5200	5500	5700	6100
	7"	3 ½"	5400	6000	6400	6700	7200
	8"	4"	6200	6900	7300	7600	8000
4 Ton X 13 ⅜"	3 ¾"	1 ⅞"	3300	4200	4400	4500	4800
	4"	2"	3500	4500	4700	4900	5100
	5"	2 ½"	4400	5600	5900	6100	6400
	6"	3"	5300	6800	7100	7400	7700
	7"	3 ½"	6200	7900	8000	8000	8000
	8"	4"	7100	8000	8000	8000	8000
8 Ton X 6 ¾"	4 ¾"	2 ⅜"	3000	3300	3600	3700	3700
	5"	2 ½"	3200	3500	3800	3900	3900
	6"	3"	3800	4200	4600	4700	4700
	7"	3 ½"	4500	4900	5400	5500	5500
	8"	4"	5100	5600	6100	6200	6200
	10"	5"	6300	6900	7500	7700	7700

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

DB-52 8-TON & 16-TON TENSILE CAPACITY

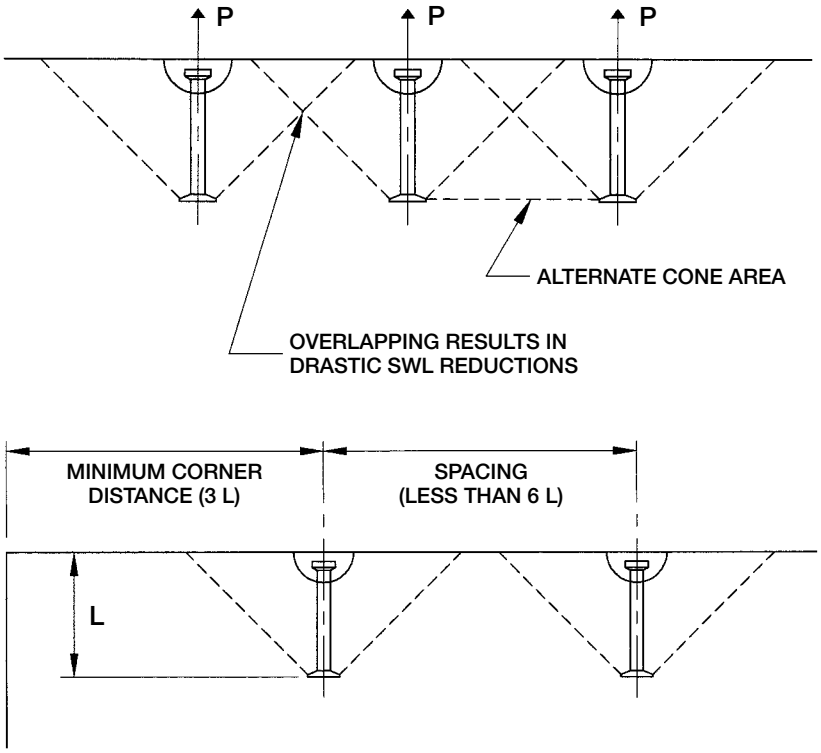
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	12 Inches	18 Inches	24 Inches	36 Inches	45 Inches
8 Ton X 13 ⅜"	5"	2 ½"	4800 lbs	5800 lbs	6100 lbs	6700 lbs	7200 lbs
	6"	3"	5800	7000	7400	8100	8700
	7"	3 ½"	6800	8200	8600	9500	10,200
	8"	4"	7800	9300	9900	10,900	11,700
	10"	5"	9800	11,700	12,300	13,600	14,600
	12"	6"	11,700	13,900	14,700	16,000	16,000
16 Ton X 9 ⅞"	6 ½"	3 ¼"	5000	6000	6400	7200	7200
	7"	3 ½"	6000	6500	6900	7700	7800
	8"	4"	6500	7400	7900	8900	9000
	10"	5"	8500	9300	9900	11,200	11,200
	12"	6"	10,000	11,100	11,900	13,300	13,400
	14"	7"	11,500	12,600	13,700	15,400	15,400
16 Ton X 19 ⅝"	6 ½"	3 ¼"	7000	9000	10,500	11,500	12,200
	7"	3 ½"	8000	10,000	11,500	12,500	13,200
	8"	4"	9200	11,200	13,000	14,400	15,100
	10"	5"	11,500	14,300	16,000	18,000	19,000
	12"	6"	14,000	17,300	20,000	21,500	22,800
	14"	7"	16,200	20,200	23,000	25,000	26,600

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

MB DogBone System Anchors

MULTIPLE MB DOGBONE ANCHORS TENSILE CAPACITIES IN THIN WALL SECTIONS

When multiple anchors are placed in a thin wall panel, caution must be exercised to prevent the anchor shear cone planes from overlapping. If overlapping is unavoidable, the anchor safe working load must be reduced. If a spacing of six times the length of the anchor, or more, is maintained the anchor shear cones will not overlap and maximum tensile capacities can be achieved. Reference the following table.



CONCRETE REDUCTION FACTORS

All safe working loads shown in this section are based on 4,500 psi strength concrete. For use in lower strength concrete apply the appropriate reduction factor.

Multiply the calculated values from the following table by the appropriate reduction factor to arrive at the proper safe working load for the lower strength concrete.

CONCRETE REDUCTION FACTORS DATA		
Concrete Strength		Reduction Factors
PSI	MPa	
4500	31	1.00
4000	28	.94
3500	24	.88
3000	21	.82
2500	17	.74
2000	14	.66

MB DogBone System Anchors

DB-52 MULTIPLE MB DOGBONE ANCHORS TENSILE CAPACITIES IN THIN WALL SECTIONS (CONT.)

DB-52 1-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	12 Inches	18 Inches	24 Inches	30 Inches	36 Inches
1 Ton X 4 ¾"	2 ½"	1 ¼"	800 lbs	900 lbs	1100 lbs	1200 lbs	1300 lbs
	2 ¾"	1 ⅜"	900	1000	1200	1400	1400
	3"	1 ½"	1000	1100	1300	1500	1600
	3 ½"	1 ¾"	1100	1300	1500	1700	1800
	4"	2"	1300	1500	1800	2000	2000
	4 ½"	2 ¼"	1400	1700	2000	2000	2000

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

DB-52 2-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	18 Inches	24 Inches	30 Inches	36 Inches	48 Inches
2 Ton X 6 ¾"	3"	1 ½"	1400 lbs	1500 lbs	1700 lbs	1900 lbs	2200 lbs
	3 ¼"	1 ⅝"	1500	1700	1900	2100	2400
	3 ½"	1 ¾"	1600	1800	2000	2200	2600
	4"	2"	1900	2100	2300	2600	3000
	5"	2 ½"	2300	2600	2900	3200	3700
	6"	3"	2800	3200	3500	3800	4000
2 Ton X 11"	3"	1 ½"	1400	2100	2300	2400	2800
	3 ¼"	1 ⅝"	1600	2300	2500	2600	3000
	3 ½"	1 ¾"	1700	2500	2700	2800	3200
	4"	2"	1900	2800	3000	3300	3700
	5"	2 ½"	2400	3600	3600	4000	4000
	6"	3"	2900	4000	4000	4000	4000

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

DB-52 4-TON & 8-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	18 Inches	24 Inches	36 Inches	48 Inches	60 Inches
4 Ton X 9 ½"	3 ¾"	1 ⅞"	1800 lbs	2400 lbs	2800 lbs	3200 lbs	3700 lbs
	4"	2"	1900	2600	3000	3500	3900
	5"	2 ½"	2400	3300	3800	4400	5000
	6"	3"	2900	3900	4600	5200	6000
	7"	3 ½"	3400	4600	5200	6100	7000
	8"	4"	3900	5200	6100	7000	8000
4 Ton X 13 ⅜"	3 ¾"	1 ⅞"	1700	2400	3400	3800	4300
	4"	2"	1800	2600	3700	4100	4600
	5"	2 ½"	2200	3300	4600	5200	5700
	6"	3"	2700	4000	5600	6200	6900
	7"	3 ½"	3200	4600	6500	7300	8000
	8"	4"	3600	5300	7500	8000	8000
8 Ton X 6 ¾"	4 ¾"	2 ⅜"	2400	2600	3100	3700	3900
	5"	2 ½"	2900	3200	3800	4500	4700
	6"	3"	3400	3700	4400	5300	5500
	7"	3 ½"	3800	4200	5100	6000	6200
	8"	4"	4700	5200	6200	7400	7700
	10"	5"	5100	5700	6800	8000	8300
8 Ton X 13 ⅜"	5"	2 ½"	2100	3200	4600	5100	5700
	6"	3"	2600	3800	5600	6200	6900
	7"	3 ½"	3000	4500	6500	7300	8000
	8"	4"	3500	5200	7500	8300	9200
	10"	5"	4400	6500	9300	10,400	11,500
	11"	5 ½"	4800	7100	10,300	11,400	12,600

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

MB DogBone System Anchors

DB-52 MULTIPLE MB DOGBONE ANCHORS TENSILE CAPACITIES IN THIN WALL SECTIONS (CONT.)

DB-52 16-TON TENSILE CAPACITY							
DB Anchor Ton & Length	Critical Wall Thickness (in)	Actual Edge Thickness T_e (in)	Tensile Safe Working Load Per Anchor (lbs) Corner Distance (in)				
	Inches	Inches	20 Inches	24 Inches	33 Inches	42 Inches	60 Inches
16 Ton X 9⅞"	6½"	3¼"	3300 lbs	4300 lbs	4800 lbs	5300 lbs	6400 lbs
	7"	3½"	3500	4700	5200	5700	6900
	8"	4"	4100	5300	6000	6600	7900
	10"	5"	5100	6700	7500	8300	9900
	12"	65"	6100	8000	9000	9900	11,900
	14"	7"	7100	9300	10,400	11,400	13,700
16 Ton X 19⅝"	6½"	3¼"	2800	3600	5600	7800	9200
	7"	3½"	3100	3900	6100	8500	9900
	8"	4"	3500	4500	7000	9700	11,400
	10"	5"	4400	5700	8800	12,200	14,300
	12"	6"	5300	6800	10,500	14,600	17,100
	14"	7"	6200	8000	12,300	17,100	20,000

Safety Factor is approximately 4:1 in 4500 psi concrete.
A minimum concrete coverage underneath the foot of the anchor of 1" has to be established in order to achieve the published values.

DB-53 MB DOGBONE EYE ANCHOR
1-Ton, 2-Ton, 4-Ton, 8-Ton, and 16-Ton in Edge Lift Applications

The DB-53 DogBone Eye Anchor is used in combination with a DB-60 DogBone Rebar Reinforcing Pin. This combination allows tension loads to be distributed deeply into the concrete element and produce high safe working loads in thin wall sections.

DogBone Eye Anchors must be installed properly, centered and plumb to avoid drastic reduction of safe working load.

DB-53 MB DOGBONE Eye Anchor/Rebar Selection Table										
Anchor Load Rating Tons	Anchor Length L		Minimum Panel Thickness		Minimum Corner Distance		Safe Work Load Tension w/ Rebar		Minimum Anchor Spacing	
	in.	mm	in.	mm	in.	mm	lbs.	kN	in.	mm
1-Ton	2⅝"	66	3	75	8	200	2000	8.90	16	400
2-Ton	3½"	90	3	75	4	100	4000	17.80	8	200
4-Ton	4¾"	120	4	100	6	150	8000	35.60	12	300
8-Ton	7⅛"	180	5	125	8	200	16,000	71.10	16	400
16-Ton	9⅞"	250	6½"	165	10	250	32,000	142.20	18	500

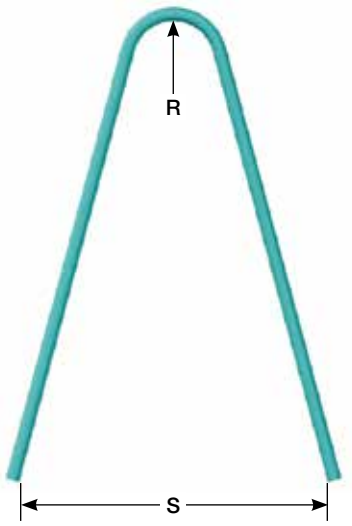
Safety Factor is approximately 4:1.
1. Minimum concrete compressive strength, f'c = 2000 psi (14 MPa).
2. Safe work loads shown are based on Anchors with DB-60 rebar reinforcing installed.

To order, specify: quantity, name, item number and finish.

MB DogBone System Anchors

DB-60 DOGBONE REBAR REINFORCING PIN
1-Ton, 2-Ton, 4-Ton, 8-Ton, and 16-Ton in Edge Lift Applications

The DogBone Rebar Reinforcing Pin is used with the DB-53 DogBone Eye Anchor to distribute tension stress deeply into the precast concrete panel.



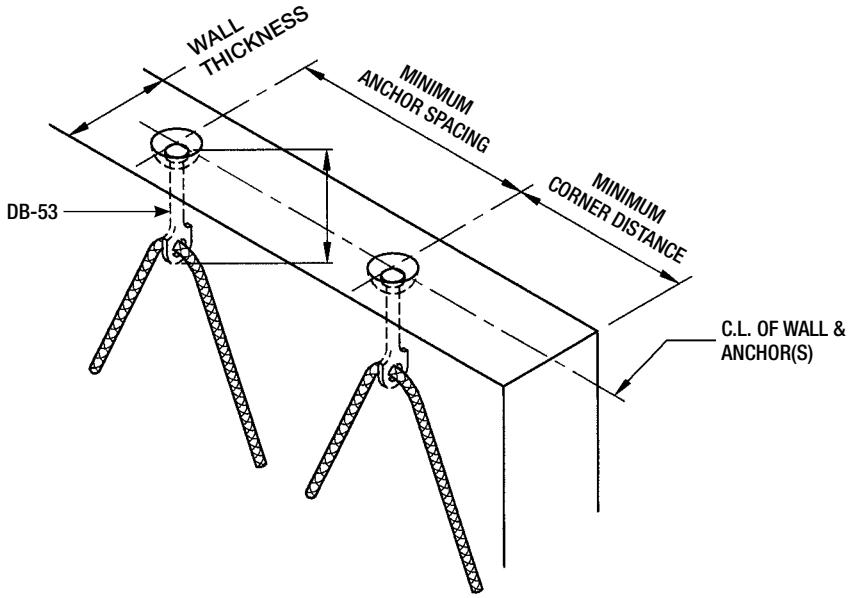
DB-60 MB DOGBONE REBAR REINFORCEMENT SPECIFICATIONS

Anchor Load Rating Tons	Rebar Grade 60 Diameter		Rebar Overall Length		Rebar Spread S		Rebar Bending Radius R	
	in./std.	mm	in.	mm	in.	mm	in.	mm
1-Ton	.306	7.8	36	900	12	300	¾	19
2-Ton	#3	9.5	24	600	6	150	1¼"	31
4-Ton	#5	15	24	600	7	175	2	50
8-Ton	#6	20	48	1200	9	225	2½"	62
16-Ton	#8	25	86	2150	12	300	3	75

To order, specify: quantity, name, item number and finish.

DB-60 DogBone Rebar Reinforcing Pins must be used with DB-53 DogBone Eye Anchors in order to achieve posted safe working loads.

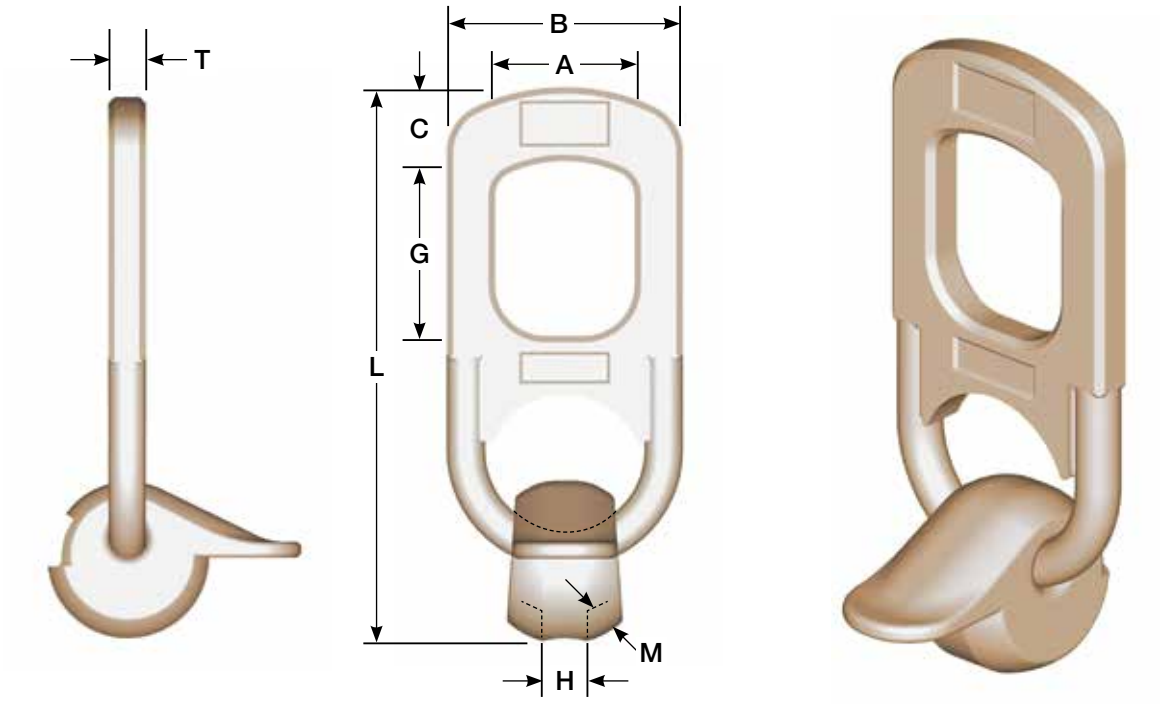
Anchors must be centered and plumb when installed. Any deviation can result in a reduction of safe working loads. See additional anchor installation information on page 70.



MB DogBone System Lifting Hardware

DB-1 DOGBONE LIFTING CLUTCH
1-Ton, 2-Ton, 4-Ton, 8-Ton, 16-Ton, 25-Ton and 36-Ton

The DB-1 MB DogBone Lifting Clutch consists of a round main body with a protruding lever arm and a high strength bail. The main body has a "T" slot that engages the head of a MB DogBone Anchor. The combined rotation capabilities of the main body and the bail allows a precast panel to be lifted, turned, tilted and/or rotated while under load.



DB-1 DOGBONE LIFTING CLUTCH																			
Lifting Body Mark	Safe Work Load			A		B		C		G		H		T		L		M	
	Tons	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1–1.3 T	1	2000	8.9	1.85	47	2.95	75	0.79	20	2.80	71	0.43	11	0.47	12	7.40	188	0.28	7.0
1.5–2.5 T	2	4000	17.8	2.32	59	3.58	91	0.98	25	3.39	86	0.63	16	0.55	14	9.06	230	0.33	8.5
3.0–5.0 T	4	8000	35.6	2.76	70	4.65	118	1.46	37	3.46	88	0.83	21	0.63	16	11.14	283	0.39	10.0
6.0–10.0 T	8	16,000	71.1	3.46	88	6.30	160	1.97	50	4.53	115	1.18	30	0.98	25	15.79	401	0.55	14.0
12.0 – 20.0 T	16	32,000	142.2	4.17	106	7.09	180	2.95	75	5.31	135	1.61	41	1.18	30	19.92	506	0.83	21.0
32 T[1]	25	50,000	225.0	6.77	172	10.71	272	3.94	100	7.44	189	2.05	52	1.57	40	24.80	630	1.12	28.5
45 T[1]	36	72,000	320.4	7.05	179	13.74	349	3.94	100	7.56	192	2.05	52	1.57	40	26.61	676	1.12	28.5

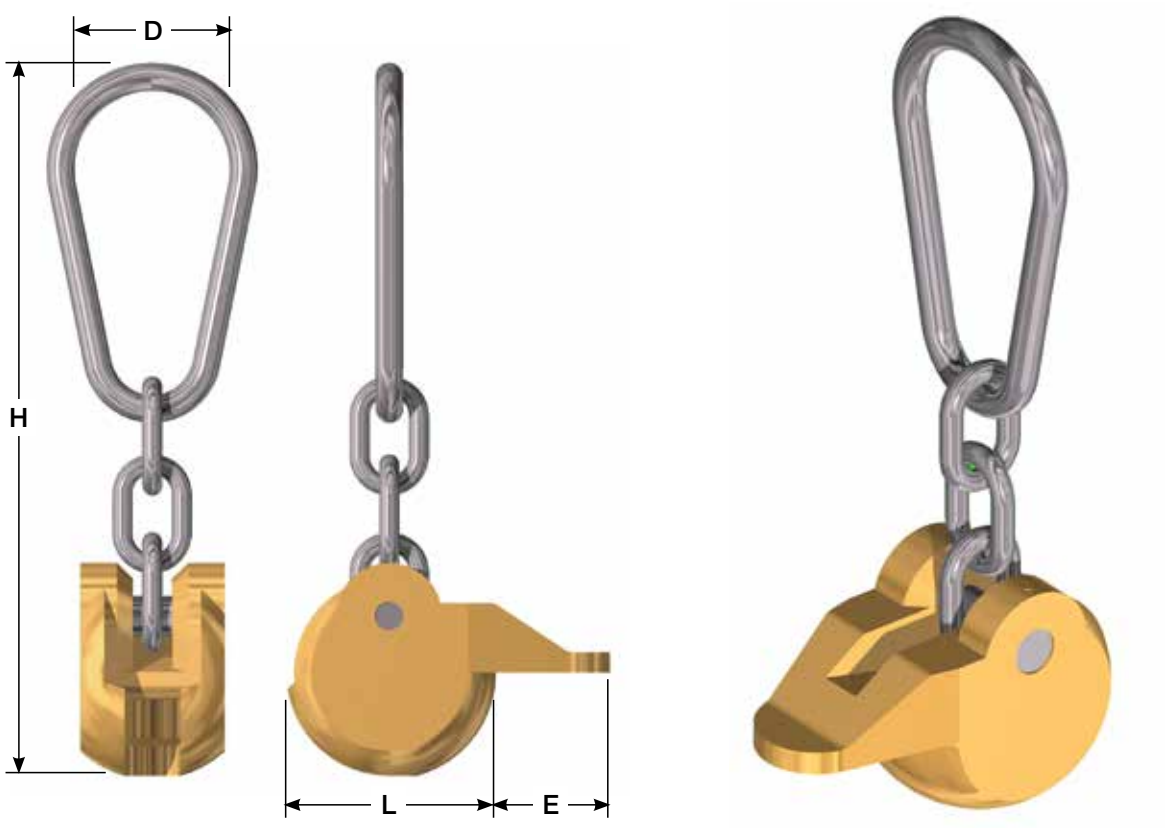
Safe working loads provide an approximate 5:1 safety factor.
1. Available on special order.

To order, specify: quantity, name, item number and finish.

MB DogBone System Lifting Hardware

DB-2 MB DOGBONE LIFTING BODY – CHAIN LINK
1-Ton, 2-Ton, 4-Ton, 8-Ton and 16-Ton

The DB-2 MB DogBone Lifting Body – Chain Link is similar to the eye link version, but utilizes a chain link arrangement to increase the unit's versatility. The chain link allows the unit to be loaded in any direction.



DB-2 DOGBONE LIFTING BODY - WITH CHAIN LINK											
Lifting Body Mark	Safe Work Load			D		L		E		H	
	Tons	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm
1–1.3 T	1	2000	8.9	1.625	41.28	2.125	53.98	1.125	28.58	8.625	136.53
1.5–2.5 T	2	4000	17.8	2.375	60.33	2.500	63.50	1.438	36.53	9.875	169.88
3.0–5.0 T	4	8000	35.6	2.438	61.93	3.250	82.55	2.003	50.80	10.125	201.63
6.0–10.0 T	8	16,000	71.1	3.938	100.00	4.125	104.78	2.50	63.50	14.125	274.65
12.0 – 20.0 T	16	32,000	142.2	4.750	120.65	5.5000	139.70	2.398	60.91	17.325	358.78

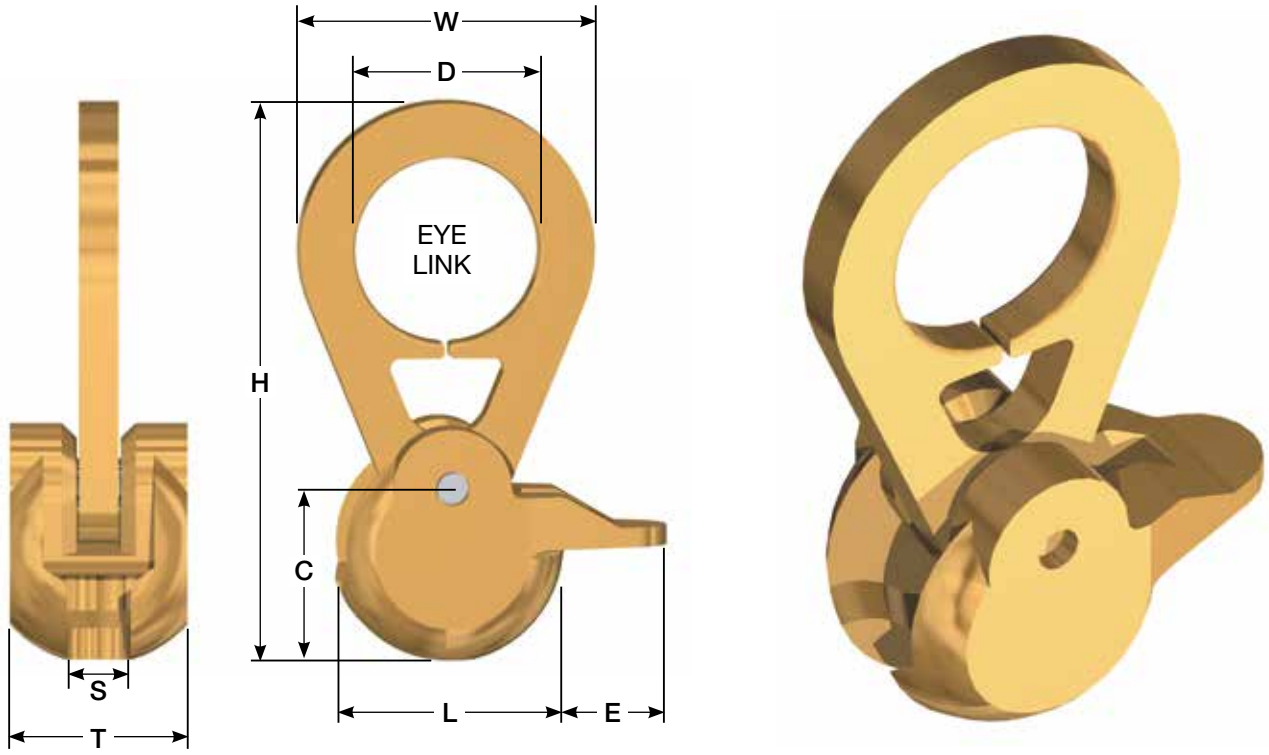
Safe working loads provide an approximate 5:1 safety factor.

To order, specify: quantity, name, item number and finish.

MB DogBone System Lifting Hardware

DB-3 MB DOGBONE LIFTING BODY – EYE LINK
1-Ton, 2-Ton, 4-Ton, 8-Ton and 16-Ton

The DB-3 MB DogBone Lifting Body – Eye Link is designed with a "T" shaped slot in the body of the lifter that engages the head of a DogBone Anchor. Attached to the main body is the solid plate eye link. It rotates about a pin in the main body so rigging does not have to be reversed when rotating a panel.



DB-3 DOGBONE LIFTING BODY – LIFTING BODY WITH LINK																			
Lifting Body Mark	Safe Work Load			W		D		C		L		E		H		S		T	
	Tons	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1–1.3 T	1	2000	8.9	2.500	63.50	1.625	41.28	1.750	44.45	2.125	53.98	1.125	28.58	5.375	136.53	.438	11.13	1.344	34.14
1.5–2.5 T	2	4000	17.8	3.500	88.90	2.375	60.33	1.875	47.63	2.500	63.50	1.438	36.53	6.688	169.88	.688	17.48	1.563	39.70
3.0–5.0 T	4	8000	35.6	3.938	100.00	2.438	31.93	2.563	65.10	3.250	82.55	2.0002	50.80	7.938	201.63	.875	22.23	2.250	57.15
6.0–10.0 T	8	16,000	71.1	5.813	147.65	3.938	100.00	3.000	76.20	4.125	104.78	2.500	63.50	10.813	274.65	1.165	29.59	2.875	73.03
12.0 – 20.0 T	16	32,000	142.2	7.313	185.75	4.750	120.65	4.438	112.73	5.5000	139.70	2.398	60.91	14.125	358.78	1.625	41.28	4.500	114.30

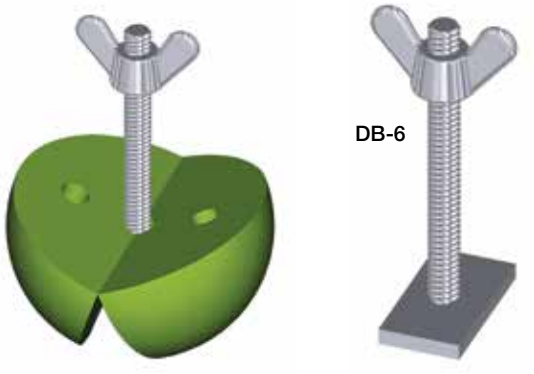
Safe working loads provide an approximate 5:1 safety factor.

To order, specify: quantity, name, item number and finish.

MB DogBone System Recess Formers

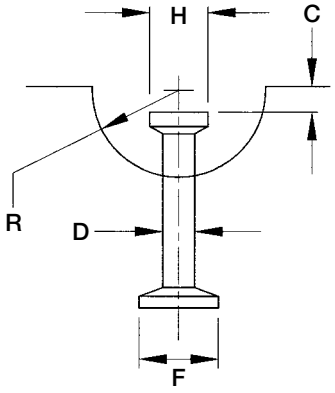
DB-5 MB DOGBONE RECESS FORMER
1-Ton, 2-Ton, 4-Ton, 8-Ton, 12-Ton and 16-Ton

The DB-5 DogBone Recess Former is a reusable unit furnished with a threaded stud and wing nut. The threaded stud extends through the form and the accompanying wing nut secures the unit to the form. Removal of the form is required to expose the embedded anchor.



DB-6 MB DOGBONE THREAD BOLT/PLATE

The DB-6 DogBone Thread Bolt/Plate is an available replacement for the threaded stud of the DB-5 DogBone Recess Former, shown above.



DB-5 ANCHOR & RECESS FORMER DIMENSIONAL DATA CHART

DogBone Anchor Size	D Anchor Shank Diameter		H Anchor Head Diameter		F Anchor Foot Diameter		C Cover		Diameter of Recess Former		Height of Recess Former (R)	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1 Ton	3/8"	10	3/4"	19	1	25	3/8"	10	2 3/8"	60	1 3/16"	30
2 Ton	9/16"	14	1 1/32"	26	1 3/8"	35	7/16"	11	3	75	1 9/16"	37
4 Ton	3/4"	20	1 7/16"	36	2	50	9/16"	15	3 3/4"	95	1 7/8"	47
6 Ton	15/16"	24	1 7/8"	47	2 3/8"	60	9/16"	15	4 3/4"	120	2 5/16"	59
8 Ton	1 1/8"	28	1 7/8"	47	2 3/4"	70	9/16"	15	4 3/4"	120	2 5/16"	59
12 Ton	1 3/8"	34	2 3/4"	70	3 3/8"	85	9/16"	15	6 3/8"	162	3 1/8"	80
16 Ton	1 1/2"	39	2 3/4"	70	3 7/8"	98	9/16"	15	6 3/8"	162	3 1/8"	80

To order, specify: quantity, name, item number and finish.

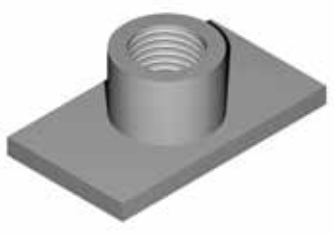
MB DogBone System Recess Formers

DB-15 MB DOGBONE RECESS FORMER – MAGNETIC
1-Ton, 2-Ton and 4-Ton

The DB-15 DogBone Recess Former - Magnetic is available for quick and easy reusable applications where steel precast forms are being used.

To Order, Specify: quantity, name and system size.

MB DogBone System Recess Formers



DB-24 MB DOGBONE THREADED NUT
1-Ton, 2-Ton, 4-Ton, 8-Ton, 12-Ton and 16-Ton

The DB-24 DogBone Threaded Nut is available as a replacement part for use on DB-19 Recess Former – Narrow W/Threaded Hole and DB-22 Recess Former – W/Inside Threads.

To Order, Specify: quantity, name and system size.

DB-25 MB DOGBONE STUD
1-Ton, 2-Ton, 4-Ton, 8-Ton, 12-Ton and 16-Ton

The DB-25 DogBone Stud is available for use with DB-19 Recess Former – Narrow W/Threaded Hole and DB-22 Recess Former – W/Inside Threads. It has one fixed wing nut and one free-running wing nut for easy attachment to the recess former and to draw the recess form tight to the form.

To Order, Specify: quantity, name and system size.

DB-26 MB DOGBONE WING NUT
1-Ton, 2-Ton, 4-Ton, 8-Ton, 12-Ton and 16-Ton

The DB-26 DogBone Wing Nut is available as a system replacement part.

To Order, Specify: quantity, name and system size.

(DB-31 MB DOGBONE SHEAR BAR – ANCHOR
DB-33 MB DOGBONE SHEAR BAR – CUP
1-Ton, 2-Ton, 4-Ton, 6-Ton and 8-Ton

The DB-31 DogBone Shear Bar – Anchor and DB-33 DogBone Shear Bar – Cup are used in conjunction with the DB-52 DogBone Anchor when performing an edge lift. Without the shear bars, the lifting stress may be applied to the concrete above the anchor and cause concrete spalling. The properly installed shear bars transfer the lifting stress back into the anchor and the lower concrete, thus preventing the spalling.

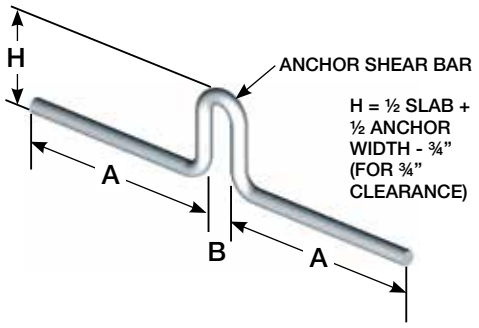
DB-31 ANCHOR SHEAR BAR DATA

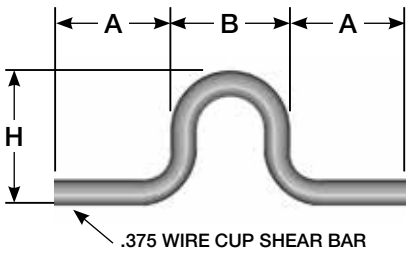
Anchor Rated Load	Slab Thickness		A		B		H (Height)		Deformed Wire Dia.	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1T	5	125	8	200	½"	13	1 15/16"	49	.375	9.5
2T	5	125	8	200	11/16"	17	2 1/8"	54	.375	9.5
2T	6	150	10	250	11/16"	17	2 5/8"	66	.375	9.5
4T	7 ½"	188	12	300	⅞"	22	3 7/16"	87	.375	9.5
6T	7 ½"	188	12	300	1 1/16"	27	3 ½"	89	.375	9.5
8T	10	250	14	400	1 ¼"	31	4 ⅞"	124	.375	9.5

DB-33 CUP SHEAR BAR DATA

Anchor Rated Load	Slab Thickness		A		B		H (Height)		Deformed Wire Dia.	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1T	5	125	8	200	2 ⅜"	60	3 11/16"	92	.375	9.5
2T	5	125	8	200	3	75	4	100	.375	9.5
2T	6	150	10	250	3	75	4 ½"	113	.375	9.5
4T	7 ½"	188	12	300	3 ¾"	94	5 ⅝"	141	.375	9.5
6T	7 ½"	188	12	300	4 ¾"	119	6 ⅛"	153	.375	9.5
8T	10	250	14	400	4 ¾"	119	7 ⅜"	185	.375	9.5

To Order, Specify: quantity, name and system size.



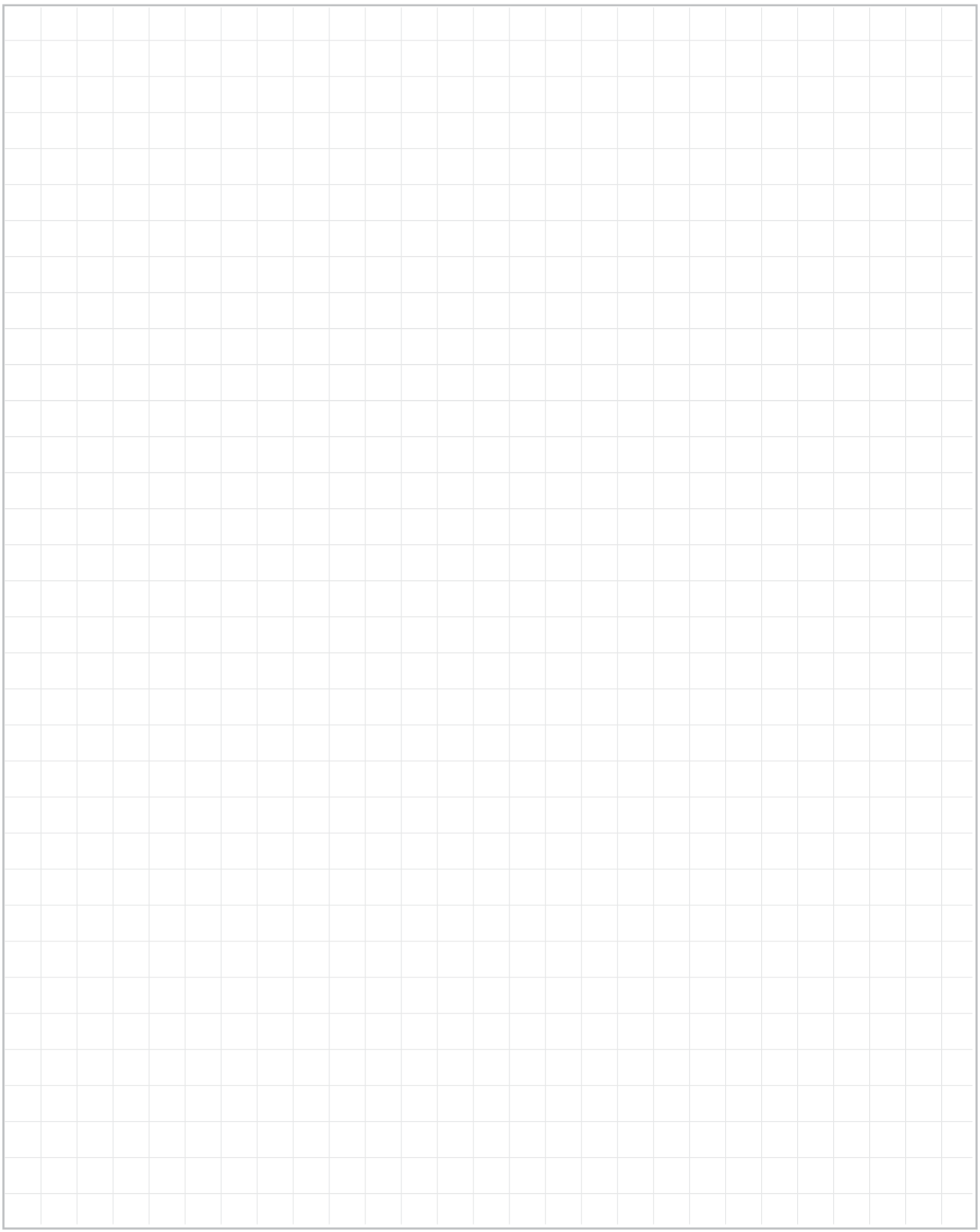


MB DogBone System Anchors with Recess Members

MB DOGBONE WITH DISPOSABLE RECESS MEMBER
2-Ton, 4-Ton and 8-Ton

The MB DogBone Anchor comes prepackaged with an installed disposable recess member for simpler installation. No longer will you need to keep up with a reusable member and maintain them prior to installation.

To Order, Specify: quantity, name and system size.



Utility Lifting Systems

The Hook-Lift Utility Lifting System is simple in design and construction, yet is exceptionally strong and versatile in application. It can be used in face lift or edge lift applications and requires no additional reinforcement or special lifting hardware.

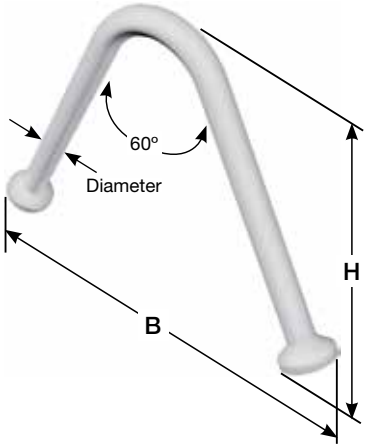
Lifting and handling can be accomplished using a 6-ton grade B alloy hoist hook, a 7-ton forged alloy shackle clevis connector or the Meadow Burke Super-Lift III Ring Clutch. The Hook-Lift Utility Lifting System meets or exceeds OSHA and NPCA guidelines.

V-Anchor Lifting System Technical Information

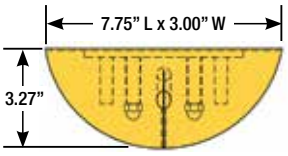
V-ANCHOR LIFTING SYSTEM

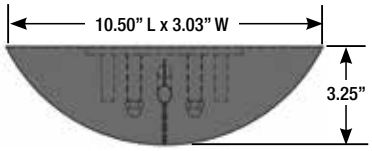
The MB V-Anchor System is the most thoroughly tested clutchless system available. Complete independent tests included various concrete strengths, slab thicknesses, shear and tension, and results with both the 5-Ton and the larger 7-Ton Hook Recess Members.

The MB V-Anchor System is the safest and most reliable clutchless system available. The testing ensures the engineer has the data and performance information needed for proper anchor and recess selection for the conditions of use. The MB V-Anchor System was developed and tested with considerations for all normal installations. Meadow Burke Engineering is available to assist with any unusual application or use. V-Anchors are available in plain and hot-dipped galvanized.



Optional Pipe Mesh Clips can be added to the V-Anchors to facilitate attachment to pipe mesh. Clip positioning is optimized and custom to plant specifications.

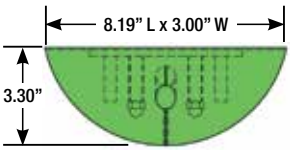


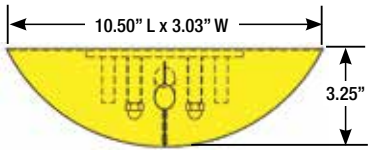


V-Anchor Wire Diameter 0.444"

						Safe Working Load (lbs) 4:1				Safe Working Load (lbs) 4:1			
						0.444 Ø V-Anchor Capacities Using 5-Ton Hook Recess Color: Orange				0.444 Ø V-Anchor Capacities Using 7-Ton Hook Recess Color: Black			
						2500 PSI		4000 PSI		2500 PSI		4000 PSI	
MB Item	MB Description	Wire Diameter	Slab Thickness	Anchor Height (A)	Anchor Spread (B)	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
MBV4444	MB V-Anchor	0.444	4"	3.125	5.25	1,970	3,900	2,490	4,940	1,720	2,160	2,170	2,730
MBV5444	MB V-Anchor	0.444	5"	3.75	6.00	3,020	5,140	3,820	6,510	2,720	4,720	3,440	5,970
MBV6444	MB V-Anchor	0.444	6"	4.75	7.19	4,290	6,450	5,430	8,170	3,430	5,680	4,350	7,180

1. Minimum edge distance for tension is 2X anchor depth and 18" for shear.
2. 5 ton and 7 ton recess void formers provide a ⅝" anchor setback from the concrete surface.
3. Capacities shall not be increased for concrete compressive strength exceeding 4,000psi.





V-Anchor Wire Diameter 0.671"

						Safe Working Load (lbs) 4:1				Safe Working Load (lbs) 4:1			
						0.671 Ø V-Anchor Capacities Using 5-Ton Hook Recess Color: Green				0.671 Ø V-Anchor Capacities Using 7-Ton Hook Recess Color: Yellow			
						2500 PSI		4000 PSI		2500 PSI		4000 PSI	
MB Item	MB Description	Wire Diameter	Slab Thickness	Anchor Height (A)	Anchor Spread (B)	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
MBV5671	MB V-Anchor	0.671	5"	3.75	6.44	3,220	4,790	4,070	5,870	2,690	4,500	3,400	5,700
MBV6671	MB V-Anchor	0.671	6"	4.75	7.56	4,500	7,610	5,700	9,520	3,840	6,150	4,860	7,800
MBV7671	MB V-Anchor	0.671	7"	5.75	8.75	5,910	10,600*	6,970	11,650*	5,000	7,800	6,320	9,900
MBV8671	MB V-Anchor	0.671	8"	6.75	9.88	7,180	14,250*	9,080	14,250*	6,160	9,450	7,790	12,000
MBV10671	MB V-Anchor	0.671	10"	8.75	12.25	11,650*	14,250*	11,650*	14,250*	11,650	14,250*	11,650	14,250*

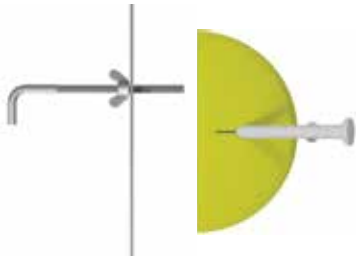
* The SWL of the MB V-Anchors in these conditions exceed the SWL of the hook.

V-Anchor Lifting System Technical Information

V-ANCHOR INSTALLATION

The V-Anchor can be set in various ways to satisfy job requirements, such as the functional shape of the precast element to be handled. An edge distance of two times the anchor depth must be maintained. Adjust anchor capacity if using concrete strength different than that referenced in the Load Data.

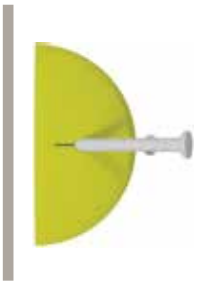
SETTING WITH A ⅜" Ø & ½" Ø WINGNUT STYLE BOLT



Installation with the ⅜" or ½" bolt requires a properly placed hole to be drilled in the form.

- Assemble the anchor/recess member.
- Insert the bolt through the previously drilled hole.
- Line up the bolt and the recess member and screw the bolt into the recess member. Use the wing nut handle of the bolt to facilitate fastening of the units.
- Draw the recess member/anchor assembly tight to the form with the free-running wing nut on the bolt.

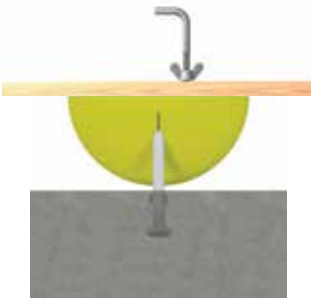
SETTING WITH V-ANCHOR HOLDING PLATE & MAGNETIC HOLDING PLATE



Installation without drilling holes in the form, can be accomplished using the holding plate.

- Attach the holding plate to the form. It can be nailed, screwed, magnetically held or welded.
- Assemble the anchor/recess member.
- Center the recess member over the protruding pins of the holding plate and push the recess member onto the pins until the recess member is firmly against the form.

WET-SETTING THE V-ANCHOR ASSEMBLY



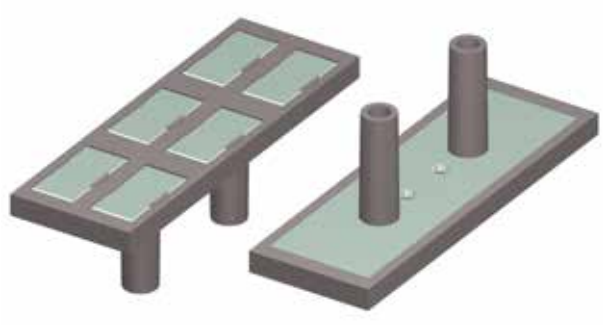
Wet-setting the V-Anchor/recess member assembly is easy to accomplish but care must be taken to ensure that the concrete is well consolidated around the legs of the anchor.

- Assemble the anchor/recess member.
- Use duct tape to seal the top cavities of the recess member.
- For added security, a Holding Plate can be added before the duct tape.
- Work the assembly down into the concrete until the top of the recess member is flush with the surface of the concrete. If necessary, a small piece of lumber can be attached to the recess member that will allow the assembly to "float" on the surface of the concrete.

V-Anchor Lifting System Technical Information

MB V-ANCHOR PLACEMENT OPTIONS:

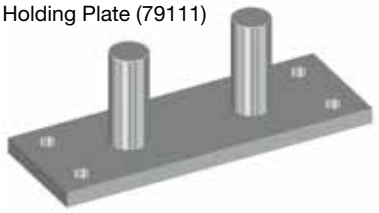
MB V-Anchor system versatility allows for many placement options. Using the mounting accessories listed here, the V-Anchor can be placed on the form face down, on the inside or outside form using through bolts or Holding Plates, or wet-set after the concrete has been placed. Once the position and load direction is determined, the capacity in shear or tension, or combination, will assist in proper MB V-Anchor and Recess Member selection.



Magnetic Holding Plate (79188)

MB Number	MB Description	V-Anchor Wire Dia.	Hook Size	Length	Depth	Width	Color
MB-VRM5T444	MB V-ANC RM 5T.444	0.444	5-Ton	7.75”	3.27”	3.00”	Orange
MB-VRM7T444	MB V-ANC RM 7T.444	0.444	7-Ton	10.50”	3.25”	3.03”	Black
MB-VRM5T671	MB V-ANC RM 5T.671	0.671	5-Ton	8.19”	3.30”	3.00”	Green
MB-VRM7T671	MB V-ANC RM 7T.671	0.671	7-Ton	10.50”	3.25”	3.03”	Yellow

Holding Plate (79111)

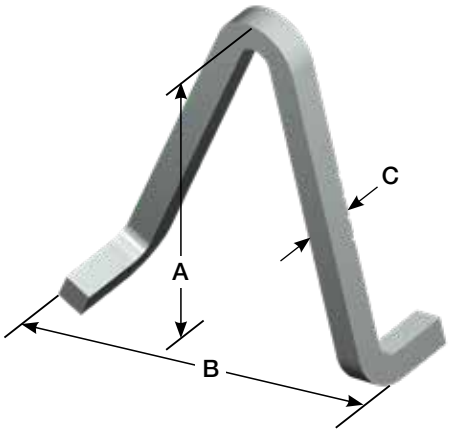


V-Anchor Recess has ⅜” ø and ½” ø coil nuts for easy installation and

Hook-Lift Lifting System Anchors

HOOK-LIFT ANCHOR

The Hook-Lift Anchor is unique in concept and design. It can be used very effectively in a wide variety of utility precast concrete applications. Wall segments, manholes, risers, flat slabs, bases, lids, boxes, vaults and concrete pipe can all be easily handled with the Hook-Lift Anchor. No additional reinforcement is required and lifting can be accomplished without special hardware. Hook-Lift Anchors are ordered by slab size. Refer to the table for slab sizes, anchor dimensions and safe working loads. The Hook-Lift Anchor is available in plain or hot dip galvanized finish. *Stainless steel available by special order.*



PHYSICAL DATA

Item Number	Description	Dimensions			Weight (lbs)
		A	B	C	
79U40	4" Anchor	3⅛"	6"	⅝"	1.01
79U50	5" Anchor	4⅛"	6"	⅝"	1.35
79U55	5-½" Anchor	4⅝"	6"	⅝"	1.50
79U60	6" Anchor	5⅛"	6⅝"	⅝"	1.65
79U80	8" Anchor	7⅛"	8½"	⅝"	2.30
79URM	Disposable Recess Member	8½"	3½"	3⅜"	1.42
79URC-1	Reusable Recess Member	8½"	3½"	3⅜"	1.42

To Order, Specify: quantity, name and finish.

