



MAX AICHER

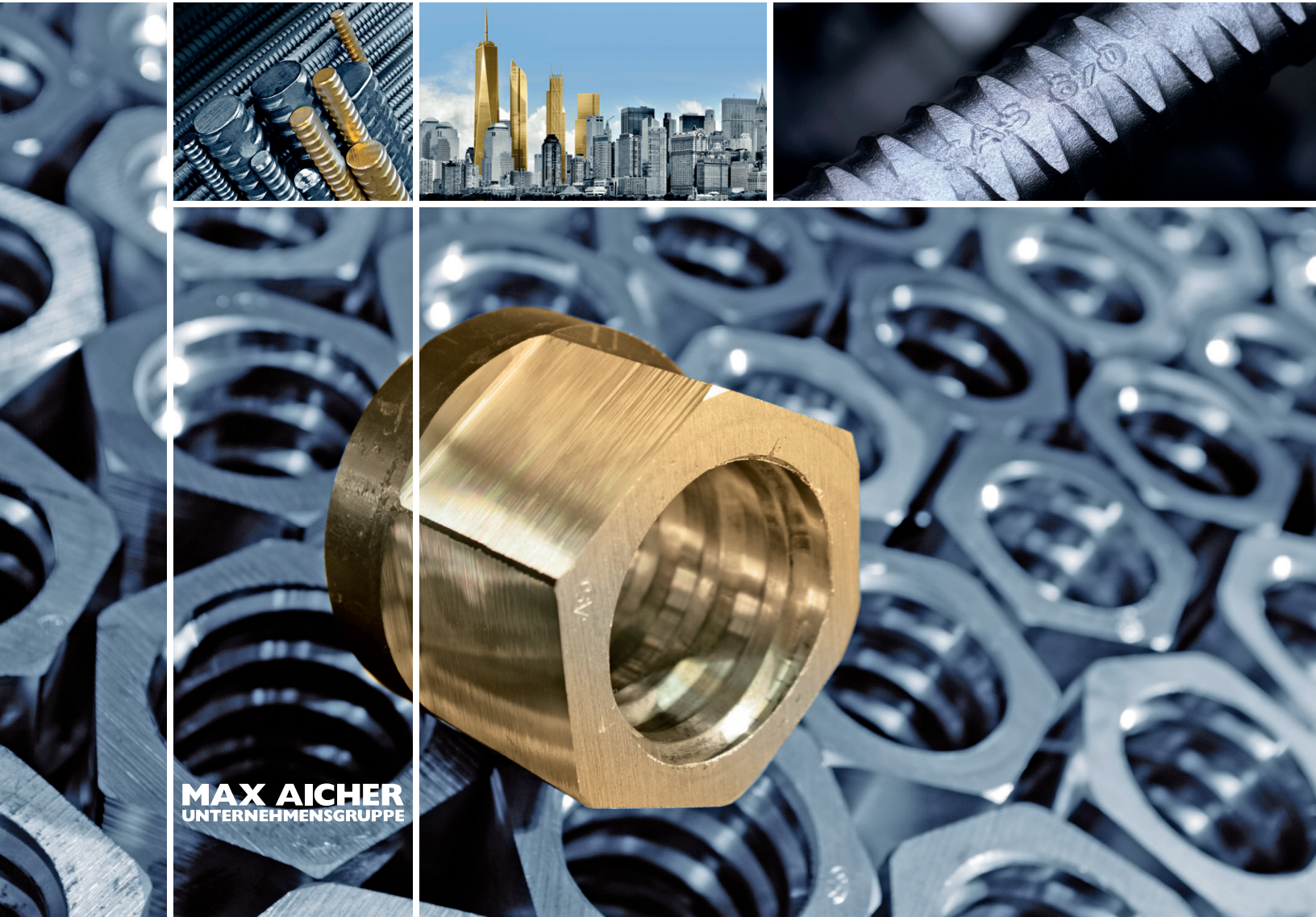
Catalogue

SAS grade 75/80

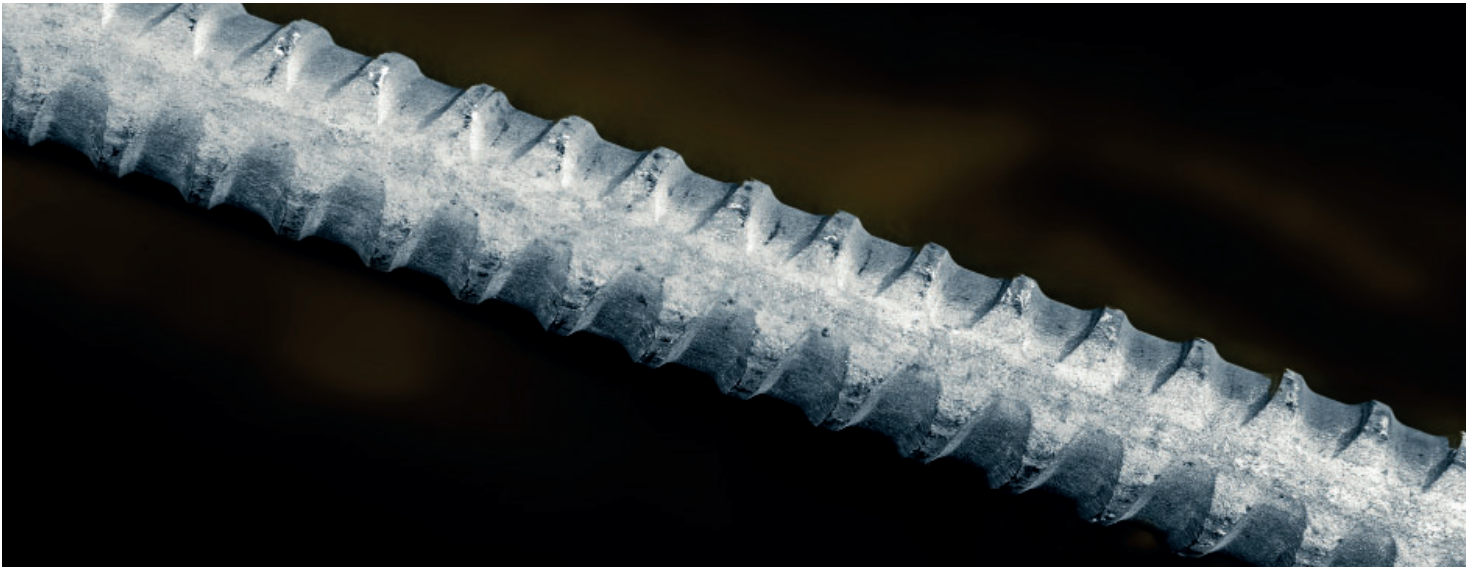
SAS grade 97

SAS grade 150

SAS SYSTEMS



MAX AICHER
UNTERNEHMENSGRUPPE



SAS thread bar hot rolled, ribbed - left hand thread

SAS grade 75 / 80 # 4 - 24

d	#	5	6	8	9	10	11	14	16	18	20	24			
	[in]	5/8	3/4	1	1 1/8	1 1/4	1 3/8	1 5/8	1 3/4	2	2 1/4	2 1/2	3		
	[mm]	12	14	16	20	25	28	32	36	40	43	50	57.5	63.5	75
Item no.		120GL	140GL	160GL	200GL	250GL	280GL	320GL	360GL	400GL	430GL	500GL	575GL	635GL	750GL
max. d _A	[in]	0.55	0.63	0.75	0.91	1.14	1.26	1.42	1.61	1.77	1.89	2.21	2.48	2.76	3.23
c	[in]	0.28	0.30	0.32	0.39	0.49	0.55	0.63	0.71	0.79	0.83	1.02	0.79	0.83	0.95
f _{yk} (f _{0,2k}) / A _{gt} ¹¹		75 ksi / ≥ 6%											80 ksi ≥ 5%	75 ksi ≥ 5%	
F _{yk} (F _{0,2k})	[kips]	13.1	17.9	23.4	36.5	57.1	71.6	93.5	118.6	146.5	168.8	227.9	322.0	392.7	513.6
F _{tk}	[kips]	15.1	20.7	26.8	42.5	65.6	82.5	106.8	136.0	167.5	193.8	262.1	408.7	498.0	546.3
A	[in ²]	0.175	0.24	0.31	0.49	0.76	0.96	1.25	1.581	1.95	2.25	3.04	4.03	4.91	6.85
G	[lb/ft]	0.60	0.81	1.06	1.66	2.59	3.25	4.24	5.37	6.63	7.66	10.35	13.69	16.71	23.30

¹¹ Percentage total elongation at maximum force
Weight specifications of bar and accessories are average values. The actual values may deviate due to fabrication tolerances.

