

SOP-R STUD® V-TZ

AVAILABLE MATERIALS

- Carbon steel, zinc plated
- Carbon steel clip, sheradized

FEATURES/ADVANTAGES

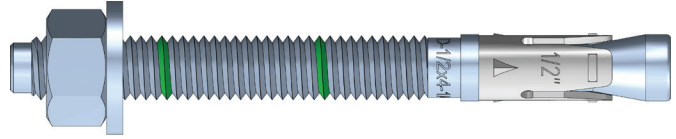
- ACI 318 category 1 anchor for cracked or uncracked concrete
- Suitable for resisting seismic design loads
- Required hole diameter equals anchor diameter
- Can be loaded immediately
- Simple to install
- For medium to heavy loads

CONCERNS

- Hole diameter is critical
- Concrete only

APPROVALS/LISTINGS

- ACI 318 Category 1 for cracked concrete
- ICC-ES ESR 4278
- Contact customer service for approvals / listings for state DOT's



ORDER DETAIL

Anchor Dimensions	Order Code	Th [in]	d _a [in]	h ₂ [in]	h _{comp} [in]	h _{net} [in]	L [in]	t _{max} [in]	T _{net} [ft-lbs]	d _c [in]	W _S [in]
3/8" x 3"	2038300	3/8	3/8	2-5/8	2-3/8	2	3	1/4	30	7/16	9/16
3/8" x 3-3/4"	2038334	3/8	3/8	2-5/8	2-3/8	2	3-3/4	1	30	7/16	9/16
3/8" x 5"	2038500	3/8	3/8	2-5/8	2-3/8	2	5	2-1/4	30	7/16	9/16
1/2" x 3-3/4"	2012334	1/2	1/2	2-5/8	2-3/8	2	3-3/4	7/8	45	9/16	3/4
1/2" x 4-1/4"	2012414	1/2	1/2	2-5/8	2-3/8	2	4-1/4	1-3/8	45	9/16	3/4
1/2" x 5-1/2"	2012512	1/2	1/2	2-5/8	2-3/8	2	5-1/2	2-5/8	45	9/16	3/4
1/2" x 7"	2012700	1/2	1/2	2-5/8	2-3/8	2	7	4-1/8	45	9/16	3/4
1/2" x 8-1/2"	2012812	1/2	1/2	2-5/8	2-3/8	2	8-1/2	5-5/8	45	9/16	3/4
5/8" x 4-1/2"	2058412	5/8	5/8	3-1/2	3-1/4	2-3/4	4-1/2	5/8	75	11/16	15/16
5/8" x 5"	2058500	5/8	5/8	3-1/2	3-1/4	2-3/4	5	1-1/8	75	11/16	15/16
5/8" x 6"	2058600	5/8	5/8	3-1/2	3-1/4	2-3/4	6	2-1/8	75	11/16	15/16
5/8" x 7"	2058700	5/8	5/8	3-1/2	3-1/4	2-3/4	7	3-1/8	75	11/16	15/16
5/8" x 8-1/2"	2058812	5/8	5/8	3-1/2	3-1/4	2-3/4	8-1/2	4-5/8	75	11/16	15/16
5/8" x 10"	2058100	5/8	5/8	3-1/2	3-1/4	2-3/4	10	6-1/8	75	11/16	15/16
3/4" x 5-1/2"	2034512	3/4	3/4	4	3-3/4	3-1/4	5-1/2	1	150	7/8	1-1/8
3/4" x 6-1/4"	2034614	3/4	3/4	4	3-3/4	3-1/4	6-1/4	1-3/4	150	7/8	1-1/8
3/4" x 7"	2034700	3/4	3/4	4	3-3/4	3-1/4	7	2-1/2	150	7/8	1-1/8
3/4" x 8-1/2"	2034812	3/4	3/4	4	3-3/4	3-1/4	8-1/2	4	150	7/8	1-1/8
3/4" x 10"	2034100	3/4	3/4	4	3-3/4	3-1/4	10	5-1/2	150	7/8	1-1/8

Steel zinc plated / Approved for cracked or uncracked concrete / ACI 318, Category 1