LOAD CHART: EDGE INSTALL

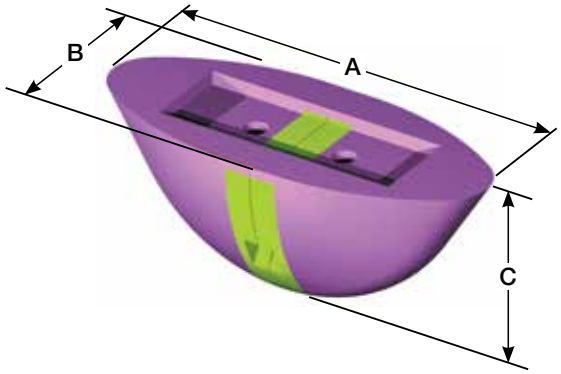
Item Number Load	Concrete Thickness	Tension (lbs)	Shear (lbs)	Direction of Anchor
79U80	10"	8,000	3,569	10"
79U80	10"	5,000	2,478	10"

Safety Factor is approximately 4:1 in 4000 PSI concrete

LOAD CHART: FACE INSTALL

Item Number Load	Concrete Thickness in inches	Tension* (lbs)	Shear* (lbs)	45° (lbs)
79U40	4"	1,800	2,300	2,025
79U50	5"	3,750	6,000	4,400
79U55	5½"	5,000	7,800	5,200
79U60	6"	5,700	9,520	6,100
79U80	8"	9,840	12,000	10,000

Safety Factor is approximately 4:1 in 4000 PSI concrete
1.5*A+B/2 in tension and 18" in shear
*Mechanical ultimate capacity of anchor is 48,000 lbs



HOOK-LIFT EDGE ANCHOR

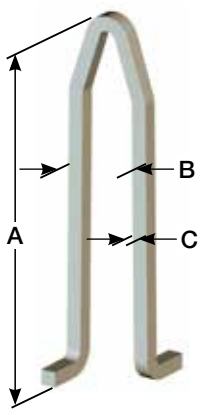
The Hook-Lift Edge Anchor is similar to the face lift anchor, but is a little different in profile to better handle the stresses involved in edge lifts. The Hook-Lift Edge Anchor is available in two sizes and in plain or hot dip galvanized finish.

PHYSICAL DATA & LOAD CHART

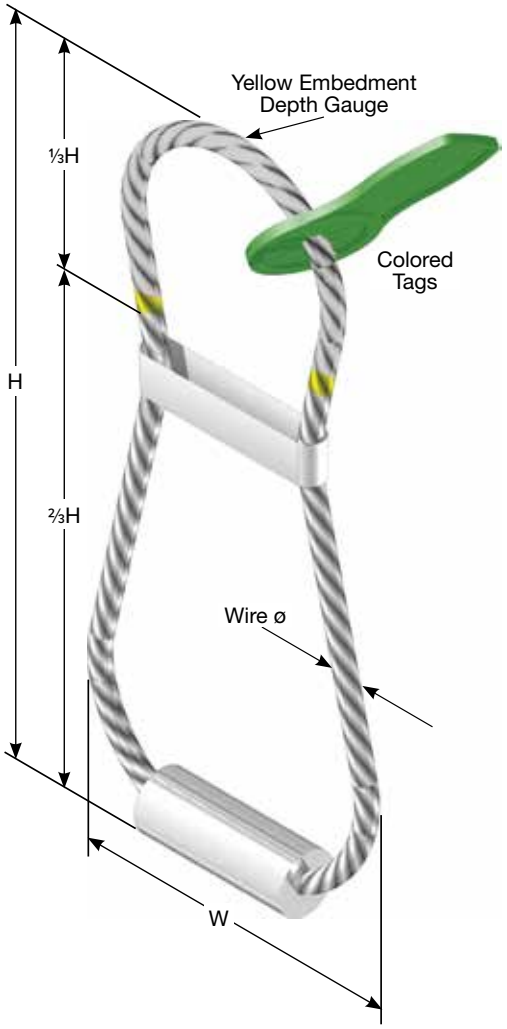
Item Number	Description	Dimensions			Weight (lbs)	Concrete Thickness (in)	Edge Tension (lbs)	Edge Shear (lbs)	Edge 45° Load (lbs)
		A	B	C					
79UEL	Edge-Lift Anchor	15"	3¼"	⅝"	4.31	5"	5,750	N/A	N/A
79UELS	Edge-Lift Anchor Short	8"	3¼"	⅝"	2.21	5"	3,250	N/A	N/A

Safety Factor is approximately 4:1 in 4000 PSI concrete
1. Minimum edge distance is equal to 2 times anchor depth for tension values.

To order, specify: quantity, name and finish.



MB Cable Lift Loop + Plus System



MB CABLE LIFT LOOP + PLUS

MB Cable Lift Loop + Plus System was developed and tested as a high load system. Each lift loop in the Plus system was tested and approved to the listed loads. These tests were conducted domestically to ensure that the capacities meet the required 4:1 in 2,500 psi concrete. This strong and economical lifting solution may be used in many applications, including, but not limited to utility products, beams and columns. The wide selection of Plus System Loops available ensures the most economical lifting cable for the load requirements. The higher the capacity of the Plus System Loops means heavy units can be lifted without changing to a larger cable. For example, the capacity of the Plus System "White" Lift Loop is rated at 2,000# SWL, while the lesser systems are rated at 1,300#. All of the Plus System capacities listed are for tension or shear loads, and are available in electrogalvanized.

These capacities are based on the cable lift loop having an embedment depth of ⅔ of the overall length. This means that ⅓ of the lift loop is exposed and available for attachment to a lifting hook or shackle. To insure that the cable is embedded to the correct depth, the top of each Plus System Loop is coated in yellow to the ⅓ height mark. Place the loop into the concrete until only the yellow coated portion is exposed. This is visual assurance that at least ⅔ of the cable is embedded. In addition, the yellow top and the special Plus System cable identification tag are indicators that the MB Cable Lift Loop + Plus System was used.

The MB Cable Lift Loop + Plus System is the only high capacity, fully tested system available. Add the embedment depth guide feature, and it becomes the safest system to use.

MB CABLE LIFT LOOP + PLUS SYSTEM

MB Number	MB Plus System			Wire Ø	Height	Width	Minimum Edge Distance
	Description	Color Tag	SWL				
CLPS0.3K	Cable Lift Loop ⅛"x 6" Yellow	Yellow	500	⅛"	6"	2.36"	4"
CLPS2K	Cable Lift Loop ¼"x 8 ¼" White	White	2,000	¼"	8 ¼"	3.94"	4"
CLPS2.3K	Cable Lift Loop 9/32"x 8 ⅞" Red	Red	2,300	9/32"	8 ⅞"	4.31"	4"
CLPS3K	Cable Lift Loop 5/16"x 9 ¼" Purple	Purple	3,000	5/16"	9 ¼"	4.75"	4"
CLPS4.5K	Cable Lift Loop ⅜"x 11" Light Green	Light Green	4,500	⅜"	11"	5.13"	4"
CLPS5.2K	Cable Lift Loop 25/64"x 12 ⅜" Charcoal	Charcoal	5,200	25/64"	12 ⅜"	5.50"	4"
CLPS8.6K	Cable Lift Loop 9/16"x 14 3/16" Dark Green	Dark Green	8,600	9/16"	14 3/16"	6.31"	4"
CLPS10.4K	Cable Lift Loop ⅝"x 15 ⅜" Blue	Blue	10,400	⅝"	15 ⅜"	7.69"	4"

Minimum concrete compressive strength 2,500 PSI – Listed capacities have a 4:1 Safety Factor, shear or tension.
Minimum corner distance of H+0.5W

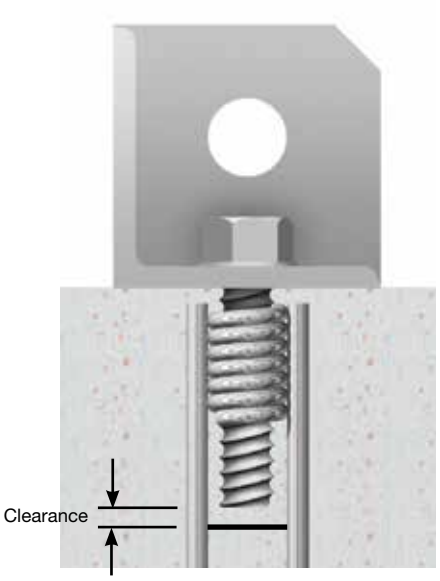
Coil Lifting Inserts

Meadow Burke manufactures many coil inserts and accessories that are implemented and effectively used in the lifting and handling of precast concrete elements. Unusual and/or complicated lifting problems are often accomplished with a coil insert solution.

Coil Lifting Insert Technical Information

PROPER BOLT LENGTH

It is extremely important to make sure that attachment/lifting bolts are the proper length and do not bottom out against the concrete, preventing proper tightening of the lifting hardware.



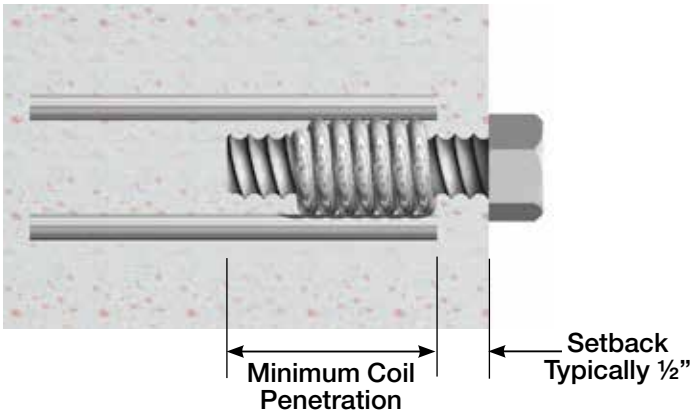
BOLT TORQUE

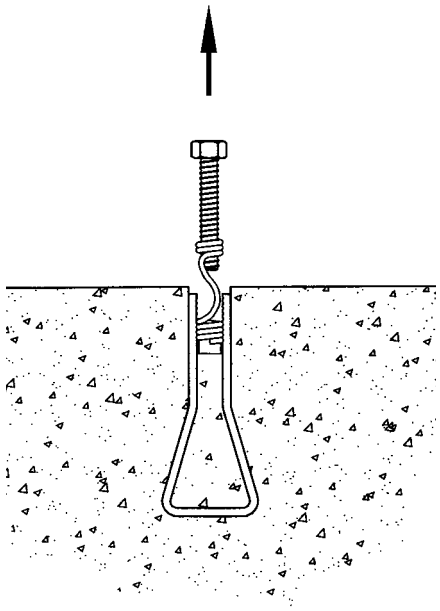
The user of this product should take precautions against "overtorque." Torqueing a bolt leads to pretensioning the insert. The user should check torque specifications do not exceed the SWL of the insert. Snug-tight fit is generally all that is required when using the coil products. Tension due to the bolt torque may be estimated using the following equation:

$F = T/(k_t * d_b)$ where T = torque, d_b = bolt diameter, $k_t = 0.2$

PROPER COIL PENETRATION

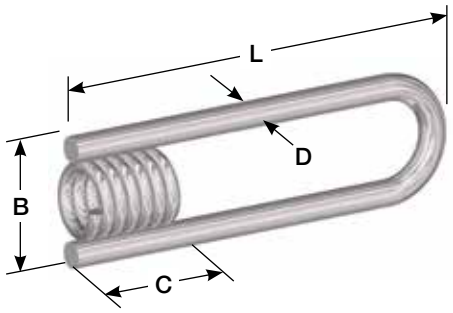
The most common type of insert failure is caused by the lack of sufficient bolt penetration through the coil of the insert. Under applied load, inadequate bolt penetration of the insert coil will cause the upper part of the coil to unwind and pull out of the insert. This is commonly referred to as the "corkscrew" effect.





IMPORTANT: In precast concrete plant operations, coil bolts should be periodically inspected and replaced if signs of wear or bending are present. Worn or bent bolts should be immediately discarded. Never use a worn or bent bolt for any purpose and never attempt to straighten a bent bolt.

Coil Lifting Inserts



CX-2 COIL LOOP INSERT – STRAIGHT

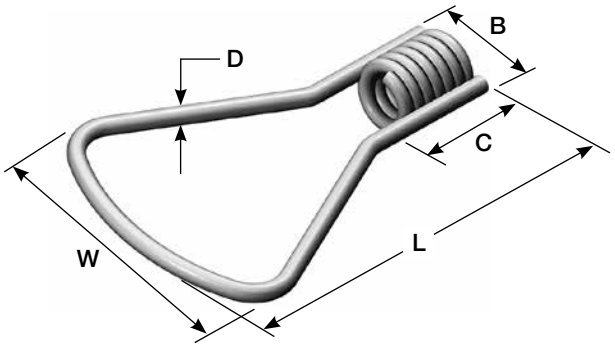
The CX-2 Coil Loop Insert is one of the most widely used inserts in the precast industry, and used primarily to lift small precast sections. It is available in the sizes and strengths shown in the table and is also available in special or custom variations to meet a particular need. The Coil Loop Insert – Straight is available in plain, hot dip galvanize finish, or stainless steel finish. *The insert is not recommended as an edge lift insert by Meadow Burke.*

CX-2 COIL LOOP INSERT - STRAIGHT DATA

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	Wire Diameter D in.	Edge Distance (Tension)[3] in.	Edge Distance (Shear)[4] in.
½	4	2250	2000	1 3⁄16	1 3⁄16	.225	7	9
½	6	3600	3000*	1 3⁄8	1 3⁄16	.306	10	10
¾	4	3100	2800	1 11⁄16	1 5⁄8	.306	7	10
¾	6	4500	4200	1 7⁄8	1 5⁄8	.375	10	12
1	6	4500	4500	2 1⁄8	2 1⁄8	.375	10	12
1	8	4500	4500	2 1⁄8	2 1⁄3	.375	10	12
1 ¼	8	6000	6000	1 ½	2 1⁄16	.440	13	13

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½" setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.
2. Minimum edge distance apply to 2 edges only. All other edges require 2x length of insert.
3. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
4. Minimum anchor spacing shall be 2X the edge distance for tension and 3X the edge distance for shear.
5. Anchors with the astericks exceed the shear capacity of the coil rod.

To Order, Specify: quantity, name, bolt diameter, length (L dimension) and finish.



CX-4 COIL LOOP INSERT – FLARED

The CX-4 Coil Loop Insert – Flared is similar to the straight unit above, but has a flared loop for increased tensile capacity. This being a two-strut insert, it is not recommended for use an edge lift insert. The Coil Loop Insert–Flared is available plain, hot dip galvanize finish, or stainless steel finish.

WARNING: This insert is not efficient as an edge lifting insert and is not recommended as such by Meadow Burke. This insert will usually fail when low strength concrete spalls on top of the insert and will generally result in loss of the panel.

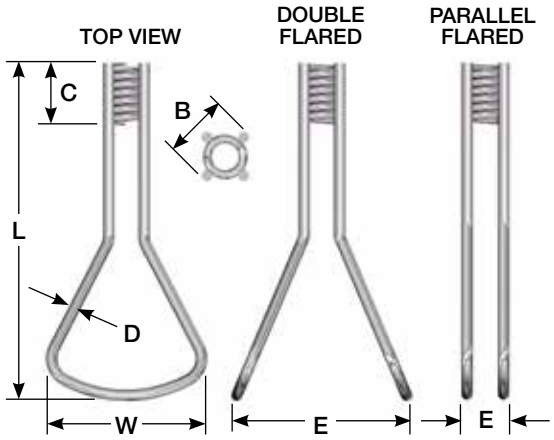
CX-4 COIL LOOP INSERT - FLARED DATA

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	W in.	B in.	Coil Length C in.	Wire Diameter D in.	Edge Distance (Tension) in.	Edge Distance (Shear) in.
¾	6	4750	4300	3 ½	1 5⁄8	1 ¾	.375	10	12
¾	9	4750	4750	5 ½	1 5⁄8	1 ¾	.375	10	13
1	9	4750	4750	5 ½	2	2 1⁄8	.375	10	13
1	9	8000	7250	5 ¾	2 ½	2 1⁄8	.440	15	16
1	12	4750	4750	5 ½	2	2 1⁄8	.375	10	13
1	12	8000	7250	5 ¾	2 ½	2 1⁄8	.440	15	16

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½" setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.
2. Minimum edge distance apply to 2 edges only. All other edges require 2x length of insert.
3. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
4. Minimum anchor spacing shall be 2X the edge distance for tension and 3X the edge distance for shear.

To Order, Specify: quantity, name, bolt diameter, length (L dimension) and finish.

Coil Lifting Inserts



CX-6 COIL LOOP INSERT – DOUBLE FLARED

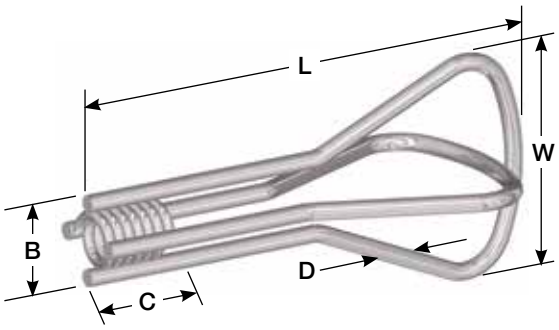
The CX-6 Coil Loop Insert – Double Flared is a four-strut insert available in two styles: the standard flared struts version and the parallel struts version for more confined applications where space is lacking. The four-strut insert offers increased shear and tension capacities and is used effectively in many precast concrete lifting and handling applications. Standard length of the Coil Loop Insert – Double Flared is 12" in the bolt diameters shown in the table. It is available in plain, hot dip galvanize, or stainless steel finish.

CX-6 COIL LOOP INSERT - DOUBLE FLARED DATA

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	Wire Diameter D in.	W in.	E in.	Edge Distance (Tension)[3] in.	Edge Distance (Shear)[4] in.
PARALLEL										
1	12	9500	9500	2 1/16	2 1/8	.375	5 1/2	1 1/4	15	18
1	12	13,500	13,500*	2 1/4	2 1/8	.440	5 3/4	1 1/4	20	24
1 1/4	12	9500	9500	2 5/16	2 1/16	.375	5 3/4	1 1/2	15	18
1 1/4	12	13,500	13,500*	2 1/2	2 1/16	.440	5 3/4	1 1/2	20	24
DOUBLE										
1	12	9500	9500	2 1/16	2 1/8	.375	5 1/2	5 1/2	15	18
1	12	13,500	13,500*	2 1/4	2 1/8	.440	5 3/4	5 3/4	20	24
1 1/4	12	9500	9500	2 5/16	2 1/8	.375	5 3/4	5 3/4	15	18
1 1/4	12	13,500	13,500	2 1/2	2 1/8	.440	5 3/4	5 3/4	20	24
1 1/2	12	9500	9500	2 9/16	2 1/8	.375	5 3/4	5 3/4	15	18
1 1/2	12	13,500	13,500	2 3/4	2 1/8	.440	5 3/4	5 3/4	20	24

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½" setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.
2. Minimum edge distance apply to edges only. All other edges require 2x length of insert.
3. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
4. Minimum anchor spacing shall be 2X the edge distance for tension and 3X the edge distance for shear.
5. Anchors with the astericks exceed the shear capacity of the coil rod.

To Order, Specify: quantity, name, type, bolt diameter and finish.



CX-8 CRISS-CROSS INSERT – FLARED

The CX-8 Criss-Cross Insert – Flared is a compact designed four strut insert offering great versatility and strength. It is very effective in low strength concrete applications. The Criss-Cross Insert – Flared is available in plain, hot dip galvanize, or stainless steel finish.

CX-8 CRISS-CROSS INSERT - FLARED DATA

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	W in.	Wire Diameter D in.	Edge Distance (Tension)[3] in.	Edge Distance (Shear)[4] in.
1	12 3/8	9500	9500	2 1/16	2 1/8	5 1/2	.375	15	18
1	12 1/2	13,500	13,500*	2 1/4	2 1/8	5 3/4	.440	20	24
1 1/4	12 3/8	9500	9500	2 5/16	2 1/8	5 3/4	.375	15	18
1 1/4	12 1/2	13,500	13,500	2 1/2	2 1/8	5 3/4	.440	20	24
1 1/2	12 3/8	9500	9500	2 9/16	2 1/8	5 3/4	.375	15	18
1 1/2	12 1/2	13,500	13,500	2 3/4	2 1/8	5 3/4	.440	20	24

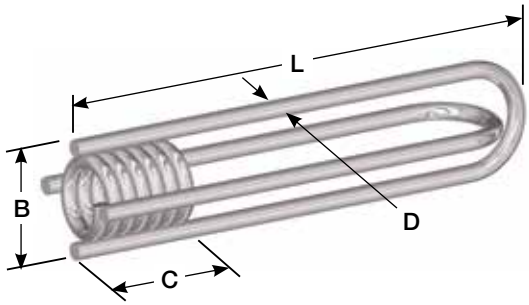
Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½" setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.
2. Minimum edge distance apply to edges only. All other edges require 2x length of insert.
3. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
4. Minimum anchor spacing shall be 2X the edge distance for tension and 3X the edge distance for shear.
5. Anchors with the astericks exceed the shear capacity of the coil rod.

To Order, Specify: quantity, name, bolt diameter, length (L dimension) and finish.

Coil Lifting Inserts

CX-9 CRISS-CROSS COIL INSERT – STRAIGHT

The CX-9 Criss-Cross Coil Insert – Straight is a high strength four strut insert ideally suited for precast concrete edge lift applications. The four strut design and high safe working loads make this insert a good, safe choice for preventing panel failures. The Criss-Cross Coil Insert – Straight is available in plain, hot dip galvanize, or stainless steel finish. See load data below for thin slab edge and face lift.



CX-9 COIL LOOP INSERT - STRAIGHT (FACE LIFT INSTALLATION)

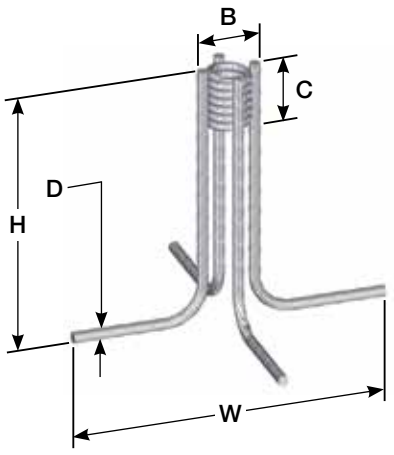
Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	Wire Diameter D in.	Edge Distance (Tension)[5] in.	Edge Distance (Shear)[6] in.
¾	9	6750	6750	1 11/16	1 5/8	.306	12	16
¾	12	6750	6750	1 11/16	1 5/8	.306	12	16
1	9	6750	6750	2 1/8	2 1/8	.306	12	16
1	12	6750	6750	2 1/8	2 1/8	.306	12	16
1	9	9000	7850	2 1/8	2 1/8	.375	16	16
1	12	9000	9000	2 1/8	2 1/8	.375	16	16
1 1/4	9	13,500	9600	2 1/2	2 1/8	.440	16	20
1 1/4	12	13,500	12,400	2 1/2	2 1/8	.440	20	20

1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge, unless noted otherwise.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

To Order, Specify: quantity, name, bolt diameter, length (L dimension) and finish.

CX-9 COIL LOOP INSERT - STRAIGHT (EDGE LIFT INSTALLATION)

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	Wire Diameter D in.	Wall Thickness in.	Corner Distance in.
¾	9	3700	1500	1 11/16	1 5/8	.306	4	24
¾	12	4600	1500	1 11/16	1 5/8	.306	4	24
1	9	4500	2000	2 1/8	2 1/8	.306	5 1/2	24
1	12	6500	2500	2 1/8	2 1/8	.306	5 1/2	24
1	9	4500	2000	2 1/8	2 1/8	.375	5 1/2	24
1	12	6500	2500	2 1/8	2 1/8	.375	5 1/2	24
1 1/4	9	4700	3500	2 1/2	2 1/8	.440	6	24
1 1/4	12	7500	3500	2 1/2	2 1/8	.440	6	24



CX-24 THIN SLAB COIL INSERT

The CX-24 Thin Slab Coil Insert is a four strut insert fabricated with a wire coil and four deformed (ribbed) wire legs. This insert is applicable for face lift handling of precast panels, slabs and other similar types of precast elements. The Thin Slab Coil Insert is available in plain, hot dip galvanize, or stainless steel finish.

CX-24 THIN SLAB COIL INSERT

Bolt Diameter in.	Insert Length L In.	Safe Work Load (Tension) lbs.	Safe Work Load (Shear) lbs.	B in.	Coil Length C in.	W in.	Wire Diameter D in.	Edge Distance (Tension)[3] in.	Edge Distance (Shear)[4] in.
¾	3	2500	2000	1 5/8	1 3/4	7 1/8	.306	9	9
1	4	3500	3500	1 7/8	2 1/8	9 1/2	.306	12	13
1 1/4	4	4000	4000	2 1/4	2 1/8	9 3/4	.375	12	14
1 1/2	4	4000	4000	2 1/2	2 1/8	10	.375	12	14

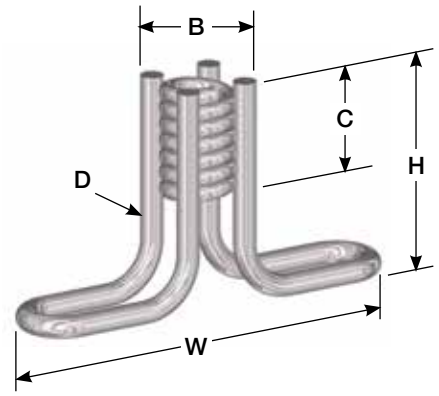
1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5 x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

To Order, Specify: quantity, name, bolt diameter and finish.

Coil Lifting Inserts

CX-28 COIL WINGNUT INSERT

The CX-28 Coil Wingnut Insert is designed for use in small envelope and small load applications. Small sections, architectural panels or thin slabs are applications best suited for this insert. The Coil Wingnut Insert is available in plain or hot dip galvanize finish.



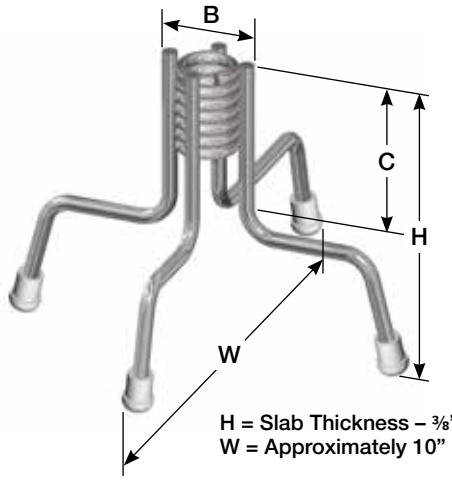
CX-28 COIL WINGNUT INSERT

Bolt Diameter in.	Length H In.	Safe Work Load (Tension) [1,2] lbs.	Safe Work Load (Shear) [1,2] lbs.	B in.	Coil Length C in.	W in.	Wire Diameter D in.	Edge Distance (Tension)[5] in.	Edge Distance (Shear)[6] in.
½	2 ¼	950	1100	1 ¼	1 3⁄16	4 ⅛	.225	4	6
¾	2 ¼	2000	1250	1 ½	1 ⅝	5	.262	5	5
¾	3 ½	3400	2450	1 ⅝	1 ⅝	6	.306	6	9
1	2 ½	2000	2000	2	2	6	.306	5	6
1	4 ½	4750	3900	2	2	6	.306	8	12

1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5 x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

CX-41 COIL LIFTING INSERT – SINGLE

The CX-41 Coil Lifting Insert – Single is applicable for face lifting and handling flat panels, slabs, utility boxes, etc. It is fabricated with deformed wire legs for increased pullout strength and is available with or without locator plug and with or without plastic tipped feet. The Coil Lifting Insert – Single is available in the bolt diameters and slab thickness shown in the chart and in plain or hot dip galvanize finish.



H = Slab Thickness – ⅜"
W = Approximately 10"

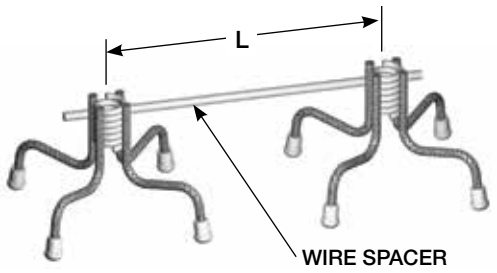
CX-41 COIL LIFTING INSERT - SINGLE

Bolt Diameter in.	Slab or Panel Thickness and Safe Work Load (Tension)												Edge Distance (Tension)[5] in.	Edge Distance (Shear)[6] in.
	4 in.		5 in.		5 ½ in.		6 in.		7 in.		8 in.			
	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.		
¾	2000	2000	2800	2850	3350	3450	4000	4100	-	-	-	-	15	15
1	2500	2500	3200	3400	3750	3450	4500	4500	5700	5550	6500	6150	15	15
1 ¼	-	-	3500	4400	4200	4800	5200	5200	6000	5800	6800	6450	15	15
1 ½	-	-	-	-	4800	4950	5600	5600	6300	6000	7000	6650	18	15

1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ⅜" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5 x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

To Order, Specify: quantity, name, bolt diameter, slab thickness and finish.

Coil Lifting Inserts



CX-42 COIL LIFTING INSERT – DOUBLE

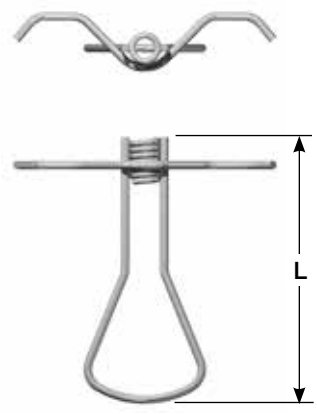
The CX-42 Coil Lifting Insert – Double is two single coil lifting inserts joined by a wire spacer. The insert is available in three bolt diameters, as shown in the table. Note that the 1" diameter unit has a center to center dimension of 12" and the 1-¼" and 1-½" units employ a 15" center-to-center dimension. The Coil Lifting Insert – Double is often used as a face lifting insert for heavy panels or slabs and is also an effective strongback insert. It is available in plain, hot dip galvanize or stainless steel finish.

CX-42 COIL LIFTING INSERT - SINGLE

Bolt Diameter in.	Slab or Panel Thickness and Safe Work Load (Tension)												Edge Distance (Tension)[5] in.	Edge Distance (Shear)[6] in.
	4 in.		5 in.		5½ in.		6 in.		7 in.		8 in.			
	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.		
1	3000	3000	4000	4850	5000	5250	5500	5650	6750	7000	8000	7750	15	15
1¼	-	-	-	-	5200	5950	6000	6400	7100	7700	8500	8000	15	15
1½	-	-	-	-	-	-	6500	6800	7500	7700	9000	8500	15	18

1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5 x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

To Order, Specify: quantity, name, bolt diameter, slab thickness and finish.



CX-43 EDGE LIFT INSERT – SINGLE

The CX-43 Edge Lift Insert – Single is a light-duty edge lift insert similar to the CX-4 Coil Loop Insert – Flared, but has a shaped strut added to the top of the insert's coil. This added wire strut helps to distribute shear loads into the concrete during the lifting process. The insert should always be set with the shear strut in the direction of the pull.

Note that for the insert to develop the posted working loads, the insert must be setback ½" from the concrete surface. Plywood cutouts or stacked cut washers can be utilized as setback spacers. The Edge Lift Insert – Single is available in 3/4" and 1" bolt diameters in lengths shown in the table and in plain, hot dip galvanize or stainless steel finish.

WARNING: If concrete over insert fails, wire struts may break resulting in loss of panel.

CX-43 EDGE LIFT INSERT - SINGLE DATA

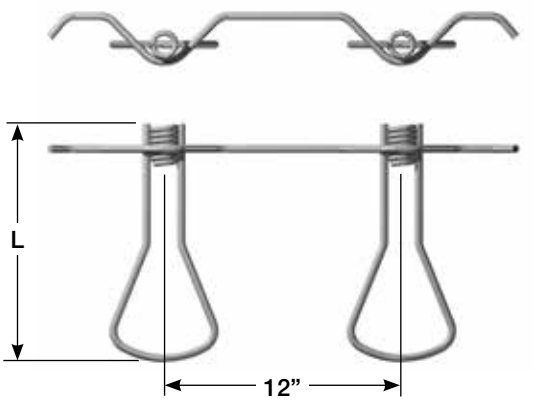
Insert Type	Bolt Diamter		Insert Length L		Type Loading	(Edge Thickness) Safe Work Load											
						4 inch		5 inch		5½ inch		6 inch		7¼ inch		8 inch	
	in.	mm	in.	mm		lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN
Single	¾	19	9	225	Tension	1500	6.7	-	-	-	-	-	-	-	-	-	-
Single	¾	19	9	225	Shear	1250	6.6	-	-	-	-	-	-	-	-	-	-
Single	1	25	12	300	Tension	-	-	1300	13.6	3300	14.6	3600	16.0	4300	19.1	4800	21.3
Single	1	25	12	300	Shear	-	-	1350	6.0	1375	6.1	1400	6.2	1550	6.8	1600	7.1

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½" setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.

To Order, Specify: quantity, name, bolt diameter, slab thickness and finish.

Coil Lifting Inserts

CX-44 EDGE LIFT INSERT – DOUBLE



The CX-44 Edge Lift Insert – Double is like the single unit, but has a second insert attached with a shaped wire strut. The insert should always be set with the shear strut in the direction of the pull. Note that for the insert to develop the posted working loads, the insert must be setback ½” from the concrete surface. Plywood cutouts or stacked cut washers can be utilized as setback spacers. The Edge Lift Insert – Double is available in ¾” and 1” bolt diameters and lengths shown in the table and is available in plain, hot dip galvanize, or stainless steel finish.

WARNING: If concrete over insert fails, wire struts may break resulting in loss of panel.

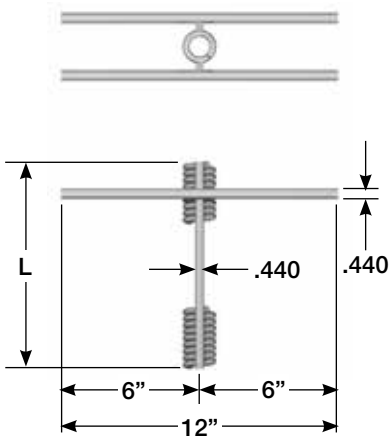
CX-44 EDGE LIFT INSERT - DOUBLE DATA

Insert Type	Bolt Diamter		Insert Length L		Type Loading	(Edge Thickness) Safe Work Load											
						4 inch		5 inch		5½ inch		6 inch		7¼ inch		8 inch	
	in.	mm	in.	mm		lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN
Double	¾	19	9	225	Tension	5500	6.7	-	-	-	-	-	-	-	-	-	-
Double	¾	19	9	225	Shear	1500	6.6	-	-	-	-	-	-	-	-	-	-
Double	1	25	12	300	Tension	-	-	4000	17.8	4400	19.5	4800	21.3	5800	25.7	6500	28.9
Double	1	25	12	300	Shear	-	-	2100	9.3	2250	10.0	2400	10.6	2800	12.4	3000	13.3

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½” setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.

To Order, Specify: quantity, name, bolt diameter and finish.

CX-45 EDGE PICKUP INSERT – SINGLE



The CX-45 Edge Pickup Insert – Single combines a strong coil tie and two horizontal struts to form a higher capacity edge lift insert. Note that for the insert to develop the posted working loads, the insert must be setback ½” from the concrete surface. Plywood cutouts or stacked cut washers can be utilized as setback spacers. The Edge Pickup Insert – Single is available in 1” and 1-¼” bolt diameters and lengths shown in the table and is available in plain, hot dip galvanize, or stainless steel finish.

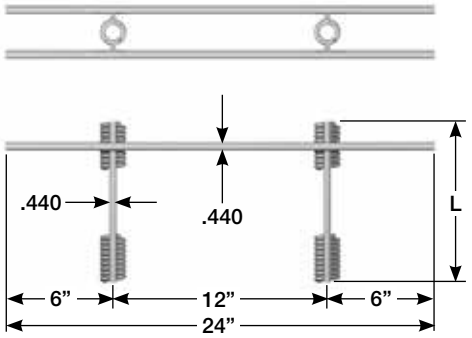
CX-45 EDGE PICKUP INSERT - SINGLE DATA

Bolt Size		Insert Length L		Minimum Edge Thickness		Safe Work Load			
						Tension		Shear	
in.	mm	in.	mm	in.	mm	lbs.	kN	lbs.	kN
1	25	9	228	5½	140	5200	23.1	1250	5.5
1¼	32	10	254	7¼	184	6500	28.9	2000	8.9

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½” setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.

To Order, Specify: quantity, name, bolt diameter and finish.

Coil Lifting Inserts



CX-46 EDGE PICKUP INSERT – DOUBLE

The CX-46 Edge Pickup Insert – Double is two single edge pick inserts spaced 12” apart by two horizontal wire struts resulting in higher lifting capacity. Note that for the insert to develop the posted working loads, the insert must be setback ½” from the concrete surface. Plywood cutouts or stacked cut washers can be utilized as setback spacers. The Edge Pickup Insert – Double is available in 1” and 1-¼” bolt diameters and lengths shown in the table and is available in plain, hot dip galvanize, or stainless steel finish.

CX-46 EDGE PICKUP INSERT - DOUBLE DATA

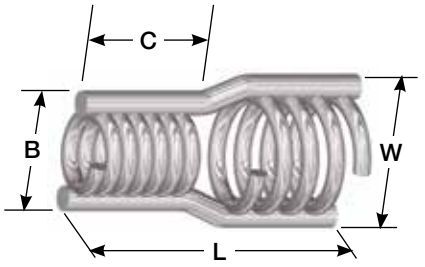
Bolt Size		Insert Length L		Minimum Edge Thickness		Safe Work Load			
						Tension		Shear	
in.	mm	in.	mm	in.	mm	lbs.	kN	lbs.	kN
1	25	9	228	5½	140	9700	43.1	2300	10.2
1¼	32	10	254	7¼	184	12,000	53.3	3200	14.2

Table is based on minimum concrete strength of 3,000 psi and a 4:1 safety factor.
1. Inserts must have a ½” setback from the surface of the concrete and sufficient coil penetration by the lifting bolt.

To Order, Specify: quantity, name, bolt diameter and finish.

CX-51 OPEN COIL INSERT

The CX-51 Open Coil Insert is designed to enlarge and increase the shear cone surface area, which in effect increases the load capacity of the insert without increasing the insert’s corresponding length. This is a very versatile insert used for many functions, lifting precast boxes, manholes or other utility shapes.



The CX-51 Open Coil Insert is available with an attached mounting washer welded to the front end of the insert. Mounting washers have 2 nail holes for nailing the insert to a wood form or bolting to a steel form. Standard sizes shown below. Custom sizes available upon request and is available in plain, hot dip galvanize, or stainless steel finish.

CX-51 OPEN COIL INSERT DATA

Bolt Diameter	Length (L)	SWL (Tension) lbs.	SWL (Shear) lbs.	Number of Struts	B in.	Coil Length (C) in.	W in.	Wire Diameter (D) in.	Edge Distance (Tension) in.	Edge Distance (Shear) in.
¾	4½	4250	4250	2	1¾	1⅝	2⅛	0.375	7	12
1	5½	6250	6250	2	2¼	2⅛	2½	0.440	9	16
1	7½	10,000	12,000	4	2¼	2⅛	2¾	0.440	12	24
1¼	7½	12,000	12,000	4	2½	2⅛	3	0.440	12	24
1¼	9½	16,000	16,000	6	2½	2⅛	3	0.440	16	26
1½	9½	16,000	16,000	6	2¾	2⅛	3	0.440	16	26

1. SWL based on 3000 psi concrete compressive strength.
2. SWL includes a 4:1 safety factor.
3. Inserts must have a ½” setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2 x length of the insert.
5. Minimum corner distance shall be 1.5 x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2 x the edge distance for tension and 3 x the edge distance for shear.

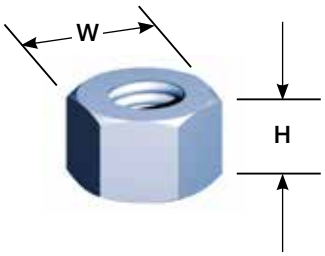
To Order, Specify: quantity, name, bolt diameter, slab thickness and finish.

Coil Lifting Insert Accessories

CN-5 COIL NUT

The CN-5 Standard Coil Nut is manufactured from hex stock and is available in ½" through 1-½" diameters. Dimensions are displayed in the table.

The Standard Coil Nut safe working loads are based on an approximate 5:1 safety factor for lifting applications.



CN-5 STANDARD COIL NUT DATA									
Bolt Size		Safe Work Load (Tension)				Nut Height H		Width Across Flats W	
		One CN-5		Two CN-5 or One CN-25					
in.	mm	lbs.	kN	lbs.	kN	in.	mm	in.	mm
½	13	2400	10	3600	16	½	13	⅞	22
¾	19	4800	21	7200	32	⅝	15	1⅛	28
1	25	7200	32	15,000	67	1	25	1⅝	41
1¼	32	10,800	48	22,500	100	1¼	32	2	50
1½	38	16,200	72	27,000	120	1½	38	2⅜	60

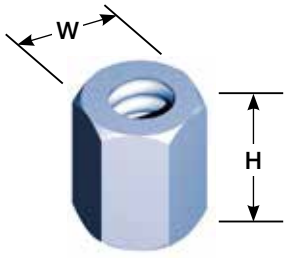
Table is based on a 5:1 safety factor for lifting applications.
1. Note that in order to achieve the published safe working loads of Coil Bolts, Coil Rods, etc., two (2) Standard Coil Nuts tightly locked together are required when using the Standard Coil Nut.

To Order, Specify: quantity, name and bolt diameter.

CN-25 COIL NUT – HEAVY

The CN-25 Heavy Coil Nut is manufactured from hex stock like the Standard Coil Nut, but is of sufficient length to develop the safe working load required for heavy form tying systems and precast lifting applications.

The Heavy Coil Nut safe working loads are based on an approximate 5:1 safety factor for lifting applications.



CN-25 HEAVY COIL NUT DATA							
Bolt Size		Safe Work Load (Tension)		Nut Height H		Width Across Flats W	
		Two CN-5 or One CN-25					
in.	mm	lbs.	kN	in.	mm	in.	mm
½	13	3600	16	½	25	⅞	28
¾	19	7200	32	1½	38	1⅛	28
1	25	15,000	67	2	50	1⅝	41
1¼	32	22,500	100	2½	64	2	50
1½	38	27,000	120	3	76	2⅜	60

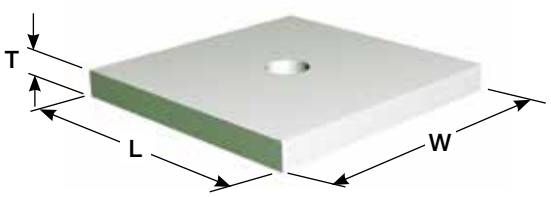
Table is based on a 5:1 safety factor for lifting applications.

To Order, Specify: quantity, name and bolt diameter.

Coil Lifting Insert Accessories

CW-4 FLAT WASHER

The CW-4 Flat Washers are manufactured from ASTM A36 flat steel plate and are designed to provide the required bearing against the form members. Flat Washers are available in many sizes in both standard and heavy versions. Refer to the table for dimensions.



CW-4 FLAT WASHER DATA								
Bolt Size		Type	T		L		W	
in.	mm		in.	mm	in.	mm	in.	mm
½	13	Standard	¼	6	4	100	3	75
¾	19	Standard	¼	6	4	100	5	125
1	25	Standard	½	13	5	125	5	125
1 ¼	32	Standard	½	13	5	125	5	125
½	13	Heavy	¼	6	4	100	5	125
¾	19	Heavy	½	13	5	125	5	125
1 ¼	32	Heavy	¾	19	7	175	7	175

To Order, Specify: quantity, name and bolt diameter.

CR-4 COIL ROD

CR-4 Continuous Coil Rod is manufactured and stocked in 12'-0" lengths. Special lengths are available up to 20'-0".

Requires minimum two (2) Standard CN-5 Coil Nuts or one (1) Heavy CN-25 Coil Nut to develop full safe work load. Minimum coil thread penetration is same as shown for coil bolts. See Table on page 96 to assure minimum coil penetration. May be cut with carborundum blades without thread damage. Do not use cutting torch to cut coil rod.

CR-4 HI-STRENGTH CONTINUOUS COIL ROD SELECTION TABLE					
Bolt Size		Safe Work Load			
		Tension		Shear	
in.	mm	lbs.	kN	lbs.	kN
½	13	3600	16	2400	11
¾	19	7200	32	4800	21
1	25	15,000	67	10,000	44
1 ¼	32	24,000	107	16,000	71
1 ½	38	28,000	124	18,000	83

Table is based on a 5:1 safety factor for lifting applications.

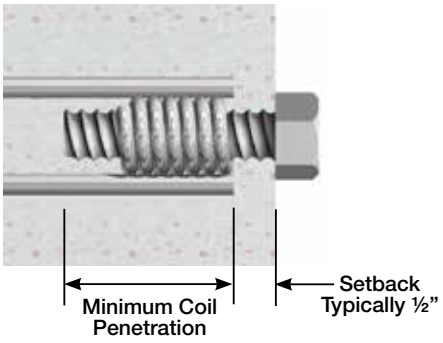
To Order, Specify: quantity, name, bolt diameter and length.

Coil Lifting Insert Accessories

CB-2 COIL BOLT

The CB-2 Coil Bolts are available in ½" through 1-½" diameters for use with Coil Ties, Coil Inserts and other Meadow Burke products furnished with coil threads. Coil Bolts are manufactured with the fast-threading, self-cleaning coil thread and are available in lengths as needed. Coil Bolts may be furnished with an integral forged head or with a hex nut welded to a length of continuous coil rod. Standard thread length of the integral forged head Coil Bolt is 4" on the ½" diameter and 4-½" on all other sizes.

Use of waterproof, stain resistant grease applied to the bolt shaft will aid in the bolt removal process. Note that Coil Bolts are subject to wear and misuse and should be continually inspected for wear, cracks, bends, overstressing, etc. If there is any indication of these types of problems, the bolt should be discarded.



WARNING: *Minimum coil penetration is extremely important and must be adhered to when threading Coil Bolts into other coil-threaded products. Safe working loads are dependent on maintaining the appropriate minimum coil penetration; failure to do so can lead to a premature failure of the coil and compromise worker safety. Refer to the table for safe working loads and minimum coil penetration lengths.*

CB-2 COIL BOLT DATA

½ in. (13 mm) Diameter Safe Work Load		¾ in. (13 mm) Diameter Safe Work Load				1 in. (25 mm) Diameter Safe Work Load				1 ¼ in. (31.5 mm) Diameter Safe Work Load				1 ½ in. (38 mm) Diameter Safe Work Load			
		Tension		Shear		Tension		Shear		Tension		Shear		Tension		Shear	
lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN	lbs.	kN
3600	16	7200	32	4800	21.3	15,000	67	10,000	44	24,000	107	16,000	71	28,000	124	18,000	80
Minimum Coil Penetration		Minimum Coil Penetration				Minimum Coil Penetration				Minimum Coil Penetration				Minimum Coil Penetration			
in.	mm	in.		mm		in.		mm		in.		mm		in.		mm	
2	51	2¼		57		2½		65		3		75		3		75	
6 Threads / in.		4.5 Threads / in.				3.5 Threads / in.				3.5 Threads / in.				3.5 Threads / in.			

Table is based on a 5:1 safety factor for lifting applications.

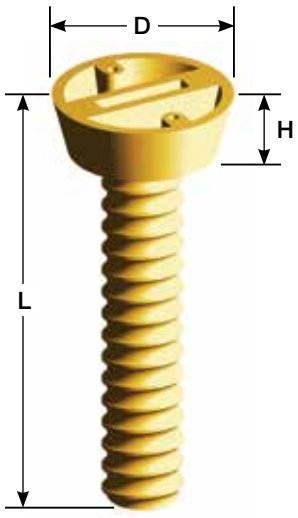
To Order, Specify: quantity, name and bolt diameter.

CP-2 COIL SETTING PLUG – PLASTIC

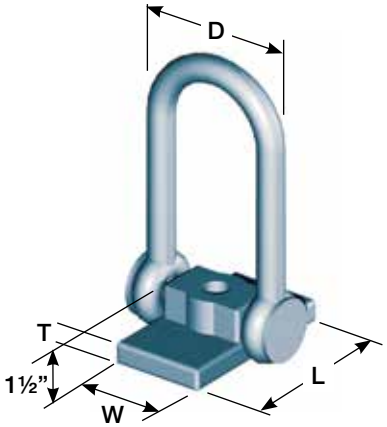
The CP-2 Coil Setting Plug – Plastic is available in ½", ¾" and 1" diameters. They are effectively used to set inserts in the form by nailing the plug to the form face and then threading the coil insert onto the plug. The reusable plugs are easily removed from the concrete after the form has been stripped. The Coil Setting Plug can also be used as a temporary cap when another pour will be made at a later time.

To Order, Specify: quantity, name and bolt diameter.

CP-2 Coil Setting Plug - Plastic			
Bolt Diameter	D	H	L
in.	in.	in.	in.
½	1⅜	½	2¾
¾	2	¾	3¾
1	2¼	¾	5½



Coil Lifting Insert Accessories



LP-11 LIFT PLATE – SWIVEL

The LP-11 Lift Plate – Swivel is a high strength unit designed for use with ¾" or 1" bolt diameter single face or edge lift inserts. It's made of forged steel and has a rated safe working load of 11,000 lbs with an approximate safety factor of 5:1.

Caution: The swivel lift plate must have full bearing on smooth, flat concrete and be securely tightened.

Note: SWL of Lift Plate requires installation of a standard flat washer underneath bolt head.

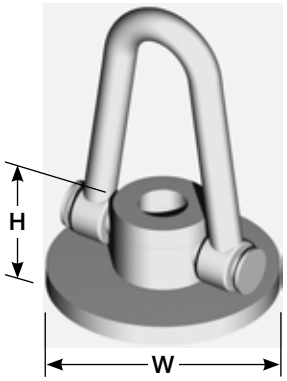
WARNING: Do not use any attachment bolt to fasten a swivel lift plate that shows excess wear, is bent or has any other factor that compromises its safe working load. Verify that the coil bolt is of proper length and properly penetrates the coil. Monitor the direction of pull on the lift plate's bail. Do not permit a sideways pull. Any of the warnings, if not heeded, can result in serious injury.