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#	[in]	[mm]	anchor nut		anchor nut long		anchor nut with flange		anchor plate flat	
			F x L x d [in]	[lb]	F x L [in]	[lb]	F x L x d [in]	[lb]	a x t x d [in]	[lb]
			T 2002 - Ø		T 2024 - Ø		T 2163 - Ø		T 2139 - Ø**	
		12	0.87 x 0.98	0.22	0.87 x 1.38	0.18	-	-	1.97 x 0.32 x 0.63	0.31
		14	1.06 x 1.38	0.27	1.06 x 1.77	0.35	-	-	1.97 x 0.32 x 0.71	0.31
5	5/8	16	1.26 x 1.58	0.44	1.26 x 1.97	0.55	-	-	1.97 x 0.32 x 0.79	0.33
6	3/4	20	1.42 x 1.77	0.60	1.26 x 2.56	0.55	-	-	2.76 x 0.47 x 0.98	0.93
8	1	25	1.61 x 1.97	0.75	1.61 x 2.95	1.15	-	-	3.54 x 0.59 x 1.18	1.92
9	1 1/8	28	1.81 x 2.17	1.06	1.61 x 3.35	1.06	-	-	3.94 x 0.59 x 1.30	2.38
10	1 1/4	32	2.17 x 2.36	1.72	1.97 x 3.54	1.98	-	-	4.72 x 0.79 x 1.58	4.54
11	1 3/8	36	2.36 x 2.56	2.21	2.17 x 3.74	2.58	-	-	5.91 x 1.18 x 1.73	10.89
	1 5/8	40	2.56 x 2.76	2.62	2.36 x 3.94	2.87	2.56 x 2.76 x 3.35	2.65	5.91 x 1.18 x 1.85	10.78
14	1 3/4	43	2.76 x 2.95	3.33	-	-	2.76 x 3.15 x 3.54	3.99	6.30 x 1.58 x 1.97	16.36
16	2	50	3.11 x 3.54	4.78	3.11 x 4.72	6.61	3.15 x 3.35 x 3.94	5.18	7.48 x 1.77 x 2.28	26.06
18	2 1/4	57.5	3.54 x 4.33 x 4.02	9.11	-	-	3.54 x 3.94 x 3.94	7.72	8.66 x 1.97 x 2.64	38.82
20	2 1/2	63.5	3.94 x 4.53 x 4.25	10.41	-	-	3.94 x 4.53 x 4.92	10.80	9.65 x 1.97 x 2.87	48.33
24	3	75	3.94 x 3.94 x 4.25	6.59	-	-	3.94 x 4.72 x 4.53	9.15	10.83 x 2.56 x 3.47	78.22

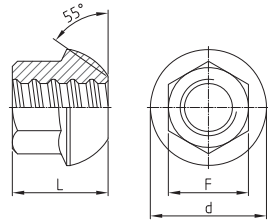
SAS SYSTEMS

#	[in]	[mm]	anchor plate flat small		lock nut long		lock nut short		anchor piece	
			a x t x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]
			T 2008 - Ø**		T 2003 - Ø		T 2040 - Ø		T 2073 - Ø	
		12	1.58 x 0.24 x 0.63	0.13	0.75 x 0.79	0.09	0.75 x 0.51	0.07	-	-
		14	-	-	1.06 x 0.98	0.20	1.06 x 0.59	0.13	-	-
5	5/8	16	1.97 x 0.32 x 0.79	0.22	1.26 x 1.18	0.33	1.26 x 0.79	0.22	1.18 x 1.30 x 1.97	0.55
6	3/4	20	2.36 x 0.39 x 0.98	0.35	1.26 x 1.58	0.35	1.26 x 0.79	0.20	1.42 x 1.58 x 2.76	0.95
8	1	25	2.76 x 0.47 x 1.18	0.88	1.61 x 1.58	0.55	1.61 x 0.79	0.31	1.61 x 1.77 x 2.76	1.10
9	1 1/8	28	3.35 x 0.55 x 1.30	1.54	1.61 x 1.77	0.57	1.61 x 0.98	0.33	1.81 x 1.97 x 3.54	0.70
10	1 1/4	32	3.94 x 0.59 x 1.50	2.21	1.97 x 1.97	1.04	1.97 x 1.18	0.66	1.97 x 2.36 x 3.94	3.09
11	1 3/8	36	-	-	2.17 x 2.17	1.87	2.17 x 1.18	0.88	2.36 x 2.56 x 4.33	3.62
	1 5/8	40	4.72 x 0.67 x 1.85	3.73	2.36 x 2.56	1.87	2.36 x 1.38	0.99	2.56 x 2.76 x 4.72	4.63
14	1 3/4	43	-	-	2.76 x 2.56	2.89	2.76 x 1.58	1.76	2.76 x 3.15 x 5.12	5.36
16	2	50	5.91 x 0.79 x 2.28	6.88	3.11 x 3.15	4.63	3.11 x 1.97	2.87	3.15 x 3.35 x 5.91	8.55
18	2 1/4	57.5	-	-	3.54 x 3.15 x 4.02	6.33	3.54 x 2.36 x 4.02	4.59	3.54 x 3.94 x 6.89	13.43
20	2 1/2	63.5	-	-	3.54 x 4.53 x 4.02	8.25	3.54 x 2.95 x 4.02	5.03	3.94 x 4.53 x 7.48	16.27
24	3	75	-	-	3.94 x 3.15 x 4.25	5.23	3.94 x 3.15 x 4.25	5.23	-	-

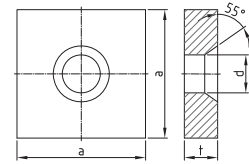
** storage- and transport-depending rust formation cannot be ruled out

SAS SYSTEMS

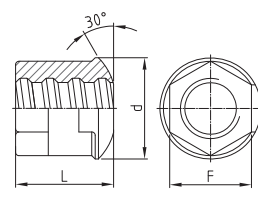
domed nut 55°



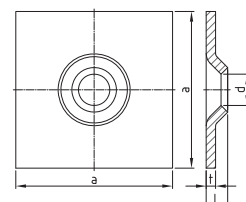
anchor plate cone 55°



dome nut 30°



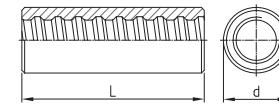
domed washer 30°/55°



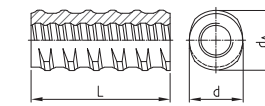
#	[in]	[mm]	F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	F x L x d [in]	[lb]	a x L x t x d [in]	[lb]
			T 2044 - Ø		T 2011 - Ø**		T 2944 - Ø		T 2132 - Ø**	
		12	-	-	-	-	-	-	-	-
		14	-	-	-	-	-	-	-	-
5	5/8	16	1.06 x 1.30 x 1.38	0.24	2.36 x 0.39 x 0.98 x 1.30	0.53	-	-	5.91 x 0.98 x 0.39 x 0.87	3.90
6	3/4	20	1.42 x 1.65 x 1.93	0.66	2.76 x 0.47 x 1.18 x 1.73	0.82	1.42 x 1.58 x 2.01	0.66	5.91 x 0.98 x 0.39 x 1.02	3.88
8	1	25	1.61 x 1.77 x 2.17	0.77	3.54 x 0.59 x 1.38 x 1.93	1.79	1.61 x 1.77 x 2.13	0.71	5.91 x 0.98 x 0.39 x 1.34	3.84
9	1 1/8	28	1.61 x 2.13 x 2.44	0.99	3.94 x 0.59 x 1.58 x 2.13	2.18	1.61 x 1.97 x 2.28	0.84	7.87 x 0.98 x 0.39 x 1.34	6.86
10	1 1/4	32	1.81 x 2.24 x 2.76	1.32	4.72 x 0.79 x 2.05 x 2.36	4.21	1.97 x 2.36 x 2.44	1.54	7.87 x 1.06 x 0.47 x 1.58	8.16
11	1 3/8	36	-	-	-	-	-	-	-	-
	1 5/8	40	2.36 x 2.76 x 3.47	3.31	5.91 x 1.18 x 2.56 x 2.99	9.88	2.56 x 2.76 x 3.35	3.95	7.87 x 1.65 x 0.79 x 2.09	13.01
14	1 3/4	43	2.76 x 3.15 x 3.94	4.67	6.30 x 1.58 x 2.95 x 3.66	14.42	-	-	-	-
16	2	50	3.15 x 3.35 x 4.21	5.67	7.48 x 1.77 x 3.27 x 3.78	23.77	3.15 x 3.35 x 3.94	6.53	-	-
18	2 1/4	57.5	3.54 x 3.94 x 4.72	8.36	8.66 x 1.97 x 3.62 x 4.33	35.83	-	-	-	-
20	2 1/2	63.5	3.94 x 4.53 x 5.67	12.15	9.65 x 1.97 x 4.10 x 4.76	44.29	-	-	-	-
24	3	75	3.94 x 4.72 x 6.30	14.60	10.83 x 2.56 x 4.65 x 5.71	71.87	-	-	-	-

