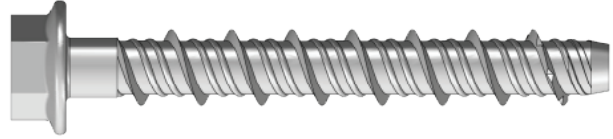


AVAILABLE MATERIALS

- High strength steel

FEATURES/ADVANTAGES

- Required hole diameter equals anchor diameter
- Designed for standard ANSI tolerance drill bits
- Hardened threads for tapping high strength concrete
- Anti-rotation teeth on underside of hex washer head lock against the fixture
- Can be installed closer to the edge than traditional expansion anchors
- Fast installation with powered impact wrench
- Diameter, length and identifying marking stamped on head of each anchor
- One-piece, finished head design
- Equipment can be removed.
- Able to resist seismic loads.



CONCERNS

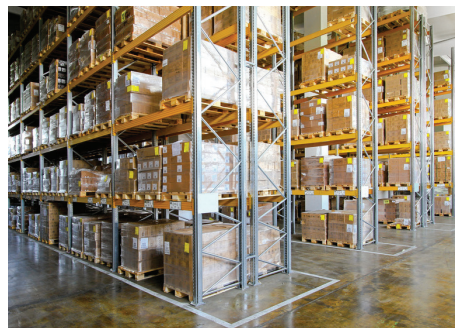
- Do not use in brick or block
- Do not reuse

APPROVALS/LISTINGS

- ICC-ES ESR 4347 except 3/4" x 4" size
- ACI 318 category 1 for cracked concrete

ORDER DETAIL

Anchor Dimensions	Order Code	Drill Hole Dia. x Depth (in)	Min. Embed.(in)	Maximum Thickness Fastened (in)	Required Torque to Set (ft. lbs.)	Box Qty.
3/8" x 3"	4138300	3/8 x 2-3/4	2-1/2	1/2	35	50
3/8" x 4"	4138400	3/8 x 2-3/4	2-1/2	1-1/2	35	50
3/8" x 5"	4138500	3/8 x 2-3/4	2-1/2	2-1/2	35	50
3/8" x 6"	4138600	3/8 x 2-3/4	2-1/2	3-1/2	35	50
1/2" x 4"	4112400	1/2 x 3-3/8	3	1	45	25
1/2" x 5"	4112500	1/2 x 3-3/8	3	2	45	25
1/2" x 6"	4112600	1/2 x 3-3/8	3	3	45	25
5/8" x 4"	4158400	5/8 x 3-5/8	3-1/4	3/4	85	25
5/8" x 5"	4158500	5/8 x 3-5/8	3-1/4	1-3/4	85	25
5/8" x 6"	4158600	5/8 x 3-5/8	3-1/4	2-3/4	85	20
5/8" x 8"	4158800	5/8 x 3-5/8	3-1/4	4-3/4	85	20
3/4" x 4"	4134400	3/4 x 4-3/8	4	0	115	15
3/4" x 5"	4134500	3/4 x 4-3/8	4	1	115	15
3/4" x 6"	4134600	3/4 x 4-3/8	4	2	115	15
3/4" x 7"	4134700	3/4 x 4-3/8	4	3	115	15
3/4" x 10"	4134100	3/4 x 4-3/8	4	6	115	5