LP-11 LIFT PLATE - SWIVEL DATA

Bolt Size		L		W		D		T		Minimum Bolt Length*	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
¾	19	5	125	2½	67	4¾	130	9⁄16	16	4	100
1	25	5	125	2½	67	4¾	130	9⁄16	16	5	125

Table is based on a 5:1 safety factor for lifting applications.
* Based on a 6½" turn coil and insert setback ½" from the surface of the concrete.

To Order, Specify: quantity, name and bolt diameter.



LP-20 LIFT PLATE – DOUBLE SWIVEL

The LP-20 Lift Plate – Double Swivel is designed to allow the bail to swivel 360° in the horizontal plane and 180° in the vertical plane. This feature allows the unit to rotate to the direction of the pull. It is available for use with 1", 1 ¼" and 1 ½" bolt diameters. Refer to the table for dimensions and safe working loads.

Caution: The Lift Plate - Double Swivel must have full bearing on smooth, flat concrete and be securely tightened.

Note: SWL of Lift Plate requires installation of a standard flat washer underneath bolt head.

WARNING: Do not use any attachment bolt to fasten a swivel lift plate that shows excess wear, is bent or has any other factor that compromises its safe working load. Verify that the coil bolt is of proper length and properly penetrates the coil. Any of the warnings above, if not heeded, can result in serious injury.

LP-20 LIFT PLATE - DOUBLE SWIVEL DATA

Bolt Diameter		Safe Work Load		H		W		Minimum Bolt Length*	
in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm
1	25	9000	40	2 1⁄16	50	5	125	5	125
1 ¼	32	16,000	71	2¾	70	7	175	6	150
1 ½	28	16,000	71	2¾	70	7	175	6	150

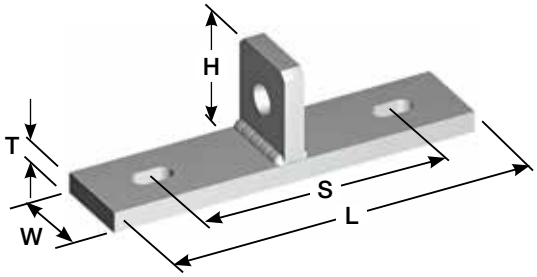
Table is based on a 5:1 safety factor for lifting applications.
* Based on a 6½" turn coil and insert setback ½" from the surface of the concrete.

To Order, Specify: quantity, name and bolt diameter.

Coil Lifting Insert Accessories

LP-22 LIFT PLATE - EDGE

The LP-22 Lift Plate – Edge is designed for edge lifting applications using ¾" or 1" bolt diameter double edge lift inserts that have a 12" center-to-center bolt pattern. Note: This lift plate is not intended for face lift applications.



Note: SWL of Lift Plate requires installation of washer below bolt head.

WARNING: Do not permit sideward loading on this lift plate. Sideward loading can cause a premature failure resulting in serious injury.

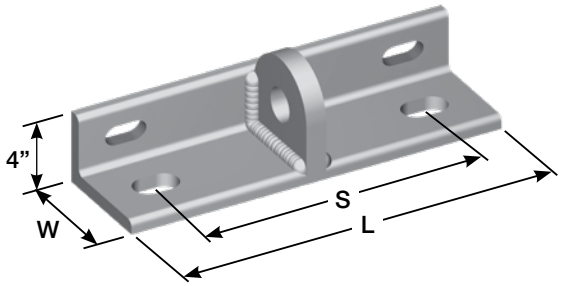
LP-22 LIFT PLATE - EDGE DATA													
Bolt Size		Safe Work Load		T		W		L		H		S	
in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
¾	19	8800	39.1	1	25	4	100	18"	450	5½	140	12"	300
1	25	8800	39.1	1	25	4	100	18"	450	5½	140	12"	300

Table is based on a 5:1 safety factor for lifting applications.

To Order, Specify: quantity and name.

LP-44 LIFT PLATE – ANGLE

The LP-44 Lift Plate – Angle is designed for use with face lifting applications using the CX-42 Double Coil Lifting Insert It can also be used on edge lift applications if the panel thickness is 6 inches or greater.



Note: SWL of Lift Plate requires installation of washer below bolt head.

WARNING: Do not permit sideward loading on this lift plate. Sideward loading can cause a premature failure resulting in serious injury.

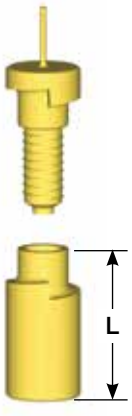
LP-44 LIFT PLATE - ANGLE DATA													
Bolt Size		Safe Work Load		Min. Bolt Length		S		T		L		W	
in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1	25	12,000	53.3	4	100	-	-	¾	19	21	533	6"	150
1¼	32	18,000	80.0	4	100	15	381	¾	19	21	533	6"	150
1½	38	18,000	80.0	4	100	15	381	¾	19	21	533	6"	150

Table is based on a 5:1 safety factor for lifting applications.

To Order, Specify: quantity and name.

CX-47 COIL LOCATOR PLUG

The CX-47 Coil Locator Plug is a two-piece unit used with face lift inserts to mark their position after screeding is completed. The lower portion of the plug provides proper bolt clearance under insert's coil to prevent bottoming of the attaching bolt.

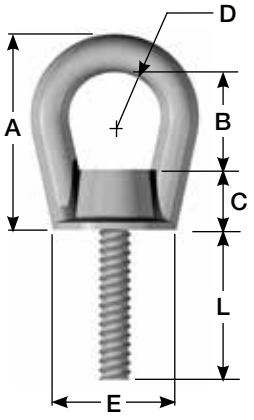


CX-47 COIL LOCATOR PLUG DATA			
Bolt Size		Safe Work Load	
in.	mm	in.	mm
¾	19	1½	38
1	25	1⅝	41
1¼	32	1¾	44

Table is based on a 5:1 safety factor for lifting applications.

To Order, Specify: quantity, name and bolt diameter.

Coil Lifting Insert Accessories



CN-49 EYE BOLT

The CN-49 Eye Bolt is a cast ductile iron unit furnished with a specified length of high strength coil rod welded in place. The unit is available in the bolt diameters shown in the table and with any length of coil rod.

Caution: Extra care must be taken to ensure that the Eye Bolt is tightened securely against the concrete surface. Failure to do so may allow the coil rod to bend and precipitate a premature failure.

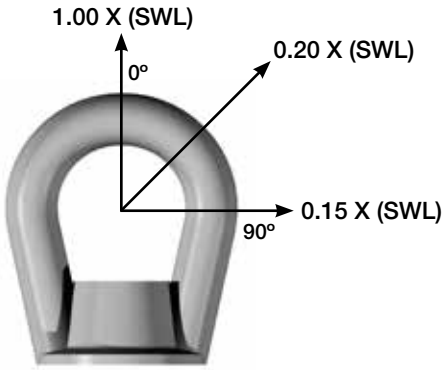
WARNING: Eye Bolts are intended for straight tension loading only. Angular loading severely reduces the safe workloads and must be avoided or properly considered. See reduction factors below.

CN-49 EYE BOLT DATA

Bolt Size		Safe Work Load		A		B		C		D		E	
in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
½	13	2700	12	3 ¼	83	1 ⅝	41	1	25	¾	19	2	51
¾	19	3600	16	3 ½	89	1 ¾	44	1	25	¾	19	2	51
1	25	7200	32	5	127	2 ¾	70	1 ¼	32	1	25	3	76
1 ¼	32	10,800	53	6 ¼	159	3 ½	89	1 ½	38	1 ¼	32	4	100

Table is based on a 5:1 safety factor for lifting applications.

To Order, Specify: quantity, name, bolt diameter and bolt length ("L" dimension).



CN-49 EYE BOLT REDUCTION FACTORS FOR ANGULAR LOADING

Reduction factors when an angle pull is required:

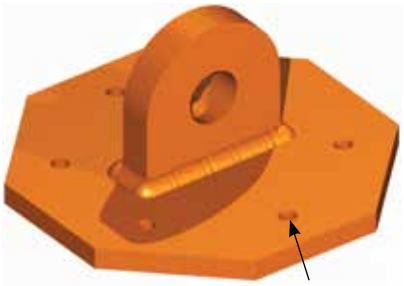
- Locate the safe workload in the table above for the Eye Bolt diameter that is being used.
- Multiply the safe working load shown in the table by the appropriate reduction factor shown in the schematic.

CN-49 Eye Bolts may be ordered without coilrod welded in as a CN-48 Eye Nut.

LIFT-IT PLATE

The Super-Lift III Lift-it Plate will lift panels with misplaced or displaced inserts. It requires the use of six MB Slam Anchors (for panels less than 9-¼") or six MB Brace Bolts (for panels 9-¼" thick or greater).

Lift-It Plate		
Item Number	Ultimate Lifting Capacity	Unit Weight [lbs.]
45,800	112,000 lbs.	32 lbs.



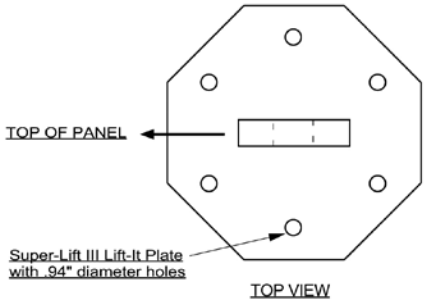
Lift-It Plate

INSTALLATION (PANELS LESS THAN 9-¼")

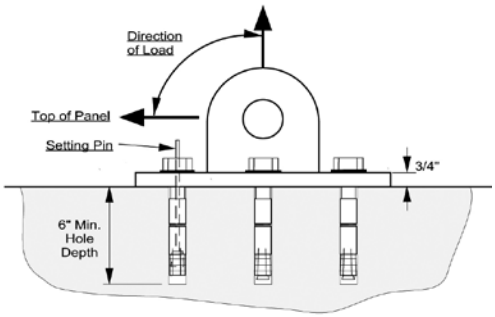
1. Drill ⅞" diameter hole to 6" deep (minimum) from tip of drill bit. Clean out dust. Use Lift-It Plate as template.
2. Place six bolt and drop-in assemblies through the Lift-it plate and into the ⅞" holes and tap until flush with the top of the plate.
3. Tap the bottom base of the Lift-it Plate towards the top of panel (about 1/16") to engage the plate to the bolts.
4. Insert a setting pin into the hole in the center of a bolt. Place the specially designed slammer setting tool over the pin and bolt and pound the ram on the setting tool all the way down.
5. Once the ram is driven all the way down use the Slammer setting tool to check that the Slam Anchor is tightened using approximately ⅛ (minimum) to ½ (maximum) turns. Do not use an impact wrench and no torque wrench is required.
6. Repeat steps 4 and 5 for remaining 5 bolts.

INSTALLATION (PANELS GREATER THAN 9-¼")

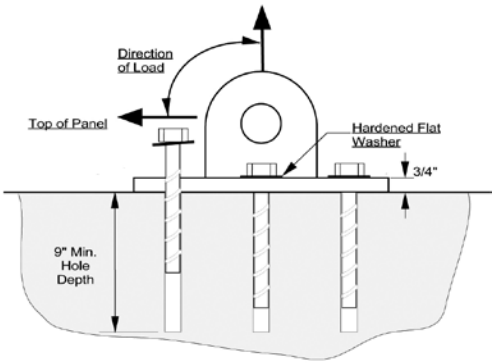
1. Drill 20mm diameter hole to 9" deep (minimum) from tip of drill bit. Clean out dust. Use Lift-It Plate as template.
2. Place MB Brace Bolt into the hole through the hardened washer and the Liftit Plate as shown.
3. Turn bolt into the concrete using a large ¾" impact wrench with a 30mm socket.
4. If it is necessary to remove the bolt and reinstall it, hand thread the bolt to start it in the original threads.



TOP VIEW



SIDE VIEW SLAM ANCHOR INSTALLATION
PANELS LESS THAN 9¼" THICK

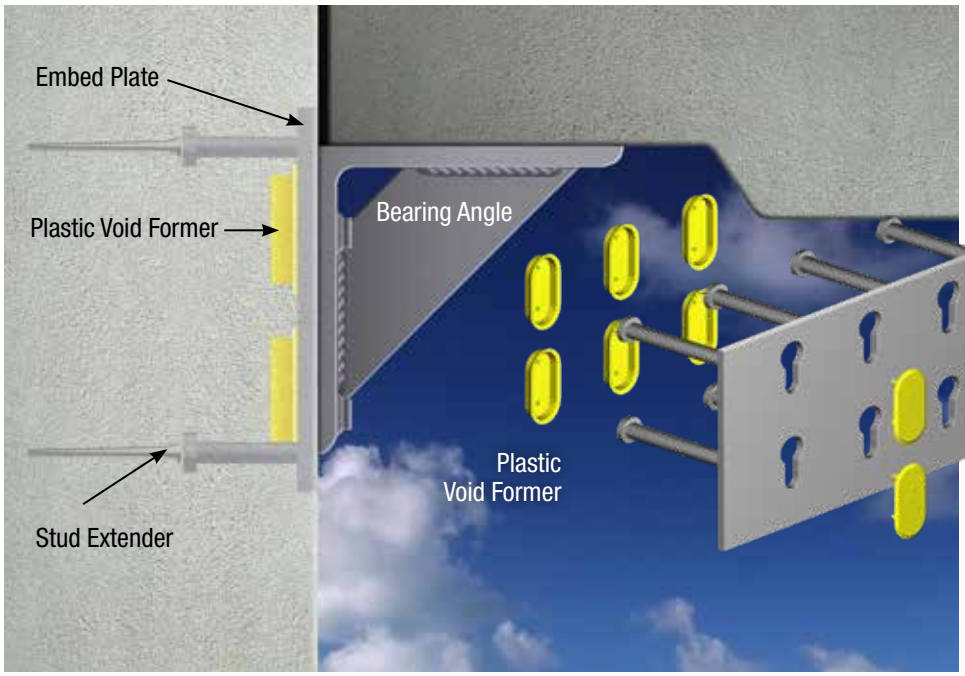


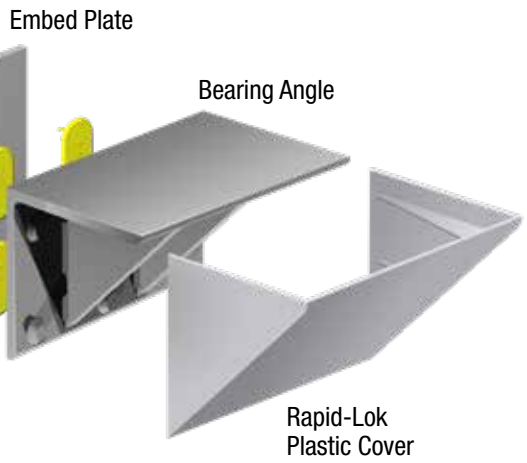
SIDE VIEW MB BRACE BOLT INSTALLATION
PANELS 9¼" THICK OR GREATER

RAPID-LOK® Genration II Connection Plate System*

The Meadow Burke Rapid-Lok© Connection Plate System eliminates many field welding operations with its unique and thoughtful design. Each System connection has three basic parts: an embed plate, a void former and the bearing angle. Many sizes are available to meet most requirements and special sizes and/or configurations are available on special order. All connections are in conformance to recommendations set forth in the Precast Concrete Institute (PCI) Design Handbook, 6th Edition.

A Better Solution





What is the Rapid-Lok System?

Rapid-Lok System is used to eliminate conventional concrete corbels. Rapid-Lok System creates a steel projection in a structural wall, which acts as a shelf, able to carry the weight of a Double Tee, Stair, Beam or other precast elements.

Rapid-Lok System consists of a Bearing Angle, Steel Corbel or Concrete Replicated Bearing Corbel that locks into an Embed Plate cast into a structural wall.

How It Works:

The Embed Plate is cast into the structural wall at the precast plant, with the faceplate flush to the wall face. Once the precast structure is on site, the void formers attached to the face of the Embed Plate that create recesses are removed by the Erector to reveal 'keyholes.'

The Bearing Angle, Concrete Replicated Bearing Corbel, or Steel Corbel's interlocking studs are then engaged into the keyholes of the Embedded Plate, securely locking them in place without requiring a weld. Selection of a Bearing Angle, Concrete Replicated Bearing Corbel or Steel Corbel is based upon load requirements, fire rating and aesthetic finish desired for the project.

Why is it Better?

Saves time and money:

- Reduces the risk of accidents in the precast plant by not having to position and place the heavy concrete corbels in the process of producing a panel or column.
- Forming and casting corbels in a precast panel is both time consuming and requires additional material costs. This is eliminated by using the Rapid-Lok Embed Plate at the precast plant and then engaging the Bearing Angle or Bearing Corbel onsite during erection.
- Eliminates the need for onsite welding and weld inspections as the connection to the face plate and angle are secured by interlocking studs.

Improves aesthetics:

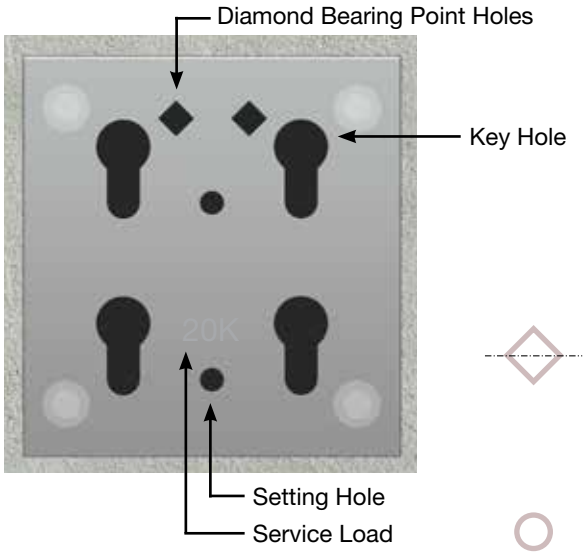
- Less obtrusive than a larger concrete corbel
- Offers an 'urban industrial' look to the structure if the steel of the Bearing Angle is left exposed
- The Bearing Angle can be covered with a concrete colored Rapid-Lok Plastic Cover
- When encased in concrete, the Bearing Angle recreates the finish and look of a tra ditional concrete corbel

Design the Rapid-Lok into a Project:

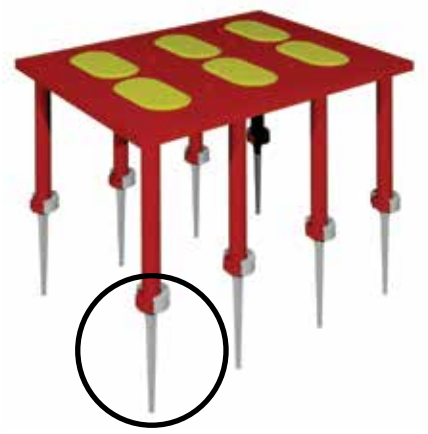
- Identify the live and dead loads of the weight the Rapid-Lok must hold
- Select either the Bearing Angle or Corbel system based on hours of fire rating required
- Select either the Bearing Angle or Corbel system based on aesthetics (exposed vs. encased finish)

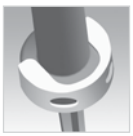
The Embed Plate is cast into the structural wall at the precast plant, with the faceplate flush to the wall face.

Features



20K





Embed Plate

Selection of the Embed Plate size and configuration is determined by the selection of either Bearing Angle, Concrete Replicated Bearing Corbel or Steel Corbel.

- Manufactured from ASTM A36 steel, it is a durable long-term solution over using a concrete corbel
- Available in various size configurations to provide a performance range from 6 kip – 40 kip in service load
- Available in either plain or hot dipped galvanized finish

Diamond Holes

Knowing exactly where the "Bearing Point" is located has never been easier. Find the "Diamond Hole," line up the correct elevation to the corners, and the Rapid-Lok is right on! Note that this is a through hole, visible from either side, even after galvanizing.

Setting Holes

Setting Holes aid in the installation process, are 0.562" in diameter and are consistently located for use with templates during production.

Service Load Stamp

The service load of the device is located on the face of the embed plate. This indicates the unit's service load and is to be used only as a convenient indicator of the unit installed after concrete has been placed. Installation and location of the Rapid-Lok may reduce the service load.

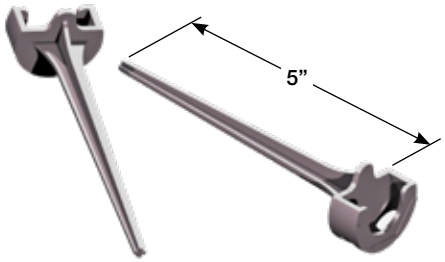
Plastic Void Former

Each Void Former is a plastic box which fits into the keyhole and is secured into place with locking stems, eliminating any concrete leakage, even when self consolidating concrete is used. This former creates a voided area, free of concrete behind the Embed Plate and permits the attachment of the Bearing Angle or Bearing Corbel without interference.

Stud Extender

The MB Stud Extender (US PATENT NO. US7065930B2) is designed as an adjustable height support chair for embed/weld plates. The Stud Extender eliminates the tedious, labor-intensive wood forming or risky "wet setting" of embed plates in the top-face of a concrete panel.

- Easy to use
- Saves materials and time
- Eliminates wood framing
- Consistent accuracy
- Screed and finish panels easily

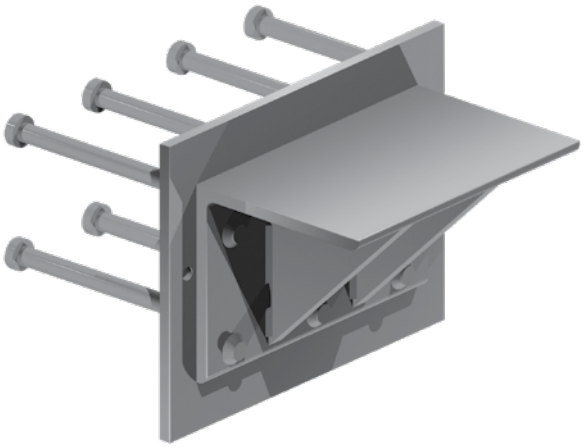


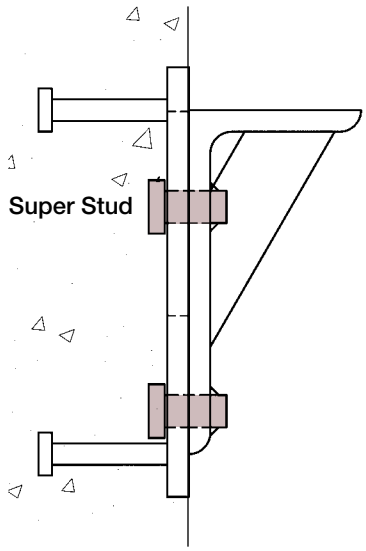
The Bearing Angle

Selection of a Rapid-Lok model is based on load requirements, fire rating and aesthetic finish desired for the project.

The Bearing Angle is used to create a shelf which acts as a traditional corbel replacement. The underside of the angle is left exposed or it is covered with the Rapid-Lok Plastic Cover.

- Available in various sizes to provide a performance range from 6 kip – 40 kip in service load
- All sizes of Bearing Angles provide up to a 1-hour fire rating. The 6 kip provides 3-hour fire rating and the 30 kip provides 2-hour fire rating
- The Rapid-Lok Plastic Cover is available for the 20 kip 8" and 30 kip Bearing Angle models. It fits securely under the gusset of the Bearing Angle units to completely conceal all three of its open sides. Due to it replicating the color of concrete, it blends into the surrounding structure





Super studs attached to the Bearing Angle have been "cold tested," configured and sized for optimum performance in all weather conditions, ensuring the load bearing capacities are met.

Rapid-Lok Plastic Cover

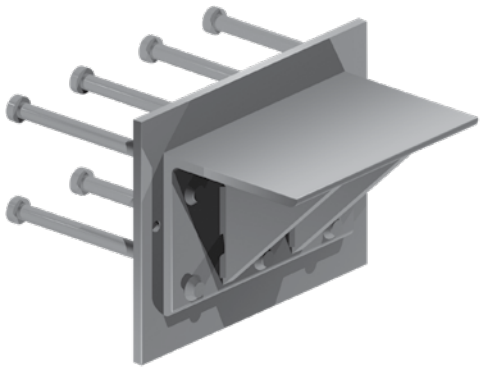
Rapid-Lok Plastic Cover will completely conceal all three open sides of the Rapid-Lok Bearing Angle.

Fits 20 Kip 8" and 30 Kip Rapid-Lok

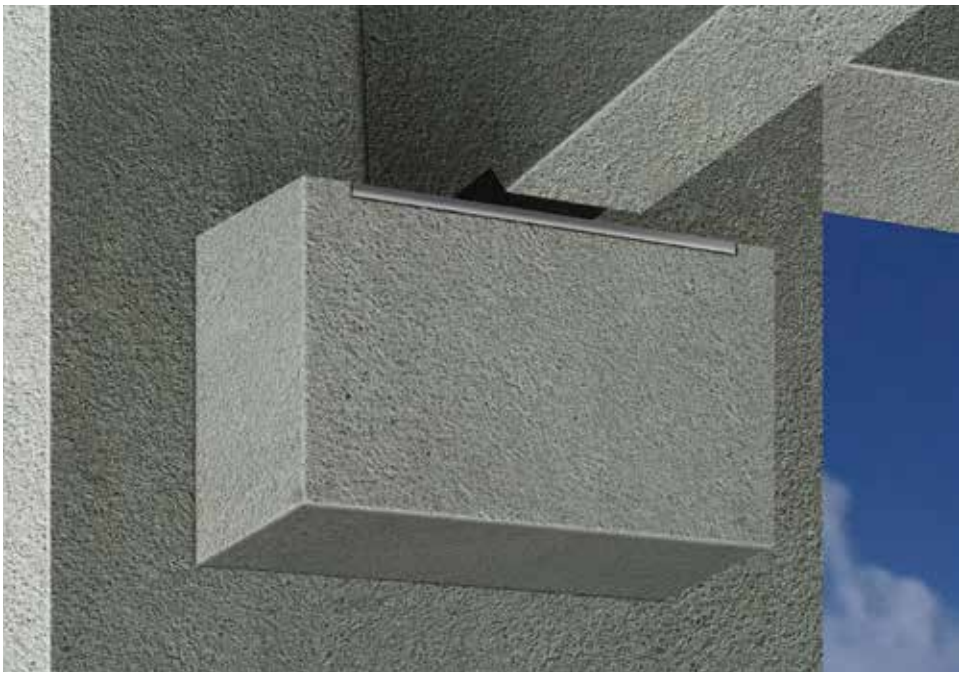
Rapid-Lok Plastic Cover will completely conceal all three open sides of the Rapid-Lok Bearing Angle, like that of a concrete corbel or concrete ledge in a conventional precast or cast-in-place scenario. Just simply snap the cover into place, fastening it to the gussets of the existing Rapid-Lok Bearing Angle Assembly.

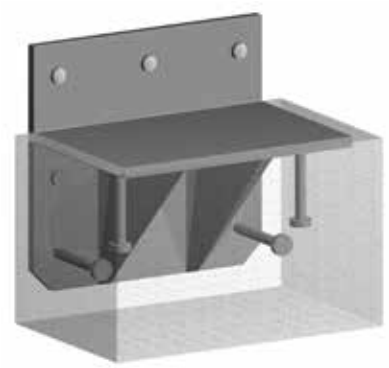
A simple but effective concrete colored plastic cover that attaches to the existing angles of the 20 kip 8" (MBRLC20) and 30 kip (MBRLC30) Rapid-Lok Bearing Angle Assembly. The Rapid-Lok Plastic Cover eliminates all the safety issues associated with installing a concrete corbel to a precast panel by reducing the weight and ergonomic concerns of hanging a large piece of concrete. The Rapid-Lok Plastic Cover was thoroughly tested to ensure that it will perform exceptionally well, even in extreme conditions. It holds its shape and resists impact damage at temperatures approaching zero and exceeding 125ºF. Although it normally remains in place once installed, the cover can be detached and reattached dozens of times if needed without deforming.

Item Number	Description
MBRLC20	Plastic Cover for 20 kip 8" Rapid-Lok
MBRLC30	Plastic Cover for 30 kip Rapid-Lok



Concrete Replicated Bearing Corbel

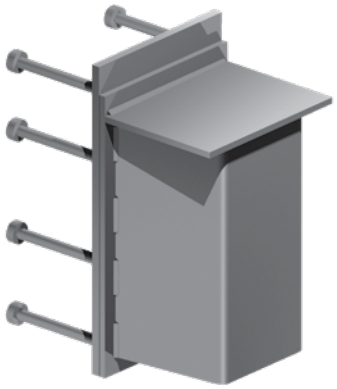




Concrete Replicated Bearing Corbel is functionally identical to the Bearing Angle but has additional studs to form a frame, allowing the casting of concrete around the corbel. The underside angle is then encased in concrete to create a traditional concrete corbel finish.

- Available in various sizes to a performance range from 20 kip – 40 kip in service load
- The 30 kip and 40 kip units provide a 2-hour fire rating and the 20 kip 8" unit provides 3-hour fire rating.

Steel Corbel



The Steel Box Corbel is a steel formed unit used to create a shelf which acts as a traditional concrete corbel replacement.

- A bottom plate improves its appearance when viewed from below
- All sizes of the Bearing Corbel achieve a minimum 1-hour fire rating. This can be increased to 2-hour rating with the addition of 6-pcf of mineral wool.

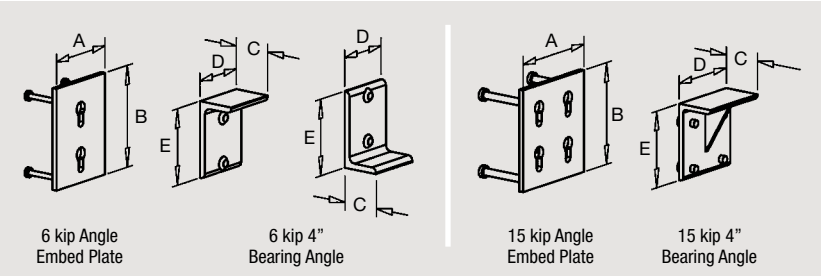
6 & 15* Kip Service Load

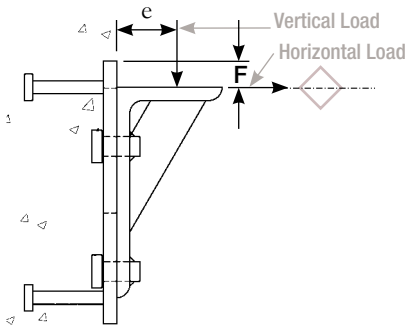
Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point e (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
6 kip 4”	6RLA	6RLAG	6 kip 4” Bearing Angle	6 kip	3 kip	3 Hour			4”	6”	8”	1.625”	2.5”		
	6RLP	6RLPG	6 kip Embed Plate				8”	10.625”						4	¾”x 3”
15 kip 4”	15RLA	15RLAG	15 kip 4” Bearing Angle	15 kip	9 kip	1 Hour			4”	7.75”	8”	1.625”	2.5”		
	15RLP	15RLPG	15 kip Embed Plate				10”	10.625”						4	¾”x 3”

NOTE: Full vertical and horizontal service loads cannot be applied simultaneously. The following interaction equation should be used for controlling service load combinations.

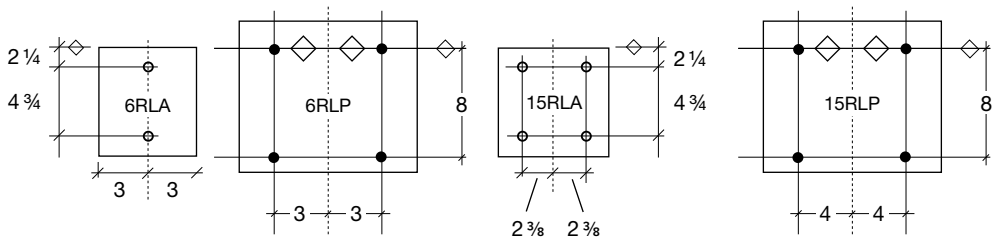
1. *Maximum in-plane eccentricity for load application is 2 ⅜” from centerline
2. Products are fire tested per ASTM E119
3. All Hot Dipped Galvanized components are hot dipped galvanized per ASTM A153

$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$

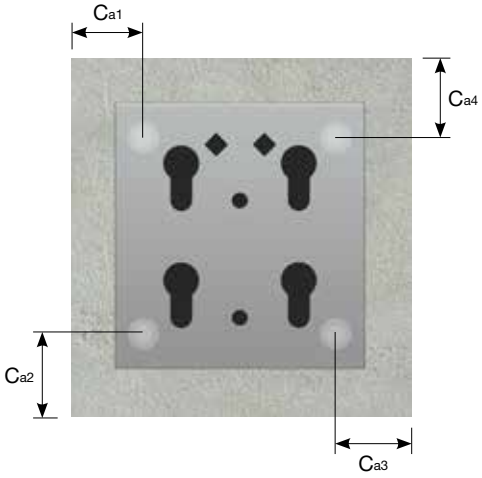




Stud Location
(Units in Inches)



Minimum Edge Distance



6 & 15 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches) C_{a1}	C_{a2}	C_{a3}	C_{a4}
6 kip 4”	6RLP	8	3	8	11
15 kip 4”	15RLP	5	6	5	14

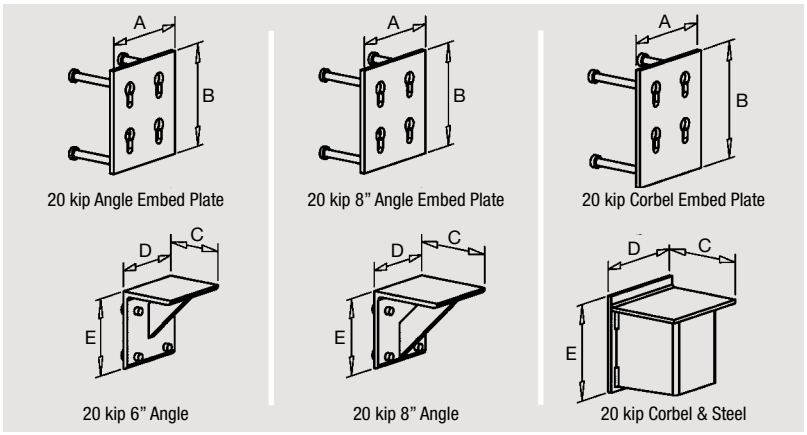
20 Kip Service Load

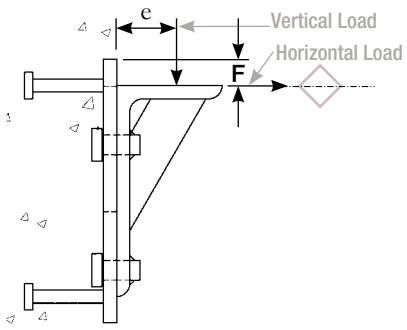
Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point e (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
20 kip 6"	20RLA	20RLAG	20k 6" Bearing Angle	20 kip	11 kip	1 Hour			6"	7.75"	8"	1.625"	4"		
	20RLP	20-RLPG	20k Embed Plate				10"	10.625"						4	¾"x 5"
20 kip 8"	20RLA8	20RLA8G	20k 8" Bearing Angle	20 kip	11 kip	1 Hour			8"	7.75"	8"	1.625"	4"		
	20RLP8	20RLP8G	20k 8" Embed Plate				10"	10.625"						4	¾"x 6"
20 kip 6" Concrete Corbel	20RLAS	20RLASG	20k 6" Bearing Angle w/studs	20 kip	11 kip	2 Hour			6"	7.75"	8"	1.625"	4"		
	20RLP	20RLPG	20k Embed Plate				10"	10.625"						4	¾"x 5"
20 kip 8" Concrete Corbel	20RLA8S	20RLA8SG	20k 8" Bearing Angle w/studs	20 kip	11 kip	3 Hour			8"	7.75"	8"	1.625"	4"		
	20RLP8	20RLP8G	20k 8" Embed Plate				10"	10.625"						4	¾"x 6"
20 kip 7 ⅞" Steel Corbel	20RLC1*, 20RLC2**	20RLC1G*, 20RLCG2**	20k 7-7/8" Bearing Corbel	20 kip	11 kip	1 Hour*			7.875"	10"	10"	2.75"	6"		
	20RLCP	20RLCPG	20k Corbel Embed Plate			2 Hour**	10"	12.13"						4	¾"x 6½"

NOTE: Full vertical and horizontal service loads cannot be applied simultaneously. The following interaction equation should be used for controlling service load combinations.

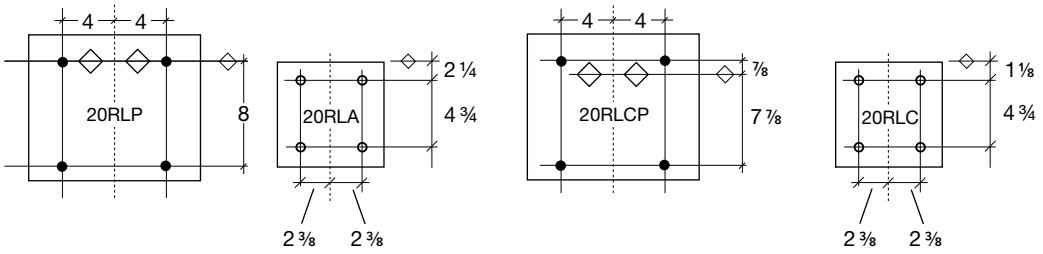
1. *Maximum in-plane eccentricity for load application is 2 ⅜" from centerline
2. Products are fire tested per ASTM E119
3. All Hot Dipped Galvanized components are hot dipped galvanized per ASTM A153

$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$



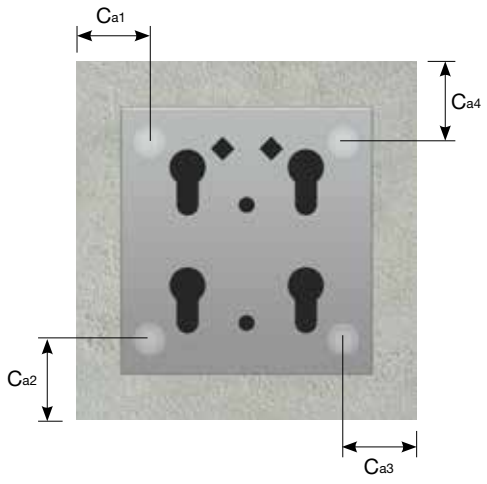


Stud Location
(Units in Inches)



Minimum Edge Distance

Rapid-Lok Model	Item Number	20 Kip Service Load Edge Distances (Inches) C_{a1}	C_{a2}	C_{a3}	C_{a4}
20 kip 6"	20RLP	10	6	10	14
20 kip 8"	20RLP8	10	6	10	14
20 kip 6" Concrete Corbel	20RLP	10	6	10	14
20 kip 8" Concrete Corbel	20RLP8	10	6	10	14
20 kip 7⅞" Steel Corbel	20RLCP	10	10	10	14



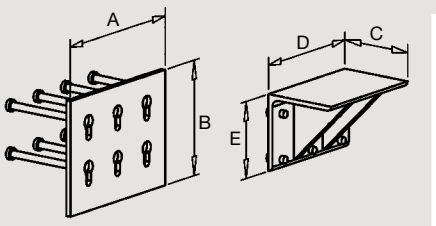
30 Kip Service Load

	Plain Finish	Hot Dipped Galvanized					Embed Plate Dim.		Bearing Angle & Corbel Dim.			Bearing Point		Embed Plate Stud Qty & Size	
Rapid-Lok Model	Item Number	Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	A (inches)	B (inches)	C (inches)	D (inches)	E (inches)	F (inches)	e (inches)	# of Studs/ Embed Plate	Stud Size (inches)
30 kip 8"	30RLA	30RLAG	30k 8" Bearing Angle	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12	30RLP12G	30k Embed Plate				15.5"	12"						8	¾"x 8"
30 kip Thin Wall	30RLA	30RLAG	30k 8" Bearing Angle	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12TW	30RLP12TWG	30k Thin Wall Embed Plate				15.5"	12"						8	¾"x 5"
30 kip 8" Thin Wall Concrete Corbel	30RLAS	30RLASG	30k 8" Bearing Angle w/studs	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12	30RLP12G	30k Embed Plate				15.5"	12"						8	¾"x 8"
20 kip 8" Concrete Corbel	30RLAS	30RLASG	30k 8" Bearing Angle w/studs	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12TW	30RLP12TWG	30k Thin Wall Embed Plate				15.5"	12"						8	¾"x 5"
30 kip 7⅞" Steel Corbel	30RLC1*, 30RLC2**	30RLC1G*, 30RLC2G**	30k 7⅞" Bearing Corbel	30 kip	18 kip	1 Hour*			7.875"	10"	16"	2.75"	6"		
	30RLCP	30RLCPG	30k Corbel Embed Plate			2 Hour**	10"	18.13"						8	¾"x 6½"

NOTE: Full vertical and horizontal service loads cannot be applied simultaneously. The following interaction equation should be used for controlling service load combinations.

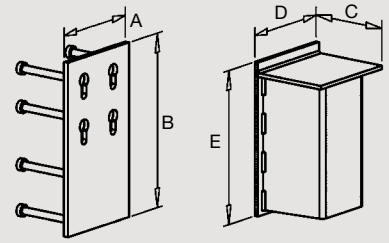
1. Maxium in-plane eccentricity for load application is 2⅜" from centerline
2. Products are fire tested per ASTM E119
3. All Hot Dipped Galvanized components are hot dipped galvanized per ASTM A153
4. 30 kip concrete corbel with 3 hour fire rating available on special order.

$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$



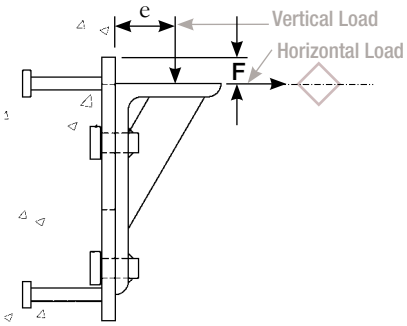
30 kip Angle Embed Plate

30 kip 8" Bearing Angle

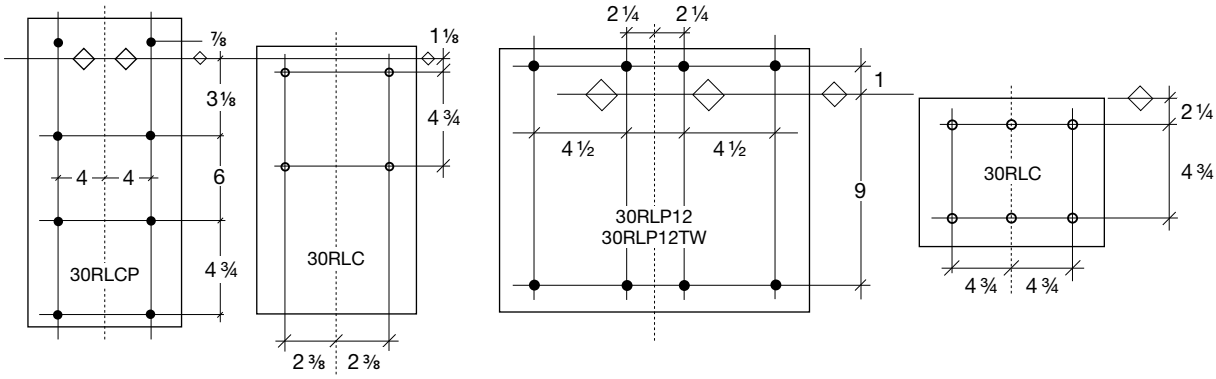


30 kip Corbel Embed Plate

30 kip Steel Corbel

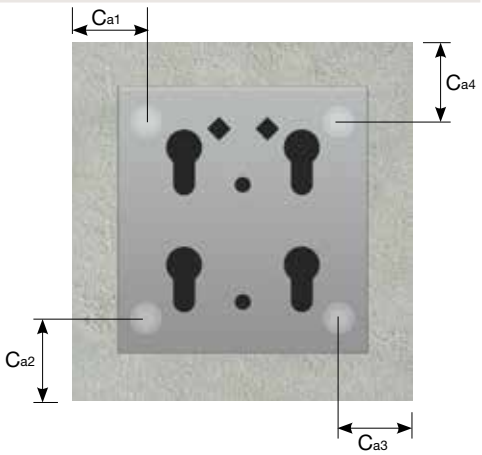


Stud Location
(Units in Inches)



Minimum Edge Distance

30 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
30 kip 8"	30RLP12	12.25	10	12.25	18
30 kip Thin Wall	30RLP12TW	12.25	10	12.25	18
30 kip 8" Concrete Corbel	30RLP12	12.25	10	12.25	18
30 kip 8" Thin Wall Concrete Corbel	30RLP12TW	12.25	10	12.25	18
30 kip 7⅞" Steel Corbel	30RLCP	8.00	19	8.00	19



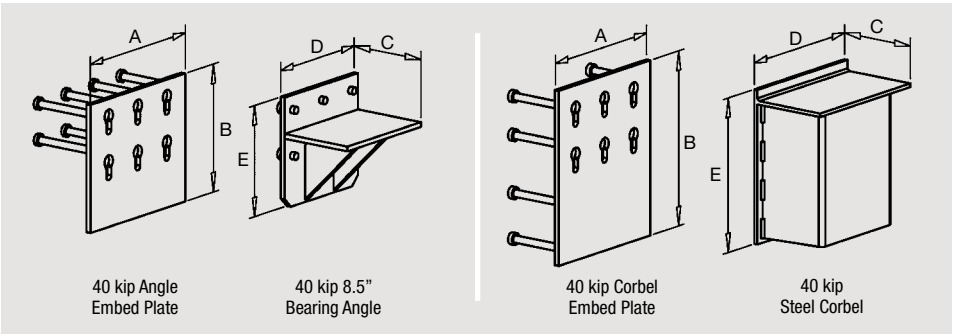
40 Kip Service Load

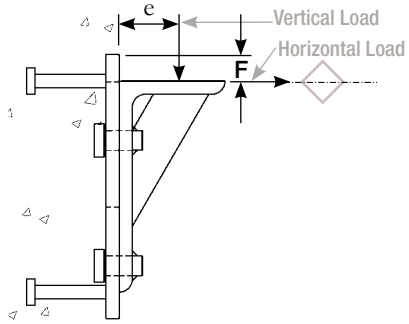
Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point e (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
40 kip 8 ½”	40RLA	40RLAG	40k 8 ½” Bearing Angle	40 kip	26 kip	1 Hour			8.5”	12”	11.5”	5.75”	5”		
	40RLP	40RLPG	40k Embed Plate				15.5”	13.25”						8	¾”x 7”
40 kip 8 ½” Concrete Corbel	40RLAS	40RLASG	40k 8 ½” Bearing Angle w/studs	40 kip	26 kip	2 Hour			8.5”	12”	11.5”	5.75”	5”		
	40RLP	40RLPG	40k Embed Plate				15.5”	13.25”						8	¾”x 7”
40 kip 7 ⅞” Steel Corbel	40RLC1*, 40RLC2**	40RLC1G*, 40RLC2G**	40k 7 ⅞” Bearing Corbel	40 kip	26 kip	1 Hour*			7.875”	14.75”	16”	2.75”	6”		
	40RLCP	40RLCPG	40k Corbel Embed Plate			2 Hour**	14.75”	18.13”						8	¾”x 8”

NOTE: Full vertical and horizontal service loads cannot be applied simultaneously. The following interaction equation should be used for controlling service load combinations.

