

VMZ INTERNAL THREAD INJECTION SYSTEM

AVAILABLE MATERIALS

Carbon Steel Zinc Plated

FEATURES/ADVANTAGES

- Can be installed using a construction grade single tube tool
- The fixture is easily removed
- Closer anchor spacing and edge distance than with drop-in anchors
- Rated for cracked or un-cracked concrete
- Eliminates trip hazard by using finished head bolts
- Ultimate loads are derived from installation in un-cracked concrete

CONCERNS

- 18 mo shelf life

APPLICATIONS:

Heavy duty anchoring where the use of internal thread is required and/or anchor spacing and edge distance requirements are closer than those needed for drop-in anchor: Steel structures, brackets, railings, posts, columns, ladders, gates, etc.

M28252601

VMZ Adhesive Single Tube Only



ORDER DETAIL

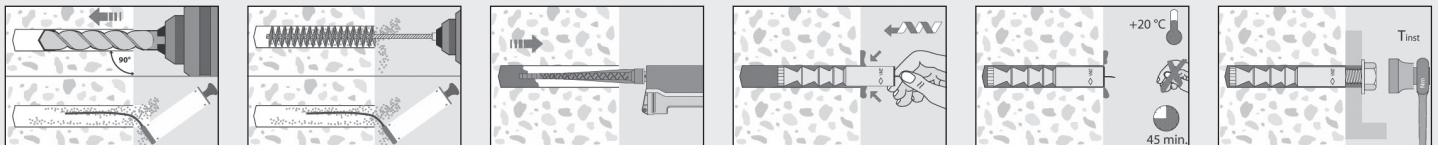
Order Code Carbon Steel	Anchor Size	Min Hole Depth (Inch)	Thread Length (Inch)	Embed Depth (Inch)	Install Torque (ft-lbs)	Drill Diameter (Inch)	4000 psi Tension* (lbf)	Concrete Shear* (lbf)	Anchors/ Cartridge
301415I	1/4"	1-5/8	1/2	1-5/8	6	3/8	3344	1810	123
305162I	5/16"	2-1/2	3/4	2-3/8	7	1/2	7424	3383	53.7
303831I	3/8"	3	1	2-3/4	11	9/16	9255	4980	42.6
301241I	1/2"	3-3/4	1	3-1/2	18	3/4	15,215	8881	20.1
305861I	5/8"	6-1/4	1-1/2	5-7/8	37	1	32,334	16,799	5.4
303471I	3/4"	6-5/8	1-1/2	6-1/8	59	1	30,100	23,780	9.5

Base Material Temperature	Gel Time	Cure Dry Hole	Cure Wet Hole
-5 C/23 F	1.5 Hr	6 Hr	12 Hr
0 C/32 F	45 Min	3 Hr	6 Hr
5 C/41 F	20 Min	2 Hr	4 Hr
10 C/50 F	12 Min	1.3 Hr	2.5 Hr
20 C/68 F	6 Min	45 Min	1.5 Hr
30 C/86 F	4 Min	25 Min	50 Min
35 C/95 F	2 Min	20 Min	40 Min
40 C/104 F	1.5 Min	15 Min	30 Min

* Ultimate load values are based on using VMZ adhesive with inserts. Be sure to use a bolt with suitable tensile strength to attain loads.

INSTALLATION

- 1 Select the correct diameter drill bit and drill the hole to the required hole depth.
- 2 Remove the debris from the hole using compressed air and a brush
- 3 Inject VMZ adhesive into the hole starting at the bottom and working outward to avoid air pockets.
- 4 Place the anchor in the hole using a twisting motion until it is flush with the concrete
- 5 Do not disturb the anchor until full cure has been reached as indicated by the table above.
- 6 Clear excess adhesive from the hole opening using a chisel before removing rubber plug.
- 7 Place fixture over the hole and start the bolt until finger tight.
- 8 Tighten bolt to appropriate torque to complete the fastening.



ADHESIVE VOLUME ESTIMATING GUIDE

Type Package	Liquid Roc 200 Single Tube	Liquid Roc 200 Twin Tube	Liquid Roc 300 Pouch	Liquid Roc 300 Twin Tube	Liquid Roc 500+ Single Tube	Liquid Roc 500+ Twin Tube	VME Twin Tube	VMZ Internal Thread Injection System	Liquid Roc 700+ Single Tube	Liquid Roc 700+ Twin Tube
Net Contents	10 fl. oz.	28 fl. oz.	5.5 fl. oz.	28 fl. oz.	8.5 fl. oz.	22 fl. oz.	13oz.	20 oz.	10 fl. oz.	28 fl. oz.
Useable Vol.	15 cu. in.	45 cu. in.	10 cu. in.	45 cu. in.	13 cu. in.	34 cu. in.	20 cu. in.	31 u. in.	15 cu. in.	45 cu. in.
Rod Diameter	Linear inches of embedment into solid base material									
3/8"	63	133	105	312	91	237	140	215	63	133
1/2"	45	95	75	225	65	169	100	153	45	95
5/8"	35	73	38	172	50	130	76	118	35	73
3/4"	28	58	30	137	40	104	61	94	28	58
7/8"	23	49	25	115	33	87	51	79	23	49
1"	19	40	21	92	27	71	42	64	19	40
1-1/4"	14	30	16	71	20	54	32	49	14	30
Rod Diameter	Linear inches of embedment using screens into hollow base material									
3/8"	-	-	-	296	-	-	-	-	-	-
1/2"	-	-	-	172	-	-	-	-	-	-
5/8"	-	-	-	112	-	-	-	-	-	-
3/4"	-	-	-	62	-	-	-	-	-	-