Load & Performance Data	Conc.(psi)	Symbol	Units	3/8"		1/2"		5/8"		3/4"	
				2-1/2	3-1/4	3	4-1/4	3-1/4	5	4	6-1/4
Embedment depth		h_{nom}	in	2-1/2	3-1/4	3	4-1/4	3-1/4	5	4	6-1/4
Cracked Concrete											
Avg. ultimate load, tension	4,000	$N_{r,cr}$	lbs	2,705	4,225	4,077	6,358	3,898	8,122	5,503	11,626
Avg. ultimate load, shear	4,000	$V_{r,cr}$	lbs	1,894	2,957	3,054	6,091	2,729	8,278	7,704	9,255
Allowable loads, tension ¹	2,500	$N_{allow,cr}$	lbs	939	1,467	1,416	2,207	1,353	2,820	1,911	4,037
	4,000	$N_{allow,cr}$	lbs	1,188	1,855	1,790	2,792	1,712	3,567	2,417	5,106
	6,000	$N_{allow,cr}$	lbs	1,455	2,272	2,193	3,420	2,097	4,369	2,960	6,254
	8,500	$N_{allow,cr}$	lbs	1,732	2,705	2,610	4,070	2,496	5,200	3,523	7,443
Uncracked Concrete											
Allowable loads, tension ¹	2,500	$N_{allow,un-cr}$	lbs	1,326	2,330	1,416	3,116	1,911	3,981	2,698	5,699
	4,000	$N_{allow,un-cr}$	lbs	1,677	2,947	1,692	3,942	2,417	5,036	3,412	7,209
	6,000	$N_{allow,un-cr}$	lbs	2,054	3,609	1,974	4,828	2,960	6,168	4,179	8,829
	8,500	$N_{allow,un-cr}$	lbs	2,445	4,296	2,254	5,746	3,523	7,341	4,974	10,508
Allowable loads, tension - light weight ¹	3,000			872		930		1,256		1,773	
Cracked and Uncracked Concrete											
Allowable loads, shear ¹	2,500	V_{allow}	lbs	1,428	1,428	2,098	4,116	5,594	5,594	5,810	6,253
	>4,000	V_{allow}	lbs	1,805	1,806	2,653	4,116	5,594	5,594	6,253	6,253
Allowable loads, shear - light weight ¹	3,000	V_{allow}	lbs	563		827		811		2,291	

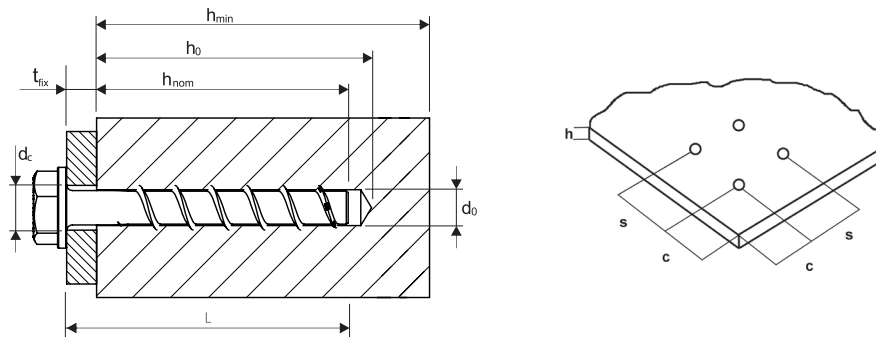
Spacing & Edge Distance

Effective Anchorage Depth	h_{ef}	in	1.85	2.49	2.21	3.27	2.36	3.85	2.97	4.89
Critical Edge Distance	C_{ac}	in	4	5	4-1/2	5	3-3/4	7	4-1/2	8
Minimum Spacing	S_{min}	in	3	3	3	3	4	4	4	4
Minimum Edge Distance	C_{min}	in	1-1/2	1-1/2	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4
Minimum thickness of concrete slab	h_{min}	in	4	4-3/4	4-3/4	6-3/4	5	7	6	8-1/8

Installation Parameters

Drilled hole diameter	d_o	in	3/8	3/8	1/2	1/2	5/8	5/8	3/4	3/4
Diameter of clearance hole	d_c	in	1/2	1/2	5/8	5/8	3/4	3/4	7/8	7/8
Depth of drilled hole	h_o	in	2-3/4	3-1/2	3-3/8	4-5/8	3-5/8	5-3/8	4-3/8	6-5/8
Installation Torque	T_{inst}	ft-lbs	35	50	45	65	85	100	115	150
Wrench Size	WS	in	9/16	9/16	3/4	3/4	15/16	15/16	1-1/8	1-1/8

1) A safety factor of 1.48 was used to calculate the allowable loads. This is based on a load combination of 30% dead loads and 70% live loads.



INSTALLATION

- 1 Drill hole to recommended diameter and depth.
- 2 Remove dust, rubble from the hole with compressed air.
- 3 Assemble the proper socket size onto an impact or torque wrench. Insert the anchor through the item being fastened and into the hole.
- 4 Tighten the anchor to the specified torque making sure the head is firmly against the item being fastened.