1. *Maximum in-plane eccentricity for load application is 2 ⅜” from centerline
2. Products are fire tested per ASTM E119
3. All Hot Dipped Galvanized components are hot dipped galvanized per ASTM A153

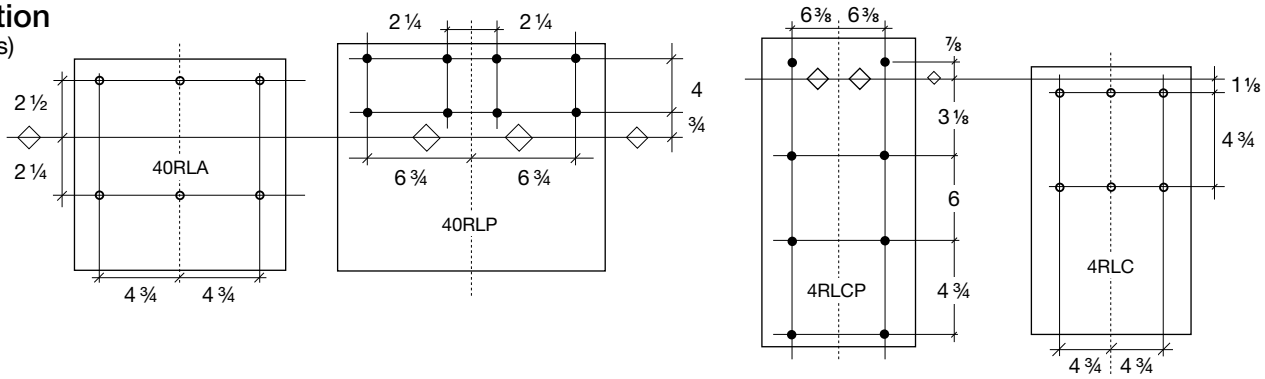
$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$





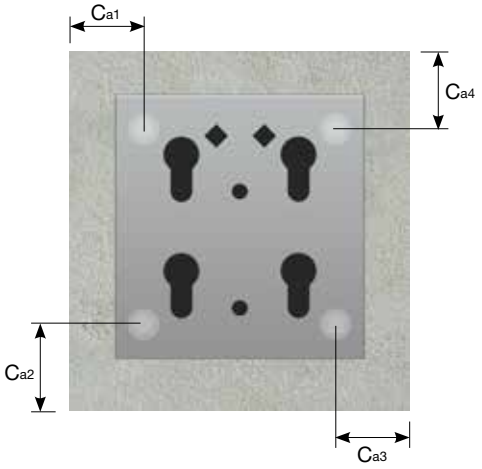
Stud Location

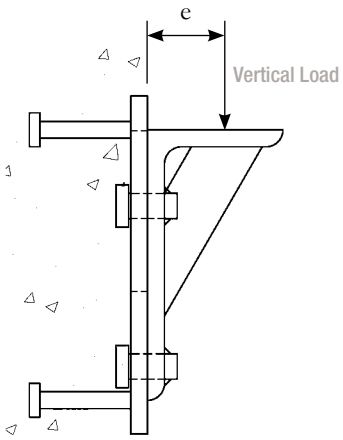
(Units in Inches)



Minimum Edge Distance

40 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
40 kip 8 ½”	40RLP	15.25	17.75	15.25	12.25
40 kip 8 ½” Concrete Corbel	40RLP	15.25	17.75	15.25	12.25
40 kip 7 ⅞” Steel Corbel	40RLCP	8.63	15.00	8.63	19.00





Ultimate Assembly Capacities as Tested in Concrete

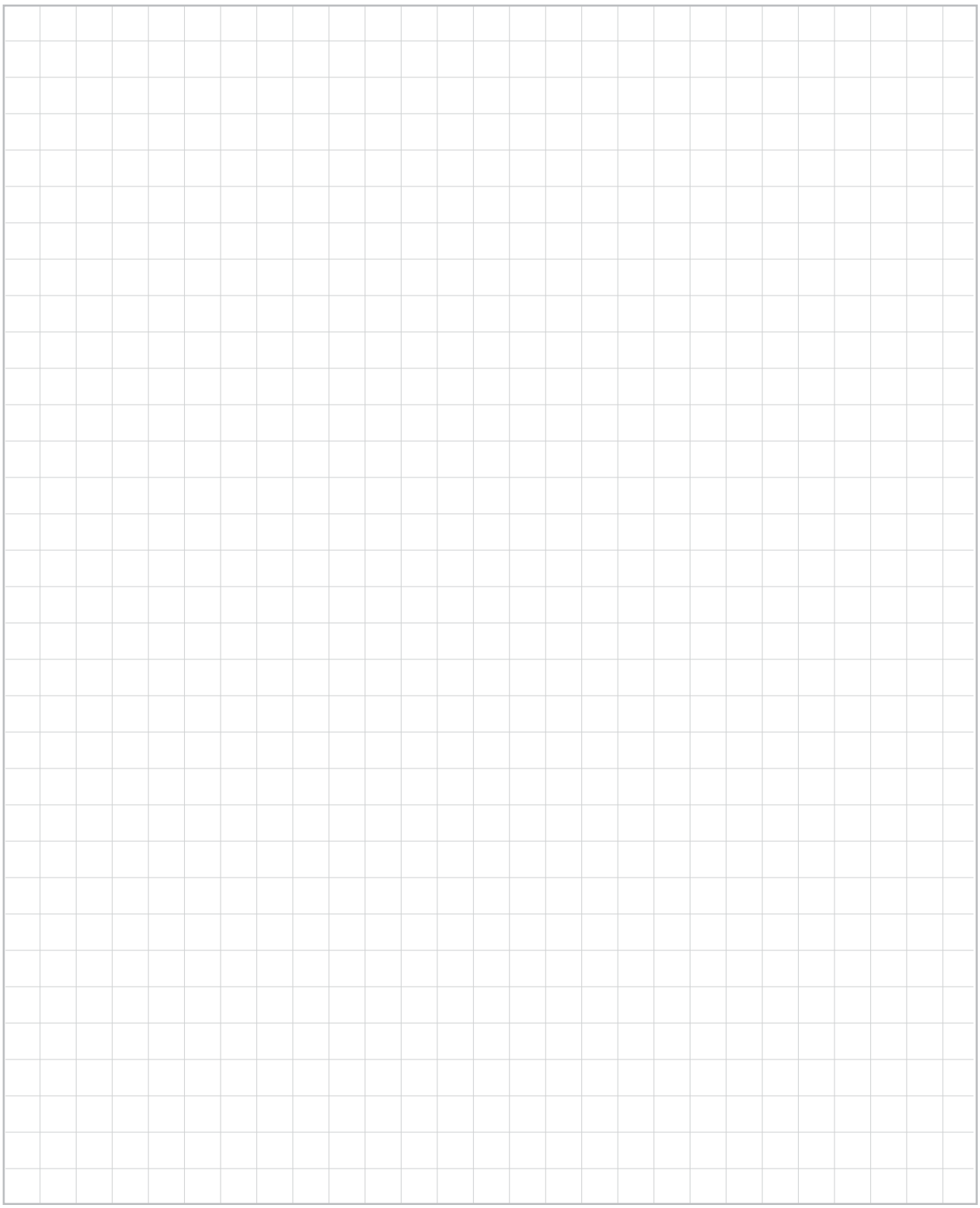
Raw Material Information

U-stiffners, Embedment Plates and Angles Fy=36,000 psi
Triangular Stiffeners Fy=50,000 psi
Concrete Embedment Studs fut=65,000 psi
Interconnecting Studs fut=70,000 psi

MB Item Number	Rapid-Lok Assembly Type	Vertical Load Eccentricity "e"	Ultimate Load
6RLA 6RLP	6 kip 4"	2.5"	18 kip
15RLA 15RLP	15 kip 4"	2.5"	45 kip
20RLA 20RLP	20 kip 6"	4"	60 kip
20RLA8 20RLP8	20 kip 8"	4"	60 kip
20RLC1 & 2 20RLCP	20 kip 7⅞" Corbel	6"	60 kip
30RLA 30RLP12	30 kip 8"	5"	90 kip
30RLA 30RLP12TW	30 kip Thin Wall	5"	90 kip
30RLC1 & 2 30RLCP	30 kip 7⅞" Corbel	6"	90 kip
40RLA 40RLP	40 kip 8½"	5"	120 kip
40RLC1 & 2 40RLCP	40 kip 7⅞" Corbel	6"	120 kip

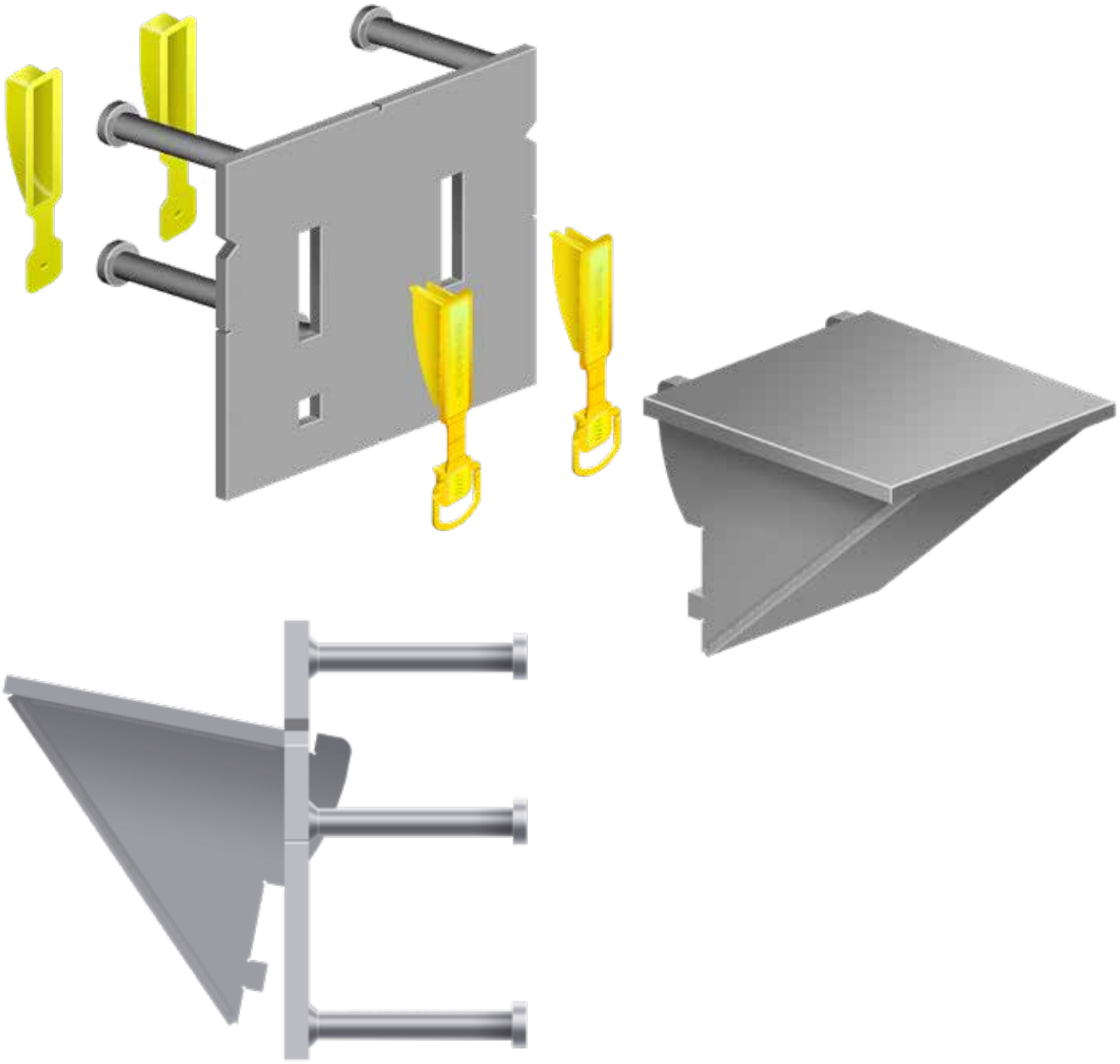
This data is for designers using ultimate strength design per PCI, 8th edition or ACI 318. Meadow Burke does not recommend using or accept liability for Service Loads applied in excess of those listed as Service Loads in this document.

Note: Ultimate Loads are based on 5,000 psi concrete.
Note: Proper installation of the Rapid-Lok Bearing Angle and/or Corbel is indicated by the bearing surface being properly positioned at the center/corners of the Diamond Holes. No load is to be applied to the Rapid-Lok assembly until these units are fully and properly engaged.



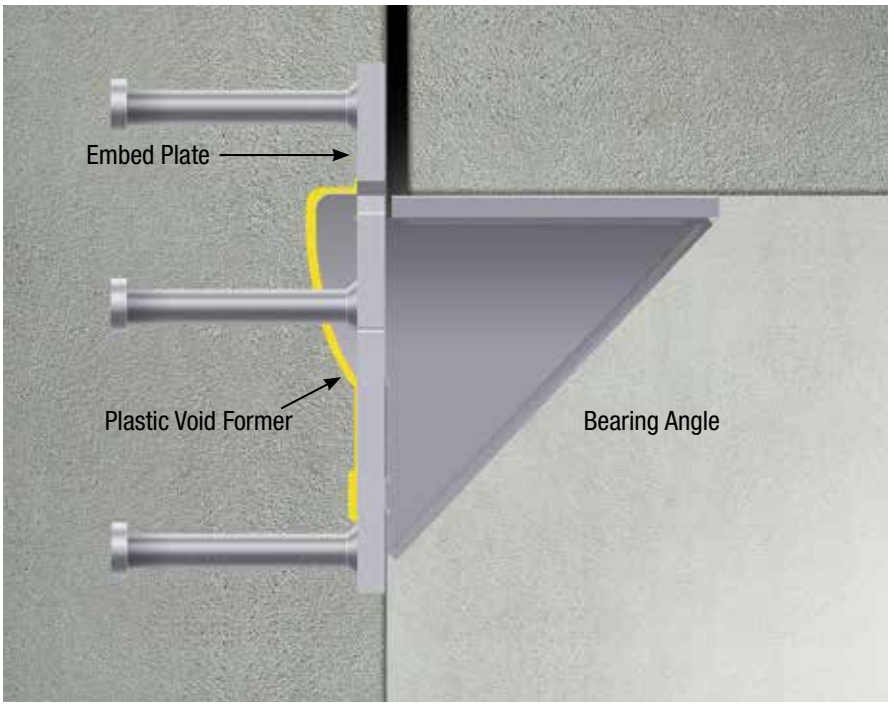
RAPID-LOK® ULTIMATE

The ultimate alternative to concrete corbels, Rapid-Lok Ultimate creates a steel projection from a concrete structure which acts as a shelf, able to carry the weight of a double tee. The Bearing Angle ears engage into the recesses of the Embed Plate, securely engaging them in place without requiring a weld.



US Patent No. 10,883,265

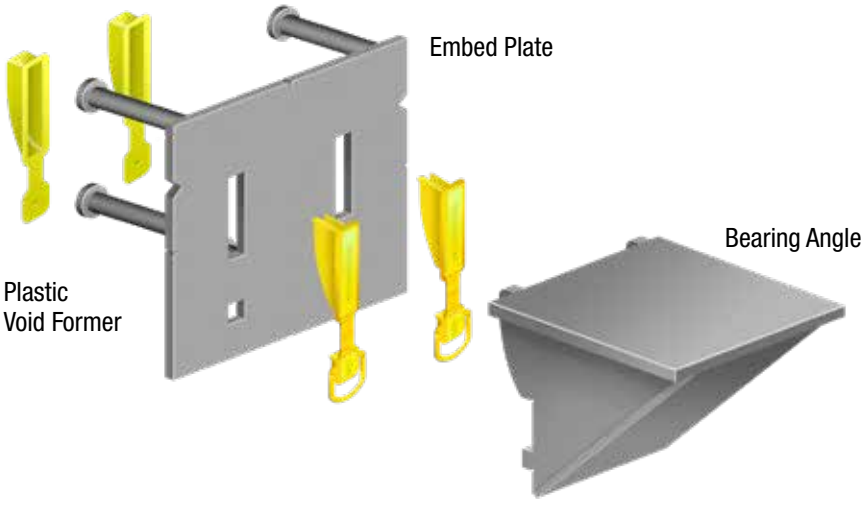
The Ultimate Solution



For more than twenty years, Meadow Burke's Rapid-Lok Gen II has been the preferred solution to replace cumbersome, concrete corbels. The Rapid-Lok system provides a safer, more efficient engineered solution to permanently hold the stems of a double tee. In response to our customers' feedback, collaboration with The Consulting Engineering Group – FL, Inc. and Kim Seeber, P.E., F.PCI., The Rapid-Lok Ultimate's new design was born.

What is Rapid-Lok Ultimate?

Rapid-Lok Ultimate creates a steel projection from a concrete structure which acts as a shelf, able to carry the weight of a double tee.



How Rapid-Lok Ultimate Works

The Embed Plate is cast into the concrete structure at the precast plant, with the faceplate flush to the wall face. Once the precast wall is on-site, the void formers attached to the face of the Embed Plate are removed to reveal recesses.

The Bearing Angle ears are then engaged into the recesses of the Embed Plate, securely engaging them in place without requiring a weld.

Benefits of Rapid-Lok Ultimate

Structural Engineers

- Capacity rating using ultimate loads aligning with current design methodology
- Consolidation of models and capacity ranges for simpler design selection
- Load tested to ACI-318's 5% fractile to meet current code requirements
- Fire rating for 3 hours and tested per ASTM-E119 and CAN/ULC-S101

Double Tee Producers

- Labor efficiencies from simplified panel forming
- Safety improvements by minimizing injuries
- Cost reductions in transportation and dunnage

Architects and Consultants

- Fluid feature in the finished structure emulating a concrete cast corbel
- Potential cracking with traditional concrete corbels is eliminated

Erectors

- More efficient installation by avoiding obstructions from preinstalled concrete corbels

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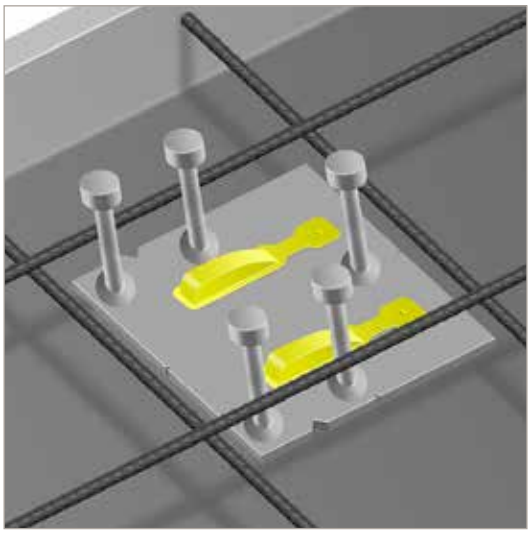
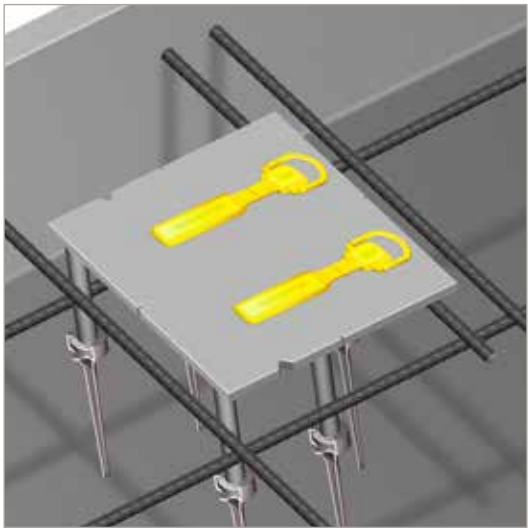
Installation Instructions for Rapid-Lok Ultimate



Down-in-Form Embed Plate Installation

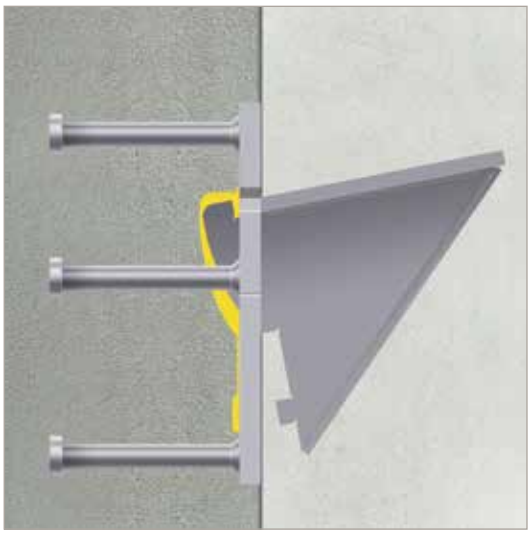
- Place the face of the Embed Plate upon the base of the casting bed, aligning the Tri-Cut to the correct bearing elevation of where the stem of the double tee will sit
- Secure Embed Plate in place
- Caulk around the base of the Embed Plate to avoid concrete leakage underneath
- The plastic void formers cause the face of the embed plate to be approximately ⅛" off the form face
- Finish prepping the panel and pour concrete

WARNING: TO AVOID DAMAGE, DO NOT PLACE REINFORCING ON TOP OF VOID FORMERS



Up-in-Form Embed Plate Installation

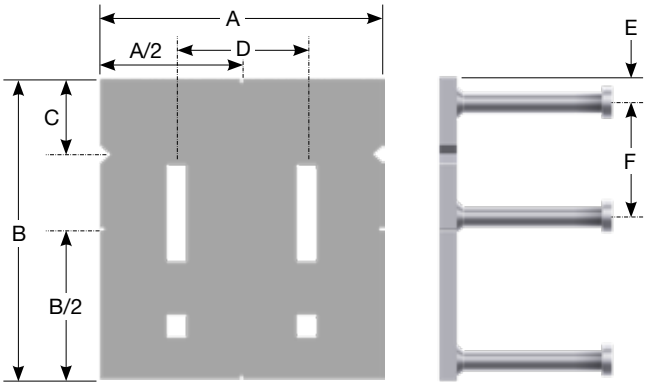
- Attach Stud Extenders to the Embed Plate Round Head Studs. If necessary, adjust the height by cutting the legs of the Stud Extender to ensure the face of the Embed Plate lies flush to the panel surface
- Place the Round Head Studs down and position in the casting bed aligning the Tri-Cut to the correct bearing elevation where the double tee will sit
- Place a cross bar underneath the bottom edge of the Embed Plate. Attach either end of the cross bar to the rebar cage
- Finish prepping the panel and pour concrete

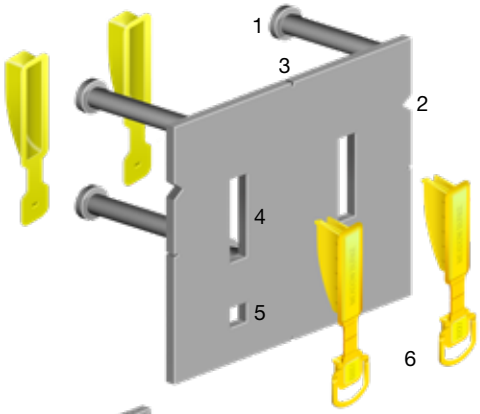


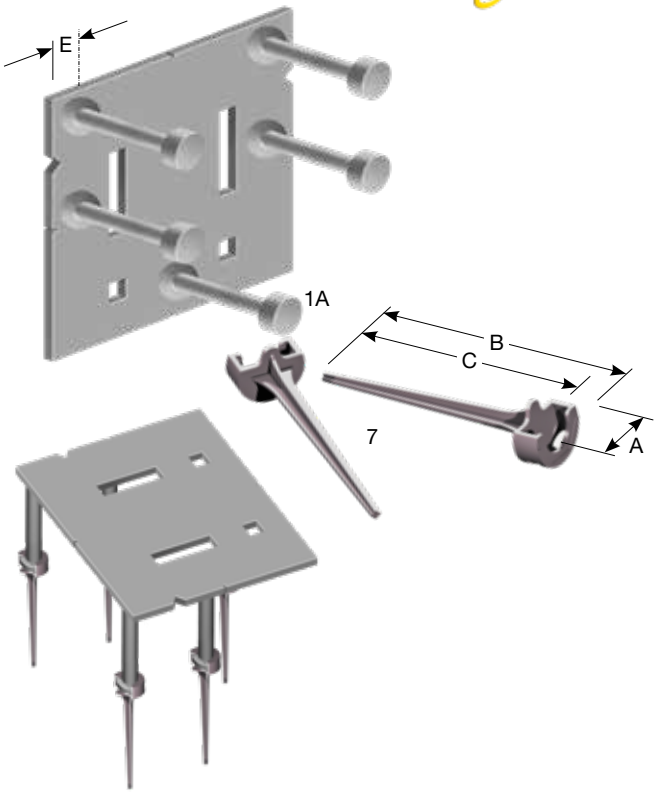
Bearing Angle Installation

- Prior to wall erection remove the plastic void former cover by pulling the plastic tabs
- Leading with the front of the Bearing Angle Ears, using a slotting motion, engage the
- Ears of the Bearing Angle into the Rectangular Openings of the Embed Plate
- Seat the bottom Square Posts of the Bearing Angle into the Square Openings of the Embed Plate
- The Rapid-Lok Ultimate is now ready for the double tee to be erected and placed upon the shelf of the Bearing Angle

Components and Features of the Rapid-Lok Ultimate Embed Plate







The Embed Plate is manufactured from ASTM A572 grade 60, ⅝" steel and has a hot dipped galvanized finish per ASTM A153. Each Embed Plate is stamped with a unique identification number for tracking purposes.

EMBED PLATE									
Item #	A	B	C	D	E	F	# of Studs	Stud Size	Weight
MBRLUP8G	11"	12"	3"	5"	1"	4.5"	5	0.75"x 6.125"	26 lbs.

1. **Round Head Studs**
   Five Round Head Studs are located on the back of the Embed Plate, used to anchor it into the concrete member. The bottom stud (1A) is tack-welded. This non-structural stud adds increased stability during installation.
2. **Tri-Cuts**
   Two Tri-Cuts are edged on the sides of the Embed Plate, used to align the Embed Plate to the bearing elevation of the double tee and bearing pad.
3. **Notches**
   Four Notches are positioned on each side of the Embed Plate to be used as the center line of the embed plate.
4. **Rectangular Openings**
   Two Rectangular Openings located at the top half of the face of the Embed Plate receive the Ears of the Bearing Angle.
5. **Square Openings**
   Two Square Openings located at the bottom half of the face of the Embed Plate receive the square posts of the Bearing Angle.
6. **Plastic Void Formers**
   Two Plastic Void Formers fit into the Rectangular and Square Openings to prevent concrete from filling the openings that receive the Bearing Angle.
7. **Stud Extenders for Up-in-Face application**
   Four MB Stud Extenders can be placed onto the Round Head Studs to adjust height and ensure the Embed Plate face is flush to the panel surface when installed.

STUD EXTENDER				
Item #	A	B	C	Weight
MB291833*	¾" (1¼" Head)	1 ⅝"	1"	0.192 oz.
MB291834†	¾" (1¼" Head)	3 ⅝"	3"	0.240 oz.
MB291830‡	¾" (1¼" Head)	5 ⅞"	5 ¼"	0.275 oz.

*Suitable for 8" panels thickness
†Suitable for 10" panels thickness
‡Cut to fit panel thickness

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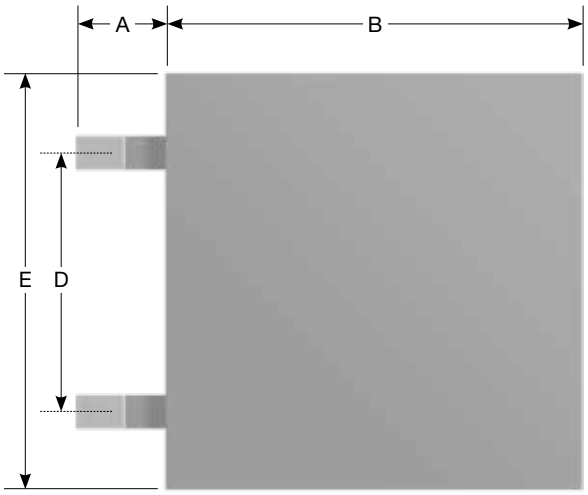
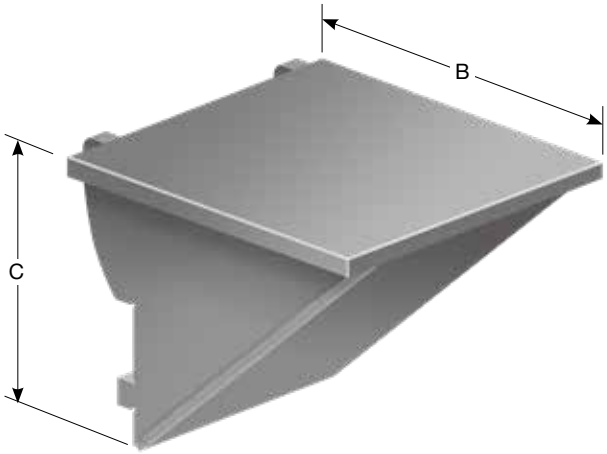
Components and Features of the Rapid-Lok Ultimate Bearing Angle

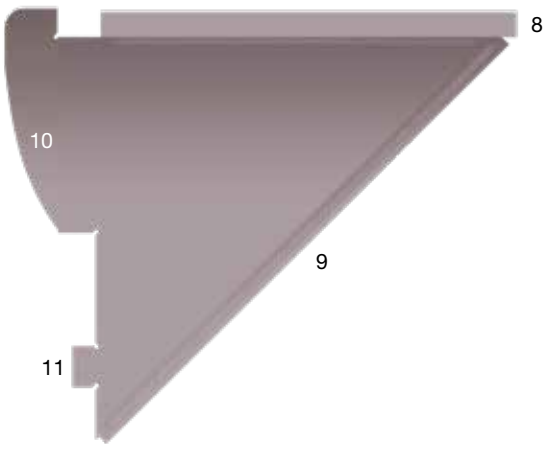


The Bearing Angle is manufactured from ASTM A572 grade 60 steel and ASTM A36. It has a hot dipped galvanized finish per ASTM A153. Each Bearing Angle is stamped with a unique identification number for tracking purposes.



BEARING ANGLE						
Item #	A	B	C	D	E	Weight
MBRLUA8G	1.81"	8"	8.4"	5"	8"	25 lbs.
MBRLUA10G	1.81"	8"	8.4"	5"	10"	26 lbs.

8. **Shelf**
   Located on the top of the Bearing Angle, the Shelf supports the stem of the double tee or other member.
9. **Front Angle**
   The 45-degree angle front provides a seamless finish in the completed structure.
10. **Ears**
    Ears on each side of the Bearing Angle engage with the Embed Plate.
11. **Square Posts**
    Square Posts at the bottom of the Bearing Angle fit into Square Openings of the Embed Plate



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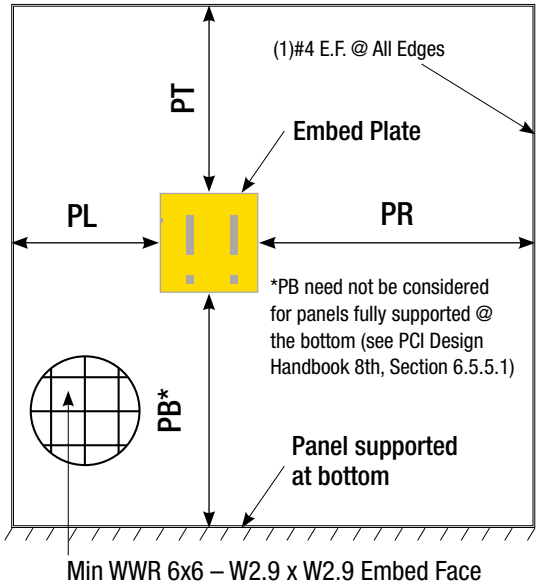
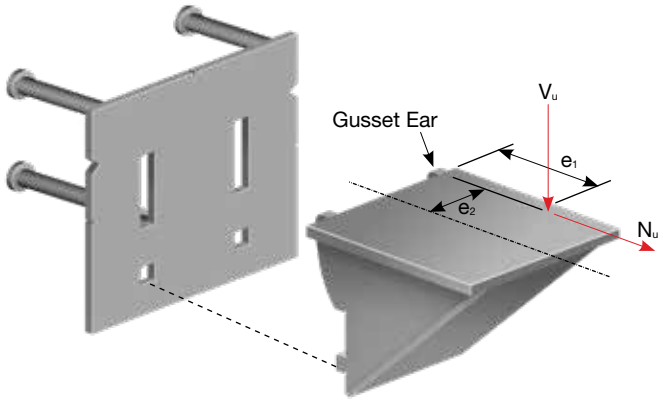
Panel Fully Supported at Bottom – Wall, Lite Wall, Column
8" Bearing Angle





Condition – Bottom Edge Supported (BES)

Rapid-Lok Ultimate Capacities

Table values are based on physical tests using ACI's 5% Fractile analysis

Minimum member thickness = 8"

Φ = 0.70 if a higher Φ is to be used, it must be determined by Engineer[D]
V_u and N_u Loads are simultaneous[D]

TABLE NOTES:
1. The tabulated capacities must be coordinated with the applicable support conditions.
2. The ASTM E119 Fire Duration for all assemblies is 3 hours with $V_{service}$ = 30 kips.
3. Tables are to be used only by qualified structural engineers that understand and apply all applicable codes.
4. Table values apply to fully factored ultimate loads (V_u and N_u).

Bottom Condition	#	Plate to Edge Conditions	All Units in Inches PL	PR	PT	PB	$e_1 \le 6$" and $e_2 \le 2$" ΦV_{nf} kips[A, B, C]	ΦN_{nf} kips[A, B, C, D]	Governing Material
BES	1	Not near a free edge	≥27	≥27	≥9	n/a	42.1	5.26	Steel
BES	2	Free edge on one side	≥9.5	≥30	≥9	n/a	42.1	5.26	Steel
BES	3	Free edge on one side	≥2	≥30	≥9	n/a	37.8	4.73	Concrete
BES	4	Free edge on two sides	≥6.5	≥6.5	≥9	n/a	42.1	5.26	Steel
BES	5	Top edge	≥27	≥27	≥3	n/a	28.6	3.58	Concrete

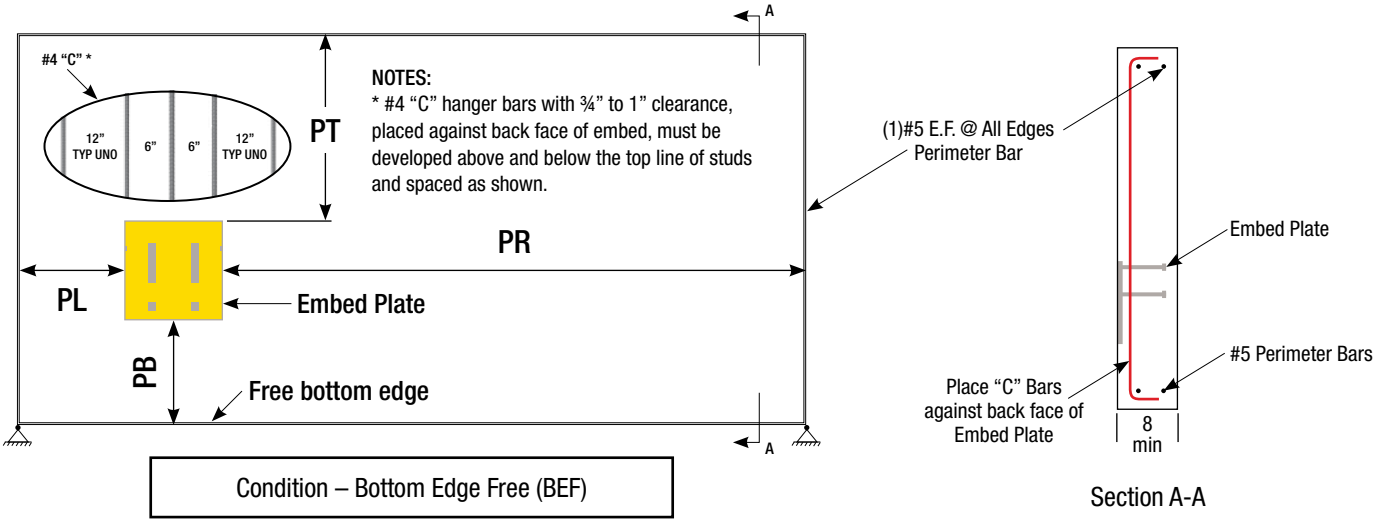
A. Capacity values table BES use a Φ-factor = 0.70
If the structural engineer determines a Φ = 0.75 may be used,
then the table values may be multplied by a factor = (0.75/0.70) = 1.071
Typical ACI 318 Φ-factors are: (Reference ACI 318-14 Section 17.3.3)
Φ-factor = 0.70 for members without confinement reinforcing
Φ-factor = 0.75 for members with adequate confinement reinforcing

B. All values apply to fc' = 5000 psi. Concrete capacity values may be modified by $(fc'/5000)^{1/2}$,
but ΦV_n must not exceed the bearing angle's steel capacity of 42.1 kips. Steel capacity includes Φ = 0.90

C. Capacity values for concrete failures may be increased by adding additional reinforcing,
(Reference ACI 318-14 Section 17.4.2.9 and 17.5.2.9),
but ΦV_n must not exceed the bracket's steel capacity of 42.1 kips.

D. Tested values Nu are based on 12.5% of V_u. The test loads were applied simultaneously

Panel with Free Edge at Bottom – Spandrel, Wall Opening Below
8" Bearing Angle



Condition – Bottom Edge Free (BEF)

CONDITION 1 – Unreinforced

Bottom Condition

Rapid-Lok Ultimate Capacities
without #4 "C" Hanger Bars

Table values are based on physical tests using ACI's 5% Fractile analysis

Minimum member thickness = 8"

All Units in Inches

$\Phi = 0.70$ if a higher Φ is to be used, it must be determined by Engineer[A] V_u and N_u Loads are simultaneous[E]

$e_1 \le 6"$ and $e_2 \le 2"$

	#	Plate to Edge Conditions	PL	PR	PT	PB	ΦV_{nf} kips [A, C, D]	ΦN_{nf} kips [A, B, D, E]	Governing Material
BEF	6	Bottom edge	≥22.5	≥22.5	≥9	≥4.5	17.6	2.20	Concrete
BEF	7	Side Edge - Bottom Edge	≥6	≥27	≥9	≥4.5	14.8	1.85	Concrete

TABLE NOTES:
1. The tabulated capacities must be coordinated with the applicable support conditions.
2. The ASTM E119 Fire Duration for all assemblies is 3 hours with $V_{service} = 30$ kips.
3. Tables are to be used only by qualified structural engineers that understand and apply all applicable codes.
4. Table values apply to fully factored ultimate loads (V_u and N_u).

CONDITION 2 – Reinforced

Bottom Condition

Rapid-Lok Ultimate Capacities
with #4 "C" Hanger Bars

Table values are based on physical tests using ACI's 5% Fractile analysis

Minimum member thickness = 8"

All Units in Inches

$\Phi = 0.75$ if a higher Φ is to be used, it must be determined by Engineer[A] V_u and N_u Loads are simultaneous[E]

$e_1 \le 6"$ and $e_2 \le 2"$

	#	Plate to Edge Conditions	PL	PR	PT	PB	ΦV_{nf} kips [B, C, D]	ΦN_{nf} kips [B, C, D, E]	Governing Material
BEF	8	Bottom edge	≥22.5	≥22.5	≥9	≥4.5	41.1	5.14	Concrete
BEF	9	Side Edge - Bottom Edge	≥12.5	≥22.5	≥9	≥4.5	40.8	5.10	Concrete
BEF	10	Bottom Edge	≥22.5	≥22.5	≥9	≥3	30.0	3.70	Concrete

TABLE NOTES:
1. The tabulated capacities must be coordinated with the applicable support conditions.
2. The ASTM E119 Fire Duration for all assemblies is 3 hours with $V_{service} = 30$ kips.
3. Tables are to be used only by qualified structural engineers that understand and apply all applicable codes.
4. Table values apply to fully factored ultimate loads (V_u and N_u).

A. Capacity values Condition 1 use a Φ-factor = 0.70
If the structural engineer determines a Φ= 0.75 may be used, then the table values may be multplied by a factor = (0.75/0.70) = 1.071
Typical ACI 318 Φ-factors are: (Reference ACI 318-14 Section 17.3.3)
Φ-factor = 0.70 for members without confinement reinforcing
Φ-factor = 0.75 for members with adequate confinement reinforcing

B. Capacity values Condition 2 use a Φ-factor = 0.75 due to use of confinement reinforcement

C. All values apply to fc' = 5000 psi. Concrete capacity values may be modified by $(fc'/5000)^{½}$, but ΦV_n must not exceed the bearing angle's steel capacity of 42.1 kips. Steel capacity includes Φ = 0.90

D. Capacity values for concrete failures may be increased by adding additional reinforcing, (Reference ACI 318-14 Section 17.4.2.9 and 17.5.2.9), but ΦV_n must not exceed the bracket's steel capacity of 42.1 kips.

E. Tested values N_u are based on 12.5% of V_u. The test loads were applied simultaneously

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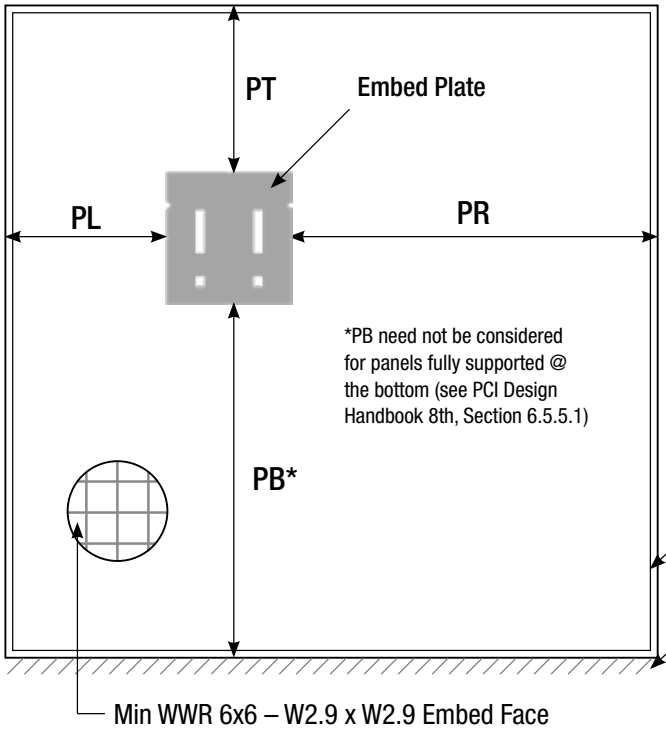
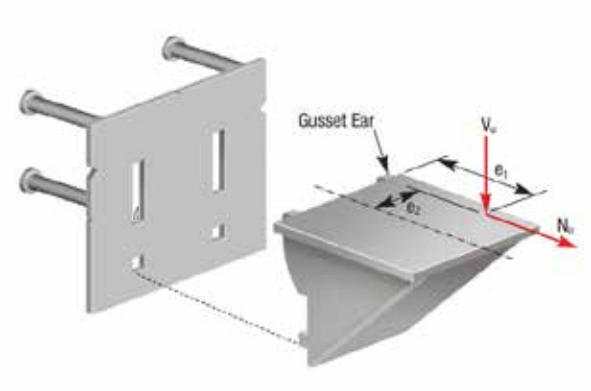
Panel Fully Supported at Bottom – Wall, Lite Wall, Column
10" Bearing Angle





Rapid-Lok Ultimate Capacities

Table values are based on physical tests using ACI's 5% Fractile analysis and ACI 318 calculations

Minimum member thickness = 8"

Φ = 0.70 if a higher Φ is to be used, it must be determined by Engineer[D]

V_u and N_u Loads are simultaneous[D]

TABLE NOTES:
1. The tabulated capacities must be coordinated with the applicable support conditions.
2. The ASTM E119 Fire Duration for all assemblies is 3 hours with $V_{service}$ = 30 kips.
3. Tables are to be used only by qualified structural engineers that understand and apply all applicable codes.
4. Table values apply to fully factored ultimate loads (V_u and N_u).

All Units in Inches

$e_1 \le 6$" and $e_2 \le 2$"

Bottom Condition	#	Plate to Edge Conditions	PL	PR	PT	PB	ΦV_{nf} kips [A, B, C]	ΦN_{nf} kips [A, B, C, D]	Governing Material
BES	1	Not near a free edge	≥27	≥27	≥9	n/a	42.1	5.26	Steel
BES	2	Free edge on one side	≥9.5	≥30	≥9	n/a	39.4	4.93	Concrete
BES	3	Free edge on one side	≥2	≥30	≥9	n/a	32.4	4.05	Concrete
BES	4	Free edge on two sides	≥6.5	≥6.5	≥9	n/a	40.9	5.11	Concrete
BES	5	Top edge	≥27	≥27	≥3	n/a	27.1	3.39	Concrete

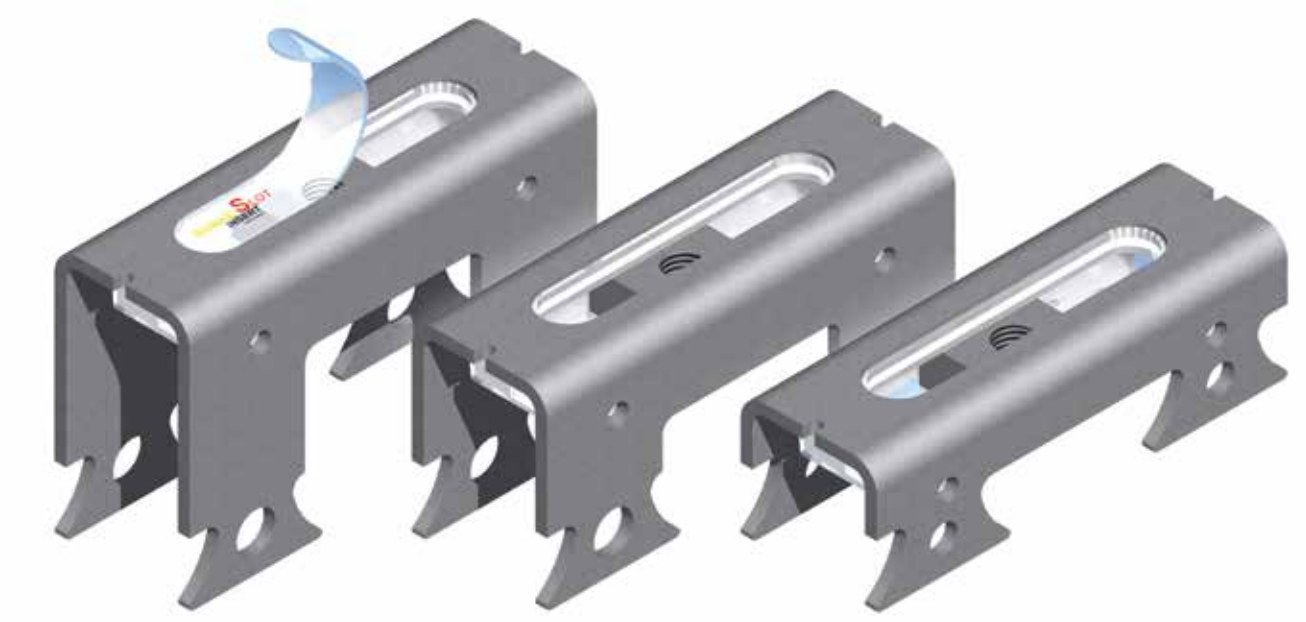
A. Capacity values table BES use a Φ-factor = 0.70
If the structural engineer determines a Φ = 0.75 may be used,
then the table values may be multplied by a factor = (0.75/0.70) = 1.071
Typical ACI 318 Φ-factors are: (Reference ACI 318-14 Section 17.3.3)
Φ-factor = 0.70 for members without confinement reinforcing
Φ-factor = 0.75 for members with adequate confinement reinforcing

B. All values apply to fc' = 5000 psi. Concrete capacity values may be modified by $(fc'/5000)^{1/2}$,
but ΦV_n must not exceed the bearing angle's steel capacity of 42.1 kips. Steel capacity includes Φ = 0.90

C. Capacity values for concrete failures may be increased by adding additional reinforcing,
(Reference ACI 318-14 Section 17.4.2.9 and 17.5.2.9),
but ΦV_n must not exceed the bracket's steel capacity of 42.1 kips.

D. Tested values Nu are based on 12.5% of V_u. The test loads were applied simultaneously

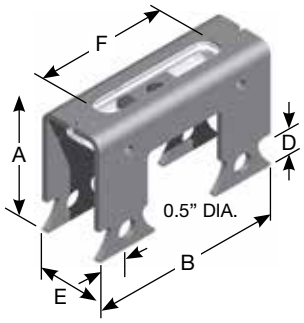
Burke Slot Anchoring System



Slotted Inserts

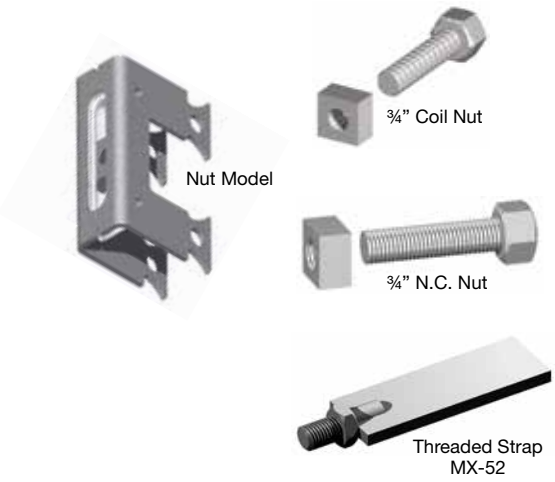
MX-55 BURKE SLOT INSERT

The MX-55 Burke Slot Insert is a high strength precast insert designed for use with threaded straps. The unit has a sealed nut box to prevent concrete from leaking into the insert. Removal of the perforated slot-seal exposes the slot for quick connection of the strap. The insert is available in two styles: one furnished with a ¾" NC threaded nut and one that is supplied with a ¾" coil nut. Three insert heights are available: all are 6 ½" long and are available in plain or hot dip galvanize finish.



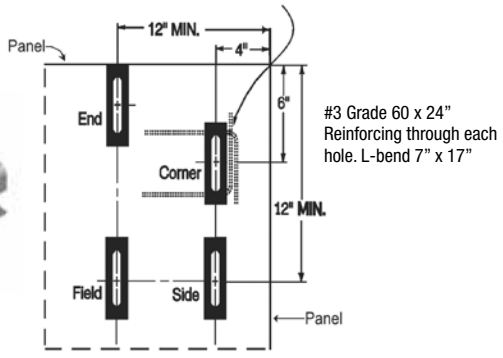
MX-55 SLOT INSERT DIMENSIONS						
Item Number	A	B	C	D	E	F
79621	2"	6.5"	2.125"	0.625"	1.0"	4.5"
79631	3"	6.5"	2.125"	0.625"	1.0"	4.5"
79641	4"	6.5"	2.125"	0.625"	1.0"	4.5"

MX-55 SLOT INSERT MODELS							
Item Number	¾" N.C. NUT MODEL			Item Number	¾" COIL NUT MODEL		
	A	Finish	Weight		A	Finish	Weight
79621Y	2"	Mill	1.6 lbs.	79621B	2"	Mill	1.6 lbs.
79621YG	2"	Galv	1.7	79621B	2"	Galv	1.7
79631Y	3"	Mill	2.3	79631B	3"	Mill	2.3
79631YG	3"	Galv	2.4	79631B	3"	Galv	2.4
79641Y	4"	Mill	3.1	79641B	4"	Mill	3.1
79641YG	4"	Galv	3.2	79641B	4"	Galv	3.2



MX-55 SLOT INSERT LOAD CAPACITIES				
Insert Position	Type of Force	Ultimate Loads in Pounds		
		2" Depth	3" Depth	4" Depth
Field	Tension	13,400 lbs.	15,550 lbs.	19,230 lbs.
Field	Shear	18,170	18,170	18,170
Side	Tension	8,430	13,460	15,260
Side	Shear	9,080	10,500	10,500
Corner	Tension	7,950	13,790	17,950
Corner	Shear	9,000	9,930	11,320
End	Tension	4,200	10,310	14,011
End	Shear	15,453	16,583	18,000

1. Ultimate loads based on 5000 psi minimum concrete strength.
2. Loads tested at ¾" eccentricity from concrete surface.



#3 Grade 60 x 24" Reinforcing through each hole. L-bend 7" x 17"

To order, specify: quantity, name and size.

Slotted Inserts

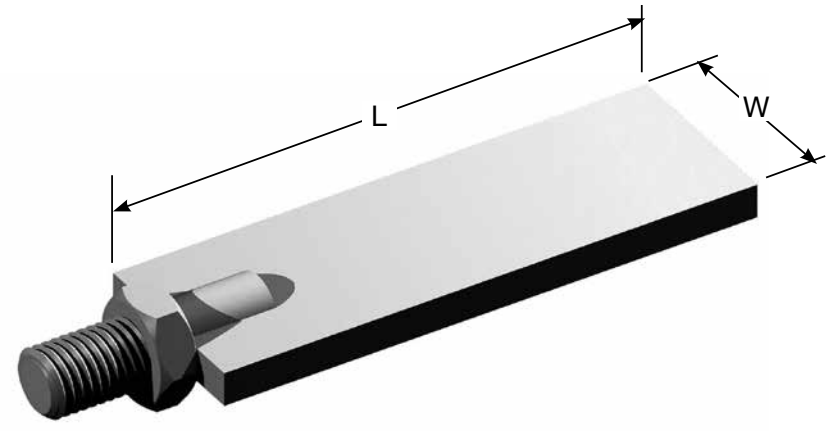
MX-52 BURKE SLOT INSERT STUD STRAP

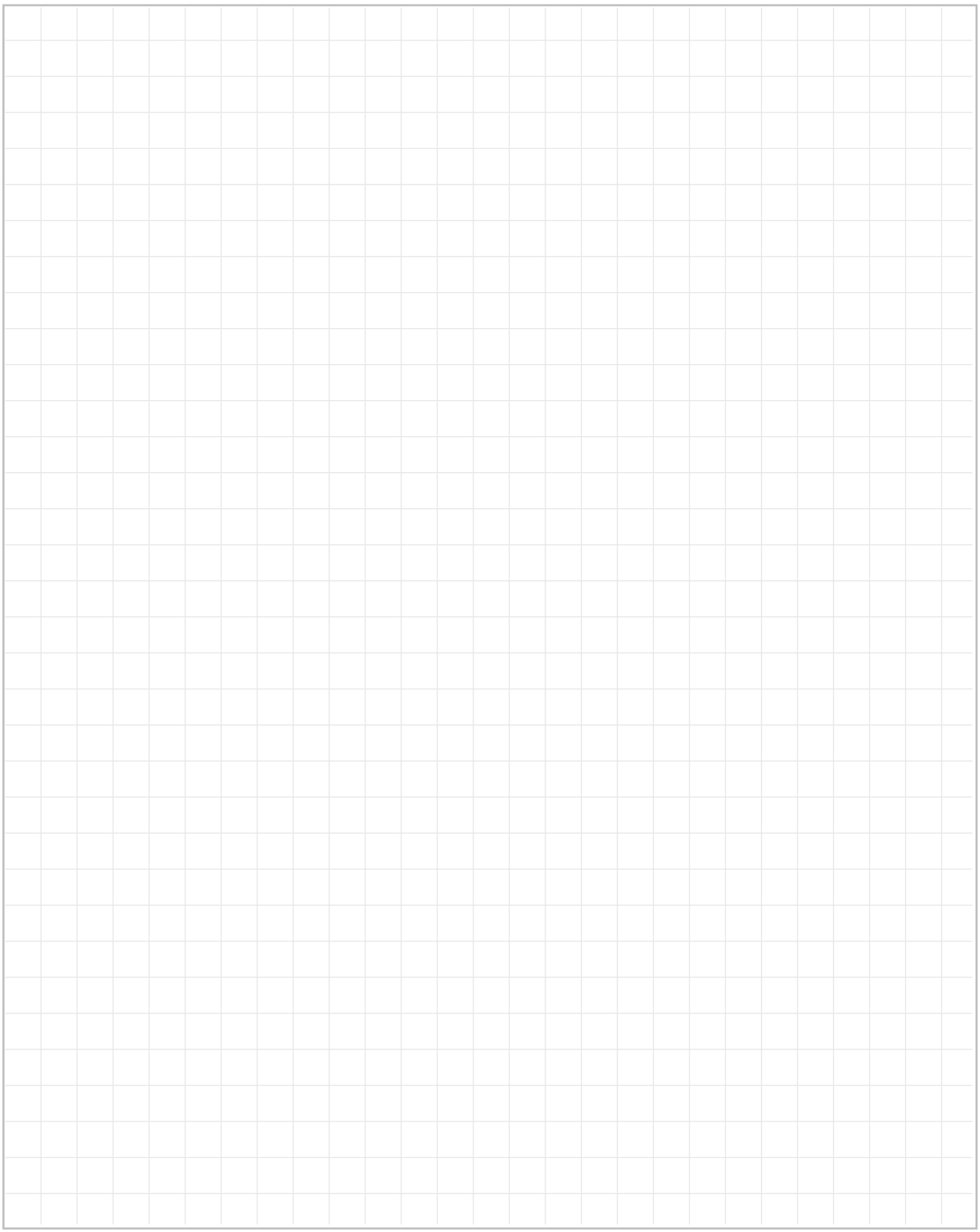
The MX-52 Slot Insert Stud Strap is used in conjunction with the Slot Insert supporting a ¾" NC threaded nut. The Stud Strap is screwed into the insert's nut, rotated to the correct angle and then securely locked in position by the strap's free-running jam nut.