Load & Performance Data	Conc. (psi)	Symbol	Units	3/8"	1/2"	5/8"	3/4"
Cracked Concrete							
Avg. ultimate load, tension	4,000	N_{pn}	lbs	2,736	4,293	3,937	5,058
Avg. ultimate load, shear	4,000	V_n	lbs	1,859	2,129	5,876	7,995
Allowable loads, tension ¹	2,500	N_{allow}	lbs	950	1,056	2,103	2,702
	4,000	N_{allow}	lbs	1,202	1,336	2,660	3,418
	6,000	N_{allow}	lbs	1,472	1,636	3,258	4,186
	8,500	N_{allow}	lbs	1,752	1,947	3,878	4,982
Uncracked Concrete							
Allowable loads, tension ¹	2,500	N_{allow}	lbs	1,460	1,491	2,403	3,474
	4,000	N_{allow}	lbs	1,746	1,886	3,040	3,906
	6,000	N_{allow}	lbs	2,037	2,309	3,723	4,784
	8,500	N_{allow}	lbs	2,325	2,749	4,432	5,694
Allowable loads, tension - light weight	3,000	N_{allow}	lbs	611	980	1,580	2,283
Cracked and Uncracked Concrete							
Allowable loads, shear ¹	2,500	V_{allow}	lbs	1,137	1,137	3,970	5,402
	>4,000	V_{allow}	lbs	1,256	1,438	3,970	5,402
Allowable loads, shear - light weight	3,000	V_{allow}	lbs	633	633	2,041	2,951

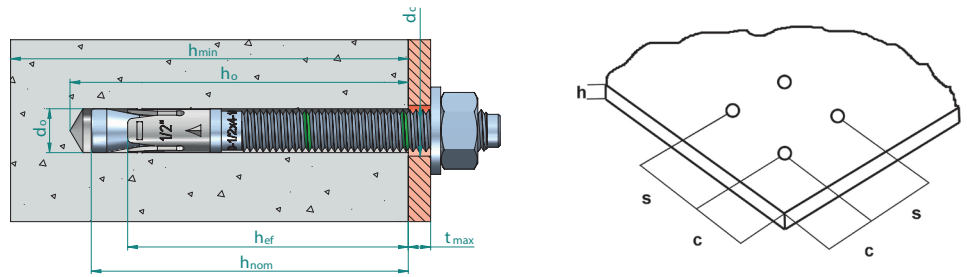
Spacing & Edge Distance

Effective anchorage depth	h_{ef}	in	2	2	2-3/4	3-1/4
Critical Edge Distance	C_{ac}	in	6	6	7	9
Minimum Spacing for Edge Distance C	$S_{a,min}/C$	in	2-1/2 / 4	2-3/4 / 6	4-1/2 / 6	5 / 10-1/2
Minimum Edge Distance for Spacing S	$C_{a,min}/S$	in	2-1/2 / 6-1/2	3 / 6	3-1/2 / 8	5 / 10-1/2
Minimum thickness of concrete slab	h_{min}	in	4	4	5-1/2	6

Installation Parameters

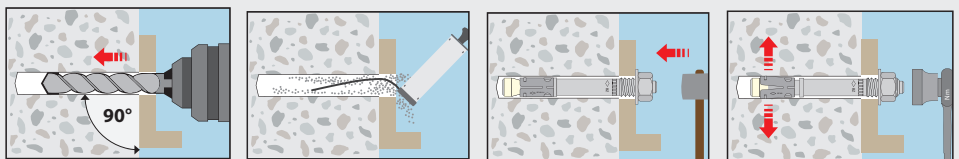
Drilled hole diameter	d_o	in	3/8	1/2	5/8	3/4
Diameter of clearance hole	d_c	in	7/16	9/16	11/16	7/8
Depth of drilled hole	h_o	in	2-5/8	2-5/8	3-1/2	4
Installation torque	T_{inst}	ft-lbs	30	45	75	150
Wrench size	WS	in	9/16	3/4	15/16	1-1/8

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 Select the correct diameter drill bit, drill a hole to minimum required hole depth or deeper.
- 2 Remove drilling debris from the bottom of the drill hole using a brush and a blowout bulb, compressed air or vacuum.



- 3 Assemble the nut & washer past the impact end of the SRS V-TZ. Use a hammer to tap the anchor through the part being fastened into the drilled hole until the washer is in contact with the part.
- 4 Using a torque wrench, apply the specified installation torque.