ENGINEERING DATA

HOW TO SPECIFY

- 1 Select anchor diameter based on loading requirements.
- 2 Determine thickness of material to be anchored (if grout or shimming is to be used between material and concrete surface, add thickness of grout/shims to thickness of material to obtain total thickness of material to be anchored.)
- 3 Select anchor length that will satisfy total thickness of material, head clearance and embedment of anchor diameter selected.

SPECIFICATIONS, LIQUID ROC 200, 300, 500+, 700+

B Nominal Diameter (in.)						
Bolt Size (in.)	Capsule or Pouch	Single or Twin Tube	E - Min Embedment (in.)	S - Anchor Spacing (in.)	M - Edge Distance (in.)	T - Maximum Tightening Torque (ft. lbs.)
3/8"	7/16"	1/2"	3-1/2"	3-1/2"	3-1/2"	13
1/2"	9/16"	5/8"	4-1/2"	4-1/2"	4-1/2"	22
5/8"	11/16"	3/4"	5-1/2"	5-1/2"	5-1/2"	55
3/4"	7/8"	7/8"	6-1/2"	6-1/2"	6-1/2"	106
7/8"	1"	1"	8"	8"	8"	135
1"	1-1/8"	1-1/8"	9"	9"	9"	184

REDUCTION FACTORS

Tension		Shear		
Spacing (S) and Edge Dist. (M)	Factor (F)	Spacing (S) and Edge Dist. (M)	Direction of load	Factor (F)
S min. = 0.50S	0.7	S min. = 0.50S	toward edge not toward edge	0.6 1.0
M min. = 0.50M	0.7	M min. = 0.50M	toward edge not toward edge	0.4 0.5

GENERAL SPECIFICATIONS

Adhesive resin anchor shall be (polyester) (epoxy) (acrylic) as manufactured by MKT Fastening, LLC, #1 Gunnebo Dr., Lonoke, AR 72086

INSTALLATION

Adhesive resin anchors shall be installed in holes drilled with carbide tipped bits conforming to ANSI specification B212.15-94. Minimum installation depth and hole preparation shall be as recommended by manufacturer.

LIQUID ROC 300 CAPSULE ANCHORS

Anchor Diameter	Hole Diameter	Embedment Depth	Capsules Required
3/8"	7/16"	3-1/2"	(1) 3/8"
3/8"	7/16"	5-1/4"	(2) 3/8"
3/8"	7/16"	7"	(2) 3/8"
1/2"	9/16"	4-1/2"	(1) 1/2"
1/2"	9/16"	6-3/4"	(1) 3/8" & (1) 1/2"
1/2"	9/16"	9"	(2) 1/2"
5/8"	11/16"	5"	(1) 5/8"
5/8"	11/16"	7-1/2"	(1) 1/2" & (1) 5/8"
5/8"	11/16"	10"	(2) 5/8"
3/4"	7/8"	6-1/2"	(1) 3/4"
3/4"	7/8"	9-3/4"	(1) 5/8" & (1) 3/4"
3/4"	7/8"	13"	(2) 3/4"
7/8"	1"	7-1/2"	(1) 7/8"
7/8"	1"	11-1/4"	(2) 3/4"
7/8"	1"	15"	(2) 7/8"
1"	1-1/8"	8-1/2"	(1) 1"
1"	1-1/8"	12-3/4"	(1) 3/4" & (1) 1"
1"	1-1/8"	17"	(2) 1"
1-1/4"	1-3/8"	7-1/4"	(2) 3/4"
1-1/4"	1-3/8"	11"	(1) 3/4" & (1) 1"

FOR REDUCED SPACING AND EDGE DISTANCES

- 1 Linear interpolation is allowed for edge distances falling between 0.50M and 1.00M, and anchor spacing falling between 0.50S and 1.00S.
- 2 Load reduction factors should be combined where applicable. Where three or more anchors are used, spacing reduction factors must be multiplied together. Where two or more edge distances affect performance, edge reduction factors must be multiplied together. When a group of anchors is affected by both reduced spacing and reduced edge distances, the edge and spacing reduction factors must be multiplied together.