The MX-52 is manufactured with ASTM A572 grade 50 steel. The bolt used with the strap meets or exceeds the minimum physical material properties of A572 grade 50 steel.

MX-52 BURKE STUD STRAP				
Item Number	Length	Width	Thickness	Weight
79706 (G)	6"	2"	.375"	1.3 lbs.
79708 (G)	8"	2"	.375"	1.7
79710 (G)	10"	2"	.375"	2.2
79712 (G)	12"	2"	.375"	2.6

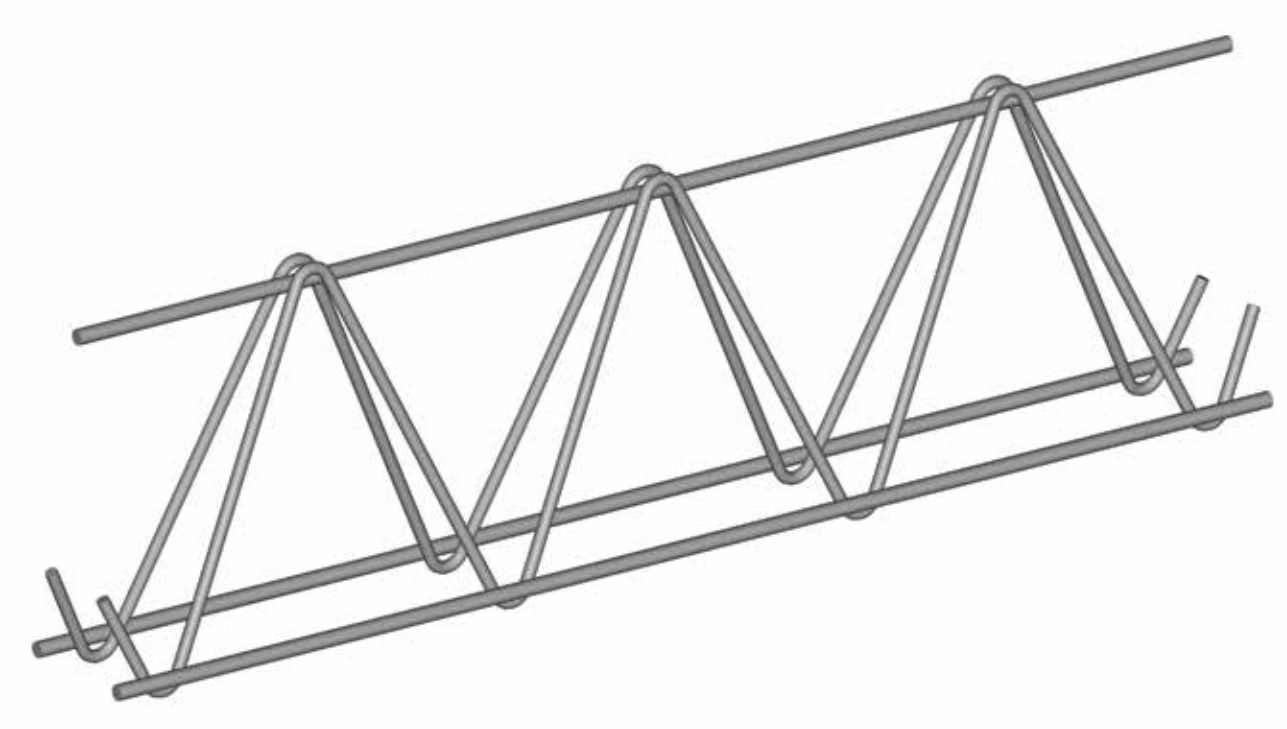
To order, specify: quantity, name and item number.





Welded Wire Girders for Composite Panels and Slabs

The need for more efficient construction has guided the concrete industry into designing more cost effective and energy efficient precast wall panels. This progress initiative has evolved into the composite panel design that allows both inner and outer concrete wythes to be load bearing. The key to a good composite action design is an effective shear and moment connection that will distribute the stresses to both wythes.



Meadow Burke has designed and developed the Welded Wire Girder to meet the unique challenges of composite panel construction. It is designed to properly transfer and distribute the loading to the wythes without having any problematic "solid sections" between the wythes. The Welded Wire Girder connects the wythes through the insulating material and is designed to expand and contract with the independent thermal-induced movements of the outer wythe without causing any high stress points. The Welded Wire Girder System can allow for nearly 100% composite action between the two concrete wythes and the insulation.

Welded Wire Girders for Composite Panels

"R" RATING

The "R" Rating is the measure of heat loss given for thermal transmissions. In the design of insulated concrete panels, one major hurdle to overcome is when breaks in the insulation allow concrete from the two wythes to flow together creating a thermal bridge and allowing major heat transmission through the panel. The use of the Welded Wire Girder System minimizes this thermal bridging.

INSULATED PANEL HEAT DELAMINATION

When the inside wall of an insulated concrete wall panel is exposed to fire or excess heat, the inside wythe will expand more rapidly than the outside concrete wythe. This action will cause the panel to bow inwardly and seriously decrease the strength of any reinforcing steel in the panel as the heat increases. Use of the Welded Wire Girder System adds structural reinforcement to the panel and helps to minimize wythe separation and/or delamination.

WELDED WIRE GIRDER INSTALLATION

Most precast panel producers will space the girders on two feet centers for easy reinforcement consideration and the availability of two-foot insulation board. Keeping the insulation at a two feet width consistency from panel to panel will reduce installation errors and standardize production.

INSTALLATION SEQUENCE

- Install bottom wythe reinforcing mesh, place the Welded Wire Girders and tie to the mesh.
- Pour the bottom wythe concrete. Lift or rotate the Welded Wire Girders to make sure two-thirds of the girder stands above the concrete wythe.
- Install the two-foot sections of insulation board. Press the insulation in and around the girder's diagonal wires. Tape or caulk any gaps in the insulation material to prevent concrete seepage.
- Install top wythe mesh. Tie the mesh to the girder and make sure it is positioned properly in the center of the wythe.
- Place the top wythe concrete.
- Installation is complete.

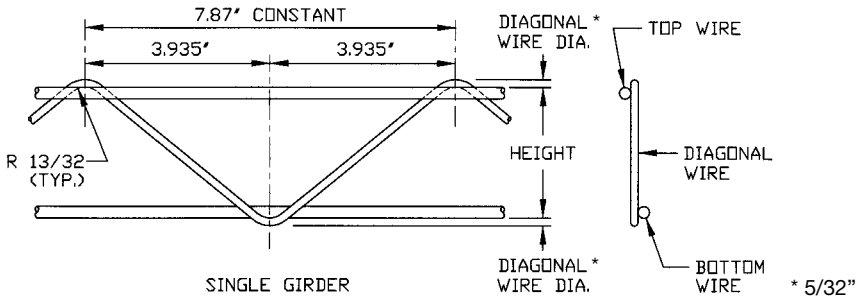
Single Welded Wire Girders for Composite Panels

WELDED WIRE GIRDER – SINGLE

Welded Wire Girder – Single is fabricated from two substantial wires laced together by a continuous diagonal wire. The girder is designed specifically to solve the need for an effective way to handle shear and movement in precast composite panels. The Welded Wire Girder – Single is available in heights from 2 ¾" to 9 ½" and in lengths from 3'-11" to 35'-6". Welded Wire Girder – Single is available in plain or hot dip galvanize finish.

To Order, Specify: quantity, name, height, length and finish.

Ex. 60,000lf, MS030, H= 7", L= 10', Galvanized



WELDED WIRE GIRDER - SINGLE DATA

W.W. Girder Type (single)	Top Wire				Diagonal Wire				Bottom Wire			
	Diameter		Wire Area As		Diameter		Wire Area As		Diameter		Wire Area As	
	in.	mm	in.²	mm²	in.	mm	in.²	mm²	in.	mm	in.²	mm²
MS 030	.306	7.8	0.074	47.2	.244	6.2	.047	38.4	.306	7.8	.074	47.2
MS 383	.243	6.2	0.047	38.4	.162	4.1	.021	16.8	.243	6.2	.047	38.4
MS 363	.243	6.2	0.047	38.4	.192	4.9	.029	23.8	.243	6.2	.047	38.4
MS343	.243	6.2	0.047	38.4	.225	5.7	.040	32.5	.243	6.2	.047	38.4
MS464	.225	5.7	0.040	32.5	.192	4.9	.029	23.8	.225	5.7	.040	32.5

WELDED WIRE GIRDER – DOUBLE

The Welded Wire Girder – Double is fabricated from three substantial wires laced together by two continuous diagonal wires. The girder is designed specifically to solve the need for an effective way to handle shear and moment in precast composite floor panels. The Welded Wire Girder – Double is available in heights from 2 ¾" to 9 ½" and in lengths from 3'-11" to 40'-0". Welded Wire Girder – Double is available in plain or hot dip galvanize finish.

To Order, Specify: quantity, name, height, length and finish. Ex. 60,000lf, MS030, H= 7", L= 10', Galvanized

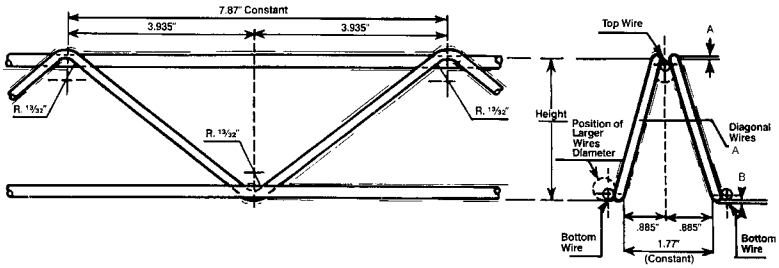
TOP WIRE
Maximum Size: 6/0 Gauge - .461 inch diameter
Minimum Size: 3 Gauge - .244 inch diameter

BOTTOM WIRE
Maximum Size: 6/0 Gauge - .461 inch diameter
Minimum Size: 8 Gauge - .163 inch diameter

DIAGONAL WIRE
Maximum Size: 3 Gauge - .244 inch diameter
Minimum Size: 8 Gauge - .163 inch diameter
Maximum Size: 2 ¾" (2.76) High Girder - 6 Gauge - .192 inch diameter
Minimum Size: 40% of area of top or bottom wire

HEIGHT OF GIRDER
Maximum Height: 9 ⅝" (9.84 inch)
Minimum Height: 2 ¾" (2.76 inch)

LENGTH
Standard Length: 40' 0" *
Minimum Length: 3' 11"



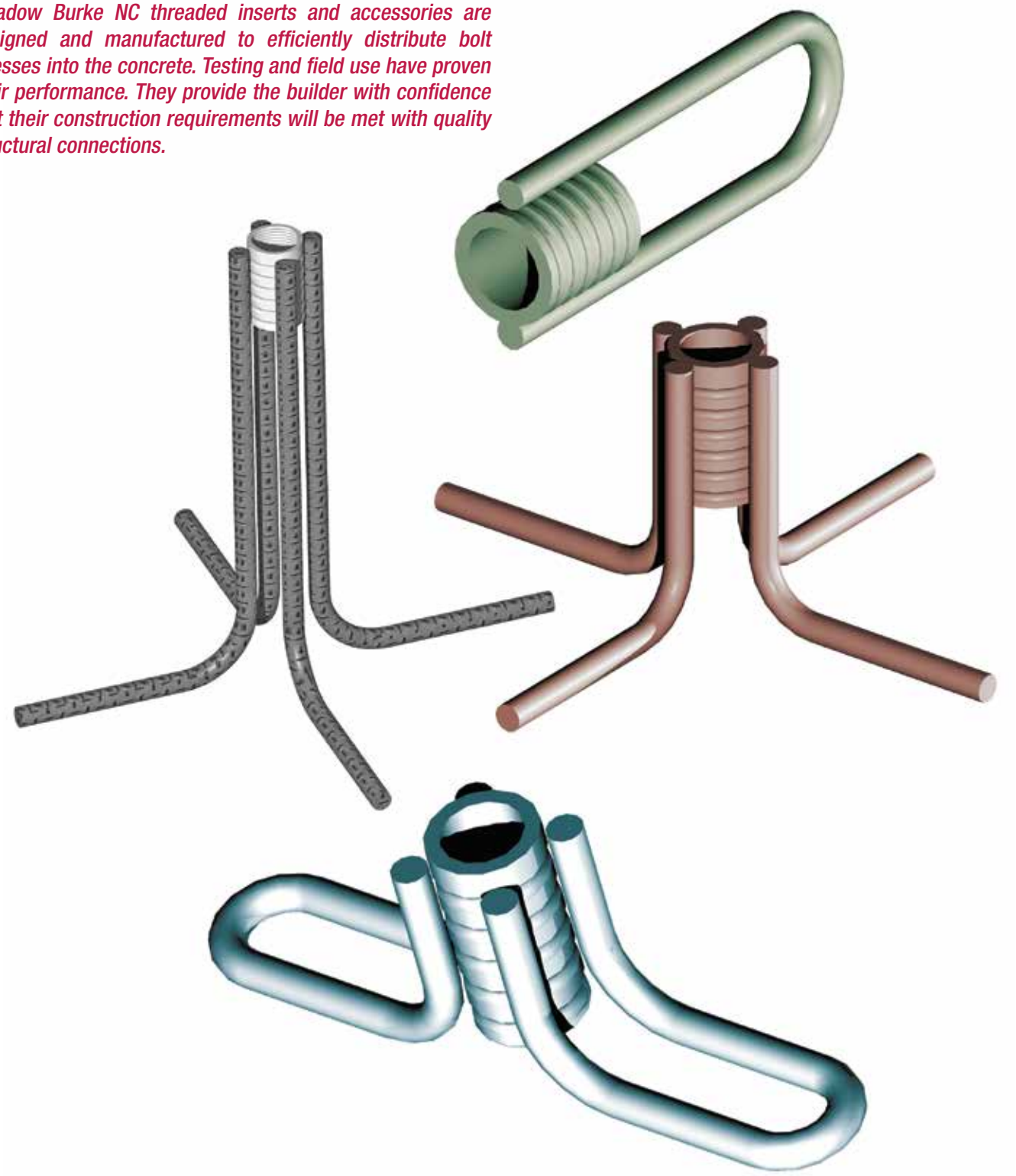
* For length over 40' 0" consult Meadow Burke.

Wire tensile strength exceeds ASTM A82-07 standards. May be designed for yield strength of 60 KSI.

A = dia. of diagonal wire ± 5/32"

Meadow Burke NC Threaded Inserts and Accessories

Meadow Burke NC threaded inserts and accessories are designed and manufactured to efficiently distribute bolt stresses into the concrete. Testing and field use have proven their performance. They provide the builder with confidence that their construction requirements will be met with quality structural connections.



Polymer Threaded Inserts

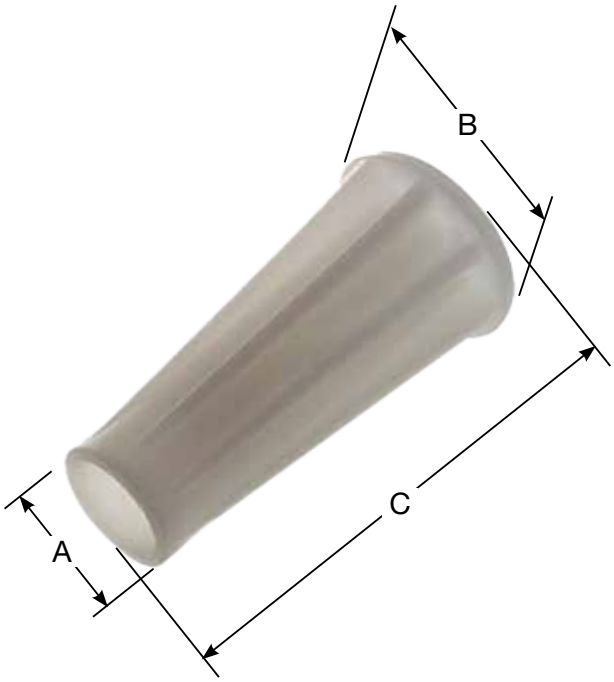
ADVANTAGES

Bowco Industries' Threaded Inserts are the most cost effective method for securing objects to precast and cast-in-place concrete.

- Corrosion Resistant
- Strong
- Lightweight
- Easy To Use
- Economical

VERSATILE APPLICATIONS

- Bolt equipment, racking or channel to vault walls
- Lift lightweight pieces
- Secure AC units and other equipment to concrete pads
- Bolt metal or cast iron frames to concrete lids
- Suspend pipe and conduit from concrete panels
- Secure handles to burial vaults
- Many other uses

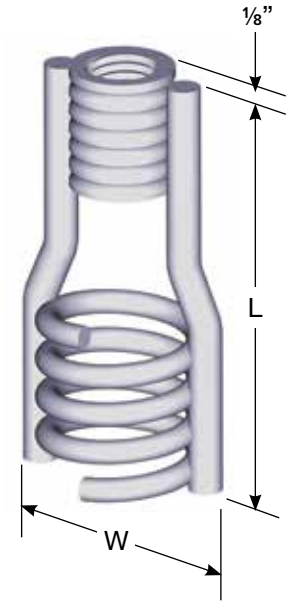


Item Number	Bolt Diameter	N.C. Thread	A (in.)	B (in.)	C (in.)	SWL (in.)
BC140180	¼"	20	0.75	1.00	1.50	1,000
BC140220	⅜"	16	0.75	1.00	1.50	1,000
BC140110	½"	13	0.75	1.25	1.50	1,000
BC140150	½"	13	0.75	1.25	1.50	1,200
BC140130	½"	13	0.75	1.25	2.50	2,500
BC140250	⅝"	11	0.95	1.38	2.95	3,000
BC140200	¾"	10	1.00	1.63	3.20	3,000

1. SWLs are based on 3,000 psi NWC, with FoS=3.
2. Minimum edge distance = 1.5*C+B.

To order, specify: quantity, name and item number.

NC Threaded Inserts



FX-51 FERRULE INSERT – OPEN

The FX-51 Ferrule Insert – Open is a high strength, highly versatile insert available for numerous precast concrete applications. It is available in ¾", 1", 1¼" and 1½" bolt diameters and in the different lengths displayed in the table. The insert is constructed with a NC threaded coil, shaped struts (could be two, four or six depending on the model) and an expanded wire coil. The efficient design increases the shear cone surface area thus increasing the load capacity of the insert. The Ferrule Insert – Open is available with an optional mounting washer for easy nailing to the form. The insert is available in plain, electroplated, hot-dip galvanized, or stainless steel finish.

FX-51 FERRULE INSERT – OPEN DATA

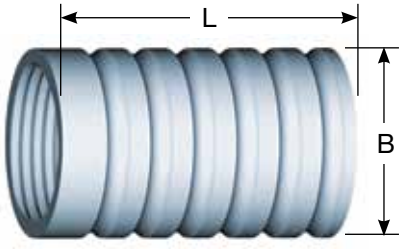
Bolt Diameter	Length L	Safe Work Load (Tension)	Safe Work Load (Shear)	B	C	W	Wire Diameter D	Edge Distance (Tension)[4]	Edge Distance (Shear)[4]
In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
¾	4 ½	5660	5660	1 11/16	1 ⅝	2 ⅜	.375	7	12
⅞	5 ½	8300	8300	2 3/16	1 ⅝	2 ⅞	.440	9	16
1	5 ½	8300	8300	2 3/16	1 ⅝	2 ⅞	.440	9	16
1	7 ½	16,000	16,000	2 3/16	1 ⅝	2 ⅞	.440	12	24
1 ¼	7 ½	16,000	16,000	2 ½	2 ½	3 ⅛	.440	13	24
1 ¼	9 ½	21,650	21,650	2 ½	2 ½	3 ⅛	.440	16	26
1 ½	9 ½	21,650	21,650	2 13/16	2 ½	3 ⅛	.440	16	26

1. SWL based on 3000 psi concrete compression strength.
2. SWL includes a 3:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2x length of the insert.
5. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2x the edge distance for tension and 3x the edge distance for shear.

To order, specify: quantity, name, item number, optional washer and finish.

FS-2 FERRULE INSERT – STANDARD

The FS-2 Ferrule Insert – Standard is machined from solid 12L14 bar stock and is available in the bolt diameters shown in the table. All Meadow Burke ferrules have standard NC threads and have a closed end to prevent concrete seeping into the ferrule. Minimum bolt engagement for all standard ferrules is bolt diameter plus 1/8". Maximum bolt engagement for standard ferrules is shown in the table. The Ferrule Insert – Standard is available in plain and electro plated finish and in Type 304 stainless steel on special order.



Ferrules may be substituted in any standard coil product desired. There is no capacity reduction of an insert when this substitution is made. Ferrules and coils (of same diameter) will have the same load carrying capacities.

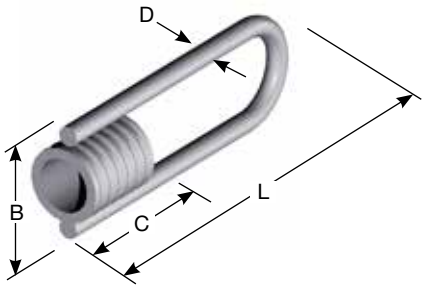
NOTE: ferrules with an open end and ferrules in lengths other than those shown in the table are available on special order. Contact your local Meadow Burke Service Center for more information.

FS-2 FERRULE INSERT - STANDARD DATA

Bolt Diameter in.	Threads in.	Max Bolt Engagement in.	L in.	B in.
⅜	16	¾	1 ¼	9/16
½	13	1	1 ⅜	11/16
⅝	11	1 ⅛	1 ⅝	⅞
¾	10	1 ⅛	1 ⅝	1
⅞	9	1 ⅛	1 ⅝	1 ⅜
1	8	1 ⅛	1 ⅝	1 ⅜
1 ¼	7	2	2 ½	1 11/16
1 ½	6	2	2 ½	2

To order, specify: quantity, name and item number.

NC Threaded Inserts



FX-2 FERRULE INSERT – STRAIGHT LOOP

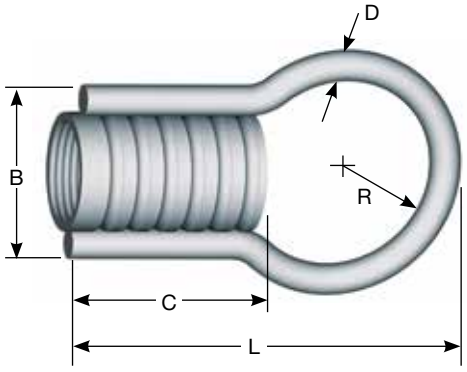
The FX-2 Ferrule Insert – Straight Loop is a versatile insert commonly used for structural connections and as an anchor for suspension of pipes and/or other mechanical equipment. Refer to the table for bolt diameters and lengths available. The insert is available in plain, electroplated, hot-dip galvanized, or stainless steel finish.

FX-2 FERRULE INSERT - STRAIGHT LOOP DATA

Bolt Diameter	Length L	SWL (Tension)	SWL (Shear)	Mechanical SWL	B	C	Number of Struts	Wire Diameter D	Edge Distance (Tension)	Edge Distance (Shear)
In.	In.	lbs.	lbs.	lbs.	In.	In.	In.	In.	In.	In.
½	4 1/8	3000	2600	3000	1 1/16	1 3/8	2	0.225	7	9
½	6 1/8	4000	4000	4900	1 1/4	1 3/8	2	0.306	10	10
5/8	4 1/8	3000	2600	3000	1 1/4	1 5/8	2	0.225	7	9
5/8	6 1/8	5000	4000	6000	1 9/16	1 5/8	2	0.375	10	10
¾	4 1/8	3000	3000	4900	1 3/8	1 5/8	2	0.225	7	10
¾	6 1/8	5000	5600	6000	1 11/16	1 5/8	2	0.375	10	12
7/8	6 1/8	5000	5600	6000	2	1 1/8	2	0.375	10	12
1	6 1/8	5000	6000	6000	2 1/8	1 5/8	2	0.375	10	12
1	8 1/8	6000	6000	6000	2 1/8	1 5/8	2	0.375	13	13

1. SWL based on 3000 psi concrete compression strength.
2. SWL includes a 3:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2x length of the insert.
5. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2x the edge distance for tension and 3x the edge distance for shear.

To order, specify: quantity, name and item number.



FX-5 FERRULE INSERT – LOOP

The FX-5 Ferrule Insert – Loop is a versatile insert commonly used to make structural connections and to suspend pipes and/or other mechanical equipment. Refer to the table for bolt diameters and dimensions. The insert is available in plain, electroplated, hot-dip galvanized, or stainless steel finish.

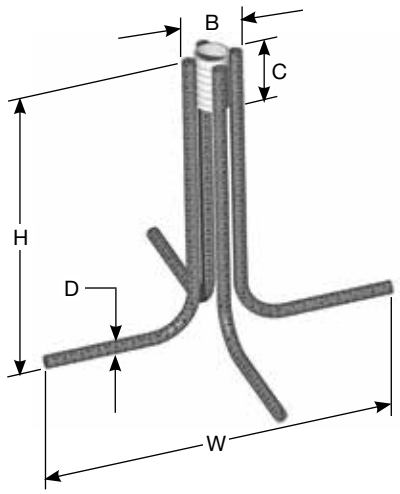
FX-5 FERRULE INSERT - LOOP DATA

Bolt Diameter	Length L	Safe Work Load (Tension)[1,2]	Safe Work Load (Shear)[1,2]	B	C	R	Wire Diameter D	Edge Distance (Tension)[4]	Edge Distance (Shear)[5]
In.	In.	lbs.	lbs.	In.	In.	In.	In.	In.	In.
3/8	2 3/4	2000	2000	1 1/16	1 1/4	9/16	.243	5	8
½	2 3/4	2000	2000	1 1/8	1 3/8	9/16	.243	5	8
5/8	3 ½	2300	2300	1 ½	1 5/8	13/16	.262	5	12
¾	3 ½	2400	2400	1 ¾	1 5/8	13/16	.262	5	12
7/8	6	5300	5300	2 1/16	1 5/8	1 3/8	.375	8	12
1	6	5300	5300	2 1/8	1 5/8	1 3/8	.375	8	12

1. SWL based on 3000 psi concrete compression strength.
2. SWL includes a 3:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2x length of the insert.
5. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2x the edge distance for tension and 3x the edge distance for shear.

To Order, Specify: quantity, name and item number.

NC Threaded Inserts



FX-14 FERRULE INSERT – THIN SLAB

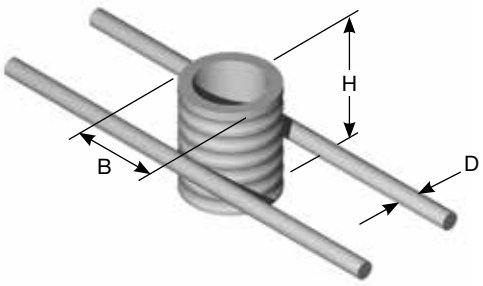
The FX-14 Ferrule Insert – Thin Slab consists of a ferrule and four deformed wire struts. It is designed to attach thin panels to the building frame or to attach or suspend plumbing or mechanical equipment. The insert is available in ¾" and 1" bolt diameters and in plain, electro plated or stainless steel finish.

FX-14 FERRULE INSERT - THIN SLAB DATA

Bolt Diameter		Insert Height H		Safe Work Load (Tension)		B		C		W		Wire Diameter D		Minimum Edge Distance	
in.	mm	in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
¾	19	3 ⅛	80	3500	15.6	1 ¾	44	1 ⅝	41	7	175	.306	7.8	8	175
1	25	4 ⅛	105	4500	20.0	2 ⅛	54	1 ⅝	41	9 ½	241	.306	7.8	10	225

Safe working loads based on 3,000 psi concrete and a 3:1 safety factor.
1. Safe working load is based on the insert setback ½" from the concrete surface.
2. Minimum spacing between inserts is two times the minimum edge distance.

To order, specify: quantity, name and item number.



FX-16 FERRULE INSERT – THIN SLAB STRUT

The FX-16 Ferrule Insert – Thin Slab Strut is fabricated with two 4" wire struts welded to a standard ferrule. Sizes and dimensions are shown in the table. This insert is used effectively in small-envelope areas. The Ferrule Insert – Thin Slab Strut is available in plain, electroplated, hot-dip galvanized, or stainless steel finish.

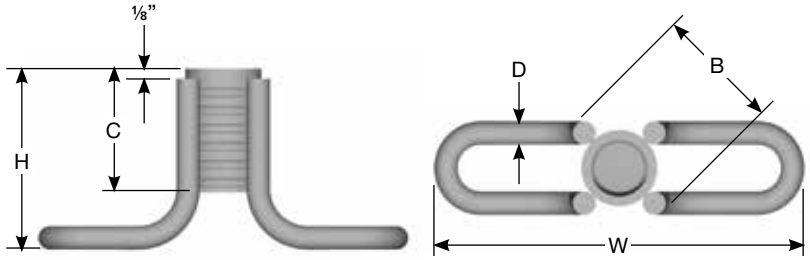
FX-16 FERRULE INSERT - THIN SLAB STRUT DATA

Bolt Diameter		Safe Work Load (Tension)		H		B		Wire Diameter (D)	
in.	mm	lbs.	kN	in.	mm	in.	mm	in.	mm
⅜	10	450	2.0	1 ¼	32	9⁄16	14	.262	6.7
½	13	900	4.0	1 ⅜	35	11⁄16	17	.262	6.7
⅝	16	1000	4.5	1 ⅝	41	⅞	22	.262	6.7
¾	19	1600	7.1	1 ⅝	41	1	25	.262	6.7
⅞	22	1600	7.1	1 ⅝	41	1 ⅜	35	.262	6.7
1	25	1600	7.1	1 ⅝	41	1 ⅜	35	.262	6.7

Safe working loads based on 3,000 psi concrete and a 3:1 safety factor.
1. Safe working load is based on the insert setback ½" from the concrete surface.

To order, specify: quantity, name and item number.

NC Threaded Inserts



FX-19 FERRULE INSERT – WING

The FX-19 Ferrule Insert – Wing is also available for use where panel thickness is limited. This insert is available in ½" through 1" bolt diameters and offers better tension loads than other thin slab inserts. It is available in plain, electroplated, hot-dip galvanized, or stainless steel finish.

FX-19 FERRULE INSERT - WING DATA

Bolt Diameter	H	Safe Work Load (Tension)	Safe Work Load (Shear)	W	B	C	Wire Diameter D	Edge Distance (Tension)	Edge Distance (Shear)
In.	In.	lbs.	lbs.	In.	In.	In.	In.	In.	In.
½	1 ⅜	1200	1200	4 ½	1 ⅛	1 ⅜	.225	4	6
¾	2 ⅜	2650	1650	4 ⅞	1 ¾	1 ⅝	.306	5	5
¾	3 ½	4500	3250	4 ⅞	1 ¾	1 ⅝	.306	6	9
1	3 ½	4500	3200	5 ⅛	2 ⅛	1 ⅝	.375	6	9
1	4 ½	6500	5200	5 ⅛	2 ⅛	1 ⅝	.375	8	12

1. SWL based on 3000 psi concrete compression strength.
2. SWL includes a 3:1 safety factor.
3. Inserts must have a ½" setback.
4. Minimum edge distance apply to 2 edges only. All other edges require 2x length of the insert.
5. Minimum corner distance shall be 1.5x minimum edge distance for shear when loaded towards the edge.
6. Minimum anchor spacing shall be 2x the edge distance for tension and 3x the edge distance for shear.

To order, specify: quantity, name and item number.

MX-25 PRECAST CONCRETE INSERT

The MX-25 Precast Concrete Insert is a handy, cast-in-place metal insert for many of the common attachment applications involving precast construction. It is available in bolt diameters from ¼" through ¾" and in a range of lengths to satisfy job requirements. Refer to the table for dimensions and safe working loads. This insert can be attached to the form using the MX-28 or FC-18 NC threaded plug shown below.

MX-25 MEADOW BURKE CONCRETE INSERT

MB Item Number	General Reference Number	Bolt Size	A	B	L	Safe Work Load (lbs)	Weight Per 100 (lbs)	Edge Dist. (Tension)
201819	P15T	¼" - 20	⅜"	13⁄16"	1 ½"	575	4.72	3"
201821	P24T	⅜" - 16	9⁄16"	1"	1"	1,025	4.28	3"
201823	P25T	⅜" - 16	9⁄16"	⅞"	1 ⅜"	1,200	6.84	3"
201825	P35T	½" - 13	⅝"	1 ¼"	1 ½"	1,225	14.72	3"
201827	P36T	½" - 13	9⁄16"	1 ⅜"	2 ⅞"	2,025	29.90	3"
201829	P45T	⅝" - 11	15⁄16"	1 ⅜"	1 11⁄16"	1,575	20.96	3"
201831	P46T	⅝" - 11	13⁄16"	1 ½"	2 ⅞"	2,500	35.80	3"
201833	P55T	¾" - 10	15⁄16"	1 ⅝"	1 11⁄16"	1,175	31.60	3 ½"
201835	P56T	¾" - 10	15⁄16"	1 9⁄16"	3"	3,125	47.60	3 ½"

1. Safe working loads based on 3,000 psi concrete and a 3:1 safety factor.
2. Minimum edge distance apply to 2 edges only. All other edges require 2x length of the insert.

To order, specify: quantity, name and item number.

NC Threaded Inserts

MX-28 PLUG – METAL NC THREAD

The MX-28 Plug – Metal NC Thread is available to fit all ⅜", ½", ⅝" and ¾" diameter NC threaded inserts. The plug has a nail hole in the center that allows it to be securely fastened to the form. An insert is then screwed on to the plug to complete the insert setting process. This plug provides a ¼" setback.

To order, specify: quantity, name and diameter.

FC-18 PLUG – PLASTIC NC THREAD

The FC-18 Plug – Plastic NC Thread is the plastic version of the metal NC plug listed above. It functions as a setting plug and as a thread protection. This is an excellent and economical unit to use in inserts cast in place but not to be used until a later date. This plug provides a ¼" setback.

To order, specify: quantity, name and diameter.

FC-17 CAP – PLASTIC FERRULE

The FC-17 Cap – Plastic Ferrule is a plastic plug that is press-fit into the threaded opening of the coil to protect the threads from the elements and from concrete seepage. It is available in ⅛" increments from ⅜" to 1" diameters.

To order, specify: quantity, name and diameter.

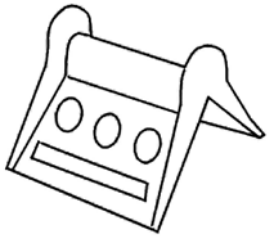
FC-19 TIE HOLE PLUG

Tie FC-19 Hole Plug is a plastic plug available in 9/16" and 3/16" diameters used to temporarily fill holes in the formwork plywood. Tie Hole Plugs are sold in carton lots only.

To order, specify: quantity, name and diameter.

RL-71 CHAIN GUARD

The RL-71 Chain Guard is made from a durable plastic and is used to protect the edges of precast panels from spalling caused by transportation chains or strapping. The Chain Guard is available in the two sizes: 1¾" and 4¼".



RL-71 MEADOW BURKE CHAIN GUARD DATA			
Size	MB Item Number	Pieces Per Package	Weight Per Package
1¾"	291534	100	10
4¼"	291535	50	11

To order, specify: quantity, name and size.

Precast Miscellaneous Products

RL-73 PANEL PAD

The RL-73 Panel Pad is a 2½" x 6" heavy-duty plastic spacer that is positioned between precast concrete panels during storage and/or transportation.

To order, specify: quantity and name.

MB Shims

RL-75 Checker Board

RL-76 / RL-77 Ridged Shim

The shims are designed to quickly and safely adjust for an uneven footing or panels. They provide excellent stability and will not rust or stain the concrete.

FEATURES

- Manufactured with extremely tough high-impact polystyrene
- Ultimate compressive strength of 8,000 psi per ASTM-D695 for up to 3" thick shims
- Manufactured by Meadow Burke in the USA

RL-75 Checker Board Shim Packs contain:

- One 1/16" (blue)
- One 1/8" (yellow)
- Four 1/4" (grey)

RL-77 Ridged Shim Packs contain:

- One 1/16" (black)
- Two 1/8" (black)
- Three 1/4" (black)

Single Shims					
Item Number	Type	Size	Pieces / Package	Weight Ea. (lbs)	Color
MB40204	RL-75	2"x 3"x ½"	125	0.01060	Black
MB40203	RL-75	2"x 3"x ¼"	250	0.050	Grey
MB40202	RL-75	2"x 3"x ⅛"	500	0.020	Yellow
MB40201	RL-75	2"x 3"x 1/16"	1,000	0.013	Blue
MB45607	RL-76	4"x 6"x 1/16"	400	0.09	Black
MB45608	RL-76	4"x 6"x ⅛"	200	0.19	Black
MB45609	RL-76	4"x 6"x ¼"	100	0.33	Black
Shim Packs					
MB283120	RL-75	3"x 3"x 1 3/16"	50	0.368	Mix
MB283122	RL-75	6"x 6"x 1 3/16"	20	1.545	Mix
MB45604	RL-77	4"x 6"x 1 3/16"	30	1.1	Black

Prestress Products

All Meadow Burke Sure-Lock prestress chucks are manufactured to rigorous specifications from high quality, high strength steel. They are properly heat-treated, inspected (including a 100% magnaflux inspection) and tested to provide the user with a quality product they can use with confidence.

CAUTION: Meadow Burke Sure-Lock prestress chucks are precision manufactured devices that require maintenance and periodic inspection. Complete inspection and maintenance information is available from your Meadow Burke representative. Failure to read, understand and adhere to the inspection and maintenance instructions can result in hazardous situations for workers and possible damage to products and/or facilities.

Prestress Chucks

SURE-LOCK SPLICE CHUCK – MULTIPLE USE

The Sure-Lock Splice Chuck – Multiple Use assembly includes the bodies, coupler, springs and jaws with rubber o-rings. Refer to the table for strand size and item number. Multi-use transition (splicing two strands of different sizes) splice chucks are available on request. Individual replacement parts are available and are shown in the table.

SURE-LOCK SPLICE CHUCK - MULTIPLE USE DATA

Strand Size	Chuck #	MB Item #	Jaw Assembly #	Coupling Part #	Body Part #	Back Plate & Spring #	Weight (lbs)
.6-.6	F4600	206055	F600J	F3CP	F11B	F3BP/F3S	6.0
9/16-9/16	F4562	206056	F562J	F3CP	F11B	F3BP/F3S	6.0
1/2-1/2	F4500EL	206057	F500JEL	F2CP	F10B	F2BP/F2S	4.0
7/16-7/16	F4437	206058	F437J	F2CP	F10B	F2BP/F2S	4.0
3/8-3/8	F4375	206059	F375J	F2CP	F10B	F2BP/F2S	4.0
11/32-11/32	F4343	206060	F343J	F1CP	F9B	F1BP/F1S	4.0
5/16-5/16	F4312	206061	F312J	F1CP	F9B	F1BP/F1S	2.5
1/4-1/4	F4250	206062	F250J	F1CP	F9B	F1BP/F1S	2.5
7mm-7mm	F4276	206063	F276J	F1CP	F9B	F1BP/F1S	2.5
5mm-5mm	F4197	206064	F197J	F1CP	F9B	F1BP/F1S	2.5

To order, specify: quantity, name and item number.

SURE-LOCK STRAND CHUCK – MULTIPLE USE

The Sure-Lock Strand Chuck – Multiple Use assembly includes the bodies, coupler, springs and jaws with rubber o-rings. Refer to the table for strand size and item number. Multi-use transition (splicing two strands of different sizes) splice chucks are available on request. Individual replacement parts are available and are shown in the table.

SURE-LOCK STRAND CHUCK - MULTIPLE USE DATA

Strand Size	Chuck #	MB Item #	Jaw Assembly #	Retaining Ring #	Body Part #	Cap Part #	Spring Part #	Weight (lbs)
0.60	F1600	206045	F600J	F3R	F3B	F3C	F3S	2.6
9/16	F1562	206046	F562J	F3R	F3B	F3C	F3S	2.6
1/2	F1500EL	206047	F500JEL	F2R	F2B	F2C	F2S	2.0
7/16	F1437	206048	F437J	F2R	F2B	F2C	F2S	2.0
3/8	F1375	206049	F375J	F2R	F2B	F2C	F2S	2.0
11/32	F1343	206050	F343J	F1R	F1B	F1C	F2S	1.0
5/16	F1312	206051	F312J	F1R	F1B	F1C	F1S	1.0
1/4	F1250	206052	F250J	F1R	F1B	F1C	F1S	1.0
7mm	F1276	206053	F276J	F1R	F1B	F1C	F1S	1.0
5mm	F1197	206054	F197J	F1R	F1B	F1C	F1S	1.0

To order, specify: quantity, name and item number.

Prestress Chucks

ANCHOR CHUCK – MULTIPLE USE

The Sure-Lock® Anchor Chuck – Multiple Use assembly includes the body and three-piece jaw with a rubber o-ring. Refer to the table for strand size and item number. Individual replacement parts are available and are shown in the table.

SURE-LOCK ANCHOR CHUCK - MULTIPLE USE DATA						
Strand Size	Chuck #	MB Item #	Jaw Assembly #	Retaining Ring #	Body Part #	Weight (lbs)
5mm	F2197	206074	F197J	F1R	F4B	.75
7mm	F2276	206073	F276J	F1R	F4B	.75
¼	F2250	206072	F250J	F1R	F4B	.75
5⁄16	F2312	206071	F312J	F1R	F4B	.75
11⁄32	F2343	206070	F343J	F1R	F4B	.75
3⁄8	F2375	206069	F375J	F2R	F5B	1.3
7⁄16	F2437	206068	F437J	F2R	F5B	1.3
½	F2500EL	206067	F500JEL	F2R	F5B	1.3
9⁄16	F2562	206066	F562J	F3R	F6B	1.9
0.60	F2600	206065	F600J	F3R	F6B	1.9

All part numbers are trademarks of Precision Post Tension

SPLICE CHUCK – ONE TIME USE

Sure-Lock® Splice Chuck – One Time Use assembly includes the body, threaded end caps, spring spacer and two-piece wedges with wire rings. Refer to the table for strand size and item number. Multi-use transition (splicing two strands of different sizes) splice chucks are available on request. A clear zinc coating is available, if corrosion resistance is required.

SURE-LOCK SPLICE CHUCK - ONE TIME USE DATA				
Strand Size	Chuck #	MB Item #	Description	Weight (lbs)
¼	F6250	206083	Splice Chuck	3.5
3⁄8	F6375	206084	Splice Chuck	3.5
7⁄16	F6437	206085	Splice Chuck	3.5
½	F6500	206086	Splice Chuck	3.5
0.6	F6600	206087	Splice Chuck	5.5

STRAND CHUCK – ONE TIME USE

The Sure-Lock® Strand Chuck – One Time Use assembly includes the body, two-piece wedges with or without wire rings. Three-piece wedges are also available in many sizes. Refer to the table for strand size and item number. Individual replacement parts are available and are shown in the table. A clear zinc coating is available, if corrosion resistance is required.

SURE-LOCK STRAND CHUCK - ONE TIME USE DATA							
Strand Size	Chuck #	MB Item #	Description	Body Part #	Wedge Part #	Description	Weight (lbs)
¼	F5250	206075	Chuck / 2 piece w/o Ring	F8B	F250SL2	2-Piece w/o Ring	.75
3⁄8	F5375	206076	Chuck / 2 piece w/o Ring	F8B	F375SL2	2-Piece w/o Ring	.75
7⁄16	F5437	206077	Chuck / 2 piece w/o Ring	F8B	F437SL2	2-Piece w/o Ring	.75
½	F5500	206078	Chuck / 2 piece w/o Ring	F8B	F500SL2R	2-Piece w/o Ring	.75
½	F5500R2	206079	Chuck / 2 piece w/o Ring	F8B	F500SL2R	2-Piece w/ Ring	.75
½	F5500R3	206080	Chuck / 3 piece w/ Ring	F8B	F500SL3R	3-Piece w/ Ring	.75
0.6	F5600	206081	Chuck / 2 piece w/o Ring	F13B	F600SL2	2-Piece w/o Ring	1.5
0.6	F5600R3	206082	Chuck / 3 piece w/ Ring	F13B	F600SL3R	3-Piece w/ Ring	1.5

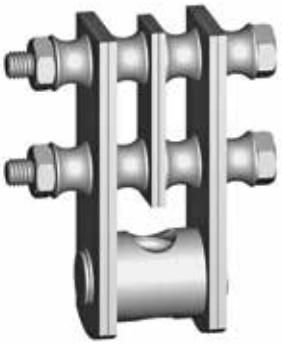
Prestress Strand Hold Downs

PRESTRESS HOLD DOWNS

Meadow Burke has been producing quality prestress strand hold down devices since 1978. All hold downs produced by Meadow Burke have dependable and predictable mechanical connections. There are no weld-dependent connections.

PRESTRESS HOLD DOWN TECHNICAL AND SAFETY DATA

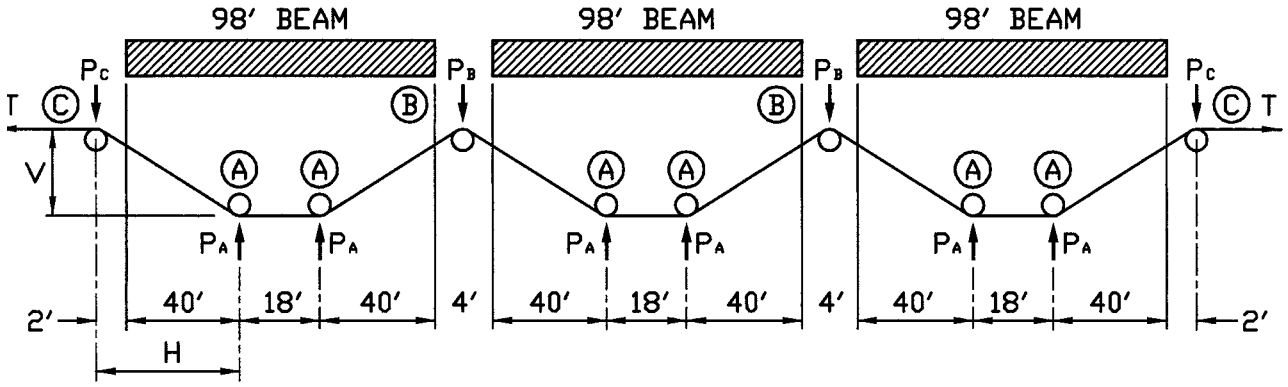
- All anticipated loads should be determined by a qualified structural engineer and should include an additional 5% for friction losses. Use the comparison of the total anticipated loading and the published safe working loads of the hold downs to select the appropriate hold down unit for the intended application.
- Exercise care in the hold down selection process. Hold downs are load rated by the unit and by individual strand. Both load ratings must be checked and compared. The lower of the two values is the controlling factor. Do not exceed either; use the next higher rated hold down, if necessary.
- The allowable number of strands per unit can be determined by dividing the unit's safe working load by the calculated individual strand load (include the 5% friction loss).
- It is extremely important for an engineer to verify loads when a hold down unit is used in a hold up application. This type of application usually produces a load double the hold down load and requires two "hold up" units to satisfy the safe work load requirement.
- It is imperative that high strength coil rod and heavy hex nuts be used in all hold down and hold up applications in order to ensure safe working loads.
- IMPORTANT: in prestress operations all working hardware must be periodically inspected and replaced if signs of wear or bending are present. Worn or bent bolts should be immediately discarded. Never use a worn or bent bolt for any purpose and never attempt to straighten a bent bolt. Discard any bolt or coil rod that is suspected of being used at loads of 70% or more of ultimate capacity.



Prestress Strand Hold Downs

TYPICAL HOLD DOWN LOADING CALCULATIONS

When calculating the forces at deflection points, additional attention must be given to the intermediate forces occurring at points "B" in the example diagram. These intermediate hold up forces are often double the hold down forces and will require two hold up units at each "B" point.



V = Rise in strand A to C = 67-½" = 5.625 ft.
H = Horizontal distance A to C = 42 ft.
T = Tension in one strand = 41,000 lbs.
N = Number of deflected strands = 10 strands.
PA = Uplift at Points "A" due to all deflected strands.
PB = Down load at Points "B" due to all deflected strands.

The example illustrates the method of calculating Hold Down loads in a given prestress strand deflection diagram, and also addresses the condition at points B and C.

A) To determine forces at points A : PA = (V/H)(T x N) = (5.625 ft./42 ft.) (41,000 lbs. x 10 strands) = 54,910 lbs.
B) Add 5% for friction, PA = 1.05 (54,910) PA = 57,660 lbs. uplift
C) To determine forces at points B : Summation of all vertical forces must equal 0.
$\sum FV = 0$
Thus, 6 (PA) = 2 (PB) + 2 (PC)
where, PC = PA
6 PA = 2 PB + 2 PA
PB = 2 PA = 2 (57,660)
PB = 115,320 lbs. Down load @ B

D) Use two (2) Hold Down units 62/68 KIP at each point B.
E) Use one (1) Hold Down unit 62/68 KIP at points A.