SAS SYSTEMS

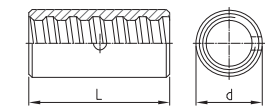
coupler standard



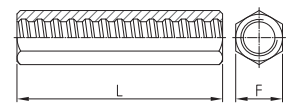
thread coupler



contact coupler



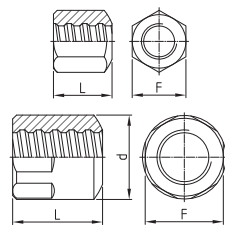
hexagonal coupler long



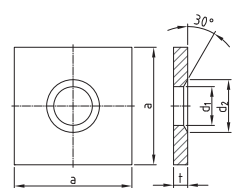
#	[in]	[mm]	d x L [in]	[lb]	d x d _A x L [in]	[lb]	d x L [in]	[lb]	F x L [in]	[lb]
			T 3003 - Ø		T 3087 - Ø		T 3006 - Ø		T 3010 - Ø	
		12	0.87 x 2.36	0.24	-	-	-	-	0.87 x 3.15	0.44
		14	1.06 x 2.95	0.49	-	-	-	-	1.06 x 3.94	0.75
5	5/8	16	1.26 x 3.54	0.82	1.04 x 1.22 x 3.54	0.60	1.06 x 2.56	0.38	1.26 x 4.72	1.32
6	3/4	20	1.42 x 4.13	1.15	1.26 x 1.46 x 4.13	0.88	1.26 x 2.76	0.55	1.26 x 5.51	1.21
8	1	25	1.58 x 4.53	1.37	1.58 x 1.81 x 4.53	1.50	1.42 x 3.15	0.66	1.61 x 6.30	2.43
9	1 1/8	28	1.77 x 4.92	1.87	1.85 x 2.09 x 4.92	2.40	1.58 x 3.35	0.88	1.61 x 7.09	2.32
10	1 1/4	32	2.05 x 5.51	2.91	2.24 x 2.52 x 5.51	4.26	1.77 x 3.54	1.10	1.97 x 7.09	3.88
11	1 3/8	36	2.36 x 5.91	4.63	2.24 x 2.52 x 5.91	3.92	1.97 x 4.72	2.76	2.36 x 7.48	6.06
	1 5/8	40	2.56 x 6.30	5.16	2.56 x 2.84 x 6.30	5.56	2.13 x 4.72	1.81	2.56 x 8.27	8.09
14	1 3/4	43	3.15 x 6.69	9.90	2.95 x 3.23 x 6.69	8.36	2.36 x 5.12	2.62	2.76 x 8.66	9.83
16	2	50	3.15 x 7.87	9.90	-	-	2.48 x 6.30	2.40	3.11 x 9.45	13.16
18	2 1/4	57.5	4.02 x 9.06	21.03	-	-	3.27 x 6.69	7.41	-	-
20	2 1/2	63.5	4.02 x 10.24	20.83	-	-	3.54 x 7.87	9.44	-	-
24	3	75	4.25 x 9.45	17.66	-	-	4.02 x 8.27	11.75	-	-

SAS SYSTEMS

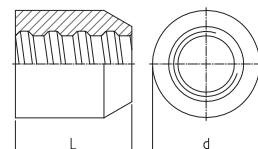
bull nose nut 30°



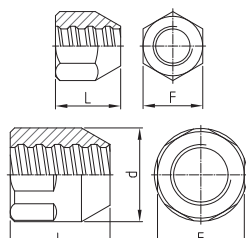
anchor plate cone 30°



welding bolt



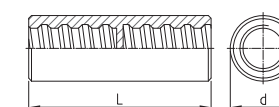
welding bolt hexagonal



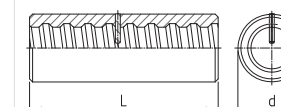
#	[in]	[mm]	F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	d x L [in]	[lb]	F x L x d [in]	[lb]
			T 2963 - Ø		T 1928 - Ø**		T 3022 - Ø		T 3026 - Ø	
		12	0.87 x 0.98	0.11	1.97 x 0.32 x 0.63 x 1.02	0.31	1.18 x 1.18	0.27	1.26 x 1.58	0.46
		14	1.06 x 1.38	0.27	1.97 x 0.32 x 0.71 x 1.10	0.31	1.42 x 1.58	0.53	1.42 x 1.97	0.75
5	5/8	16	1.26 x 1.58	0.40	2.36 x 0.32 x 0.79 x 1.18	0.44	1.58 x 1.77	0.73	1.61 x 2.17	1.06
6	3/4	20	1.42 x 1.77	0.55	2.76 x 0.47 x 0.98 x 1.38	0.90	1.77 x 1.97	0.97	1.81 x 2.56	1.54
8	1	25	1.61 x 1.97	0.73	3.54 x 0.59 x 1.18 x 1.58	1.92	1.97 x 2.17	1.21	1.97 x 2.95	1.96
9	1 1/8	28	1.81 x 2.17	1.04	3.94 x 0.59 x 1.30 x 1.77	2.36	2.17 x 2.36	1.61	2.17 x 3.35	2.67
10	1 1/4	32	2.17 x 2.36	1.65	4.72 x 0.79 x 1.58 x 1.97	4.54	2.36 x 2.56	2.01	2.36 x 3.54	2.65
11	1 3/8	36	2.36 x 2.56	2.07	5.91 x 1.18 x 1.73 x 2.32	10.85	2.76 x 2.76	3.20	2.76 x 3.74	2.65
	1 5/8	40	2.56 x 2.76	2.54	5.91 x 1.18 x 1.85 x 2.36	10.76	3.15 x 3.15	4.65	3.11 x 3.94	5.86
14	1 3/4	43	2.76 x 2.95	3.24	6.30 x 1.58 x 2.28 x 3.07	15.79	3.54 x 3.54	6.77	3.15 x 3.94 x 3.54	6.86
16	2	50	3.11 x 3.54	4.74	7.48 x 1.77 x 2.28 x 2.95	25.99	3.54 x 3.54	6.11	3.54 x 4.72 x 3.94	9.94
18	2 1/4	57.5	3.54 x 4.33 x 4.02	8.64	8.66 x 1.97 x 2.64 x 3.43	38.71	4.33 x 4.33	11.66	3.94 x 4.72 x 4.33	11.99
20	2 1/2	63.5	3.94 x 4.53 x 4.25	10.25	9.65 x 1.97 x 2.87 x 3.94	48.33	4.49 x 4.72	12.96	3.94 x 4.72 x 4.49	11.57
24	3	75	3.94 x 3.94 x 4.25	6.39	10.83 x 2.56 x 3.47 x 4.33	78.04	-	-	-	-

