

NON-SAG, HIGH-MODULUS, HIGH-STRENGTH DOWELING GEL

TECHNICAL LOAD VALUES

Ultimate and allowable **Tension** loads for **Threaded Rod** in normal-weight concrete^{1, 2}

Threaded Rod Diameter in.	Nominal Drill Bit Diameter in.	Embedment Depth in. (mm)	Tension Load Based on Bond Strength/Concrete Capacity						Allowable Tension Load Based on Steel Strength ³		
			f'c ≥ 3,000 psi (20.7 MPa) ⁴		f'c ≥ 5,000 psi (34.5 MPa) ⁴		f'c ≥ 7,000 psi (48.3 MPa) ⁴		ASTM F1554 Grade 36 lbs. (kN)	ASTM A193 Grade B7 lbs. (kN)	ASTM F593 304/316 SS lbs. (kN)
			Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)			
3/8	7/16	3 1/2 (89)	9,334 (41.5)	2,334 (10.4)	10,122 (45.0)	2,531 (11.3)	10,937 (48.7)	2,734 (12.2)	2,114 (9.4)	4,556 (20.3)	3,645 (16.2)
1/2	9/16	4 1/2 (114)	14,146 (62.9)	3,537 (15.7)	14,513 (64.6)	3,628 (16.1)	18,400 (81.8)	4,600 (20.5)	3,758 (16.7)	8,099 (36.0)	6,480 (28.8)
5/8	3/4	5 5/8 (143)	19,600 (87.2)	4,900 (21.8)	20,688 (92.0)	5,172 (23.0)	29,286 (130.3)	7,322 (32.6)	5,872 (26.1)	12,655 (56.3)	10,124 (45.0)
3/4	7/8	6 3/4 (171)	25,053 (111.4)	6,263 (27.9)	26,864 (119.5)	6,716 (29.9)	34,762 (154.6)	8,691 (38.7)	8,456 (37.6)	18,224 (81.1)	12,392 (55.1)
7/8	1	7 7/8 (200)	33,374 (148.5)	8,344 (37.1)	34,328 (152.7)	8,582 (38.2)	39,524 (175.8)	9,881 (44.0)	11,509 (51.2)	24,804 (110.3)	16,867 (75.0)
1	1 1/8	9 (229)	41,696 (185.5)	10,424 (46.4)	41,792 (185.9)	10,448 (46.5)	52,143 (231.9)	13,036 (58.0)	15,033 (66.9)	32,398 (144.1)	22,030 (98.0)

1. Allowable bond strength/concrete capacity was calculated using a safety factor of 4.0.
2. The lower value of either the allowable bond strength/concrete capacity or steel strength should be used as the allowable tension value for design.
3. Allowable steel strengths calculated in accordance with AISC Manual of Steel Construction: Tensile = 0.33*F_u*A_{nom}.
4. Linear interpolation may be used for intermediate concrete compressive strengths.

Ultimate and allowable **Shear** loads for **Threaded Rod** in normal-weight concrete^{1, 2}

Threaded Rod Diameter in.	Nominal Drill Bit Diameter in.	Embedment Depth in. (mm)	Shear Load Based on Bond Strength/Concrete Capacity						Allowable Shear Load Based on Steel Strength ³		
			f'c ≥ 3,000 psi (20.7 MPa) ⁴		f'c ≥ 5,000 psi (34.5 MPa) ⁴		f'c ≥ 7,000 psi (48.3 MPa) ⁴		ASTM F1554 Grade 36 lbs. (kN)	ASTM A193 Grade B7 lbs. (kN)	ASTM F593 304/316 SS lbs. (kN)
			Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)			
3/8	7/16	3 1/2 (89)	6,941 (30.9)	1,735 (7.7)	7,034 (31.3)	1,759 (7.8)	7,143 (31.8)	1,786 (7.9)	1,089 (4.8)	2,347 (10.4)	1,878 (8.4)
1/2	9/16	4 1/2 (114)	8,316 (37.0)	2,079 (9.2)	10,379 (46.2)	2,595 (11.5)	13,097 (58.3)	3,274 (14.6)	1,936 (8.6)	4,172 (18.6)	3,338 (14.8)
5/8	3/4	5 5/8 (143)	15,326 (68.2)	3,832 (17.0)	18,056 (80.3)	4,514 (20.1)	19,052 (84.7)	4,763 (21.2)	3,025 (13.5)	6,519 (29.0)	5,216 (23.2)
3/4	7/8	6 3/4 (171)	22,336 (99.4)	5,584 (24.8)	25,733 (114.5)	6,433 (28.6)	26,073 (116.0)	6,518 (29.0)	4,356 (19.4)	9,388 (41.8)	6,384 (28.4)
7/8	1	7 7/8 (200)	29,365 (130.6)	7,341 (32.7)	31,409 (139.7)	7,852 (34.9)	33,093 (147.2)	8,273 (36.8)	5,929 (26.4)	12,778 (56.8)	8,689 (38.7)
1	1 1/8	9 (229)	36,395 (161.9)	9,099 (40.5)	37,085 (165.0)	9,271 (41.2)	40,950 (182.2)	10,238 (45.5)	7,744 (34.4)	16,690 (74.2)	11,349 (50.5)

1. Allowable bond strength/concrete capacity was calculated using a safety factor of 4.0.
2. The lower value of either the allowable bond strength/concrete capacity or steel strength should be used as the allowable shear value for design.
3. Allowable steel strengths calculated in accordance with AISC Manual of Steel Construction: Shear = 0.17*F_u*A_{nom}.
4. Linear interpolation may be used for intermediate concrete compressive strengths.

NON-SAG, HIGH-MODULUS, HIGH-STRENGTH DOWELING GEL

TECHNICAL LOAD VALUES

Ultimate and allowable Tension & Shear loads for Rebar in normal-weight concrete^{1,2}

Rebar Size	Nominal Drill Bit Diameter in.	Embedment Depth in. (mm)	Tension Load Based on Bond Strength/Concrete Capacity		Allowable Load Based on Steel Strength ³			
			$f_c \geq 3,000$ psi (20.7 MPa)		Tension		Shear	
			Ultimate lbs. (kN)	Allowable lbs. (kN)	ASTM A615 Grade 60 lbs. (kN)	ASTM A615 Grade 75 lbs. (kN)	ASTM A615 Grade 60 lbs. (kN)	ASTM A615 Grade 75 lbs. (kN)
#3	1/2	3 3/8 (86)	10,025 (44.6)	2,506 (11.1)	2,640 (11.7)	3,300 (14.7)	1,683 (7.5)	1,870 (8.3)
#4	5/8	4 1/2 (114)	15,236 (67.8)	3,809 (16.9)	4,800 (21.4)	6,000 (26.7)	3,060 (13.6)	3,400 (15.1)
#5	3/4	5 5/8 (143)	22,285 (99.1)	5,571 (24.8)	7,440 (33.1)	9,300 (41.4)	4,743 (21.1)	5,270 (23.4)
#6	7/8	6 3/4 (171)	32,993 (146.8)	8,248 (36.7)	10,560 (47.0)	13,200 (58.7)	6,732 (29.9)	7,480 (33.3)

1. Allowable bond strength/concrete capacity was calculated using a safety factor of 4.0.

2. The lower value of either the allowable bond strength/concrete capacity or steel strength should be used as the allowable tension or shear value for design.

3. Allowable steel strengths calculated in accordance with AISC Manual of Steel Construction: Tensile = $(F_y \cdot A_{nom})/2.5$, Shear = $0.17 \cdot F_u \cdot A_{nom}$.