CAUTION: When hold down units are used as hold up units, they should only be used one (1) time as such. After close inspection, they should be discarded or used a final time as a hold down.

Special hardness treatment can be obtained on special orders only, which may enable parts to be used more than once. Consult with Meadow Burke Engineering Department, Tampa, FL, for additional information.

Prestress Strand Hold Downs

STRAND HOLD DOWN 20K

0.6 Strand Rollers Standard on all Units and all Roller Bolts are Grade - 8 Hi-Strength.

STRAND HOLD DOWN 20K DATA												
20 KIP Series	Model	SWL per Unit (Kips)	SWL per Strand (Kips)	Number Vertical Rows of Strand	Coil Thread Diameter (in.)	Horizontal Strand Spacing (a)	Setback to 1st Strand (b)	1st to 2nd Strand Spacing (c1)	Std. Vertical Spacing (c)	Overall Width (in.) (d)	Weight Per Min. Unit (lbs)	Add'l Wt. Strand Row (lbs)
	SH-223	24	6	1	¾	N/A	2	2	2	2 ⅜	1.13	0.62
	SH-224K	24	5	2	¾	2	2	2	2	3 ⅞	1.23	0.72
	SH-226K	24	5	2	1	2 ¼	2 3⁄16	1 13⁄16	2	4 ⅜	1.49	0.72

1. All 200 series hold downs will engage MB Hi-Strength Coil Rod. All orders will be shipped with restrainers installed, unless otherwise specified.
2. "B" dimensions are measured from the bottom of the form to the 1st strand. Actual "B" dimensions will be 1⁄16" less for clearance.

STRAND HOLD DOWN 40K

0.6 Strand Rollers Standard on all Units and all Roller Bolts are Grade - 8 Hi-Strength.

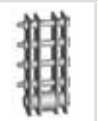
STRAND HOLD DOWN 40K DATA												
40 KIP Series	Model	SWL per Unit (Kips)	SWL per Strand (Kips)	Number Vertical Rows of Strand	Coil Thread Diameter (in.)	Horizontal Strand Spacing (a)	Setback to 1st Strand (b)	1st to 2nd Strand Spacing (c1)	Std. Vertical Spacing (c)	Overall Width (in.) (d)	Weight Per Min. Unit (lbs)	Add'l Wt. Strand Row (lbs)
	SH-453	48	7.5	1	1	N/A	2 3⁄16	1 13⁄16	2	3 ¼	3.78	1.11
	SH-456K	48	7.5	2	1	2	¾	2 ⅛	2	4 ⅜	4.59	1.31
	SH-458	48	7.5	2	1	2	2 3⁄16	1 13⁄16	2	4 ⅜	5.27	1.26
	SH-455K	48	6	3	1	2	2 3⁄16	1 13⁄16	2	6 ⅞	3.32	1.88

1. All 400 series hold downs have standard 3 ½ pitch thread in swivels and willengage MB Hi-Strength Coil Rod. All orders will be shipped with restrainers installed, unless otherwise specified.
2. "B" dimensions are measured from the bottom of the form to the 1st strand. Actual "B" dimensions will be 1⁄16" less for clearance.

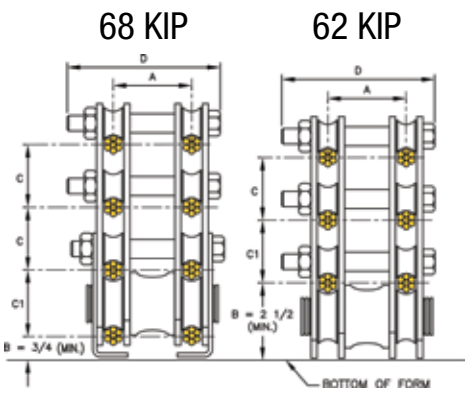
Prestress Strand Hold Downs

STRAND HOLD DOWN 60K

0.6 Strand Rollers Standard on all Units and all Roller Bolts are Grade - 8 Hi-Strength.

STRAND HOLD DOWN 60K DATA												
70 KIP Series	Model	SWL per Unit (Kips)	SWL per Strand (Kips)	Number Vertical Rows of Strand	Coil Thread Diameter (in.)	Horizontal Strand Spacing (a)	Setback to 1st Strand (b)	1st to 2nd Strand Spacing (c1)	Std. Vertical Spacing (c)	Overall Width (in.) (d)	Weight Per Min. Unit (lbs)	Add'l Wt. Strand Row (lbs)
	SH-653	68	9	1	1	N/A	2 ½	2	2	3 ¼	4.78	1.12
	SH-656K	68*	7.5	2	1	2 ½	¾	2 ⅛	2	4 ⅜	5.05	1.44
	SH-658	62	7.5	2	1	2 ½	2 ½	2	2	4 ⅜	5.8	1.39
	SH-655K	68	6	3	1	2 ¼	2 ½	2	2	6 ⅞	3.65	2.07

1. Load of strands transferred to side frame material must not exceed 62 KIPS (see graphic below).
2. All 600 series hold downs have special 4 pitch thread in swivels and will engage only Meadow Burke Super 150 ksi Coil Rod. All units ordered will be shipped with restrainers installed,
3. "B" dimensions are measured from the bottom of the form to the 1st strand. Actual "B" dimensions will be 1/16" less for clearance.



How To Order: Specify quantity, unit number, number of strands, "B" dimension, "C" dimension, and "C1" dimension if required.

Example: 50, SH-658, 10 strand, B=2 ½", C=2" (as shown in picture).

Caution:

Contact Engineering Department for ANY unit requiring a "B" dimension > 4 ¾"

Total strand load shall not exceed unit safe working load.

Prestress Products

DT-21 PUSHDOWN 0.5

The DT-21 Pushdown 0.5 is made of ductile iron and is designed to hold 0.5" strands. It is available in four sizes to hold 3 strands, 5 strands, 8 strands and 10 strands. A ¾" diameter hole in the top of the unit is used in conjunction with a tapered rod to position and hold the pushdown in place. The tapered rod should have an integral shoulder to bear on the top of the pushdown. Note that this product is not load rated.

DT-21 PUSHDOWN 0.5 DATA (FOR 0.5 STRAND)

Product Code Number	Item	Number of Strands	Slot Width (in.)	Slot Length (in.)	Top Hole Diameter (in.)	Top Hole Depth (in.)	Maximum Width (in.)
650641	DT-21 #5	5	0.565	2.411	0.770	1.36	2.000
650696	DT-21 #8	8	0.565	4.011	0.770	1.545	2.437

To order, specify: quantity, name and item number.

CH-27 STRAND CLAMP

The CH-27 Strand Clamp is a ductile iron clamp used with 0.5" and 0.6" strands to position and hold bulkheads in place.

To order, specify: quantity, name and item number.

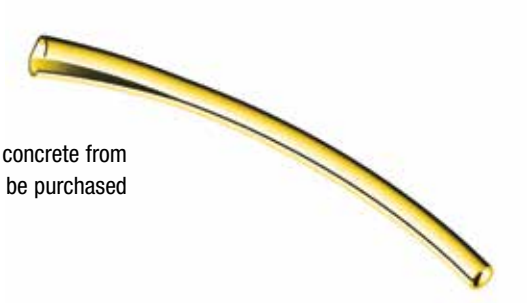
CH-29 STRAND RECESS PLUG

The CH-29 Strand Recess Plug is a handy foam plug used to fill prestress voids to facilitate the patching process. The foam plug is 1⅛" x 1⅛" x ¾".

To order, specify: quantity, name and item number.

RD-28 DEBOND SPLIT TUBING

The RD-28 Debond Split Tubing is flexible polymer plastic tubing used to prevent concrete from bonding to the prestressing strands. The tubing is shipped in 10' lengths and can be purchased in split or unsplit versions.

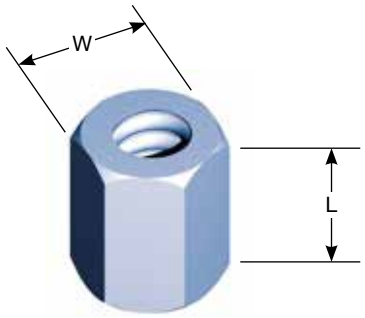


CH-31 DEBOND STRAND SNAP

- Rigid two-piece construction
- High-Impact Plastic
- Patented design creates Tight "seal"
- Designed to be installed over tensioned strands
- Highly abrasive resistance
- Engineered rigidity maintains Shape to dissipate bursting stresses
- Fast and easy to install
- Available in 10' lengths
- Installs on .5 and .6 strand sizes

To order, specify: quantity, name and item number.

Prestress Working Parts



CN-25 COIL NUT – HEAVY
CN-33 COIL NUT – SUPER 150 HI STRENGTH

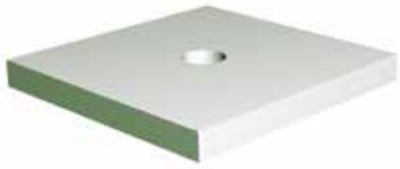
The CN-25 and CN-33 Coil Nuts are manufactured from hex stock like the Standard Coil Nut, but is of sufficient length to develop the safe working load required for prestress applications. CN-33 Coil Nut is used with CR-5 Super High Strength Coil Rod only.

CN-25 & CN-33 COIL NUT - HEAVY DATA

Item Number	Type	Use with Hold Down Series	Strength	Nominal Diameter	Thread Pitch	SWL (KIPS)	Weight per 100 (lbs)	L (in.)	W (in.)
207243	CN-25	20	Std. Hi Strength	¾	4½	24	26	1½	1⅛
207230	CN-25	20/40	Std. Hi Strength	1	3½	48	72	2	1⅝
207229	CN-33	60	Super Hi Strength	1	4	72	72	2	1¾

Table is based on a 1.5:1 safety factor for prestress applications.

To order, specify: quantity, type and bolt diameter.



CW-4 FLAT WASHER

CW-4 Flat Washers are manufactured from high carbon flat steel plate and are designed to provide the required bearing against the form members. Refer to the table for dimensions and safe working loads.

CW-4 FLAT WASHER DATA

Item Number	Type	Use with Hold Down Series	Strength	Nominal Diameter	Size	Weight per 100 (lbs.)
470151	CW-4	20	HVY	¾	½" X 5" X 5"	347
470180	CW-4	40/60	HVY	1	¾" X 7" X 7"	1160

Table is based on a 1.5:1 safety factor for prestress applications.

To order, specify: quantity, type, name and bolt diameter.

CR-4 COIL ROD – HI-STRENGTH
CR-5 COIL ROD – SUPER 150 HI-STRENGTH

Meadow Burke supplies two different types of coil thread:
1. 20 KIP and 40 KIP series uses standard hi-strength, 3½ pitch coil thread (CR-4).
2. 60 KIP series uses Special Super 150 hi-strength, 4 pitch coil thread (CR-5).

They are not interchangeable and cannot be mismatched.

Use only Meadow Burke coil rod for all hold down application. Meadow Burke will not guarantee the SWL of any coil rod which has been field welded, bent and/or has worn threads. Coil Rod Threads must protrude through top of swivel to achieve SWL. Use two CN-5 Coil Nuts or one CN-25/CN-33 Coil Nut to develop Coil Rod SWL.

CONTINUOUS COIL ROD

Item Number	Type	Use with Hold Down Series	Strength	Nominal Dia.	Thread Pitch	Coil Rod SWL (KIPS)	Weight per CFL
400208	CR-4	20	Std.Hi Strength	¾"	4½	24	120
400213	CR-4	20/40	Std.Hi Strength	1"	3½	48	212
400211	CR-5	20	Super 150	1"	4	72	212

Safety Factor is approximately 1.5:1

To order, specify: quantity, type, name, bolt diameter and length.

BT Couplers

Type 1 & Type 2HS Rebar Splicing System

BT Couplers

Type 1 & Type 2HS Rebar Splicing System

BT Couplers are a versatile and robust mechanical rebar splicing system. BT Couplers are a Type 1 & Type 2HS Rebar Splicing System used to mechanically connect rebar sections in segmental pours as an alternative to traditional dowel bars. The three-part system consists of a Splice Bar, Coupler and Setting Bar that meets the mechanical splice strength requirements of ACI-318-19 when used to splice grade 60 rebar.

FEATURES

- Improved performance: Exceeds ACI-318-19 Type 1 & Type 2HS splice requirements and maintains reinforcing steel continuity independent of concrete cover.
- Saves time and money: Reduces costly form repairs by eliminating drilling of forms and simplifies form striping.
- Available in standardized lengths (sizes #4 – #11) and configured to order.

BT COUPLERS SPLICING PERFORMANCE

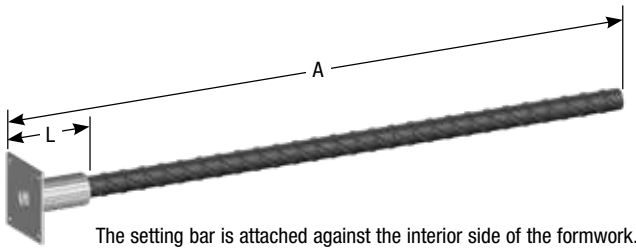
Bar Size	Nominal Area (inch^2)	Grade 60 Rebar Yield Strength (lbs)	Type 1 125% Yield Strength (lbs)	Type 2HS 90 KSI Tensile Strength (lbs)*
#4	0.20	12,000	15,000	18,000
#5	0.31	18,600	23,250	27,900
#6	0.44	26,400	33,000	39,600
#7	0.60	36,000	45,000	54,000
#8	0.79	47,400	59,250	71,100
#9	1.00	60,000	75,000	90,000
#10	1.27	76,200	95,250	114,300
#11	1.56	93,600	117,000	140,400

*ASTM A615 and A706 compliant

The Three-part Mechanical Connect System

STANDARD LENGTH SETTING BARS				
Type I Item Number	Type II Item Number	Rebar Size	Grade 60 Finish: Plain	"A" Length (inch)
	MBR2610430F	#4	RC-61-T2 Setting Bar	30"
	MBR2610448F	#4	RC-61-T2 Setting Bar	48"
	MBR2610530F	#5	RC-61-T2 Setting Bar	30"
Contact	MBR2610536F	#5	RC-61-T2 Setting Bar	36"
Meadow Burke	MBR2610548F	#5	RC-61-T2 Setting Bar	48"
	MBR2610636F	#6	RC-61-T2 Setting Bar	36"
	MBR2610648F	#6	RC-61-T2 Setting Bar	48"
	MBR2610760F	#7	RC-61-T2 Setting Bar	60"

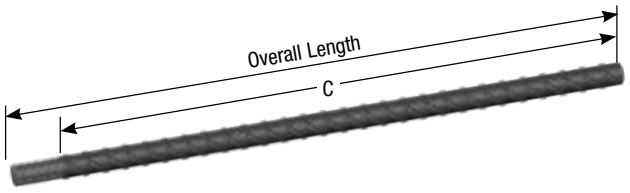
Additional lengths are available for Type I & II upon request



The setting bar is attached against the interior side of the formwork.

STANDARD LENGTH SPLICE BARS				
Type I Item Number	Type II Item Number	Rebar Size	Grade 60 Finish: Plain	"C" Length (inch)
	MBR2610430M	#4	RC-61-T2 Splice Bar	30"
	MBR2610448M	#4	RC-61-T2 Splice Bar	48"
	MBR2610530M	#5	RC-61-T2 Splice Bar	30"
Contact	MBR2610536M	#5	RC-61-T2 Splice Bar	36"
Meadow Burke	MBR2610548M	#5	RC-61-T2 Splice Bar	48"
	MBR2610636M	#6	RC-61-T2 Splice Bar	36"
	MBR2610648M	#6	RC-61-T2 Splice Bar	48"
	MBR2610760M	#7	RC-61-T2 Splice Bar	60"

Additional lengths are available for Type I & II upon request



The splice bar is screwed in the setting bar after the form is stripped, continuing the rebar.

TYPE I COUPLER DETAIL						
Standard Coupler PN# (plain finish)	Flange Coupler PN# (plain finish)	Rebar Size	Couple Thread Size	"L" Length (inch)	Diameter (inch)	Weight (lbs.)
MB860501	MB860502	#4	½-13 UNC	1.875	0.875	0.24
MB860651	MB860652	#5	⅝-11 UNC	2.125	1.000	0.34
MB860801	MB860802	#6	¾-10 UNC	2.250	1.125	0.41
MB860951	MB860952	#7	⅞-9 UNC	2.625	1.250	0.57
MB861101	MB861102	#8	1-8 UNC	3.250	1.500	1.08
MB861251	MB861252	#9	1-⅛-7 UNC	3.750	1.625	1.39
MB861401	MB861402	#10	1-¼-7 UNC	4.250	2.000	2.61
MB861551	MB861552	#11	1-⅜-6 UNC	4.750	2.000	2.66

The coupler is a steel sleeve that the splice bars thread into, providing rebar continuity.

TYPE II COUPLER DETAIL						
Standard Coupler PN# (plain finish)	Flange Coupler PN# (plain finish)	Rebar Size	Couple Thread Size	"L" Length (inch)	Diameter (inch)	Weight (lbs.)
MB860551	MB860552	#4	⅝-11 UNC	1.250	1.000	0.17
MB860681	MB860682	#5	¾-10 UNC	1.625	1.125	0.25
MB860851	MB860852	#6	⅞-9 UNC	2.250	1.250	0.40
MB860981	MB860982	#7	1-8 UNC	2.500	1.500	0.70
MB861151	MB861152	#8	1-⅛-8 UN	2.750	1.625	0.88
MB861281	MB861282	#9	1-¼-8 UN	3.000	2.000	1.70
MB861451	MB861452	#10	1-⅞-8 UN	3.250	2.125	1.84
MB861581	MB861582	#11	1-⅝-8 UN	3.625	2.250	2.19

BT Couplers are sold as an engineered component system, proof tested and third party certified. Under no circumstances will Meadow Burke permit the mixing other manufactures splicing parts with genuine MB components.

STEP 1 Ensure you are installing the bar size as per plan. Be sure that the protective thread plug is installed in the end of the coupler.

STEP 2 Lay the BT Coupler Setting Bar dowel parallel with rebar to be spliced. Position coupler plate flush against formwork and tie the female BT Coupler to the rebar mat. Be sure the bars are properly supported. Note: Roofing nails can be used to assure the coupler plate stays flush against formwork. The plate on the coupler is not intended to support the weight of the bar, workmen or equipment.

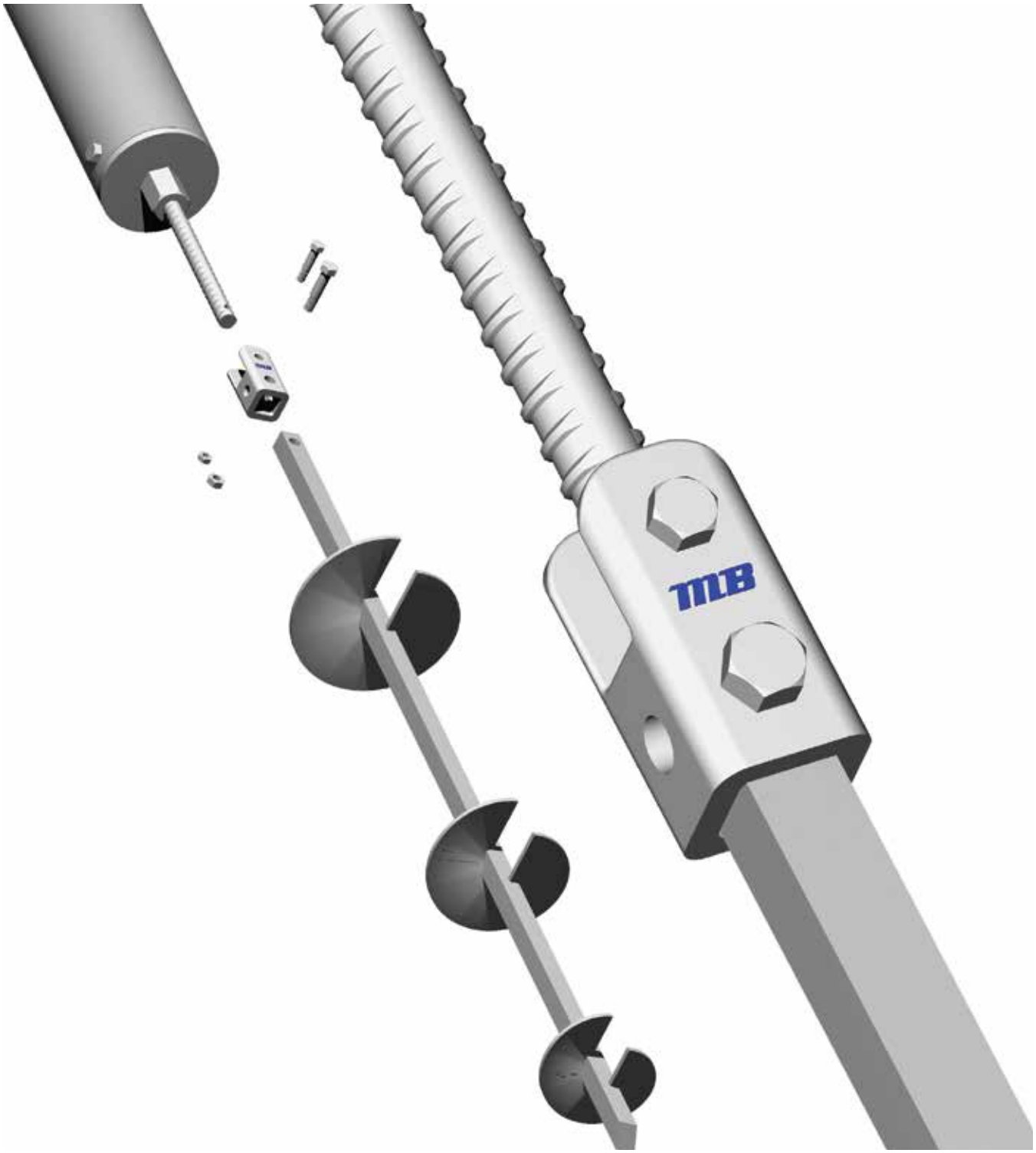
STEP 3 After concrete is placed and forms are stripped, the protective thread plug and face plate of the coupler are visible. The protective thread plug can be easily removed using a screwdriver or pliers.

STEP 4 Remove the bar end protector from the male bar. Visually inspect the thread to make sure it is undamaged and free of rust or debris. If the threads need to be cleaned use a wire brush.

STEP 5 Thread a Splice Bar into Setting Bar until Splice Bar threads bottom out against Coupler Thread Stop, tighten hand tight (10 ft lbs.)

NOTE: In situations where proper positioning of setting or splice bar is not possible after hand tightening assembly, it is acceptable to unscrew one side up to 1 turn to correctly index hooks or bent bar in rebar cage.

Precast Bracing Hardware



FORWARD

This Manual has been developed to provide a broad scope of technical information to the tilt-up Contractor/Erector. No publication, however comprehensive, s complete in every detail nor can one design for national use or account for local customs and practices. Consequently, when using this manual there is an absolute obligation to verify understandings or impressions with more experienced sales people, managers, engineering or other technical sources. We, at Meadow Burke, are confident you will find this manual an invaluable tool.

NOTICE

All of the Meadow Burke inserts and products have been fully tested for mechanical capabilities. In addition the inserts have been cast in concrete to test the actual pull-out capacities. Full size production braces have been tested in tension and compression to determine their failure loads. It is these loads, and not theoretical values determined from various equations that are published in this manual. Contact Meadow Burke Engineering for assistance in determining loads not listed.

Meadow Burke products must be properly used and maintained. Do not use any products that are worn, excessively corroded, deformed or altered. See the product maintenance manual for proper maintenance and inspection of rental hardware.

A precast panel is not a completed wall immediately upon lifting. Braces are necessary to resist wind forces until permanent connections are made.

A number of variables will effect the amount of force Meadow Burke braces must resist. The amount of lateral pressure on newly erected precast panels will vary with wind velocity, the surface area of the panel and the presence or absence of openings. The chart on this page shows the pressure gradient for a 72 m.p.h. wind exerted on the panel. Wind velocity and therefore pressure, will depend on the geographical location of the building and seasonal conditions. The amount of this force will rise further if the wind is supplemented with either driving rain, blowing snow, or windblown dust and sand.

Before selecting a brace type in the Bracing Tables, contact the local Meadow Burke Distributor to determine what equipment is available. When using the Bracing Tables, make certain the brace selected will reach between the available floor and wall panel without falling in an opening or conflicting with an obstruction.

The following Precast Brace Spacing Tables A, B, C were developed using a minimum construction period wind speed of 72 m.p.h. with exposure C, based on ASCE 7-95. This is the 90 m.p.h. basic wind speed modified by .8 to convert it to a one year mean recurrence interval for the construction period. The table incorporates minimum safety factors of 1.5 on the braces and 2.0 on the brace inserts. Contact Meadow Burke Engineering for assistance if site conditions or local codes require higher design wind pressure.

WARNING

Do not weld or modify products.
Do not substitute products or interchange components fromother manufacturers.
Do not use non-authorized drill-in anchors as lifting or brace connections that have not been tested and approved by Meadow-Burke Engineering.
Do not use damaged or worn products.
Do not climb on or ride panels during erection.
Do not alter rigging, reinforcing steel or strongbacks.
Do not deviate from the information shown on the drawings without notifying Meadow-Burke Engineering.

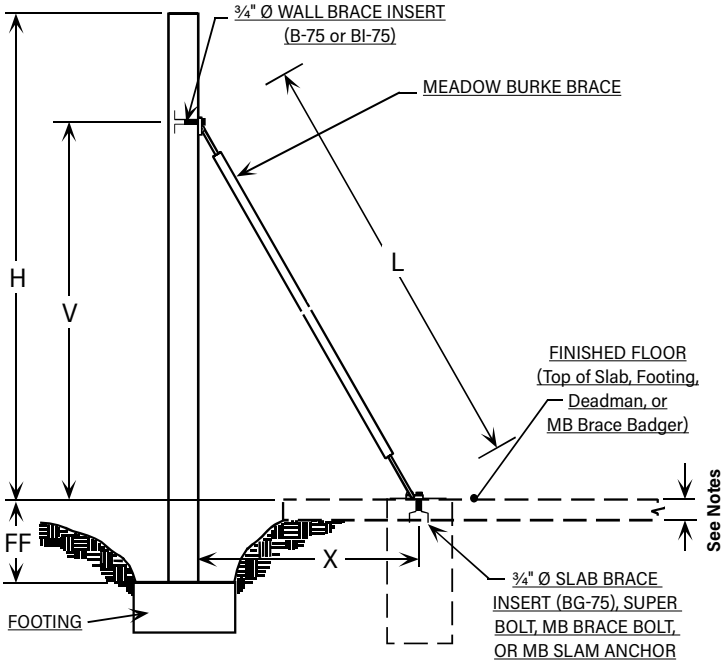
Meadow Burke braces are designed for use with the Meadow Burke Brace Badger, Slam Anchor, Super Bolt, MB Brace Bolt, or with cast-in-place B-75, BI-75 and BG-75 coil inserts only. The use of other types of inserts may reduce the capacity of the bracing system and therefore should not be used. In order to develop the full capacity of the brace inserts, the inserts must be embedded in concrete with 2,500 psi minimum concrete compressive strength, 5 inch minimum embedment and located 1 foot minimum from all concrete edges. Lesser embedments or lower concrete strengths will reduce the capacity of the brace insert and may reduce the allowable brace spacings shown in the tables or on the panel erection details. Meadow Burke does not recommend the use of expansion type inserts for attaching tilt-up braces and assumes no responsibility if used.

To achieve the spacings shown in the brace tables or on the panel erection details, the braces must be anchored to a concrete floor slab, footing or deadman with sufficient area, weight and strength to resist the applied brace loads. The braces are designed for attachment at top of floor slab elevation unless noted otherwise on the details. The floor slab has not been checked or designed by Meadow Burke. Using floor slabs, footings or deadmen of insufficient size or strength may result in failure of the brace system before the design wind load is reached. It is the users responsibility to have a qualified professional engineer design the floor slab, footing or deadman to insure that they are adequate to anchor the braces for this application. To assist the engineer, the applied design concentric brace load as determined by Meadow Burke Engineering for each brace is indicated on the panel detail sheets.

The brace information shown herein reflects spacings for the resistance of wind load only. The effect of construction live loads, soil backfill loads, vertical and lateral loads, etc., have not been considered in the design of the brace tables or brace information shown on the erection details. It is the responsibility of others to determine the effect of such loads and provide additional bracing as required to support the panels.

The vertical dimension of the wall brace insert above the floor slab, footing or deadman and the horizontal dimension to the floor brace insert from the face of the panel where the wall brace inserts are located is indicated in the brace tables for a specified panel height, or is shown on the panel erection details. Deviations from the dimensions shown in the tables or on the panel details may significantly reduce the indicated capacity of the braces.

The bracing recommendations contained herein apply to standard bracing situations for full height panels setting on footings and may not be applicable to all jobsite conditions. If this project has conditions that require a special brace design, the contractor should contact Meadow Burke Engineering for assistance.



Bracing Guidelines

1. Braces are designed to be placed in a plane at 90 degrees to the face of the panel. Skewing a brace will reduce the load carrying capacity of the brace. The maximum horizontal skew of the braces is limited to 5 degrees. A 5 degree skew is approximately equal to 1 inch skew for each 12 inches the brace insert is placed from the face of the wall (see detail at lower right). The brace spacing shown in the tables or on the panel details must be reduced when the braces are skewed more than 5 degrees. Even when the brace spacings are reduced to account for the increased brace load, never skew a brace more than 10 degrees.

2. Due to the increased suction created on the back side of a panel with openings; do not increase the brace spacing for panels with openings, unless a complete wind analysis to determine the effects of the wind passing through the openings is performed.

3. Locate brace inserts 1 foot or more from all concrete edges and floor slab joints.

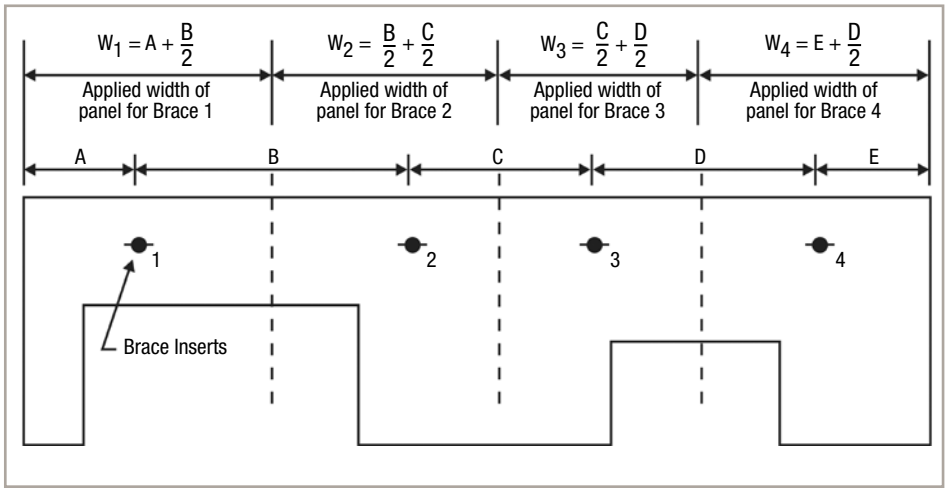
4. Locate brace inserts to provide clearance between the lifting hardware and braces.

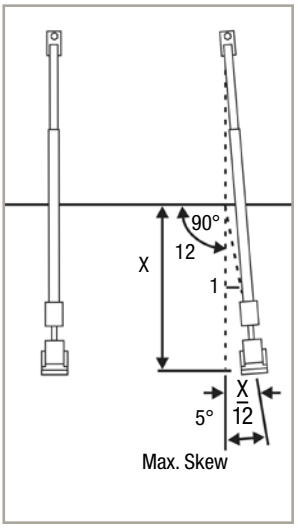
5. Locate brace inserts symmetrically about the panel's center line whenever possible.

6. Locate the first brace insert from each end of the panel at a distance no greater than 25 percent of the panel's width or 10 feet, whichever is less.

7. Locate brace inserts to provide an equal wind load to each brace where possible. Do not exceed the allowable maximum width of panel per brace. The allowable maximum width of panel per brace is the maximum brace spacing shown in the appropriate "S FF" column of the brace tables or as indicated on the panel detail sheets. For braces placed at nearly equal spacings, the actual width of panel applied to each brace (Wn) may be calculated using the method shown below. For panels requiring unequal or unusual brace spacings contact Meadow Burke Engineering for assistance.

8. Brace inserts should not be placed lower than 60% of the panel's height and not less than 5% of the panel's height above the panel's geometric centroid or mass center of gravity, whichever is greater.





Brace Table Legend

The following brace spacing tables have been designed for an 80 mph ultimate wind with a 1 year mean recurrence interval. Spacings are assuming a solid panel with a panel width not less than 20 feet. For more accurate spacings that factor in actual panel shape and openings contact Meadow Burke Engineering. The table should be used in conjunction with the notes and recommendations shown in the Brace Design Notes, on pages 78,79, & 80.

SFF = Maximum brace spacing for a panel with a height below floor (or top of deadman when used) equal to "FF" feet. [ie., the S 0 column yields the maximum spacing for a panel with no height below floor, the S2 column yields the maximum spacing for a panel 2 foot maximum height below floor, etc.]

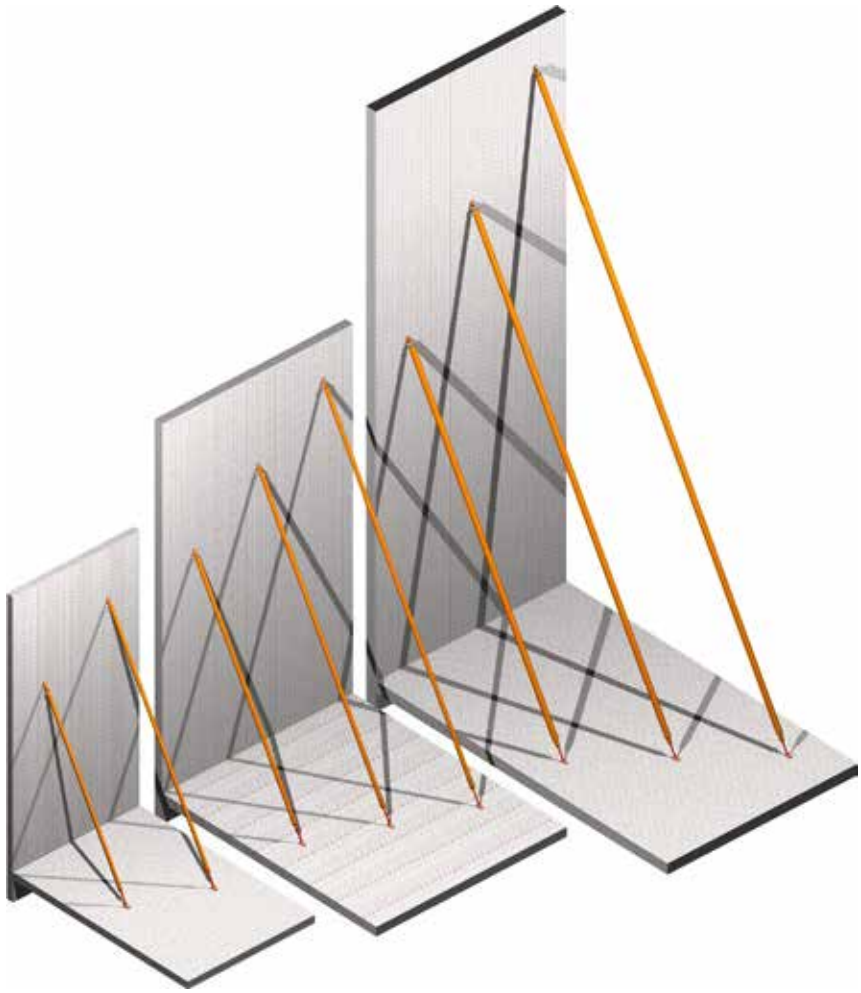
All dimensions are shown in units of feet. Always round the dimensions for the panel height below floor and the panel height above floor, to the next larger chart value. Reference brace detail on Brace Design Notes, on page 78.

H = Height of panel above floor or top of deadman when used.

V = Brace insert location from face of floor or top of deadman if used.

X = Horizontal dimension to floor brace insert from the face of the panel where the wall brace inserts are located.

L = Brace length for given V and X.

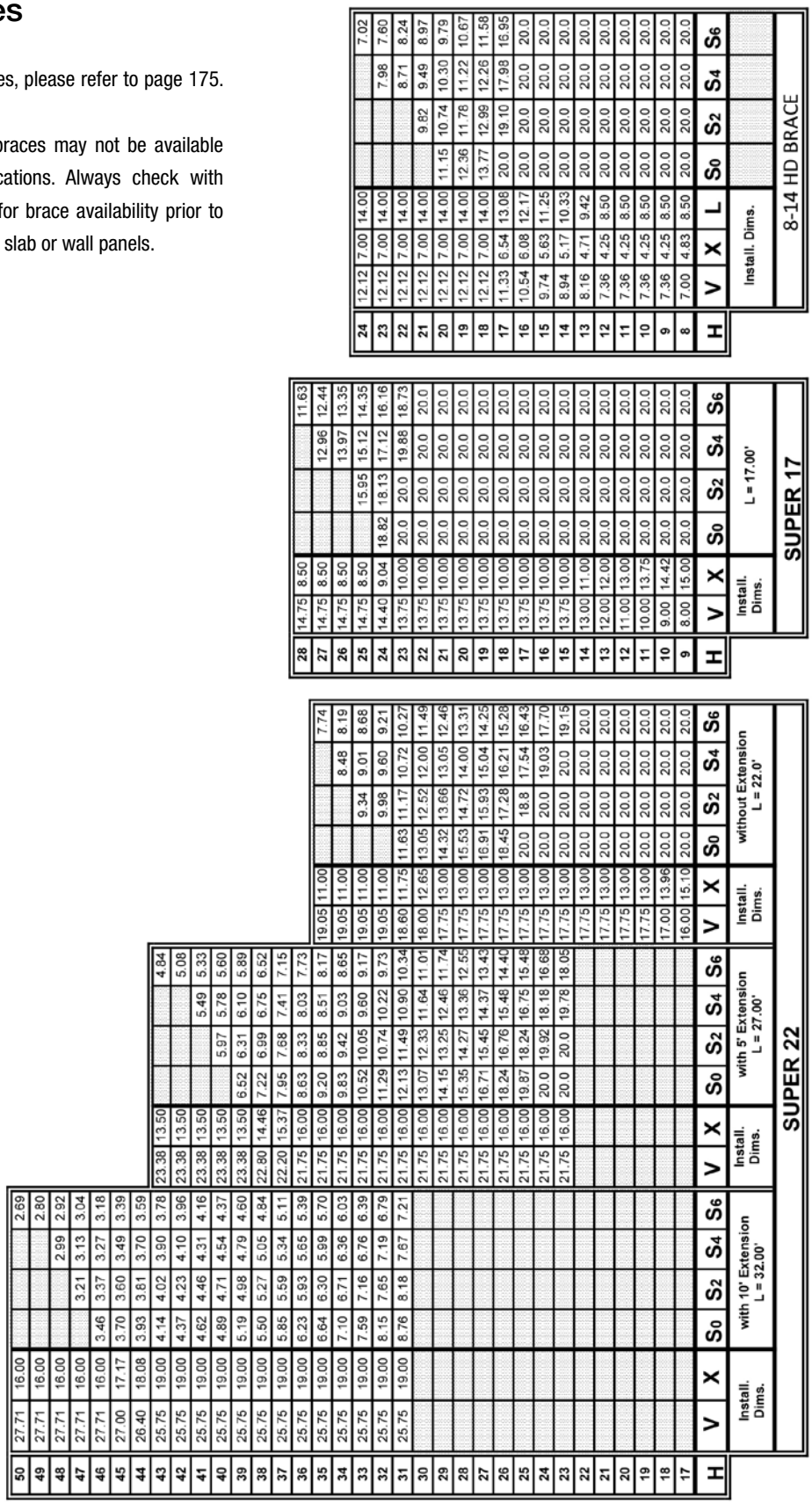


Brace Tables

For Brace Legend notes, please refer to page 175.

WARNING: Some braces may not be available at all distribution locations. Always check with your local distributor for brace availability prior to casting inserts in floor slab or wall panels.

Tilt-up Brace Spacing Table A



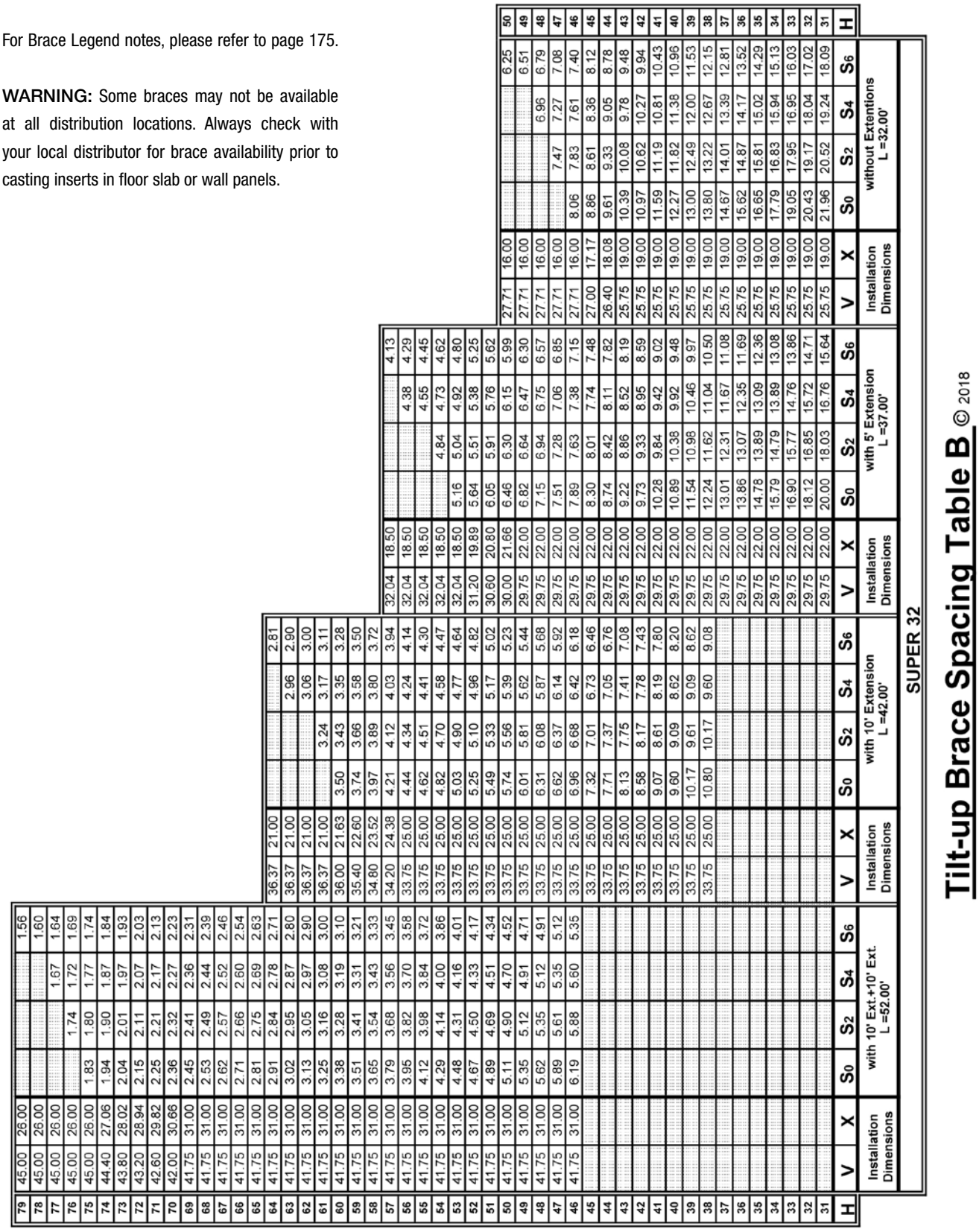
H	SUPER 22														SUPER 17												8-14 HD BRACE									
	V	X	with 10' Extension L = 32.00'				with 5' Extension L = 27.00'				Install. Dims.		without Extension L = 22.0'				Install. Dims.		L = 17.00'				Install. Dims.											
			S_0	S_2	S_4	S_6	S_0	S_2	S_4	S_6	V	X	S_0	S_2	S_4	S_6	V	X	S_0	S_2	S_4	S_6	V	X	L	S_0	S_2	S_4	S_6						
50	27.71	16.00				2.69					23.38	13.50				4.84	19.05	11.00				7.74														
49	27.71	16.00				2.80					23.38	13.50				5.08	19.05	11.00				8.19														
48	27.71	16.00			2.99	2.92					23.38	13.50				5.33	19.05	11.00		9.34	9.01	8.68														
47	27.71	16.00		3.21	3.13	3.04					23.38	13.50			5.49	5.60	19.05	11.00		9.98	9.60	9.21														
46	27.71	16.00	3.46	3.37	3.27	3.18					23.38	13.50		5.97	5.78	5.89	18.60	11.75	11.63	11.17	10.72	10.27														
45	27.00	17.17	3.70	3.60	3.49	3.39					21.75	16.00	6.52	6.31	6.10	6.22	18.00	12.65	13.05	12.52	12.00	11.49														
44	26.40	18.08	3.93	3.81	3.70	3.59					21.75	16.00	9.83	9.42	9.03	8.65	17.75	13.00	14.32	13.66	13.05	12.46														
43	25.75	19.00	4.14	4.02	3.90	3.78	23.38	13.50			21.75	16.00	10.52	10.05	9.60	9.17	17.75	13.00	15.53	14.72	14.00	13.31														
42	25.75	19.00	4.37	4.23	4.10	3.96	23.38	13.50			21.75	16.00	11.29	10.74	10.22	9.73	17.75	13.00	16.91	15.93	15.04	14.25														
41	25.75	19.00	4.62	4.46	4.31	4.16	23.38	13.50		5.49	21.75	16.00	12.13	11.49	10.90	10.34	18.60	11.75	11.63	11.17	10.72	10.27														
40	25.75	19.00	4.89	4.71	4.54	4.37	23.38	13.50	5.97	5.78	21.75	16.00	13.07	12.33	11.64	11.01	18.00	12.65	13.05	12.52	12.00	11.49														
39	25.75	19.00	5.19	4.98	4.79	4.60	23.38	13.50	6.52	6.31	21.75	16.00	14.15	13.25	12.46	11.74	17.75	13.00	14.32	13.66	13.05	12.46														
38	25.75	19.00	5.50	5.27	5.05	4.84	22.80	14.46	7.22	6.99	21.75	16.00	15.35	14.27	13.36	12.55	17.75	13.00	15.53	14.72	14.00	13.31														
37	25.75	19.00	5.85	5.59	5.34	5.11	22.20	15.37	7.95	7.68	21.75	16.00	16.71	15.45	14.37	13.43	17.75	13.00	16.91	15.93	15.04	14.25														
36	25.75	19.00	6.23	5.93	5.65	5.39	21.75	16.00	8.63	8.33	8.03	7.73	21.75	16.00	18.24	16.76	15.48	14.40	17.75	13.00	18.45	17.28	16.21	15.28												
35	25.75	19.00	6.64	6.30	5.99	5.70	21.75	16.00	9.20	8.85	8.51	8.17	21.75	16.00	19.87	18.24	16.75	15.48	17.75	13.00	20.0	18.8	17.54	16.43												
34	25.75	19.00	7.10	6.71	6.36	6.03	21.75	16.00	9.83	9.42	9.03	8.65	21.75	16.00	20.0	19.92	18.18	16.68	17.75	13.00	20.0	20.0	19.03	17.70												
33	25.75	19.00	7.59	7.16	6.76	6.39	21.75	16.00	10.52	10.05	9.60	9.17	21.75	16.00	20.0	20.0	19.78	18.05	17.75	13.00	20.0	20.0	20.0	19.15												
32	25.75	19.00	8.15	7.65	7.19	6.79	21.75	16.00	11.29	10.74	10.22	9.73	21.75	16.00	20.0	20.0	20.0	20.0	17.75	13.00	20.0	20.0	20.0	20.0												
31	25.75	19.00	8.76	8.18	7.67	7.21	21.75	16.00	12.13	11.49	10.90	10.34	18.60	11.75	11.63	11.17	10.72	10.27	19.05	11.00					14.75	8.50										
30							21.75	16.00	13.07	12.33	11.64	11.01	18.00	12.65	13.05	12.52	12.00	11.49							14.75	8.50									
29							21.75	16.00	14.15	13.25	12.46	11.74	17.75	13.00	14.32	13.66	13.05	12.46	19.05	11.00					13.75	10.00									
28							21.75	16.00	15.35	14.27	13.36	12.55	17.75	13.00	15.53	14.72	14.00	13.31	19.05	11.00		9.34	9.01	8.68	13.75	10.00	20.0	20.0	20.0	20.0					
27							21.75	16.00	16.71	15.45	14.37	13.43	17.75	13.00	16.91	15.93	15.04	14.25	19.05	11.00		9.98	9.60	9.21	13.75	10.00	20.0	20.0	20.0	20.0					
26							21.75	16.00	18.24	16.76	15.48	14.40	17.75	13.00	18.45	17.28	16.21	15.28	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
25							21.75	16.00	19.87	18.24	16.75	15.48	17.75	13.00	20.0	18.8	17.54	16.43	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
24							21.75	16.00	20.0	19.92	18.18	16.68	17.75	13.00	20.0	20.0	19.03	17.70	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
23							21.75	16.00	20.0	20.0	19.78	18.05	17.75	13.00	20.0	20.0	20.0	19.15	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
22													17.75	13.00	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
21													17.75	13.00	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
20													17.75	13.00	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
19													17.75	13.00	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
18													17.00	13.96	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					
17													16.00	15.10	20.0	20.0	20.0	20.0	19.05	11.00					13.75	10.00	20.0	20.0	20.0	20.0					

H	V	X	L	S_0	S_2	S_4	S_6
24	12.12	7.00	14.00				7.02
23	12.12	7.00	14.00			7.98	7.60
22	12.12	7.00	14.00			8.71	8.24
21	12.12	7.00	14.00		9.82	9.49	8.97
20	12.12	7.00	14.00	11.15	10.74	10.30	9.79
19	12.12	7.00	14.00	12.36	11.78	11.22	10.67
18	12.12	7.00	14.00	13.77	12.99	12.26	11.58
17	11.33	6.54	13.08	20.0	19.10	17.98	16.95
16	10.54	6.08	12.17	20.0	20.0	20.0	20.0
15	9.74	5.63	11.25	20.0	20.0	20.0	20.0
14	8.94	5.17	10.33	20.0	20.0	20.0	20.0
13	8.16	4.71	9.42	20.0	20.0	20.0	20.0
12	7.36	4.25	8.50	20.0	20.0	20.0	20.0
11	7.36	4.25	8.50	20.0	20.0	20.0	20.0
10	7.36	4.25	8.50	20.0	20.0	20.0	20.0
9	7.36	4.25	8.50	20.0	20.0	20.0	20.0
8	7.00	4.83	8.50	20.0	20.0	20.0	20.0

Brace Tables

For Brace Legend notes, please refer to page 175.