SAS SYSTEMS

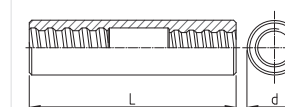
coupler standard with center stop



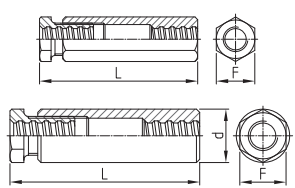
coupler standard with grooved pin



reducing coupler



turnbuckle

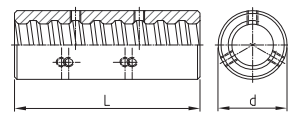


#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	Ø x d x L [in]	[lb]	F x L x d [in]	[lb]
			T 3002 - Ø		T 3043 - Ø		T 3102 - Ø		T 3105 - Ø	
		12	0.87 x 2.36	0.27	-	-	-	-	1.26 x 4.96	1.43
		14	1.06 x 2.95	0.51	-	-	-	-	1.26 x 5.43	1.46
5	5/8	16	1.26 x 3.54	0.84	1.26 x 3.54	0.88	#5/0.55 x 1.26 x 4.72	1.21	1.42 x 5.91	2.03
6	3/4	20	1.42 x 4.13	1.19	1.42 x 4.13	1.17	#6/#5 x 1.42 x 5.12	1.43	1.61 x 6.89	2.82
8	1	25	1.58 x 4.53	1.43	1.58 x 4.53	1.37	#8/#6 x 1.58 x 5.91	1.85	1.81 x 7.48	3.62
9	1 1/8	28	1.77 x 4.92	1.96	1.77 x 4.92	1.90	-	-	1.97 x 8.07	4.50
10	1 1/4	32	2.05 x 5.51	3.02	2.05 x 5.51	2.91	-	-	2.36 x 8.86	7.52
11	1 3/8	36	-	-	2.36 x 5.91	4.32	#11/#10 x 2.36 x 8.07	5.75	2.76 x 9.84	11.88
	1 5/8	40	-	-	2.56 x 6.30	5.25	#13/#11 x 2.56 x 8.47	7.19	3.11 x 10.63	16.12
14	1 3/4	43	-	-	3.15 x 6.69	9.90	#14/#13 x 3.15 x 8.86	13.07	3.54 x 11.42 x 4.13	29.67
16	2	50	-	-	3.15 x 7.87	10.03	#16/#13 x 3.15 x 9.45	13.23	3.94 x 12.21 x 4.53	37.24
18	2 1/4	57.5	-	-	4.02 x 9.06	21.03	#18/#16 x 3.54 x 11.02	17.62	3.94 x 13.39 x 4.92	44.91
20	2 1/2	63.5	-	-	4.02 x 10.24	20.83	#20/#18 x 4.02 x 12.21	25.49	3.94 x 15.55 x 5.12	53.15
24	3	75	-	-	4.25 x 9.45	17.81	#24/#20 x 4.33 x 11.42	25.64	4.33 x 14.57 x 5.12	43.37

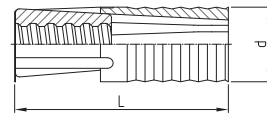
** storage- and transport-depending rust formation cannot be ruled out

SAS SYSTEMS

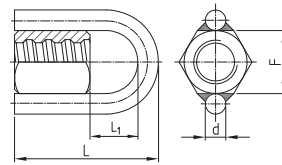
coupler with set screws



expansion shell



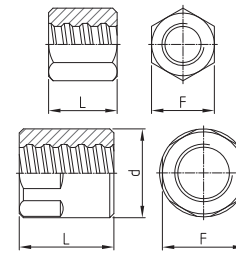
ring nut



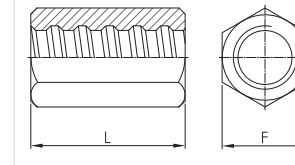
#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	F x L x L ₁ x d [in]	[lb]
T 3020 - Ø								
		12	-	-	-	-	-	-
		14	-	-	-	-	1.26 x 4.33 x 2.13 x 0.63	1.28
5	5/8	16	-	-	1.26 x 3.62	0.49	1.26 x 4.33 x 2.13 x 0.63	1.26
6	3/4	20	-	-	1.54 x 4.29	0.97	1.42 x 4.72 x 2.32 x 0.63	1.48
8	1	25	-	-	1.93 x 4.76	1.32	1.61 x 5.32 x 2.72 x 0.63	1.72
9	1 1/8	28	1.77 x 4.92	1.81	1.93 x 4.76	1.32	1.81 x 5.71 x 2.91 x 0.63	2.14
10	1 1/4	32	2.05 x 5.51	2.98	2.32 x 5.87	2.21	2.17 x 6.50 x 3.50 x 0.63	2.95
11	1 3/8	36	2.36 x 5.91	4.28	-	-	-	-
	1 5/8	40	2.56 x 6.30	5.18	-	-	2.56 x 7.60 x 4.06 x 0.79	4.63
14	1 3/4	43	3.15 x 6.69	9.72	-	-	2.76 x 7.87 x 4.13 x 0.79	5.64
16	2	50	3.15 x 7.87	9.92	-	-	3.11 x 8.66 x 4.33 x 0.79	7.34
18	2 1/4	57.5	4.02 x 9.06	20.83	-	-	3.54 x 10.63 x 5.51 x 0.79	12.28
20	2 1/2	63.5	4.02 x 10.24	20.75	-	-	3.94 x 10.98 x 5.67 x 0.79	13.38
24	3	75	4.25 x 9.45	17.68	-	-	3.94 x 10.98 x 6.26 x 0.79	9.77

SAS SYSTEMS

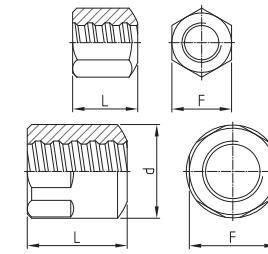
anchor nut EP flat



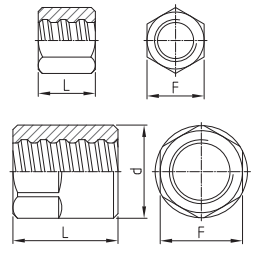
anchor nut EP long



bull nose nut EP 30°



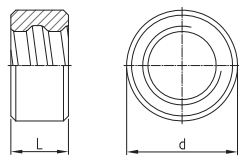
lock nut EP long



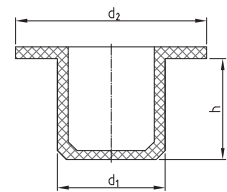
#	[in]	[mm]	F x L x d [in]	[lb]	F x L [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]
T 2002 - Ø EP										
		12	0.87 x 1.18	0.13	0.87 x 1.38	0.18	0.87 x 1.18	0.13	0.75 x 0.98	0.11
		14	1.06 x 1.58	0.31	1.06 x 1.77	0.35	1.06 x 1.58	0.31	1.06 x 1.18	0.27
5	5/8	16	1.26 x 1.97	0.55	1.26 x 1.97	0.55	1.26 x 1.97	0.53	1.26 x 1.38	0.40
6	3/4	20	1.42 x 2.17	0.68	1.26 x 2.56	0.57	1.42 x 2.17	0.68	1.26 x 1.77	0.42
8	1	25	1.61 x 2.36	0.88	1.61 x 2.95	1.12	1.61 x 2.36	0.88	1.61 x 1.97	0.77
9	1 1/8	28	1.81 x 2.56	1.21	1.61 x 3.35	1.08	1.81 x 2.56	1.21	1.61 x 2.17	0.68
10	1 1/4	32	2.17 x 2.95	2.14	1.97 x 3.54	1.92	2.17 x 2.95	2.12	1.97 x 2.36	1.26
11	1 3/8	36	2.36 x 3.15	2.69	2.17 x 3.74	2.38	2.36 x 3.15	2.60	2.17 x 2.56	2.23
	1 5/8	40	2.56 x 3.35	3.15	2.36 x 3.94	2.89	2.56 x 3.35	3.15	2.36 x 2.95	2.21
14	1 3/4	43	2.76 x 3.54	3.99	-	-	2.76 x 3.54	3.90	2.76 x 2.95	3.33
16	2	50	3.11 x 4.13	5.98	3.11 x 4.72	6.55	3.11 x 4.13	5.78	3.11 x 3.74	5.51
18	2 1/4	57.5	3.54 x 4.92 x 4.02	10.41	-	-	3.54 x 4.92 x 4.02	9.99	3.54 x 3.94 x 4.02	8.11
20	2 1/2	63.5	3.94 x 5.12 x 4.25	12.19	-	-	3.94 x 5.12 x 4.25	11.69	3.54 x 5.12 x 4.02	9.39
24	3	75	3.94 x 4.53 x 4.25	7.67	-	-	3.94 x 4.53 x 4.25	7.45	3.94 x 3.94 x 4.25	6.55
T 2024 - Ø EP										
T 2963 - Ø EP										
T 2003 - Ø EP										

