Sup-r STUD® TZ SS

AVAILABLE MATERIALS
- 304/316 Stainless Steel

FEATURES/ADVANTAGES
- ACI 318 category 1 anchor for cracked or uncracked concrete
- Suitable for resisting seismic design loads
- Required hole diameter equals anchor diameter
- Can be loaded immediately
- Nut and washer assembled to anchor
- Simple to install
- For medium to heavy loads

CONSIDERATIONS
- Hole diameter is critical
- Concrete only

APPROVALS/LISTINGS
- ACI 318 Category 1 for cracked concrete
- ICC ESR - 2461
- Contact customer service for approvals / listings for state DOT's

ICC ES
ESR-2461

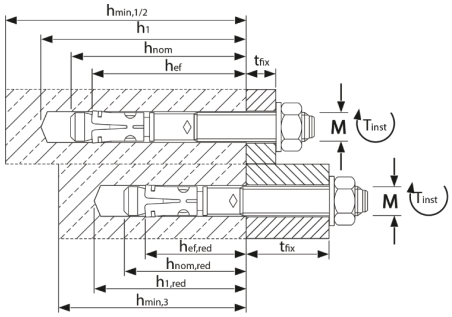
ORDER DETAIL

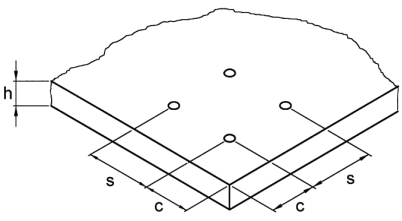
Anchor Dimensions	Order Code 304	Order Code 316SS	Th [in]	d_o [in]	h_o [in]	h_{nom} [in]	h_{ef} [in]	L [in]	t_{max} [in]	T_{inst} [ft-lbs]	d_c [in]	$_{WS}$ [in]
1/2" x 3-3/4"	2312334	231233S	1/2	1/2	3-1/4	2-7/8	2-1/2	3-3/4	1/4	60	9/16	3/4
1/2" x 4-1/2"	2312412	231241S	1/2	1/2	3-1/4	2-7/8	2-1/2	4-1/2	1	60	9/16	3/4
1/2" x 5-1/2"	2312512	231251S	1/2	1/2	3-1/4	2-7/8	2-1/2	5-1/2	2	60	9/16	3/4
1/2" x 7"	2312700	231270S	1/2	1/2	3-1/4	2-7/8	2-1/2	7	3-1/2	60	9/16	3/4
										304/316SS		
5/8" x 4-3/4"	2358434	235843S	5/8	5/8	4-1/8	3-3/4	3-1/4	4-3/4	1/4	110 / 96	11/16	15/16
5/8" x 6"	2358600	235860S	5/8	5/8	4-1/8	3-3/4	3-1/4	6	1-1/2	110 / 96	11/16	15/16
5/8" x 8-1/2"	2358812	235881S	5/8	5/8	4-1/8	3-3/4	3-1/4	8-1/2	4	110 / 96	11/16	15/16
5/8" x 10"	2358100	235810S	5/8	5/8	4-1/8	3-3/4	3-1/4	10	5-1/2	110 / 96	11/16	15/16

304 Stainless Steel / 316 Stainless steel / Approved for cracked or uncracked concrete / ACI 318, Category 1

Load & Performance Data	Conc. (psi)	Symbol	Units	1/2"	5/8"
		Cracked Concrete			
Avg.ultimate load,tension	4,000	N_{pn}	lbs	4,447	9,603
Avg. ultimate load, shear	4,000	V_n	lbs	9,615	15,345
Allowable loads, tension[1]	2,500	N_{allow}	lbs	1,234	2,187
	4,000	N_{allow}	lbs	1,561	2,767
	6,000	N_{allow}	lbs	1,912	3,388
	8,500	N_{allow}	lbs	2,276	4,033
		Uncracked Concrete			
Allowable loads, tension[1]	2,500	N_{allow}	lbs	1,974	3,088
	4,000	N_{allow}	lbs	2,497	3,906
	6,000	N_{allow}	lbs	3,058	4,784
	8,500	N_{allow}	lbs	3,640	5,694
		Cracked and Uncracked Concrete			
Allowable loads, shear[1]	2,500	N_{allow}	lbs	2,824	4,711
	>4,000	N_{allow}	lbs	2,824	5,617
Spacing & Edge Distance					
Effective anchorage depth		h_{ef}	in	$2^1/_2$	$3^1/_4$
Critical spacing		S_{ac}	in	16	$19^1/_2$
Critical Edge Distance		C_{ac}	in	8	$9^3/_4$
		Cracked and Uncracked Concrete			
Minimum Spacing for Edge Distance C		$S_{a,min}/C$	in	$2^1/_2$ / 5	3 / 6
Minimum Edge Distance for Spacing S		$C_{a,min}/S$	in	3 / 6	$3^1/_2$ / $9^1/_2$
Minimum thickness of concrete slab		h_{min}	in	5	$6^1/_2$
Installation Parameters					
Drilled hole diameter		d_o	in	$^1/_2$	$^5/_8$
Diameter of clearance hole		d_c	in	$^9/_{16}$	$^{11}/_{16}$
Depth of drilled hole		h_o	in	$3^1/_4$	$4^1/_8$
Installation torque		T_{inst}	ft-lbs	60	110 / 96
Wrench size		WS	in	3/4	$^{15}/_{16}$

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