WARNING: Some braces may not be available at all distribution locations. Always check with your local distributor for brace availability prior to casting inserts in floor slab or wall panels.



H	Installation Dimensions		with 10' Ext.+10' Ext. L =52.00'				with 10' Extension L =42.00'				Installation Dimensions		with 5' Extension L =37.00'				Installation Dimensions		without Extentions L =32.00'			
	V	X	S_0	S_2	S_4	S_6	S_0	S_2	S_4	S_6	V	X	S_0	S_2	S_4	S_6	V	X	S_0	S_2	S_4	S_6
79	45.00	26.00				1.56				2.81	36.37	21.00					32.04	18.50				4.13	27.71	16.00				6.25
78	45.00	26.00				1.60				2.90	36.37	21.00					32.04	18.50				4.29	27.71	16.00				6.51
77	45.00	26.00			1.67	1.64			2.96	3.00	36.37	21.00			3.06	3.11	32.04	18.50			4.38	4.45	27.71	16.00			6.96	6.79
76	45.00	26.00		1.74	1.72	1.69			3.06	3.11	36.37	21.00		3.24	3.17	3.28	32.04	18.50		4.55	4.62	4.80	27.71	16.00		7.47	7.27	7.08
75	45.00	26.00	1.83	1.80	1.77	1.74		3.24	3.17	3.28	36.37	21.00	3.50	3.43	3.35	3.45	32.04	18.50	4.84	4.73	4.92	5.00	27.71	16.00	8.06	7.83	7.61	7.40
74	44.40	27.06	1.94	1.90	1.87	1.84	3.50	3.43	3.35	3.45	36.00	21.63	3.74	3.66	3.58	3.67	32.04	18.50	4.84	4.73	4.92	5.00	27.00	17.17	8.86	8.61	8.36	8.12
73	43.80	28.02	2.04	2.01	1.97	1.93	3.74	3.66	3.58	3.67	35.40	22.60	3.97	3.89	3.80	3.89	32.04	18.50	4.84	4.73	4.92	5.00	26.40	18.08	9.61	9.33	9.05	8.78
72	43.20	28.94	2.15	2.11	2.07	2.03	3.97	3.89	3.80	3.89	34.80	23.52	4.21	4.12	4.03	4.12	32.04	18.50	5.16	5.04	4.92	5.00	25.75	19.00	10.39	10.08	9.78	9.48
71	42.60	29.82	2.25	2.21	2.17	2.13	4.21	4.12	4.03	4.12	34.20	24.38	4.44	4.34	4.24	4.33	32.04	18.50	5.16	5.04	4.92	5.00	25.75	19.00	10.97	10.62	10.27	9.94
70	42.00	30.66	2.36	2.32	2.27	2.23	4.44	4.34	4.24	4.33	33.75	25.00	4.62	4.51	4.41	4.51	32.04	18.50	5.16	5.04	4.92	5.00	25.75	19.00	11.59	11.19	10.81	10.43
69	41.75	31.00	2.45	2.41	2.36	2.31	4.62	4.51	4.41	4.51	33.75	25.00	4.82	4.70	4.58	4.68	32.04	18.50	5.16	5.04	4.92	5.00	25.75	19.00	12.27	11.82	11.38	10.96
68	41.75	31.00	2.53	2.49	2.44	2.39	4.82	4.70	4.58	4.68	33.75	25.00	5.03	4.90	4.77	4.87	32.04	18.50	5.16	5.04	4.92	5.00	25.75	19.00	13.00	12.49	12.00	11.53
67	41.75	31.00	2.62	2.57	2.52	2.46	5.03	4.90	4.77	4.87	33.75	25.00	5.25	5.10	4.96	5.07	31.20	19.89	5.64	5.51	5.38	5.25	25.75	19.00	13.80	13.22	12.67	12.15
66	41.75	31.00	2.71	2.66	2.60	2.54	5.25	5.10	4.96	5.07	33.75	25.00	5.49	5.33	5.17	5.28	30.60	20.80	6.05	5.91	5.76	5.62	25.75	19.00	14.67	14.01	13.39	12.81
65	41.75	31.00	2.81	2.75	2.69	2.63	5.49	5.33	5.17	5.28	33.75	25.00	5.74	5.56	5.39	5.50	30.00	21.66	6.46	6.30	6.15	5.99	25.75	19.00	15.62	14.87	14.17	13.52
64	41.75	31.00	2.91	2.84	2.78	2.71	5.74	5.56	5.39	5.50	33.75	25.00	6.01	5.81	5.62	5.73	29.75	22.00	6.82	6.64	6.47	6.30	25.75	19.00	16.65	15.81	15.02	14.29
63	41.75	31.00	3.02	2.95	2.87	2.80	6.01	5.81	5.62	5.73	33.75	25.00	6.31	6.08	5.87	5.98	29.75	22.00	7.15	6.94	6.75	6.57	25.75	19.00	17.79	16.83	15.94	15.13
62	41.75	31.00	3.13	3.05	2.97	2.90	6.31	6.08	5.87	5.98	33.75	25.00	6.62	6.37	6.14	6.25	29.75	22.00	7.51	7.28	7.06	6.85	25.75	19.00	19.05	17.95	16.95	16.03
61	41.75	31.00	3.25	3.16	3.08	3.00	6.62	6.37	6.14	6.25	33.75	25.00	6.96	6.68	6.42	6.53	29.75	22.00	7.89	7.63	7.38	7.15	25.75	19.00	20.43	19.17	18.04	17.02
60	41.75	31.00	3.38	3.28	3.19	3.10	6.96	6.68	6.42	6.53	33.75	25.00	7.32	7.01	6.73	6.84	29.75	22.00	8.30	8.01	7.74	7.48	25.75	19.00	21.96	20.52	19.24	18.09
59	41.75	31.00	3.51	3.41	3.31	3.21	7.32	7.01	6.73	6.84	33.75	25.00	7.71	7.37	7.05	7.16	29.75	22.00	8.74	8.42	8.11	7.82	25.75	19.00				
58	41.75	31.00	3.65	3.54	3.43	3.33	7.71	7.37	7.05	7.16	33.75	25.00	8.13	7.75	7.41	7.53	29.75	22.00	9.22	8.86	8.52	8.19	25.75	19.00				
57	41.75	31.00	3.79	3.68	3.56	3.45	8.13	7.75	7.41	7.53	33.75	25.00	8.58	8.17	7.78	7.90	29.75	22.00	9.73	9.33	8.95	8.59	25.75	19.00				
56	41.75	31.00	3.95	3.82	3.70	3.58	8.58	8.17	7.78	7.90	33.75	25.00	9.07	8.61	8.19	8.32	29.75	22.00	10.28	9.84	9.42	9.02	25.75	19.00				
55	41.75	31.00	4.12	3.98	3.84	3.72	9.07	8.61	8.19	8.32	33.75	25.00	9.60	9.09	8.62	8.75	29.75	22.00	10.89	10.38	9.92	9.48	25.75	19.00				
54	41.75	31.00	4.29	4.14	4.00	3.86	9.60	9.09	8.62	8.75	33.75	25.00	10.17	9.61	9.09	8.62	29.75	22.00	11.54	10.98	10.46	9.97	25.75	19.00				
53	41.75	31.00	4.48	4.31	4.16	4.01	10.17	9.61	9.09	8.62	33.75	25.00	10.80	10.17	9.60	9.08	29.75	22.00	12.24	11.62	11.04	10.50	25.75	19.00				
52	41.75	31.00	4.67	4.50	4.33	4.17											29.75	22.00	13.01	12.31	11.67	11.08	25.75	19.00				
51	41.75	31.00	4.89	4.69	4.51	4.34											29.75	22.00	13.86	13.07	12.35	11.69	25.75	19.00				
50	41.75	31.00	5.11	4.90	4.70	4.52											29.75	22.00	14.78	13.89	13.09	12.36	25.75	19.00				
49	41.75	31.00	5.35	5.12	4.91	4.71											29.75	22.00	15.79	14.79	13.89	13.08	25.75	19.00				
48	41.75	31.00	5.62	5.35	5.12	4.91											29.75	22.00	16.90	15.77	14.76	13.86	25.75	19.00				
47	41.75	31.00	5.89	5.61	5.35	5.12											29.75	22.00	18.12	16.85	15.72	14.71	25.75	19.00				
46	41.75	31.00	6.19	5.88	5.60	5.35											29.75	22.00	20.00	18.03	16.76	15.64	25.75	19.00				
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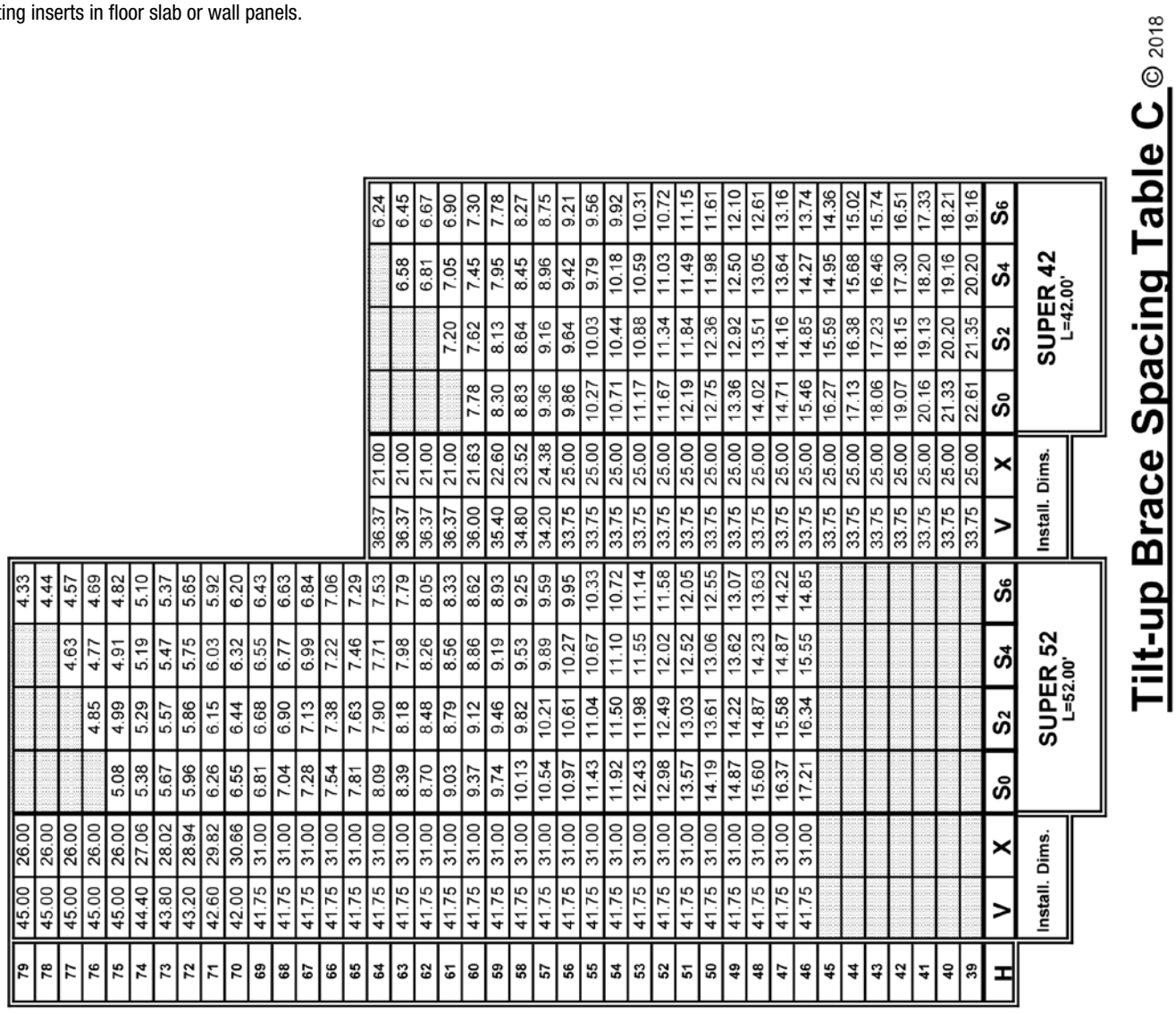
SUPER 32

Tilt-up Brace Spacing Table B © 2018

Brace Tables

For Brace Legend notes, please refer to page 175.

WARNING: Some braces may not be available at all distribution locations. Always check with your local distributor for brace availability prior to casting inserts in floor slab or wall panels.



Tilt-up Brace Spacing Table C © 2018

H	Install. Dims.		SUPER 52 L=52.00'				Install. Dims.		SUPER 42 L=42.00'			
	V	X	S0	S2	S4	S6	V	X	S0	S2	S4	S6
79	45.00	26.00				4.33						
78	45.00	26.00				4.44						
77	45.00	26.00			4.63	4.57						
76	45.00	26.00			4.77	4.69						
75	45.00	26.00	5.08	4.85	4.91	4.82						
74	44.40	27.06	5.38	5.29	5.19	5.10						
73	43.80	28.02	5.67	5.57	5.47	5.37						
72	43.20	28.94	5.96	5.86	5.75	5.65						
71	42.60	29.82	6.26	6.15	6.03	5.92						
70	42.00	30.66	6.55	6.44	6.32	6.20						
69	41.75	31.00	6.81	6.68	6.55	6.43						
68	41.75	31.00	7.04	6.90	6.77	6.63						
67	41.75	31.00	7.28	7.13	6.99	6.84						
66	41.75	31.00	7.54	7.38	7.22	7.06						
65	41.75	31.00	7.81	7.63	7.46	7.29						
64	41.75	31.00	8.09	7.90	7.71	7.53	36.37	21.00				6.24
63	41.75	31.00	8.39	8.18	7.98	7.79	36.37	21.00			6.58	6.45
62	41.75	31.00	8.70	8.48	8.26	8.05	36.37	21.00			6.81	6.67
61	41.75	31.00	9.03	8.79	8.56	8.33	36.37	21.00		7.20	7.05	6.90
60	41.75	31.00	9.37	9.12	8.86	8.62	36.00	21.63	7.78	7.62	7.45	7.30
59	41.75	31.00	9.74	9.46	9.19	8.93	35.40	22.60	8.30	8.13	7.95	7.78
58	41.75	31.00	10.13	9.82	9.53	9.25	34.80	23.52	8.83	8.64	8.45	8.27
57	41.75	31.00	10.54	10.21	9.89	9.59	34.20	24.38	9.36	9.16	8.96	8.75
56	41.75	31.00	10.97	10.61	10.27	9.95	33.75	25.00	9.86	9.64	9.42	9.21
55	41.75	31.00	11.43	11.04	10.67	10.33	33.75	25.00	10.27	10.03	9.79	9.56
54	41.75	31.00	11.92	11.50	11.10	10.72	33.75	25.00	10.71	10.44	10.18	9.92
53	41.75	31.00	12.43	11.98	11.55	11.14	33.75	25.00	11.17	10.88	10.59	10.31
52	41.75	31.00	12.98	12.49	12.02	11.58	33.75	25.00	11.67	11.34	11.03	10.72
51	41.75	31.00	13.57	13.03	12.52	12.05	33.75	25.00	12.19	11.84	11.49	11.15
50	41.75	31.00	14.19	13.61	13.06	12.55	33.75	25.00	12.75	12.36	11.98	11.61
49	41.75	31.00	14.87	14.22	13.62	13.07	33.75	25.00	13.36	12.92	12.50	12.10
48	41.75	31.00	15.60	14.87	14.23	13.63	33.75	25.00	14.02	13.51	13.05	12.61
47	41.75	31.00	16.37	15.58	14.87	14.22	33.75	25.00	14.71	14.16	13.64	13.16
46	41.75	31.00	17.21	16.34	15.55	14.85	33.75	25.00	15.46	14.85	14.27	13.74
45							33.75	25.00	16.27	15.59	14.95	14.36
44							33.75	25.00	17.13	16.38	15.68	15.02
43							33.75	25.00	18.06	17.23	16.46	15.74
42							33.75	25.00	19.07	18.15	17.30	16.51
41							33.75	25.00	20.16	19.13	18.20	17.33
40							33.75	25.00	21.33	20.20	19.16	18.21
39							33.75	25.00	22.61	21.35	20.20	19.16

Brace Load Table

Brace Type	Brace Length [ft.] Min. / Max.	Ultimate Brace Buckling Load [kips]	Ultimate Brace Shoe Load [kips]
MB Precast Brace - (45218HD)	8.00 / 14.00	$518.54 / L^{1.74}$	9.5
MB Precast Brace - HD (45218EHD)	8.00 / 14.00	48.75 – 3L	13.5
MB Precast Brace – HD (45217EHD)	5.00 / 9.00	48.75 – 3L	13.5
Super 17	17.00	13.00	13.00
Super 22	22.00	11.00	11.00
Super 22 + 5’ Extension	27.00	8.85	11.00
Super 22 + 10’ Extension	32.00	5.80	11.00
Super 32	32.00	13.50	13.50
Super 32 + 5’ Extension	37.00	10.36	13.50
Super 32 + 10’ Extension	42.00	8.042	13.50
Super 32 + 10’ & 5’ Extensions	47.00	7.037	13.50
Super 32 + 2-10’ Extension	52.00	5.778	13.50
Super 37	37.00	10.36	13.50
Super 42	42.00	17.87	17.87
Super 52	52.00	16.05	17.87
Super 62	62.00	16.05	17.87

Notes:
1. “L” is the total brace length in feet.
2. The equations above for ultimate buckling loads are based on test results performed on the braces when they were placed at an angle of 60 degrees to horizontal. For brace angles between 45 and 60 degrees to horizontal, multiply the buckling load derived from the equations above by the factor “K”.

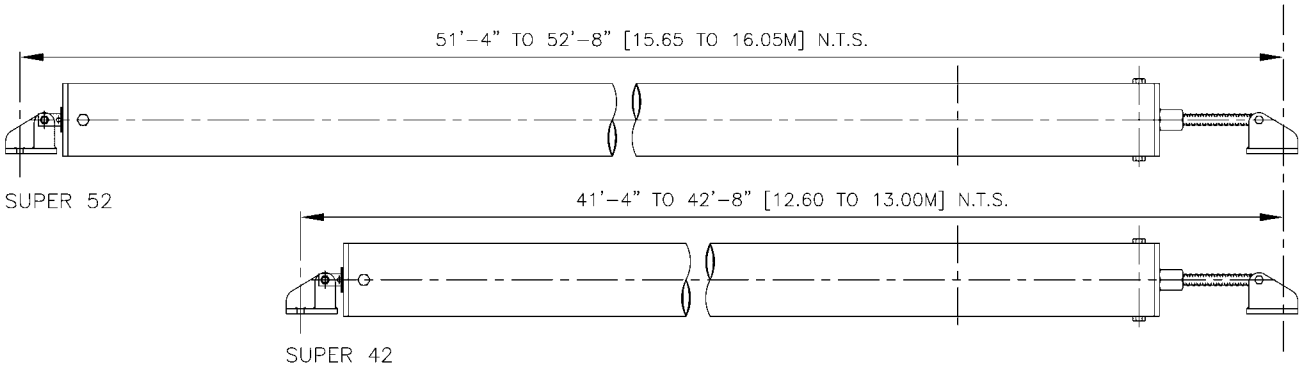
$$K = \frac{(1390 + 47\,\emptyset)}{4210}$$ Where Ø = Brace angle to horizontal in degrees.

Exception: K = 1 may be used for all “Super Braces” except for the Super 22 + 10’ Extension.
3. Do not use brace loads greater than the ultimate brace shoe loads above. Always use the smaller of the two loads.
4. To determine the concentric brace working load, divide the governing load (brace shoe or buckling load) by the desired safety factor. A 1.67 minimum safety factor is recommended for temporary wind bracing of concrete tilt-up wall panels. Braces when used for other purposes or different types of applied loads may require higher safety factors. Safety factor shall be determined by the user.

Meadow Burke Braces

SUPER 52 AND 42 BRACE

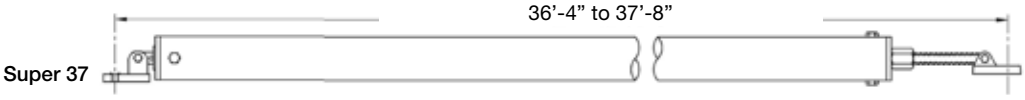
Meadow Burke's new Super 52 and Super 42 braces are 52 feet and 42 feet long, fixed-length braces with 18" of adjustment for final plumbing. These braces have an ultimate strength of 16,050 lbs which is nearly 2 times as strong as Super 32's with extensions attached. They are used to brace panels from 39 to 79 feet high without the need for secondary bracing. The Super 52 weighs 680 lbs and the Super 42 weighs 550 lbs.



Meadow Burke Braces

SUPER 37 BRACE

Meadow Burke's new Super 37 brace are 37 feet long, fixed-length braces with 18" of adjustment for final plumbing. These braces have an ultimate strength of 13,500 lbs. They are used to brace panels from 36 to 55 feet high without the need for secondary bracing. The Super 37 weighs 315 lbs.



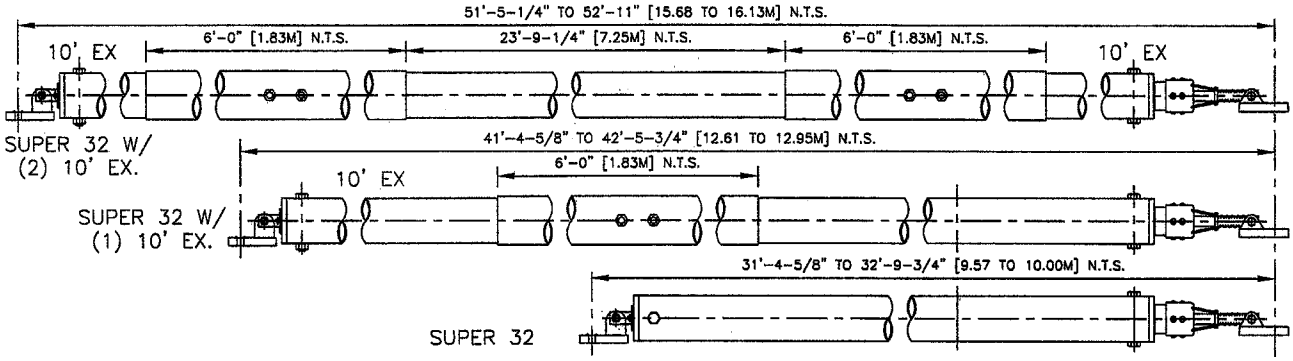
Meadow Burke Braces

SUPER 32 BRACE

The Super 32 Brace is a 32-foot long fixed-length brace with 18 inches of adjustment for final plumbing. The brace has an ultimate strength of 13,500 pounds, making it 2.24 times stronger as a Super 22 Brace with 10 foot extension. It is used to brace panels from 30 to 50 feet high without the need for secondary bracing or Bi-pods. Brace weight: 275 lbs.

There is a 10 foot extension available for the Super 32, which makes it 42 feet long and then weighs 400 pounds. At this length, the brace has an ultimate strength of 8,042 pounds and is used to brace panels up to 64 feet.

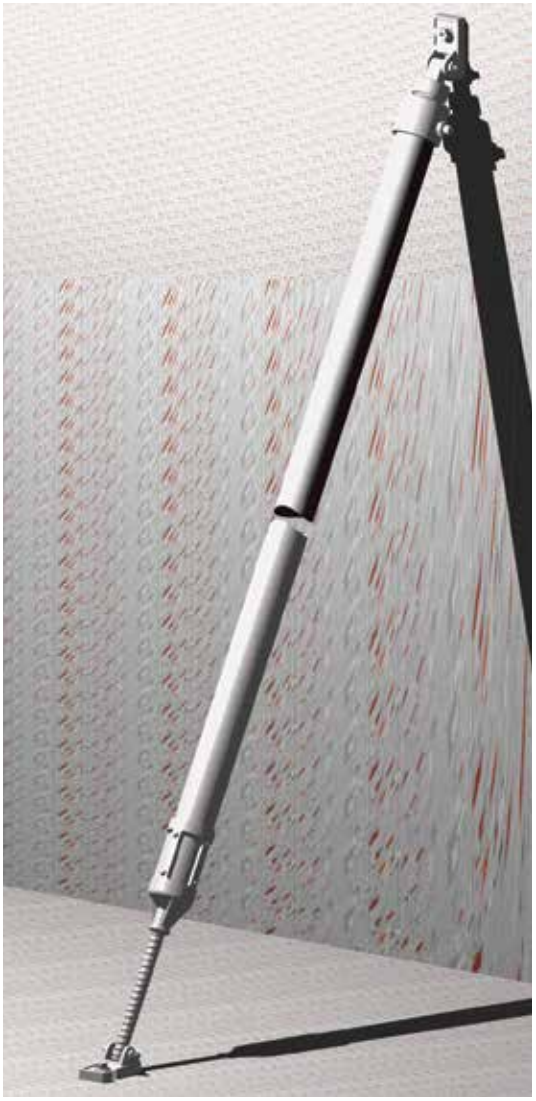
By placing a 10 foot long extension at each end of the Super 32 brace, it is possible to obtain a 52 foot long brace. In this configuration the brace weighs 520 pounds and has an ultimate strength of 5,778 pounds. It is used to brace panels up to 75 feet high. 5' extensions are also available to obtain 37' and 47' long braces.

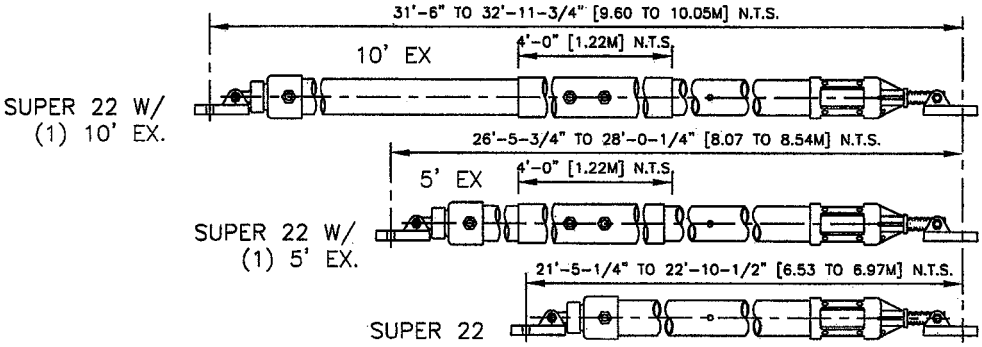


Meadow Burke Braces

SUPER 22 BRACE

Meadow Burke Super Brace combines lightweight with high strength for easy handling and solid support of precast panels. Because of its tested strength, fewer braces and inserts per panel are required. Super Brace comes in 22 ft. (6.71 m) lengths. 5 and 10 ft. extensions are available that quickly and easily bolt onto the brace at the jobsite. Simply remove the swivel head from the Super Brace, slip the sleeved end of the extension onto the brace and bolt together. Then reattach the swivel head to the free end of the extension. Super Brace is easily adjusted for final plumbing of the panel. A predrilled hole near the foot of the brace accepts a scrap piece of rebar as a fine adjustment handle. Braces are normally set to provide 9" (229 mm) of adjustment in either direction for a total of 18" (457 mm) Brace weight: 136 lbs. (61.7 kg). 10' Extension weight: 88 lbs. (40 kg). 5' Extension weight: 52 lbs. (24 kg).





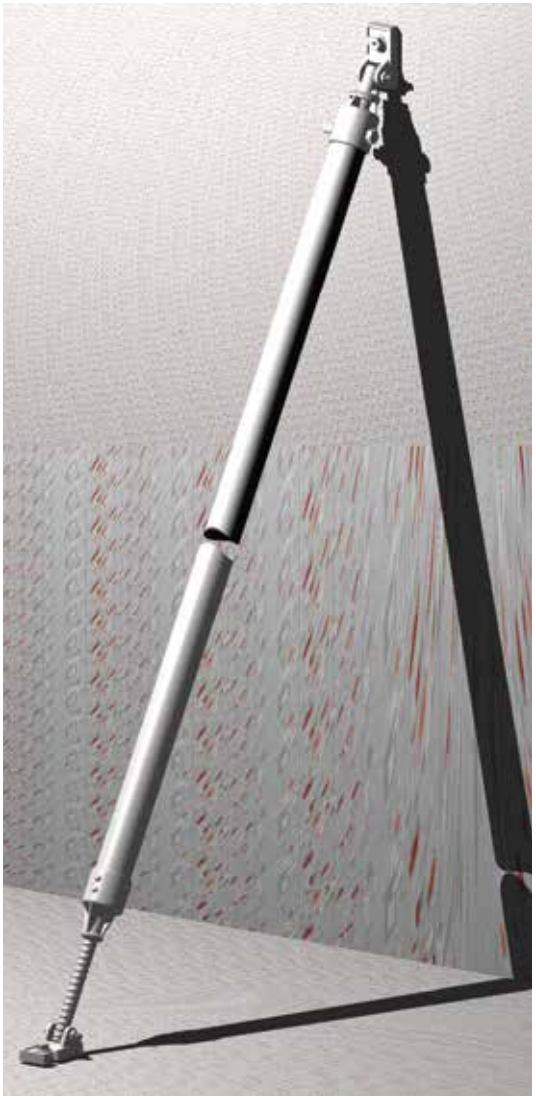
Meadow Burke Braces

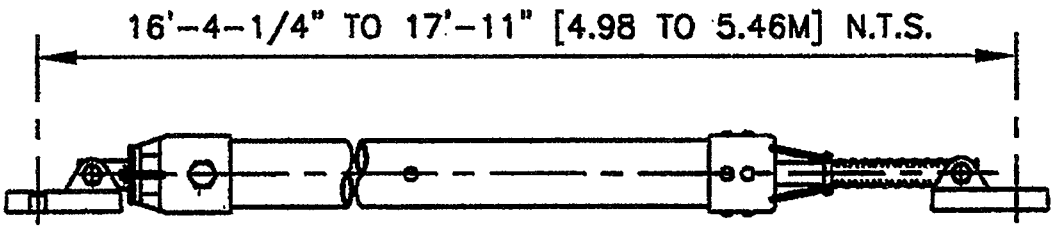
SUPER 17 BRACE

The Super 17 Brace is a 17' long fixed length brace with 18 inches of adjustment for final plumbing. The brace has an ultimate strength of 13,000 lbs. The Super 17 can brace panels from 9' to 25' tall. Brace weight is 105 lbs.

MB 8-14 BRACE

This versatile, telescoping brace is adjustable from 8' to 14' lengths. It is best utilized in situations where a very short brace is required. Brace weight is 58 lbs.





WORKING LOADS IN LBS. IN 2500 PSI CONCRETE, 2.0:1 SAFETY FACTOR			
Item Number	Conc. Thick. in inches	Face Tension	Face Shear
B75050	5”	7,800	8,200
B75055	5 ½”	9,625	10,150
B75060	6”	10,150	10,150
B75062	6 ¼”	10,150	10,150
B75065	6 ½”	10,150	10,150
B75070	7”	10,150	10,150
B75072	7 ¼”	10,150	10,150
B75075	7 ½”	10,150	10,150
B75080	8”	10,150	10,150
B75082	8 ¼”	10,150	10,150
B75085	8 ½”	10,150	10,150
B75090	9”	10,150	10,150
B75092	9 ¼”	10,150	10,150
B75095	9 ½”	10,150	10,150
B75100	10”	10,150	10,150
B75105	10 ½”	10,150	10,150
B75110	11”	10,150	10,150
B75112	11 ¼”	10,150	10,150
B75115	11 ½”	10,150	10,150
B75120	12”	10,150	10,150

WORKING LOADS IN LBS. IN 2500 PSI CONCRETE, 2.0:1 SAFETY FACTOR			
Item Number	Conc. Thick. in inches	Face Tension	Face Shear
BII75	Inverted	9,625	10,150

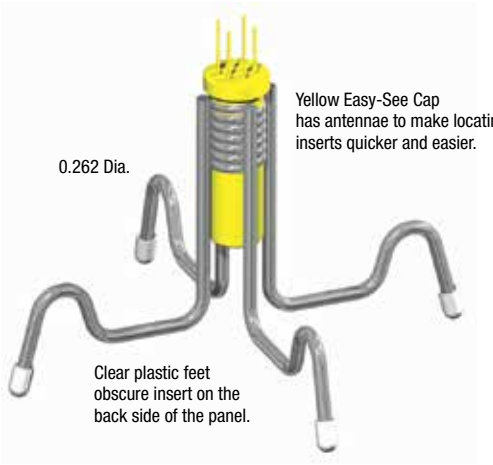
Coil Inserts

Meadow Burke’s Brace Inserts have been an industry standard for the past three decades. These solid bolted connections have proven the strength and security of this system on thousands of job sites around the country.

For unshakable reliability the Meadow Burke Coil System is an excellent choice.

B-75 WALL BRACE INSERT

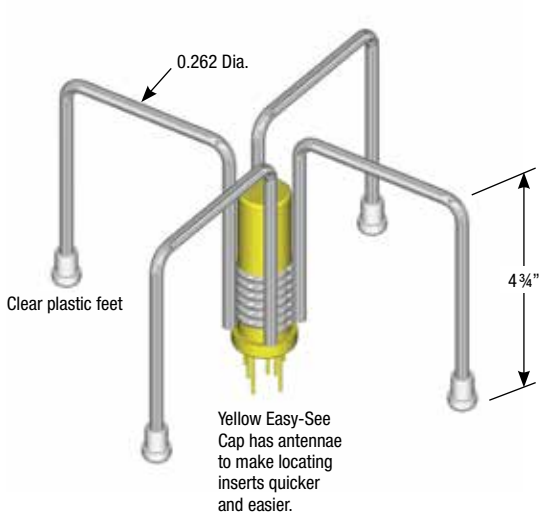
¾” diameter coil insert height is ½” less than panel thickness. Available in ½” increments from 5” through 12”.



The minimum edge distance required to obtain the rated loads for face applications is 12 inches.

BII-75 INVERTED WALL BRACE INSERT

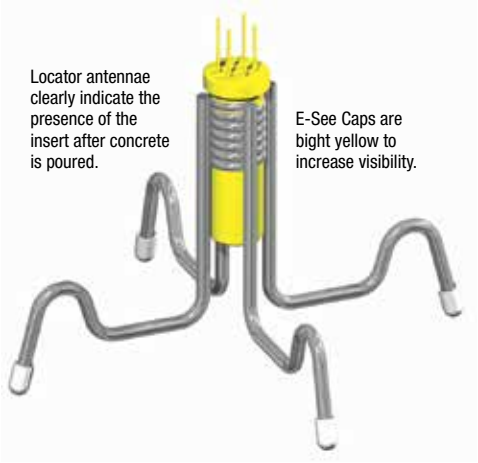
¾” diameter coil insert - Available in size shown only.



Insert Placement

E-SEE CAPS HELP WORKMEN PROTECT, INSPECT, AND DETECT INSERTS

Meadow Burke Inserts come equipped with distinctive, bright yellow E-See Caps. The shape of the cap will differ with the type of insert, but all of them have the easy-to-see yellow antennae. These locator antennae serve two purposes, 1.) they clearly signal the presence of the insert after concrete is poured, 2.) because the antennae are arranged in a circle or ellipse around the perimeter of the insert, they form a separate concrete plane which can be easily cracked and removed with minimum spalling of the surrounding concrete. Patching work is minimized. E-See cap antennae will not interfere with screeding, bull floating, or troweling. These highly flexible, polyethylene antennae merely flatten out during finishing work only to spring back up once finishing equipment has passed. Meadow Burke's resilient caps also protect the insert from seepage while creating a void for the easy entry of lifting equipment or bolts. Once their work is done, Meadow Burke's E-See Caps can be easily removed with a screw driver or other similar instrument.



SPECIALLY DESIGNED BURKE INSERTS FACILITATE PLACEMENT

Meadow Burke Inserts are designed for stability and economy. The inserts should be tied securely to the rebar mesh. Location of the inserts in the panel should correspond exactly to their position on the engineering drawing. If for some reason they cannot be placed in their exact location, contact your Meadow Burke representative or the Meadow Burke Engineering Center. Bracing inserts should not be placed in a position where the attachment of braces prior to lifting would interfere with erection hardware or rigging. They should be placed no closer than 1 ft. (305 mm) away from all edges or openings. It is important that concrete around the anchors be properly consolidated. Care should be taken to assure that the vibrator's head does not hit the surface of the floor. This may cause chipping, mechanical bonding, and surface imperfection. Once the concrete has begun to stiffen, the vibrators should avoid striking the reinforcing rods. Vibration of the rods at this stage may break the existing bond between the concrete and the rods.

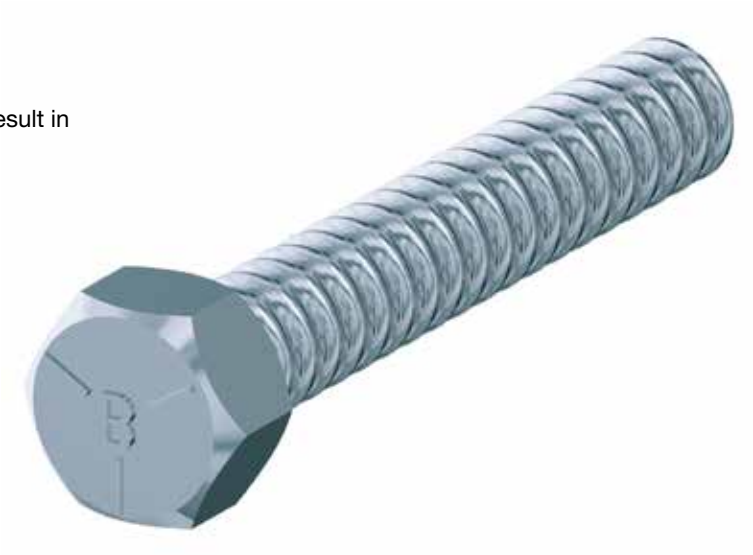
B-75 Patch Data

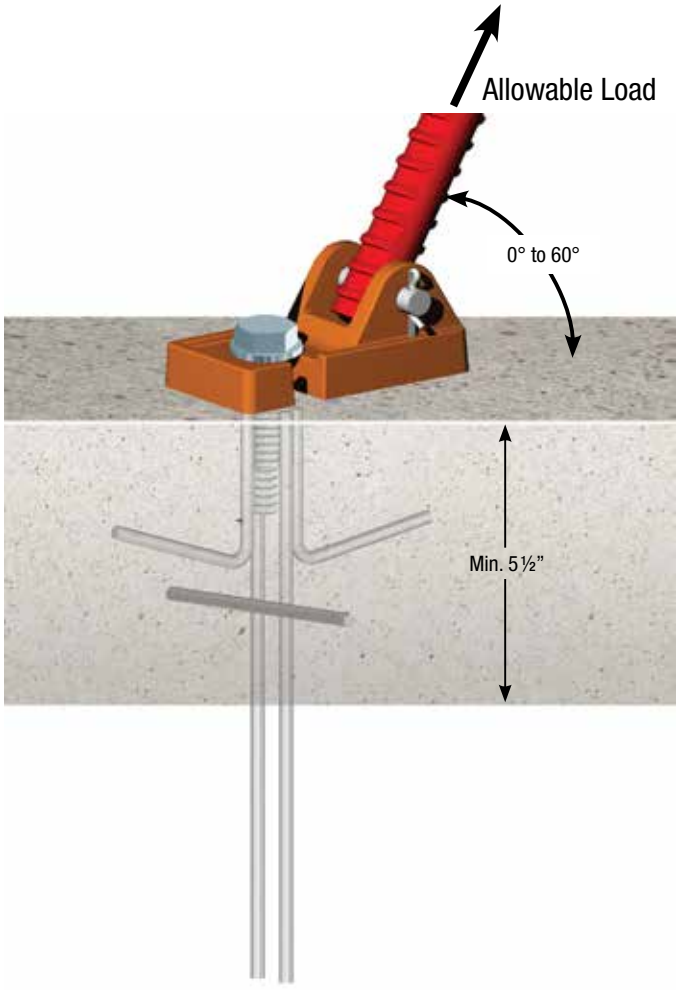
Item Number	Description	Unit Weight (lbs.)
45611	B-75 Patch	0.05 lbs.

CB-2 COIL GRADE 5 COIL BOLT

Product Code # 291247

*Use of coil bolts other than the MB C2 Coil Bolt may result in loss of brace stability





GROUNDED WALL BRACE INSERTS [BIG-75]

WORKING LOADS IN LBS. IN 2500 PSI CONCRETE, 2.0:1 SAFETY FACTOR			
Item Number	Min Conc. Thick. in inches	Allowable Angle	Allowable Load
BIG75	5½"	0 to 60	9,470

Anchor Systems

Slam Anchor

BUILT FOR STRENGTH, SAFETY, SPEED

The Precast construction industry has long awaited the arrival of the most heralded brace-to-floor connection solution in recent years. The MB Slam Anchor was designed to address the shortcomings of existing brace-to-floor connectors.

STRENGTH

The objective was simply to create a brace-to-floor connection that will handle the maximum applied brace loads with a single bolt. The MB Slam Anchor carries a 9,000 lbs. load with a 2 to 1 safety factor.

SIMPLICITY AND SAFETY

We recognize that current brace-to-floor connections used in the field today can easily be improperly installed, resulting in serious safety hazards. Another objective with the Slam Anchor was to insure a virtually foolproof installation.

SPEED

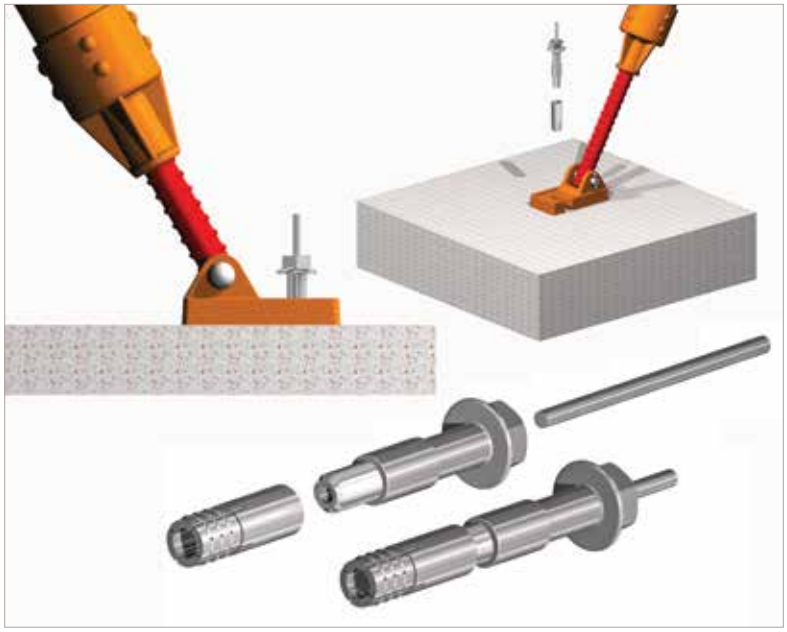
We know time is money. And with crane and crew waiting, we know that speed of installation is paramount.

NO TORQUE OR RETIGHTENING REQUIRED

The unique expansion mechanism is not a threaded connection, and therefore does not have a torque requirement and does not need to be retightened.

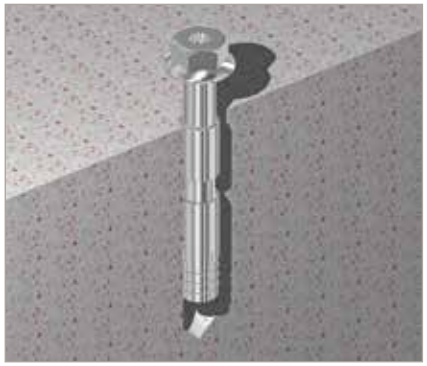
ECONOMICAL

In addition to the savings in labor, the Slam Anchor is designed to be reusable. Only a small drop-in is expended at each use. We are confident that the Slam Anchor will be the brace-to-floor connection solution.



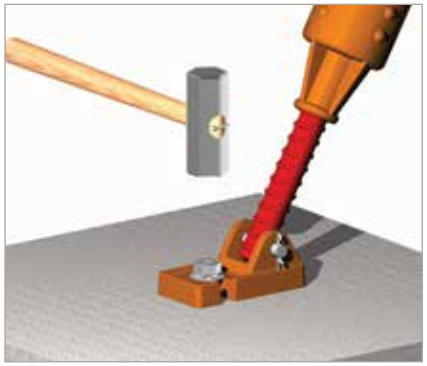
DRILL HOLE

- Determine the location of the brace shoe on the slab.
- Using a roto hammer, drill a ⅞" hole in the slab.
- Make sure that the hole is at least 6" deep or through the slab.
- If the hole does not completely penetrate the slab, make sure to clean it out completely.
- Screw "Drop-in" onto the end of the bolt, making sure to hand-tighten only. Do not over-tighten.
- Slab must be 5" thick minimum.

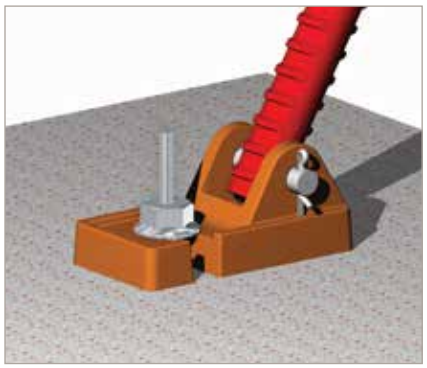


DROP MB SLAM ANCHOR IN HOLE

- Place bolt in the ⅞" hole and hammer until only the narrow (¾") portion beneath the bolt head is visible.

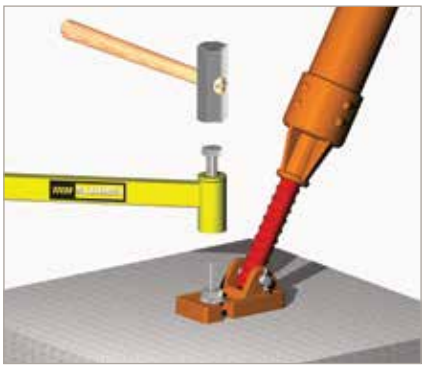


- Slide the brace shoe over the bolt.
- Drive the bolt the rest of the way down.

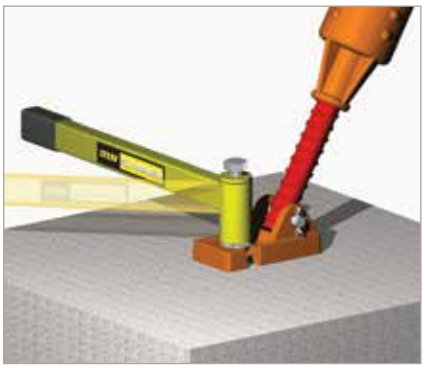


INSTALL SETTING PIN

- Insert pin into the hole in the center of the bolt.



- Place the specially designed MB SLAMMER setting tool over the pin and bolt, and pound the ram on the setting tool all the way down. A flush setting pin is assurance of a properly set anchor.



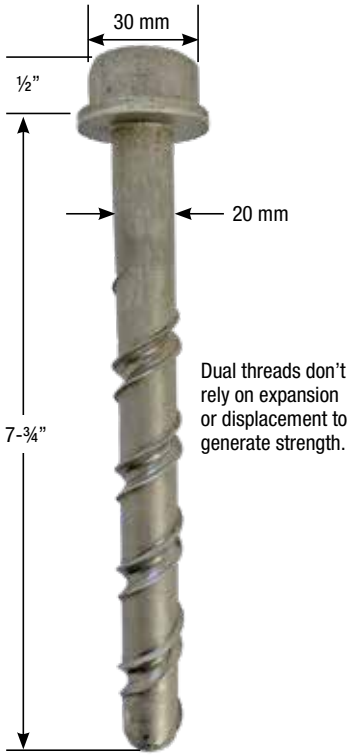
TIGHTEN BOLT

- Once the ram is driven all the way down, use the MB Slammer setting tool to check that the Slam Anchor is tightened down.
- This should be anywhere from an ⅛ to ¼ of a turn. Remove the setting tool.

Eye protection should be worn during the installation of this product.
Setting pin should only be set using the MB Slammer setting tool.

MB BRACE BOLT

MB Brace Bolt safely and economically secures tilt-up braces to the slab without the inconvenience or uncertainty of cast-in-place inserts or expansion bolts. Pullout strength is equivalent to a cast-in-place insert without the problems of locating inserts and adjusting braces while the crane and crew wait. Convenience combines with economy in this reusable system. Nothing is left in the slab or wasted. When bracing is no longer needed, simply disengage the brace and remove bolt. The MB Brace Bolt can be used multiple times as long as the bolt continues to tighten up to the brace shoe but never more than 5 uses. Quality materials guarantee strength and durability.

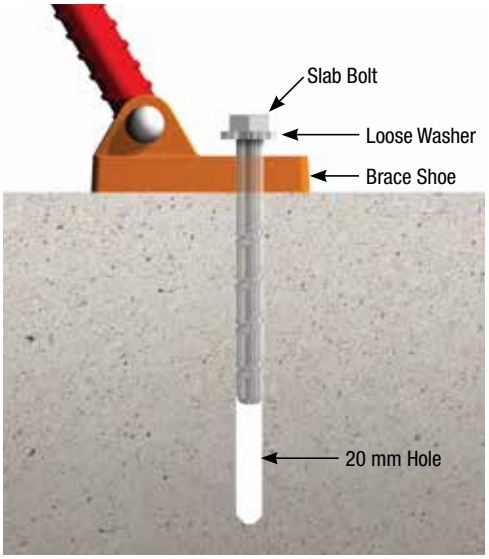


INSTALLATION INSTRUCTIONS

1. Mark anchor location and drill a 20mm diameter straight hole at least 10" deep. Clean as much from the hole as possible by periodically lifting bit while drilling. The added depth is required to accommodate dust from drilling and thread cutting.
2. Turn bolt into the concrete to within 1" of the surface using a large ¾" impact wrench with a 30mm socket.
3. Slide the Brace Shoe onto the bolt and continue tightening.

NOTES

1. If it is necessary to remove the bolt and re-install it, hand thread the bolt to start it in the original threads. This way new threads will not be cut through the original ones.
2. The Brace Bolt does not rely on expansion or displacement to generate its strength and is, therefore, not dependent on torque applied during installation to set it. Once it is tight, it is set.
3. It is not necessary to re-tighten the bolt after high winds unless it is visibly loose.
4. The use of excessively worn or undersized drill bits may prevent the bolt from threading.
5. The use of oversized drill bits may result in incomplete threading and premature failure.
6. Use of under-powered drills +/or impact wrenches may slow or prevent proper installation.



SLAB BRACE BOLT DATA

Item Number	Description	Shear Safety Factor 2:1*	Tension Safety Factor 2:1*	Unit Weight [lbs.]
45474	MB Slab Brace Bolt	14,435 lbs.	8,950 lbs.	1.15 lbs.

*Values for shear and tension in 3,000 psi standard weight concrete at 6" thick.