SAS SYSTEMS

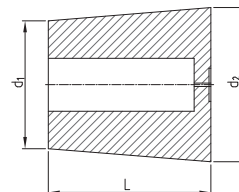
fix ring



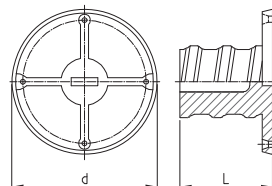
inner cap



recess cone



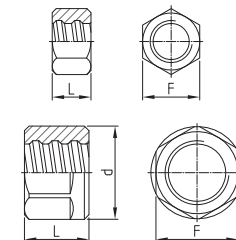
nail plate



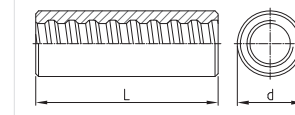
#	[in]	[mm]	d x L [in]	[lb]	d ₁ x d ₂ x h [in]	[lb]	d ₁ x d ₂ x L [in]	[lb]	d x L [in]	[lb]
T 5003 - Ø										
		12	-	-	0.47 x 0.75 x 0.28	0.02	1.42 x 1.65 x 1.58	0.04	1.42 x 0.79	0.02
		14	-	-	0.55 x 0.75 x 0.28	0.02	1.61 x 1.93 x 1.93	0.07	1.65 x 0.79	0.02
5	5/8	16	-	-	0.63 x 0.98 x 0.35	0.02	1.89 x 2.28 x 2.52	0.11	1.89 x 0.98	0.02
6	3/4	20	-	-	0.79 x 0.98 x 0.35	0.02	1.97 x 2.44 x 2.91	0.15	1.89 x 1.18	0.02
8	1	25	-	-	0.98 x 1.18 x 0.35	0.02	2.48 x 2.99 x 3.07	0.22	2.28 x 1.38	0.04
9	1 1/8	28	-	-	1.10 x 1.38 x 0.35	0.02	2.91 x 3.50 x 3.50	0.31	2.28 x 1.58	0.04
10	1 1/4	32	-	-	1.26 x 1.46 x 0.35	0.02	3.03 x 3.66 x 3.86	0.31	2.68 x 1.77	0.07
11	1 3/8	36	1.97 x 0.98	0.33	1.42 x 1.65 x 0.35	0.02	-	-	-	-
	1 5/8	40	2.17 x 0.98	0.40	1.58 x 1.89 x 0.39	0.02	-	-	-	-
14	1 3/4	43	2.56 x 0.98	0.73	-	-	-	-	-	-
16	2	50	2.56 x 1.18	0.55	1.97 x 2.28 x 0.39	0.02	-	-	-	-
18	2 1/4	57.5	3.19 x 1.38	1.32	-	-	-	-	-	-
20	2 1/2	63.5	3.50 x 1.58	1.87	2.52 x 2.91 x 0.39	0.02	-	-	-	-
24	3	75	4.02 x 1.58	2.23	-	-	-	-	-	-
T 5025 - Ø										
T 5050 - Ø										
T 5979 - Ø										

SAS SYSTEMS

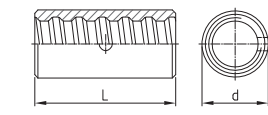
lock nut EP short



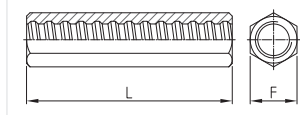
coupler EP standard



contact coupler EP



hexagonal coupler EP long



#	[in]	[mm]	F x L x d [in]	[lb]	d x L [in]	[lb]	d x L [in]	[lb]	F x L [in]	[lb]
T 2040 - Ø EP										
		12	0.75 x 0.79	0.07	0.87 x 2.95	0.33	-	-	0.87 x 3.15	0.38
		14	1.06 x 0.98	0.20	1.06 x 3.54	0.71	-	-	1.06 x 3.94	0.75
5	5/8	16	1.26 x 1.18	0.33	1.26 x 4.13	1.01	-	-	1.26 x 4.72	1.32
6	3/4	20	1.26 x 1.58	0.38	1.42 x 4.72	1.30	1.26 x 2.76	0.55	1.26 x 5.51	1.24
8	1	25	1.61 x 1.58	0.62	1.58 x 5.32	1.57	1.42 x 3.15	0.66	1.61 x 6.30	2.43
9	1 1/8	28	1.61 x 1.77	0.90	1.77 x 5.71	2.14	1.58 x 3.35	0.88	1.61 x 7.87	2.69
10	1 1/4	32	1.97 x 1.97	1.10	2.05 x 6.30	3.29	1.77 x 3.54	1.10	1.97 x 7.09	3.86
11	1 3/8	36	2.17 x 2.17	1.61	2.36 x 6.69	5.07	1.97 x 4.72	1.63	2.36 x 7.48	6.39
	1 5/8	40	2.36 x 2.56	1.87	2.56 x 7.48	6.77	2.13 x 4.72	1.98	2.56 x 8.27	8.07
14	1 3/4	43	2.76 x 2.56	2.87	3.15 x 7.87	11.64	2.36 x 5.12	2.60	2.76 x 8.66	9.79
16	2	50	3.11 x 3.15	4.63	3.15 x 9.25	12.35	2.52 x 6.30	2.98	3.11 x 9.45	13.12
18	2 1/4	57.5	3.54 x 3.15 x 4.02	6.28	4.02 x 10.24	23.70	3.15 x 6.69	6.39	-	-
20	2 1/2	63.5	3.54 x 3.35 x 4.02	5.78	4.02 x 11.81	23.96	3.54 x 7.87	9.40	-	-
24	3	75	3.94 x 3.15 x 4.25	5.20	4.25 x 10.63	19.84	4.02 x 8.27	11.69	-	-
T 3003 - Ø EP										
T 3006 - Ø EP										
T 3010 - Ø EP										

* with regard to load capacity and installation, please note data sheet available on the homepage



SAS thread bar hot rolled, ribbed - right hand thread

SAS grade 97 # 6 - 24

d	#	6	7	8	9	10	11	14	16	18	20	24
	[in]	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 3/4	2	2 1/4	2 1/2	3
	[mm]	18	22	25	28	30	35	43	50	57.5	63.5	75
Item no.		180AT	220AT	250AT	280AT	300AT	350AT	430AT	500AT	575AT	635AT	750AT
max. d _A	[in]	0.83	0.98	1.10	1.26	1.34	1.58	1.89	2.17	2.48	2.76	3.23
c	[in]	0.32	0.32	0.39	0.43	0.43	0.55	0.67	0.71	0.79	0.83	0.95
f _{yk} (f _{0,2k}) / f _{tk} / A _{gt} ¹⁾		97 ksi / 115.8 ksi ≥ 5%										
F _{yk} (F _{0,2k})	[kips]	38.2	57.1	73.8	92.6	106.3	144.6	218.3	295.1	390.5	476.2	664.2
F _{tk}	[kips]	45.9	68.3	88.3	110.8	127.0	173.1	261.2	353.0	466.9	569.7	794.7
A	[in ²]	0.394	0.59	0.76	0.96	1.10	1.49	2.25	3.04	4.03	4.91	6.85
G	[lb/ft]	1.34	2.00	2.59	3.25	3.73	5.07	7.66	10.35	13.69	16.71	23.30

¹⁾ Percentage total elongation at maximum force
Weight specifications are average values. The actual values may deviate due to fabrication tolerances.