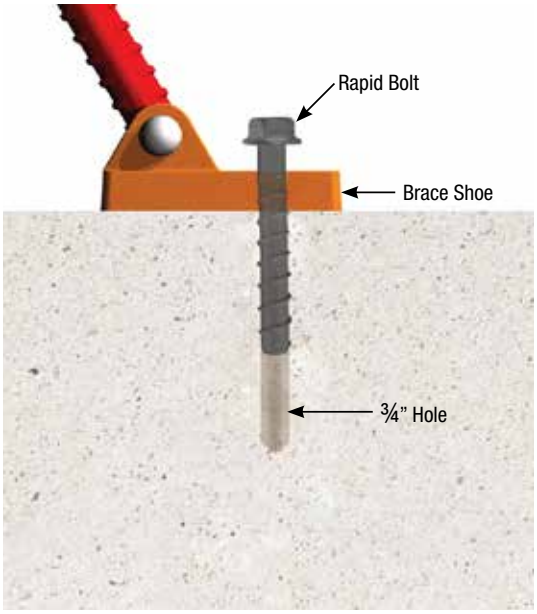
MB RAPID BOLT

MB Rapid Bolt safely and economically secures tilt-up and precast braces to the slab or other anchor points. It eliminates the inconvenience or uncertainty of cast-in-place inserts or expansion bolts. MB Rapid Bolt is designed for quick and easy installation in single-use applications for tilt-up and precast concrete panels.

INSTALLATION INSTRUCTIONS

1. Mark anchor location and drill ¾” diameter straight hole. Hole depth should accommodate full bolt penetration by the following methods:
   a. 7” deep hole with hole cleaned to remove concrete fines.
   b. Drill through slab.
2. Install the bolt through the brace shoe and drive the anchor down with a 200 FT-LB torque

WARNING: Over torquing can damage the anchor and reduce the capacities



NOTES

1. Refer to TCA Bracing Guidelines which suggest inspections of brace connections after jobsite experiences 35+MPH winds
2. The use of excessively worn or undersized drill bits may prevent the bolt from threading.
3. The use of oversized drill bits may result in incomplete threading and premature failure.
4. Use of under-powered drills +/or impact wrenches may slow or prevent proper installation.

Single Use MB Rapid Bolt (¾”x6”)

Item Number	Description	Slab Thickness	Brace Load at 3,000 psi concrete	Brace Load at 4,000 psi concrete	Unit Weight
MB45484	MB Rapid Bolt	4”	4,300 lbs	4,950 lbs	1.05 lbs
		5”	6,300 lbs	7,300 lbs	
		6”	8,100 lbs	9,300 lbs	

1. Values are based on a 2:1 SF
2. 12” minimum edge distance
3. Resultant determined with a 60° brace angle.
4. Requires use of MB Brace Shoe & MB Brace.
5. This bolt is approved for single use only

MB BRACE BADGER HELICAL ANCHOR SYSTEM

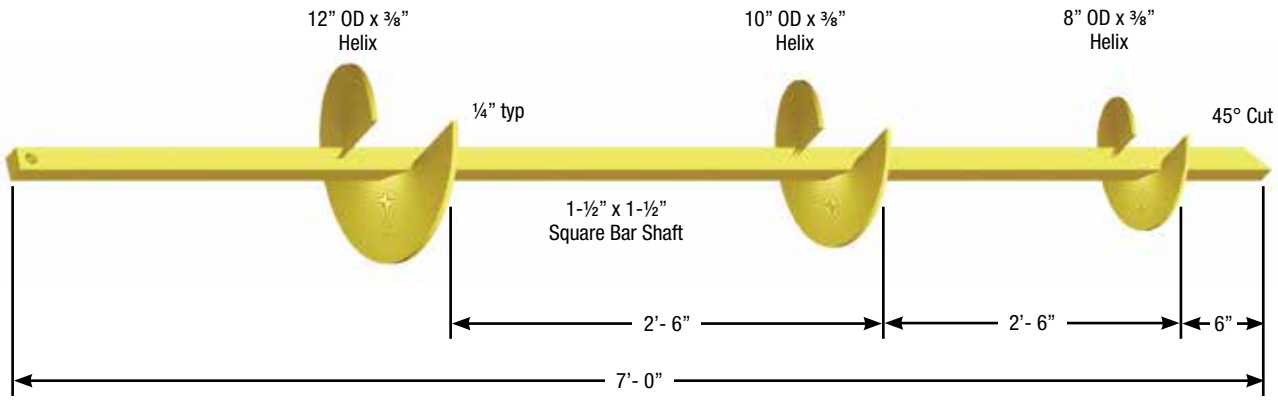
There are times in tilt-up construction when conventional bracing to floor slabs is not desired. Until now your option has been to construct expensive and time consuming concrete deadmen. The Meadow Burke Brace Badger™ is revolutionizing tilt-up construction by providing contractors with an economical and efficient alternative.

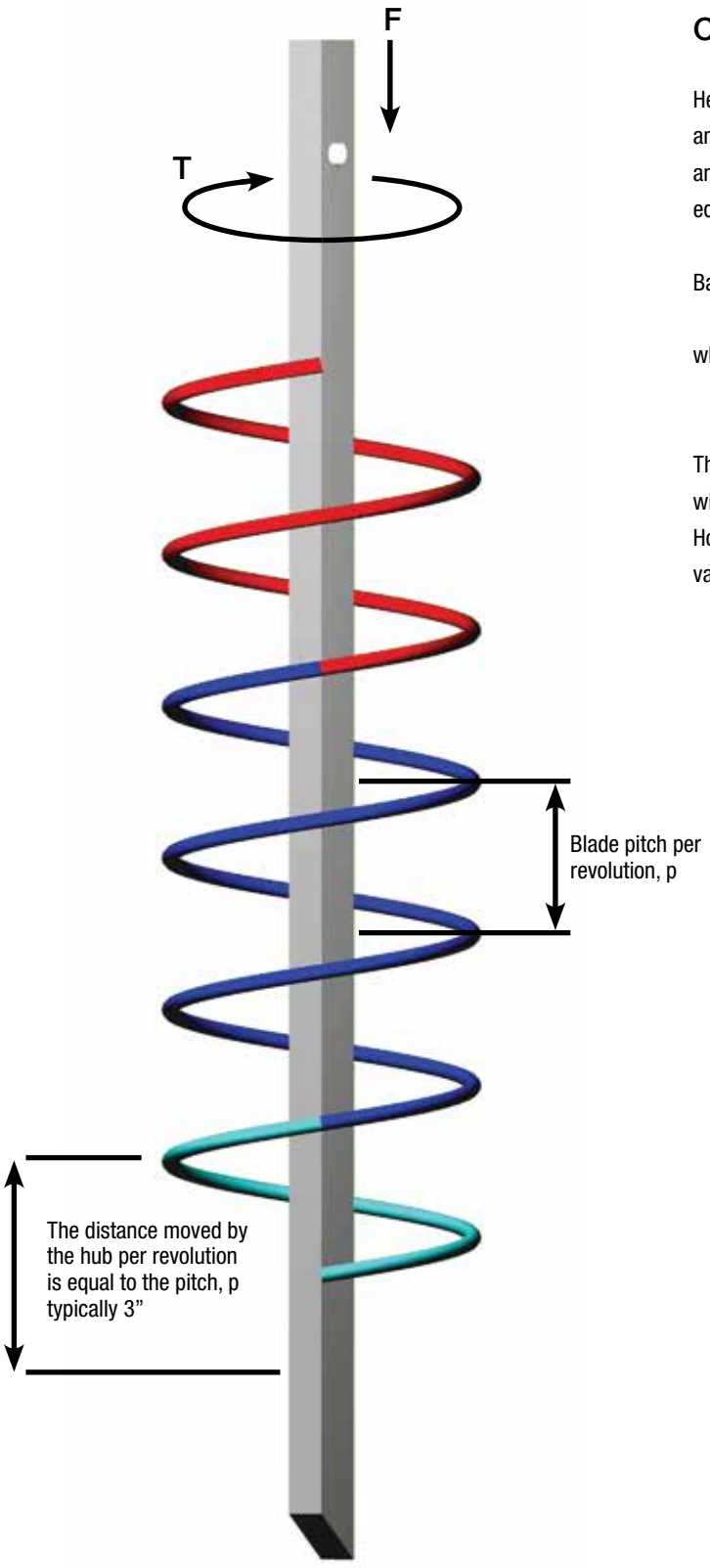
MB BADGER ADVANTAGES INCLUDE:

- eliminates concrete deadmen
- environmentally friendly
- offers quick installation and removal
- the strongest brace anchor available
- verifiable load capacity in all soil conditions
- works with ALL Meadow Burke braces
- reusable

PRODUCT SPECIFICATIONS:

The MB Brace Badger is pre-engineered for superior results in tilt-up applications. It consists of three helix plates welded to a 1-½" square bar shaft. Each helix plate is specially formed from ⅜" x 44 ksi new steel plate. Our shaft steel has a typical yield strength of 95 ksi, and a typical tensile strength of 130 ksi, making it the strongest helical anchor available in the industry!





Capacity to Torque Ratio

Helical anchor installation involves screwing the anchor into the ground and applying a constant downward force. The holding capacity of the anchor is proportionate to the final installation torque. The following equation can be used to determine holding capacity.

Badger Capacity = K x T

where K = Torque constant
T = Final installation torque

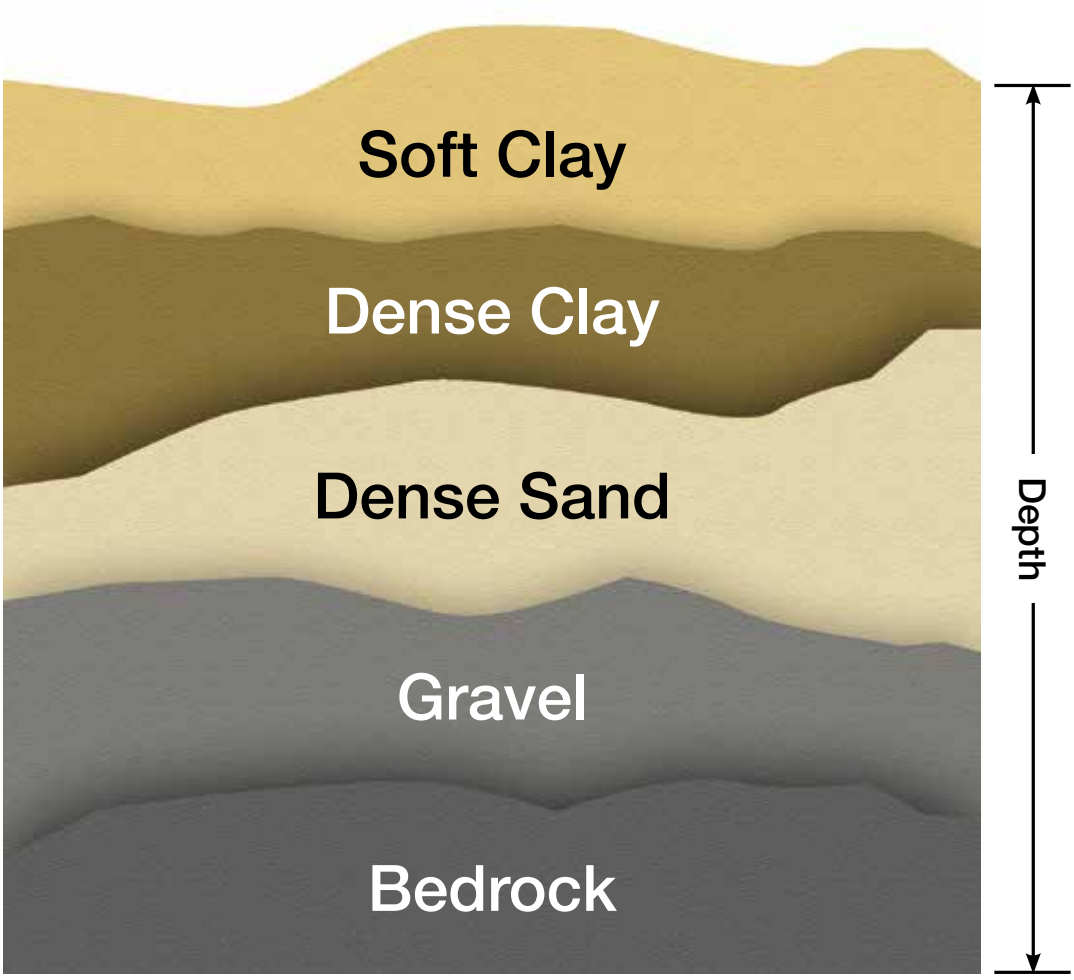
The K value is reliant on the geometry of the helix pier. For helical anchors with square shaft dimensions less than 2”, a value of 10 is suggested by Hoyt and Clemence (1989) and the Tilt-Up Concrete Association. This K value is applicable for all 1.50” square shaft anchors.

Typical MB Brace Badger Installation

Soil Mechanics

The capacity of the MB Brace Badger is the result of the strength of the surrounding soil because the loading force is transferred to the soil. There are typically two types of soils: cohesive and cohesionless. Cohesive soils are defined as soils whose internal angle of friction is approximately zero ($Ø = 0$) while cohesionless soils are those whose internal angle of friction is greater than zero ($Ø > 0$).

Soil naturally tends to develop in layers or strata, each with individual strength characteristics, and the figure above illustrates this stratification. As the Badger is drilled into the ground, it will pass through different layers. Because each layer has different characteristics, different torque values will be observed as the anchor passes through each layer. During an ideal installation, the torque values will be constantly increasing, indicating the anchor is being inserted into more dense soil. If a drop in torque is recorded, it is most likely that a soft layer (such as soft clay) was found. The Badger must then be installed through the soft layer until a more dense soil (i.e. higher torque) is found.



Installation

A variety of rotary hydraulic equipment can be used to install the MB Brace Badger including but not limited to: skidsteers, excavators, and boom mounted utility trucks.

The installer should maintain a continuous downward pressure on the MB Brace Badger to avoid auguring during installation.

Throughout the installation of each MB Brace Badger the torque is continuously monitored and recorded. There is a direct relationship between installation torque and Badger capacity. Continuous monitoring and recording of torque throughout installation gives a profile of the soil conditions.

A 5' extension can be added to install the Badger deeper to reach the stronger soils and attain the required load capacity. After the Badger is installed, a Badger Connector is bolted to the top of the Badger. The Super Brace shoe is removed and the Doka rod of the Super Brace is bolted between the ears of the connector. To remove the Badger, simply reverse the hydraulic motor and back it out of the ground. It is ready for immediate inspection and reuse.

INSTALLATION REQUIREMENTS

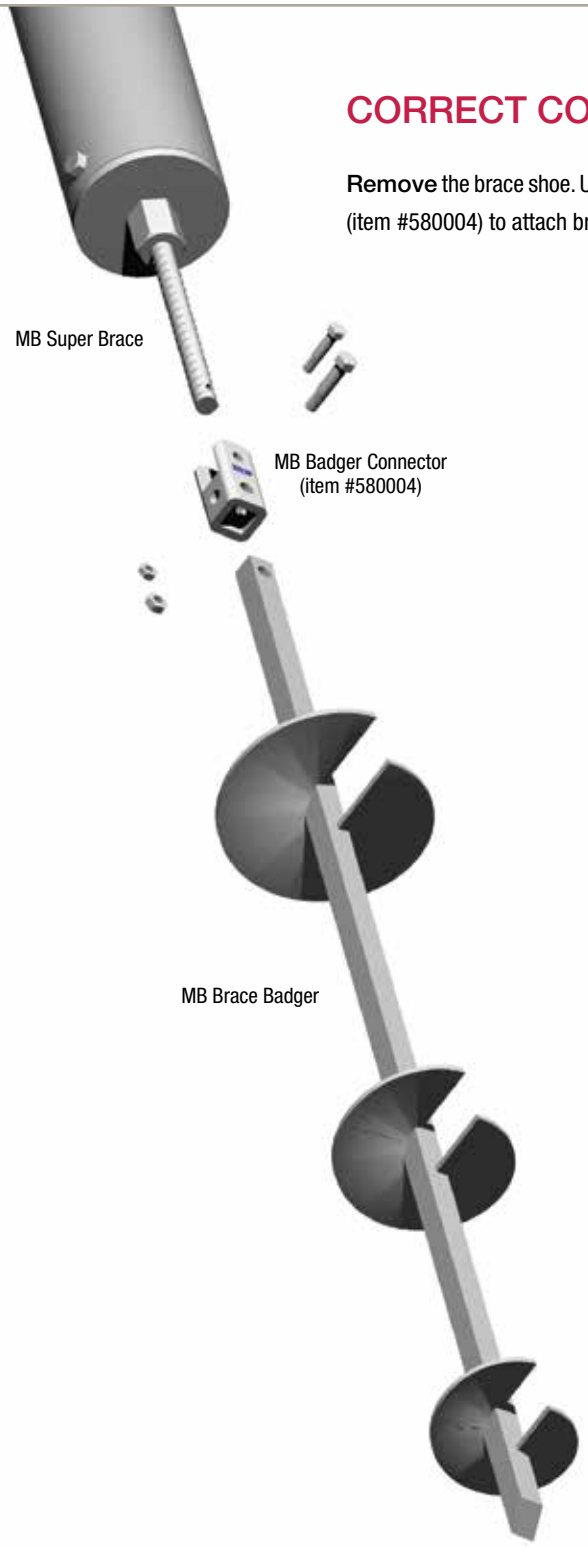
1. Installation is performed by a MB Brace Badger Systems trained installer.
2. Using a hydraulic drive head, Brace Badgers (Item #580002) are installed to a torque of 2,200 ft-lbs. If the minimum required torque is not achieved with a single anchor, please contact Meadow Burke engineering for assistance. A 5' extensions (Item #580006) may be added until the torque minimum torque requirement is achieved. It is recommended that preliminary soil logs at the site be obtained to help predict project requirements. In softer soils with Standard Penetration Test (SPT) blow counts (N) less than 10, an extension may be required. Installation in rocky soils with blow counts (N) greater than 30 is not recommended. Also, frozen soils may require pre-auguring so that the anchor can reach below the frost line.
3. Maximum allowable installation torque is 7,000 ft-lbs.
4. Records of required installation torque for each Badger are required.
5. Badgers to be installed in-line with the axis of the brace (+/- 5º).
6. Welding, cutting, or any modification of the Badger or its components is prohibited.
7. MB Badger Connector (item #580004) must be used for brace connection. To connect to brace, remove brace shoe and reuse ⅝" bolt for connector. Connector to Badger requires one ¾"Ø x 3 ½" grade 5 bolt.

SAFETY NOTES

1. The contractor shall locate all the subsurface structures and utilities. Any subsurface structure or utility in the vicinity of the Badger locations shall be clearly marked. Horizontal Clearance of anchor from any subsurface structure or utility shall be no less than 5'-0" at the depth of the utility Installation of Badgers underneath utilities or subsurface structures is strictly prohibited.
2. Do not use damaged or worn Brace Badgers. Failure to inspect and replace damaged anchors may result in anchor failure.
3. The contractor is to undergo preventive measures to mitigate soil erosion adjacent to installed anchors.
4. Any changes resulting from actual installation conditions of the Badger requires that the contractor contact Meadow Burke Engineering for further assistance to determine adequacy of anchor system.

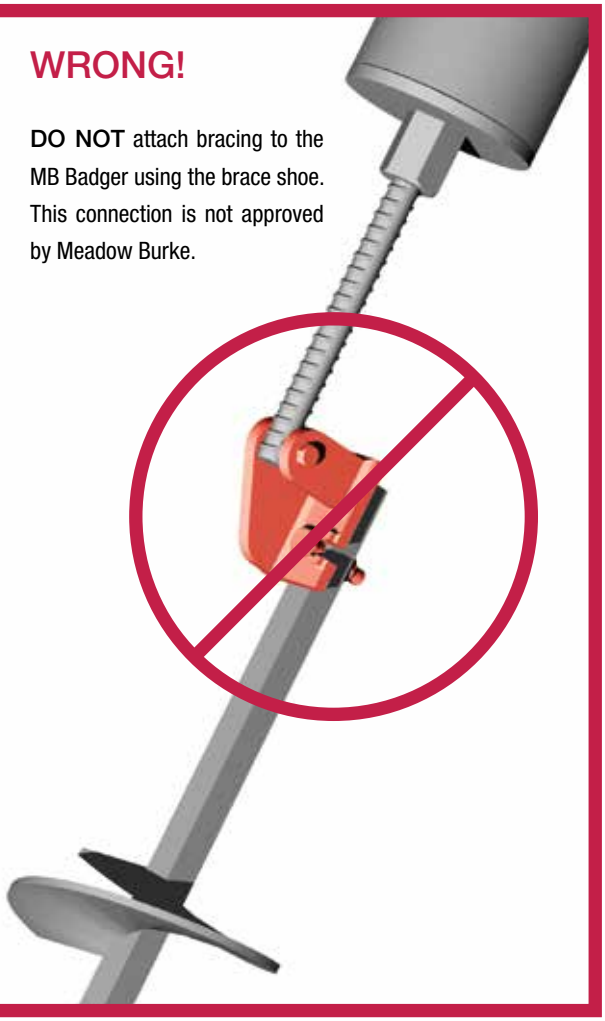
CORRECT CONNECTION

Remove the brace shoe. Use the approved MB Badger Connector (item #580004) to attach bracing to the MB Brace Badger.



WRONG!

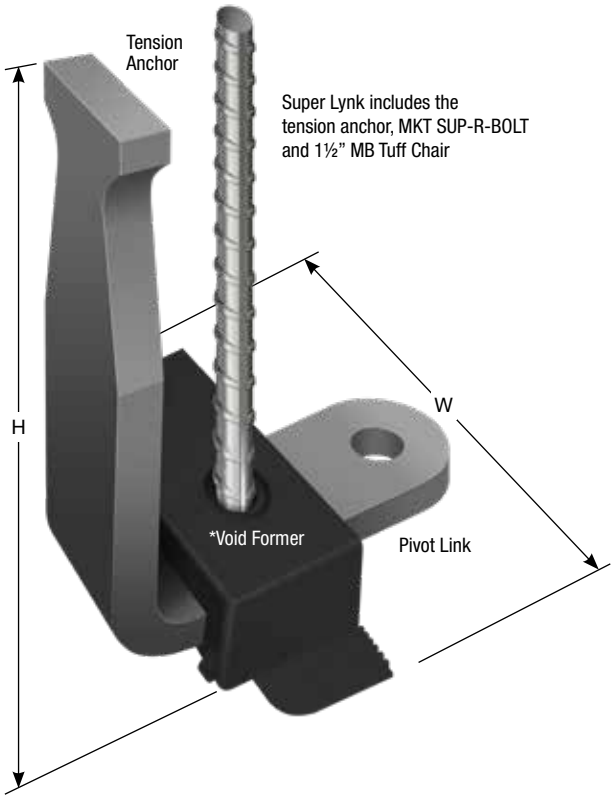
DO NOT attach bracing to the MB Badger using the brace shoe. This connection is not approved by Meadow Burke.



Connections

Super Lynk

SUPER LYNK IS A PANEL-TO-FOUNDATION CONNECTION SYSTEM THAT ELIMINATES THE NEED FOR EPOXY OR GROUTED ANCHORS AND FIELD WELDS

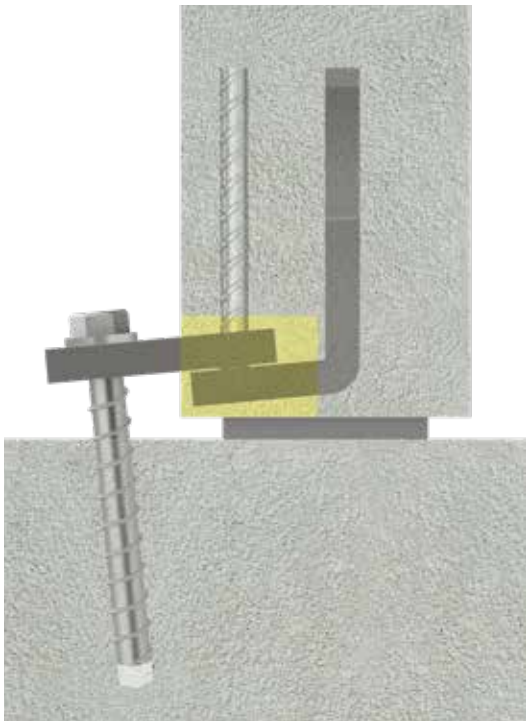


HEIGHTENED PERFORMANCE AND REDUCED VISIBILITY

Super Lynk is a fast, strong and discrete way to permanently connect concrete panels to footings. It requires only a single bolt to make the connection and can easily be concealed within the normal grout line process.

FEATURES:

- **Saves time and money:** The single bolt connection is simple and quick to install while eliminating the need for epoxy, grout and in-field welding,saving you time and money.
- **Improved performance:** The engineered, patented connection system has been developed by Meadow Burke's team of Tilt-Up experts to meet ACI 318-14 16.2.4.3 (b).
- **Improved aesthetics:** With a profile less than 2½", the Super Lynk is discrete relative to alternative connection systems and can easily be concealed by normal backfill and landscaping.



SUPER LYNK DATA					
Item Number	Tension Load	Width (in)	Height (in)	Min. Panel Thickness (in)	Weight per Unit (lbs)
MBSLYNK	10,000 lbs	8"	10"	6"	10.5 lbs

1. Ultimate Tension Load is based on 2,500 psi concrete
2. Super Lynk shipment includes one 1½" tall MB Tuff Chair and one ¾" x 10" MKT SUP-R-BOLT

US PATENT 10,577,789

Super Lynk Installation

STEP 1 – Attach to the form

- Attach the anchor to the bottom corner of the concrete panel form with the use of screws or nails through the side tabs of the void and into the wood form.
- Use a plastic 1½" MB Tuff Chair to support the weight of the anchor and hold embossed side of the void flat to the bottom of the panel and tight to the form.

STEP 2 – Remove Void Cover

- Following panel erection, remove the void cover, revealing the Pivot Link.

STEP 3 – Access Pivot Link

- Rotate the Pivot Link until it protrudes outside of the panel face.

STEP 4 – Drill the anchor hole

- Mark the location for the drill hole beneath the eye of the Pivot Link.
- Using the proper drill bit size, drill a ¾" hole into the base material to the required depth of 9". The tolerances of the drill bit used should meet the requirements of ANSI standard B212.15.
- Remove dust and debris from hole during drilling (e.g. dust extractor, hollow bit) or following drilling (e.g. suction, forced air) to extract loose particles created during drilling.

STEP 5 – Anchor into the foundation

- Using a maximum 450 ft/lb torque wrench and 1⅛" hex socket/driver, mount the Screw Anchor head into the socket.
- Drive the MKT SUP-R-BOLT until the head of the anchor comes in contact with the Lynk. The screw anchor washer head must be snug after installation. Do not spin the hex socket off the anchor head when disengaging.

STEP 6 – Panel is permanently connected to the foundation

- The normal grouting process around the bottom of the panel should be followed to include the Super Lynk and bolt head. This grout encasement will fill any gap between the Super Lynk and footing to provide a uniform finish, and avoid any potential for lateral movement.

Super Lynk SR with Shear Resistance

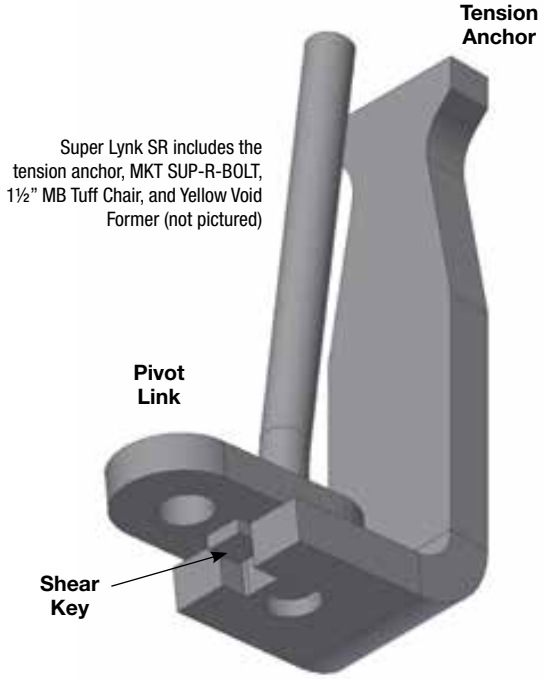
SUPER LYNK SR IS A PANEL-TO-FOUNDATION CONNECTION SYSTEM THAT ELIMINATES THE NEED FOR EPOXY OR GROUTED ANCHORS AND FIELD WELDS

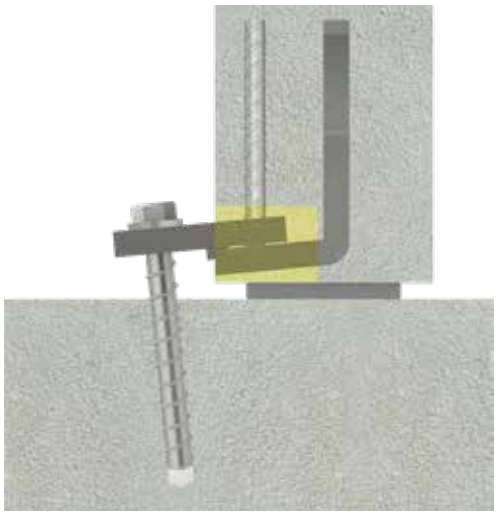
HEIGHTENED PERFORMANCE AND REDUCED VISIBILITY

Super Lynk SR is a fast, strong, and discrete way to permanently connect concrete panels to footings. It requires only a single bolt to make the connection and can easily be concealed within the normal grout line process.

FEATURES:

- **Shear Resistance:** The advanced Shear Key design resists shear loads.
- **Saves time and money:** The single bolt connection is simple and quick to install while eliminating the need for epoxy, grout, and in-field welding, saving you time and money.
- **Improved performance:** The engineered, patented connection system has been developed by Leviat's team of Tilt-Up experts to meet ACI 318-14 16.2.4.3 (b).
- **Improved aesthetics:** With a profile less than 2½", Super Lynk is discrete relative to alternative connection systems and can easily be concealed by normal backfill and landscaping.





SUPER LYNK SR DATA						
Item Number	Void Former Color	Tension Load	In-plane Shear Load	Out-of-plane Shear Load	Min. Panel Thickness	Weight per Unit
MBSLYNKSR	YELLOW	10,000 lbs	7,000 lbs	7,000 lbs	6"	10½ lbs

1. Published Ultimate Loads are based on 3,000 psi concrete.
2. Super Lynk SR shipment includes one 1½" tall MB Tuff Chair, one ¾" x 10" MKT SUP-R-BOLT, and Yellow Void Former

US PATENT 10,577,789

Super Lynk SR Installation

STEP 1 – Attach to the form

- Attach the anchor to the bottom corner of the concrete panel form with the use of screws or nails through the side tabs of the void and into the wood form.
- Use a plastic 1½" MB Tuff Chair to support the weight of the anchor and hold embossed side of the void flat to the bottom of the panel and tight to the form.

STEP 2 – Remove Void Cover

- Following panel erection, remove the void cover, revealing the Pivot Link.

STEP 3 – Access Pivot Link

- Rotate the Pivot Link until it protrudes outside of the panel face and the shear key has fallen into place.
- Verify shear key is in place.

STEP 4 – Drill the anchor hole

- Mark the location for the drill hole beneath the eye of the Pivot Link.
- Using the proper drill bit size, drill a ¾" hole into the base material to the required depth of 9". The tolerances of the drill bit used should meet the requirements of ANSI standard B212.15.
- Remove dust and debris from hole during drilling (e.g. dust extractor, hollow bit) or following drilling (e.g. suction, forced air) to extract loose particles created during drilling.

STEP 5 – Anchor into the foundation

- Using a maximum 450 ft/lb torque wrench and a 1⅛" hex socket/driver, mount the MKT SUP-R-BOLT head into the socket.
- Drive the MKT SUP-R-BOLT until the head of the anchor comes in contact with the Lynk. The screw anchor washer head must be snug after installation. Do not spin the hex socket off the anchor head when disengaging.

STEP 6 – Panel is permanently connected to the foundation

- The normal grouting process around the bottom of the panel should be followed to include the Super Lynk and bolt head. This grout encasement will fill any gap between the Super Lynk and footing to provide a uniform finish, and avoid any potential for lateral movement.

Adjustable Bolted Corner Connection

LEVIAT'S BEST-IN-CLASS PORTFOLIO OF HALFEN ANCHOR CHANNELS AND T-BOLTS SPECIFICALLY ENGINEERED FOR PANEL CORNER CONNECTIONS.

BENEFITS OF ADJUSTABLE BOLTED CONNECTION:

- **REDUCED LABOR COST** – as bolted connections can be installed by the same crew members that erected the panels
- **NON-WELDABLE CONNECTION** – no need for a certified welder or welding inspection as only a torque wrench isrequired for installation
- **ADJUSTABLE CONNECTION** – which counteracts constructionproblemscausedbyfoundationelevationissuesorpanel placement inconsistencies.
- **SIMPLIFIED CONNECTION** – channel connections are easily adjustable and can be made in any weather condition
- **REDUCED OVERALL CONSTRUCTION TIMES** – by eliminating the labor-intensive installation and time-consuming inspection procedures associated with traditional weld plates and field welding.

Halfen adjustable channel corner connection kits are available in two standard profiles for minimum wall panel thicknesses of 6" and 8".

HZA DYNAGRIP® Toothed Anchor Channel

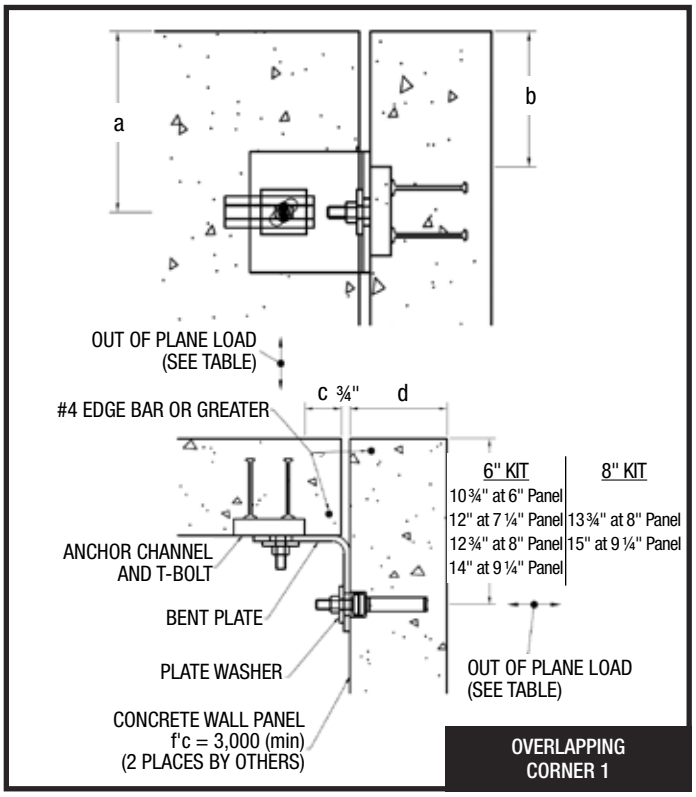
ICC ES ESR 4016

HALFEN

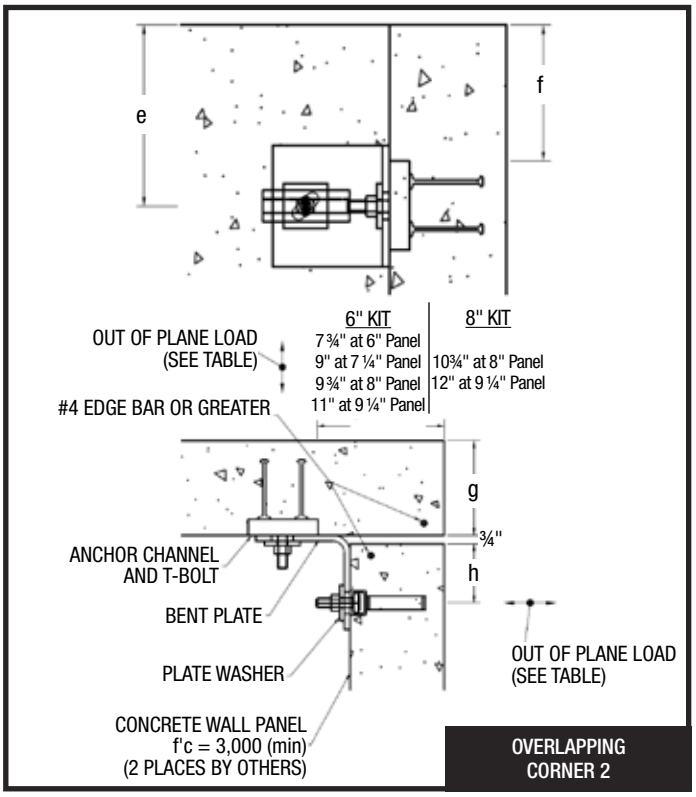
Kit Item Name	Concrete Strength	Design Capacity	Kit Part Number	Kit Items	Kit Qty	Item Number
Corner Assembly 90 Degree 6" (Kit)	3,000 psi	1,500 lbs	0105.899-00006	L7x7x3/8x7" Bent Plate	1	0105.899-00010
	4,000 psi	1,750 lbs		3x3x⅜" plate washer, M16	2	0105.899-00020
	5,000 psi	2,000 lbs		HZA-BA 38/23-HDG- 150/2	2	2002.020-00502
				HZS 38/23 M16x 60 HDG 8.8 (US)	2	0352.068-00202
Corner Assembly 90 Degree 8" (Kit)	3,000 psi	2,600 lbs	0105.899-00008	8x8x1/2x 8" Bent Plate	1	0105.899-00015
	4,000 psi	3,000 lbs		3x3x⅜" plate washer, M20	2	0105.899-00022
	5,000 psi	3,400 lbs		HZA 53/34 HDG-150 (US)	2	0002.050-00501
				HZS 53/34 M20 x 65 GV-S8.8	2	0352.080-00003

For more information contact engineeringsupport@leviat.us

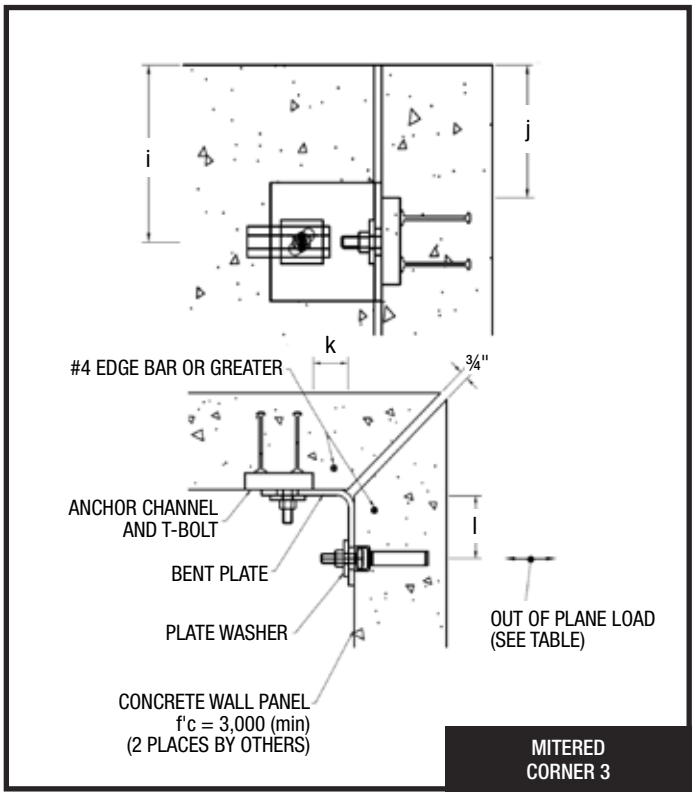
Standard Corner Connections



OVERLAPPING CORNER 1



OVERLAPPING CORNER 2



MITERED CORNER 3

Dimension	6" Kit	8" Kit
a	9" (min)	12" (min)
b	6" (min)	9" (min)
c	2"	3"
d	6" (min)	8" (min)
e	9" (min)	12" (min)
f	6" (min)	9" (min)
g	6" (min)	9" (min)
h	4"	5"
i	9" (min)	12" (min)
j	6" (min)	9" (min)
k	2"	3"
l	4 ¼"	5 ¼"

Engineer of Record to specify number of connections per joint and max connection spacing (min. connection spacing = 18" O.C. for 6" panel kit, 24" O.C. for 8" panel kit)

#4 Edge bar or greater required between anchor channel and edge.

NOTES:

1. Out of plane loads are assumed to act on one side of corner at any point in time.
2. Horizontal Anchor Channel allows for +/– 1" left/right tolerance.
3. Vertical Anchor Channel allows for +/– 2" up/down tolerance.
4. Each side of bracket allows for +/– 0.5" left/right & up/down tolerance.

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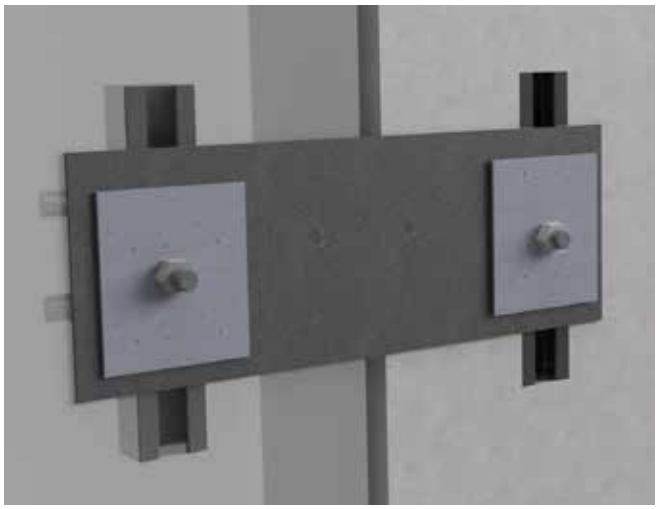


Adjustable Bolted Inline Panel to Panel Connection

LEVIAT'S BEST-IN-CLASS PORTFOLIO OF HALFEN ANCHOR CHANNELS AND T-BOLTS SPECIFICALLY ENGINEERED FOR INLINE PANEL TO PANEL CONNECTIONS.

Occasionally, loading on the building envelope requires adjacent wall panels to be connected. Traditionally, this is accomplished through expensive and time-consuming welding operations.

BENEFITS OF ADJUSTABLE BOLTED CONNECTION:

- **REDUCED LABOR COST** – as bolted connections can be installed by the same crew members that erected the panels
- **NON-WELDABLE CONNECTION** – no need for a certified welder or welding inspection as only a torque wrench is required for installation
- **ADJUSTABLE CONNECTION** – which counteracts construction problems caused by foundation elevation issues or panel placement inconsistencies.
- **SIMPLIFIED CONNECTION** – channel connections are easily adjustable and can be made in any weather condition
- **REDUCED OVERALL CONSTRUCTION TIMES** – by eliminating the labor-intensive installation and time-consuming inspection procedures associated with traditional weld plates and field welding.

Halfen Inline Panel to Panel Connection Kit is available in a standard profile for minimum wall panel thicknesses of 6". Kit

HTA Anchor Channel

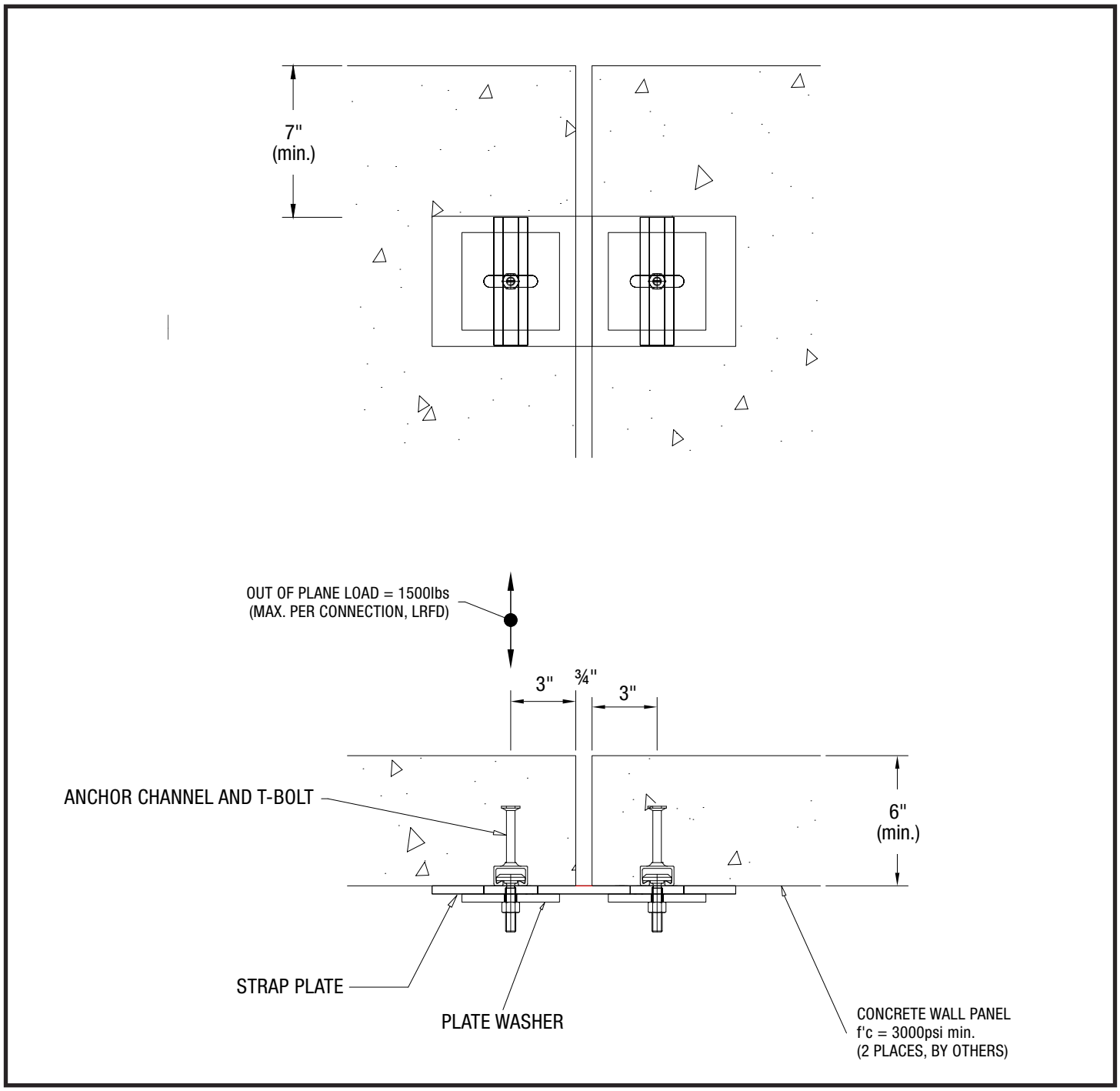
ICC ES ESR 1008

HALFEN

Kit Item Name	Kit Part Number	Component Item Name	Qty	Item Codes
Panel to Panel 6" (Kit)	0105.899-00030	14x6x⅜" Plate, 14mm x 63mm Slot, A5 (HDG)	1	0105.899-00018
		4.5x4.5x⅜" Plate Washer, M12 ASTM A36 (HDG)	2	0105.899-00025
		HTA-BA 40/22-HDG- 150 (US)	2	2001.730-00502
		HS 40/22 M12x 60 HDG 8.8 (US) (T-Bolt)	2	0350.078-00201

For more information contact engineeringsupport@leviat.us

Standard Corner Connections

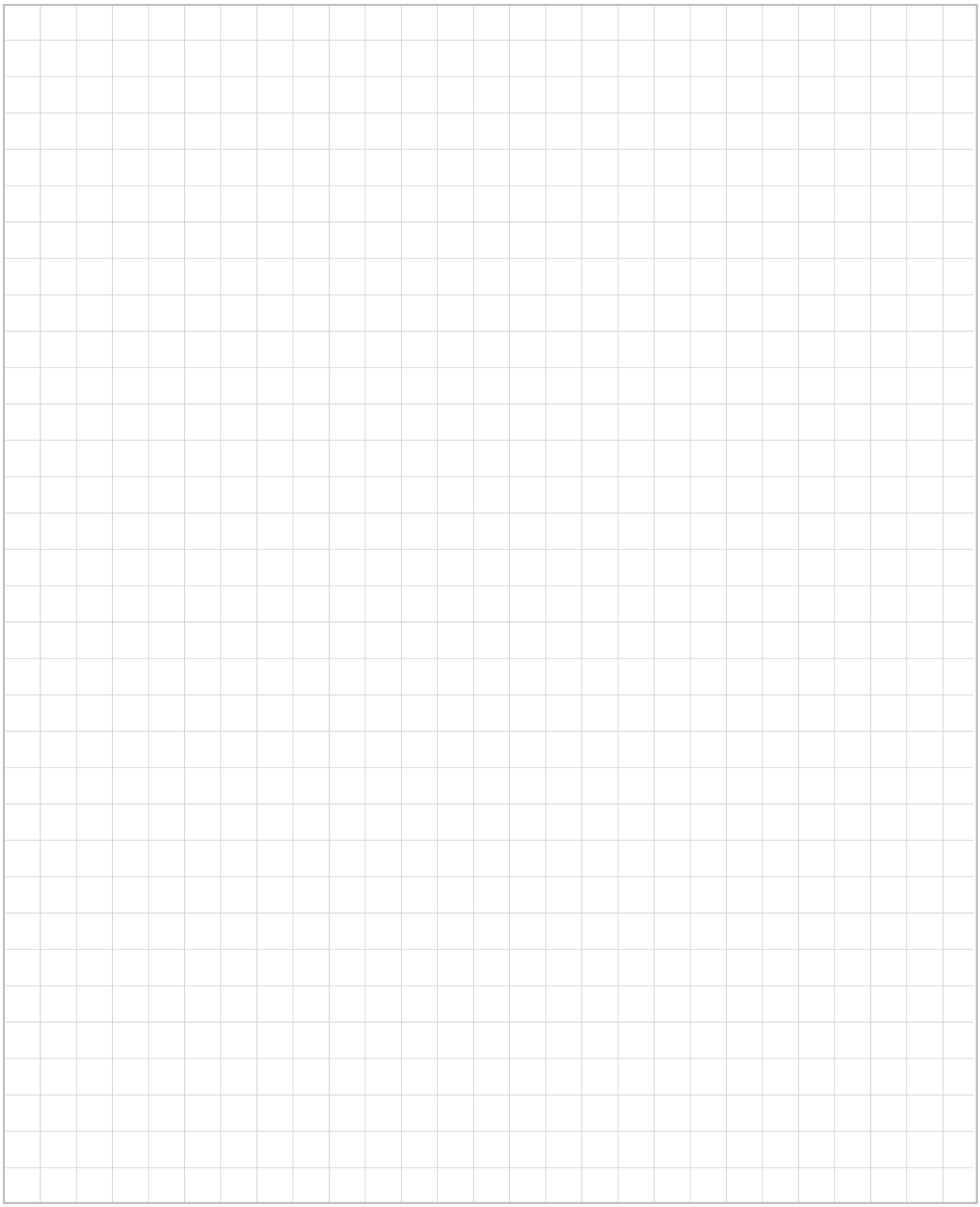


Engineer of Record to specify number of connections per joint and max. connection spacing
(min. connection spacing = 18" O.C. for 6" panel kit)

NOTES:

1. Out of plane loads are assumed to act on one side of corner at any point in time.
2. Anchor Channel allows for +/– 2" up/down tolerance.
3. Each side of bracket allows for +/– 1" left/right tolerance.

For more information contact engineeringsupport@leviat.us



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