SAS SYSTEMS

#	[in]	[mm]	dome nut 55°		anchor plate cone 55°		anchor nut		anchor plate flat			
			F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	F x L x d [in]	[lb]	a x t x d [in]	[lb]	a x t x d [in]	[lb]
			TR 2001 - Ø		TR 2011 - Ø **		TR 2002 - Ø		TR 2138 - Ø **		TR 2139 - Ø **	
6	3/4	18	1.25 x 1.38 x 1.69	0.40	3.94 x 0.98 x 1.06 x 1.54	4.03	1.42 x 1.77	0.64	3.94 x 0.79 x 0.91	3.33	3.94 x 0.98 x 0.91	4.15
7	7/8	22	1.42 x 1.77 x 2.09	0.60	4.33 x 1.18 x 1.26 x 1.85	5.78	1.61 x 1.97	0.86	4.33 x 0.98 x 1.06	4.98	4.33 x 1.18 x 1.06	6.00
8	1	25	1.61 x 1.97 x 2.36	1.04	4.92 x 1.18 x 1.38 x 2.09	7.50	1.81 x 2.17	1.17	4.33 x 0.98 x 1.18	4.85	4.53 x 1.18 x 1.18	6.50
9	1 1/8	28	1.81 x 2.17 x 2.64	1.37	5.32 x 1.38 x 1.58 x 2.32	10.12	1.97 x 2.36	1.48	4.53 x 1.18 x 1.34	6.39	4.75 x 1.18 x 1.34	7.01
10	1 1/4	30	1.97 x 2.36 x 2.80	1.46	5.71 x 1.38 x 1.58 x 2.48	11.73	2.17 x 2.56	1.98	5.12 x 1.18 x 1.42	8.25	5.12 x 1.38 x 1.42	9.61
11	1 3/8	35	2.36 x 2.76 x 3.27	3.09	6.69 x 1.58 x 1.85 x 2.87	18.43	2.56 x 2.76	3.04	5.91 x 1.38 x 1.65	12.79	5.91 x 1.58 x 1.65	14.62
14	1 3/4	43	2.76 x 3.35 x 4.02	4.89	8.27 x 1.97 x 2.28 x 3.54	35.19	3.11 x 3.54	5.78	7.28 x 1.77 x 1.97	25.13	7.28 x 2.17 x 1.97	30.71
16	2	50	3.15 x 3.94 x 4.57	7.58	9.45 x 2.17 x 2.76 x 4.33	49.80	3.11 x 3.94	5.58	8.47 x 1.97 x 2.36	37.55	8.47 x 2.36 x 2.36	45.06
18	2 1/4	57.5	3.54 x 4.53 x 5.39	12.54	10.83 x 2.36 x 2.95 x 4.69	72.25	3.54 x 4.72 x 4.02	9.99	9.84 x 2.17 x 2.64	56.13	9.65 x 2.56 x 2.64	63.56
20	2 1/2	63.5	3.94 x 4.92 x 5.95	16.58	11.81 x 2.56 x 3.23 x 5.16	93.01	3.94 x 5.71 x 4.49	15.37	10.43 x 2.36 x 2.91	68.45	10.63 x 2.76 x 2.91	83.11
24	3	75	4.72 x 5.91 x 7.01	28.53	12.80 x 2.76 x 3.94 x 6.26	114.40	3.94 x 5.12 x 4.25	8.51	12.60 x 2.76 x 3.39	117.07	12.80 x 2.76 x 3.39	120.92

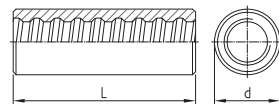
SAS SYSTEMS

#	[in]	[mm]	dome nut 30°		domed washer 30°		bull nose nut 30°		anchor plate cone 30°	
			F x L x d [in]	[lb]	a x L x t x d [in]	[lb]	F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]
			TR 2944 - Ø		TR 2132 - Ø **		TR 2963 - Ø		TR 1928 - Ø **	
6	3/4	18	1.18 x 1.38 x 1.81	0.44	5.91 x 0.98 x 0.39 x 1.02	3.88	1.42 x 1.77	0.62	2.76 x 0.39 x 0.98 x 1.38	0.75
7	7/8	22	1.42 x 1.58 x 2.01	0.64	5.91 x 0.98 x 0.39 x 1.34	3.84	1.61 x 1.97	0.86	3.54 x 0.47 x 1.18 x 1.58	1.52
8	1	25	1.61 x 1.97 x 2.28	0.99	7.87 x 0.98 x 0.39 x 1.34	6.86	1.81 x 2.17	1.17	3.94 x 0.47 x 1.30 x 1.77	1.87
9	1 1/8	28	1.81 x 2.36 x 2.44	1.48	7.87 x 1.06 x 0.47 x 1.58	8.16	1.97 x 2.36	1.46	4.72 x 0.79 x 1.58 x 1.97	4.54
10	1 1/4	30	1.81 x 2.36 x 2.44	1.43	7.87 x 1.06 x 0.47 x 1.58	8.16	2.17 x 2.56	1.81	4.72 x 0.79 x 1.58 x 1.97	4.54
11	1 3/8	35	-	-	-	-	2.56 x 2.76	2.98	5.91 x 1.18 x 1.85 x 2.36	10.76
14	1 3/4	43	-	-	-	-	3.11 x 3.54	5.51	7.48 x 1.77 x 2.28 x 2.95	25.99
16	2	50	-	-	-	-	3.11 x 3.94	5.42	8.47 x 1.97 x 2.36 x 3.15	37.46
18	2 1/4	57.5	-	-	-	-	3.54 x 4.72 x 4.02	9.52	9.65 x 1.97 x 2.76 x 3.54	48.50
20	2 1/2	63.5	-	-	-	-	3.94 x 5.71 x 4.49	14.71	11.02 x 2.36 x 3.07 x 3.94	76.28
24	3	75	-	-	-	-	3.94 x 5.12 x 4.25	8.66	12.80 x 2.76 x 3.47 x 4.72	120.20

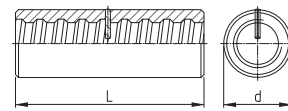
** storage- and transport-depending rust formation cannot be ruled out

SAS SYSTEMS

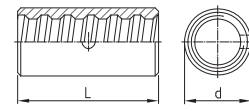
coupler standard



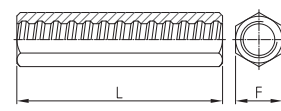
coupler standard with grooved pin



contact coupler



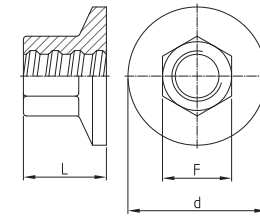
hexagonal coupler long



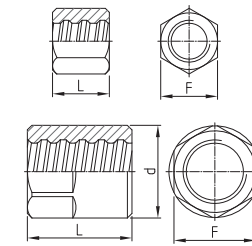
#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	d x L [in]	[lb]	F x L [in]	[lb]
			TR 3003 - Ø		TR 3043 - Ø		TR 3006 - Ø		TR 3010 - Ø	
6	3/4	18	1.42 x 3.94	1.26	1.42 x 3.94	1.26	1.06 x 2.76	0.35	1.42 x 4.72	1.72
7	7/8	22	1.58 x 4.33	1.21	1.58 x 4.33	1.57	1.26 x 2.95	0.49	1.61 x 5.32	2.38
8	1	25	1.77 x 5.12	2.32	1.77 x 5.12	2.32	1.58 x 3.15	0.95	1.81 x 5.91	3.29
9	1 1/8	28	1.97 x 5.51	3.00	1.97 x 5.51	3.06	1.77 x 3.54	1.48	1.97 x 6.69	4.32
10	1 1/4	30	2.17 x 5.91	4.06	2.17 x 5.91	4.08	1.77 x 3.54	1.32	2.17 x 7.28	5.80
11	1 3/8	35	2.56 x 7.09	6.97	2.56 x 7.09	6.99	1.97 x 4.72	1.81	2.36 x 8.27	7.41
14	1 3/4	43	3.15 x 7.87	11.95	3.15 x 7.87	11.80	2.56 x 6.30	4.59	3.11 x 9.65	16.03
16	2	50	3.54 x 8.27	15.26	3.54 x 8.27	15.26	2.76 x 6.69	4.92	-	-
18	2 1/4	57.5	4.02 x 9.84	22.86	4.02 x 9.84	22.88	3.27 x 7.09	7.83	-	-
20	2 1/2	63.5	4.49 x 11.81	34.94	4.49 x 11.81	34.97	3.54 x 7.87	9.35	-	-
24	3	75	4.25 x 10.24	19.80	4.25 x 10.24	19.31	4.02 x 9.06	12.85	-	-

SAS SYSTEMS

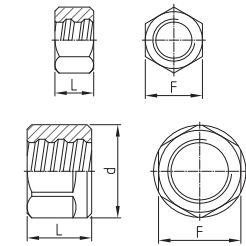
anchor piece



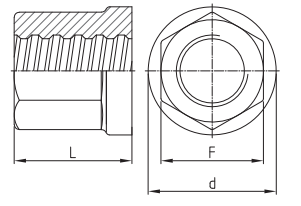
lock nut long



lock nut short



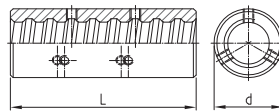
anchornut with flange



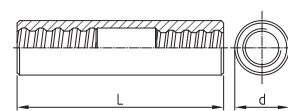
#	[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]
			TR 2073 - Ø		TR 2003 - Ø		TR 2040 - Ø		TR 2163 - Ø	
6	3/4	18	1.26 x 1.38 x 2.17	0.62	1.18 x 1.58	0.35	1.18 x 0.87	0.22	1.42 x 1.77 x 1.65	0.68
7	7/8	22	1.42 x 1.77 x 2.56	0.95	1.42 x 1.77	0.55	1.42 x 0.87	0.27	1.61 x 1.97 x 1.85	0.95
8	1	25	1.61 x 1.97 x 2.95	1.37	1.61 x 1.97	0.82	1.61 x 0.87	0.35	1.81 x 2.17 x 2.09	1.30
9	1 1/8	28	1.81 x 2.17 x 3.35	1.87	1.81 x 2.17	1.10	1.81 x 1.18	0.57	1.97 x 2.56 x 2.28	1.76
10	1 1/4	30	1.97 x 2.36 x 3.54	2.27	1.97 x 2.36	1.48	1.97 x 1.18	0.68	2.17 x 2.56 x 2.52	2.16
11	1 3/8	35	2.36 x 2.76 x 4.13	3.66	2.17 x 2.56	1.72	2.17 x 1.58	1.04	2.56 x 2.76 x 2.95	3.33
14	1 3/4	43	2.76 x 3.35 x 5.12	6.04	2.76 x 3.15	3.53	2.76 x 1.97	2.21	3.15 x 3.54 x 3.62	6.59
16	2	50	3.15 x 3.94 x 5.91	8.00	3.11 x 3.54	5.01	3.11 x 1.97	2.78	3.15 x 3.94 x 3.62	6.26
18	2 1/4	57.5	3.54 x 4.53 x 6.89	15.34	3.54 x 3.94 x 4.02	8.18	3.54 x 2.36 x 4.02	4.50	3.54 x 4.72 x 4.02	9.15
20	2 1/2	63.5	3.94 x 4.92 x 7.48	19.36	3.94 x 4.53 x 4.49	12.02	3.94 x 2.76 x 4.49	6.77	3.94 x 5.71 x 4.49	13.74
24	3	75	4.72 x 5.91 x 9.06	33.14	3.94 x 4.72 x 4.25	9.26	3.94 x 3.15 x 4.25	5.95	-	-

SAS SYSTEMS

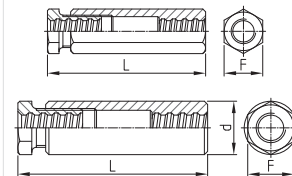
coupler with set screws



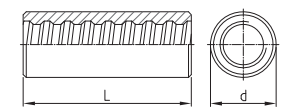
reducing coupler



turnbuckle



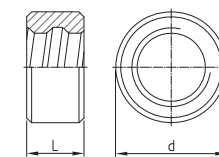
coupler tempered



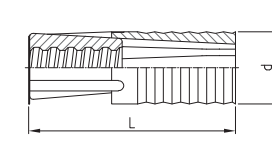
#	[in]	[mm]	d x L [in]	[lb]	Ø x d x L [in]	[lb]	F x L x d [in]	[lb]	d x L [in]	[lb]
			TR 3020 - Ø		TR 3102 - Ø		TR 3105 - Ø		TR 3927 - Ø	
6	3/4	18	1.42 x 3.94	1.24	-	-	1.61 x 6.89	2.95	-	-
7	7/8	22	1.58 x 4.33	1.54	#7/#6 x 1.58 x 5.71	2.21	1.81 x 7.48	3.92	1.42 x 3.54	0.90
8	1	25	1.77 x 5.12	2.27	#8/#7 x 1.77 x 6.30	3.09	2.17 x 8.07	6.48	1.50 x 3.94	0.99
9	1 1/8	28	1.97 x 5.51	3.02	#9/#8 x 1.97 x 7.09	4.41	2.36 x 8.86	8.25	1.65 x 4.72	1.41
10	1 1/4	30	2.17 x 5.91	4.08	#10/#9 x 2.17 x 7.68	5.51	2.56 x 10.24	11.27	1.97 x 5.12	2.60
11	1 3/8	35	2.56 x 7.09	6.90	#11/#10 x 2.36 x 8.47	6.61	3.11 x 10.83	18.23	2.17 x 5.91	3.35
14	1 3/4	43	3.15 x 7.87	11.91	#14/#11 x 3.15 x 9.84	12.13	3.54 x 12.99 x 4.13	33.38	2.56 x 6.69	4.98
16	2	50	3.54 x 8.27	15.04	#16/#14 x 3.35 x 10.63	16.93	3.94 x 13.78 x 4.53	41.98	2.95 x 7.09	6.99
18	2 1/4	57.5	4.02 x 9.84	22.05	#18/#16 x 3.94 x 11.61	26.32	3.94 x 15.95 x 4.92	53.93	3.35 x 8.66	10.85
20	2 1/2	63.5	4.49 x 11.81	32.41	#20/#18 x 4.33 x 12.01	32.83	3.94 x 16.73 x 4.72	47.53	3.74 x 9.45	15.01
24	3	75	4.25 x 10.24	19.62	#24/#20 x 4.33 x 13.19	29.19	4.33 x 18.11 x 5.12	55.56	-	-

SAS SYSTEMS

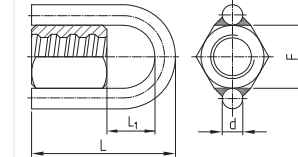
fix ring



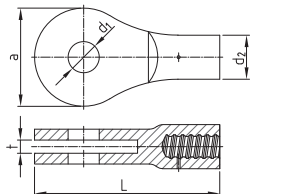
expansion shell



ring nut



fork piece

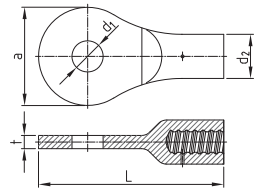


#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	F x L x d x L1 [in]	[lb]	a x L x t x d1 x d2 [in]	[lb]
			TR 5003 - Ø		TR 2136 - Ø *		TR 2927 - Ø *		TR 2090 - Ø EP	
6	3/4	18	-	-	1.54 x 4.29	0.97	1.42 x 4.72 x 0.63 x 2.32	1.50	-	-
7	7/8	22	1.22 x 0.79	0.13	1.93 x 4.76	1.32	1.61 x 5.32 x 0.63 x 2.72	1.83	-	-
8	1	25	-	-	1.93 x 4.76	1.32	1.81 x 5.71 x 0.63 x 2.91	2.25	-	-
9	1 1/8	28	1.77 x 0.79	0.31	2.32 x 5.87	2.21	1.97 x 6.10 x 0.63 x 3.11	2.62	-	-
10	1 1/4	30	1.77 x 0.79	0.13	2.32 x 5.87	2.21	2.17 x 6.50 x 0.63 x 3.31	3.22	-	-
11	1 3/8	35	1.97 x 0.79	0.29	-	-	2.56 x 7.60 x 0.79 x 4.06	5.34	6.58 x 12.40 x 1.06 x 2.09 x 2.95	16.31
14	1 3/4	43	2.56 x 0.98	0.73	-	-	3.11 x 8.66 x 0.79 x 4.33	8.33	7.76 x 15.12 x 1.14 x 2.48 x 3.62	28.22
16	2	50	2.76 x 1.18	0.86	-	-	3.11 x 8.66 x 0.79 x 3.94	8.14	8.70 x 15.98 x 1.38 x 2.95 x 3.70	32.52
18	2 1/4	57.5	3.19 x 1.38	1.32	-	-	3.54 x 10.63 x 0.79 x 5.12	13.16	9.76 x 17.87 x 1.65 x 3.47 x 3.78	44.97
20	2 1/2	63.5	3.50 x 1.58	1.87	-	-	3.94 x 12.01 x 0.79 x 5.51	18.96	11.73 x 21.77 x 1.65 x 3.86 x 4.49	76.06
24	3	75	4.02 x 1.58	2.23	-	-	3.94 x 10.98 x 0.79 x 5.08	11.69	12.91 x 24.69 x 2.13 x 4.25 x 4.57	97.89

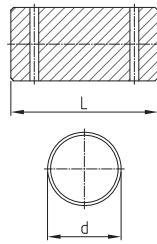
* with regard to load capacity and installation, please note data sheet available on the homepage

SAS SYSTEMS

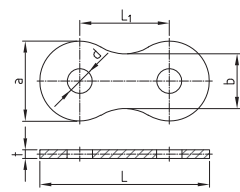
eye piece



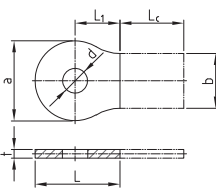
bolt eye piece



strap connection eye piece



welding plate eye piece

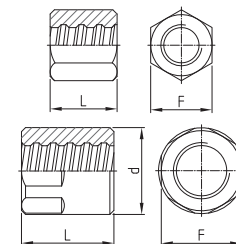


#	[in]	[mm]	a x L x t x d, x d ₂ [in]	[lb]	d x L [in]	[lb]	a x L x t x d x L ₁ x b [in]	[lb]	a x L x t x d x L ₁ x b [in]	[lb]
			TR 2080 - Ø EP **		TR 2081 - Ø		TR 3080 - Ø **		TR 3081 - Ø **	
6	3/4	18	-	-	-	-	-	-	-	-
7	7/8	22	-	-	-	-	-	-	-	-
8	1	25	-	-	-	-	-	-	-	-
9	1 1/8	28	-	-	-	-	-	-	-	-
10	1 1/4	30	-	-	-	-	-	-	-	-
11	1 3/8	35	6.58 x 12.40 x 0.91 x 2.09 x 2.95	15.83	1.97 x 3.94	3.35	6.58 x 13.94 x 0.71 x 2.09 x 7.36 x 4.49	15.43	6.58 x 6.97 x 3.70 x 0.71 x 2.09 x 4.49	6.83
14	1 3/4	43	7.76 x 15.12 x 0.98 x 2.48 x 3.62	27.65	2.36 x 4.33	5.29	7.76 x 16.30 x 0.79 x 2.48 x 8.54 x 5.28	21.16	7.76 x 8.15 x 4.29 x 0.79 x 2.48 x 5.28	10.41
16	2	50	8.70 x 15.98 x 1.22 x 2.95 x 3.62	39.66	2.84 x 4.13	7.30	-	-	-	-
18	2 1/4	57.5	9.76 x 18.47 x 1.50 x 3.47 x 3.78	47.55	3.35 x 5.71	14.22	9.76 x 20.71 x 1.18 x 3.47 x 10.95 x 6.30	48.50	9.76 x 10.35 x 5.47 x 1.18 x 3.47 x 6.30	24.14
20	2 1/2	63.5	11.73 x 21.97 x 1.50 x 3.86 x 4.49	73.75	3.74 x 5.71	17.68	11.73 x 24.65 x 1.18 x 3.86 x 12.91 x 7.87	70.11	11.73 x 12.32 x 6.46 x 1.18 x 3.86 x 7.87	39.57
24	3	75	12.91 x 24.69 x 1.97 x 4.25 x 4.57	101.70	4.13 x 6.50	24.71	12.91 x 27.21 x 1.38 x 4.25 x 14.29 x 8.66	100.97	12.91 x 13.62 x 7.17 x 1.38 x 4.25 x 8.66	50.16

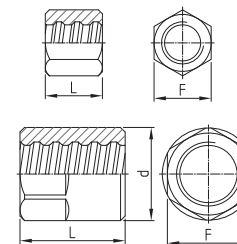
Lc on customer request

SAS SYSTEMS

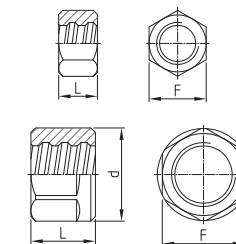
anchor nut EP flat



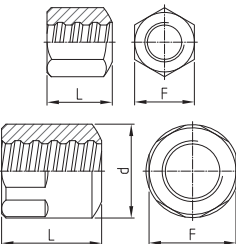
lock nut EP long



lock nut EP short



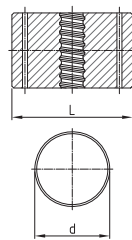
bull nose EP 30°



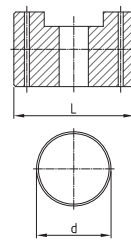
#	[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L x d [in]	[lb]
			TR 2002 - Ø EP		TR 2003 - Ø EP		TR 2040 - Ø EP		TR 2963 - Ø EP	
6	3/4	18	1.42 x 2.17	0.88	1.18 x 1.97	0.44	1.18 x 1.58	0.33	1.42 x 2.17	0.84
7	7/8	22	1.61 x 2.36	0.99	1.42 x 2.36	0.73	1.42 x 1.77	0.53	1.61 x 2.36	0.95
8	1	25	1.81 x 2.76	1.43	1.61 x 2.56	0.97	1.61 x 1.97	0.79	1.81 x 2.76	1.41
9	1 1/8	28	1.97 x 2.95	1.98	1.81 x 2.76	1.30	1.81 x 2.17	1.10	1.97 x 2.95	1.48
10	1 1/4	30	2.17 x 3.15	2.21	1.97 x 2.95	1.70	1.97 x 2.36	1.46	2.17 x 3.15	2.16
11	1 3/8	35	2.56 x 3.35	3.86	2.17 x 3.15	2.07	2.17 x 2.56	1.68	2.56 x 3.35	3.75
14	1 3/4	43	3.11 x 4.13	7.28	2.76 x 3.94	4.41	2.76 x 3.15	3.64	3.11 x 4.13	7.06
16	2	50	3.11 x 4.53	6.42	3.11 x 4.33	6.13	3.11 x 3.54	4.98	3.11 x 4.53	6.24
18	2 1/4	57.5	3.54 x 5.51 x 4.02	11.77	3.54 x 4.72 x 4.02	9.94	3.54 x 3.94 x 4.02	7.80	3.54 x 5.51 x 4.02	11.33
20	2 1/2	63.5	3.94 x 6.69 x 4.49	18.23	3.94 x 5.51 x 4.49	14.84	3.94 x 4.53 x 4.49	11.99	3.94 x 6.69 x 4.49	17.17
24	3	75	3.94 x 5.91 x 4.25	10.30	3.94 x 5.51 x 4.25	9.52	3.94 x 4.72 x 4.25	8.05	3.94 x 5.91 x 4.25	10.14

SAS SYSTEMS

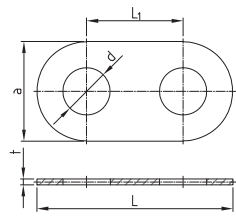
joint nut



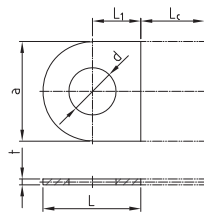
joint bolt



strap connection joint bolt & nut



welding plate joint bolt & nut

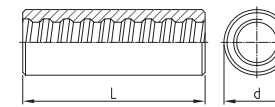


#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	a x L x t x d x L ₁ [in]	[lb]	a x L x t x d x L ₁ [in]	[lb]
			TR 2020 - Ø		TR 2021 - Ø		TR 2022 - Ø		TR 2023 - Ø	
6	3/4	18	-	-	-	-	-	-	-	-
7	7/8	22	-	-	-	-	-	-	-	-
8	1	25	-	-	-	-	-	-	-	-
9	1 1/8	28	-	-	-	-	-	-	-	-
10	1 1/4	30	-	-	-	-	-	-	-	-
11	1 3/8	35	4.72 x 7.60	35.27	4.72 x 7.60	32.19	10.24 x 20.16 x 0.59 x 4.84 x 9.92	24.25	10.24 x 10.08 x 0.59 x 4.84 x 4.96	12.35
14	1 3/4	43	5.51 x 8.35	52.47	5.51 x 8.35	46.74	12.60 x 24.65 x 0.59 x 5.71 x 12.05	36.60	12.60 x 12.32 x 0.59 x 5.71 x 6.02	18.85
16	2	50	on request							
18	2 1/4	57.5	5.91 x 8.74	59.53	5.91 x 8.74	54.23	16.54 x 30.71 x 0.79 x 6.10 x 14.17	88.63	16.54 x 15.35 x 0.79 x 6.10 x 7.09	43.65
20	2 1/2	63.5	7.48 x 10.43	117.73	7.48 x 10.43	112.57	18.11 x 35.20 x 0.98 x 7.68 x 17.09	131.40	18.11 x 17.60 x 0.98 x 7.68 x 8.54	66.25
24	3	75	7.48 x 10.98	121.25	7.48 x 10.98	114.64	18.50 x 35.91 x 1.38 x 7.68 x 17.40	194.89	18.50 x 17.95 x 1.38 x 7.68 x 8.70	97.44

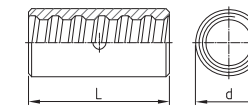
Lc on customer request

SAS SYSTEMS

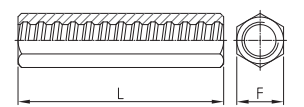
coupler EP standard



contact coupler EP

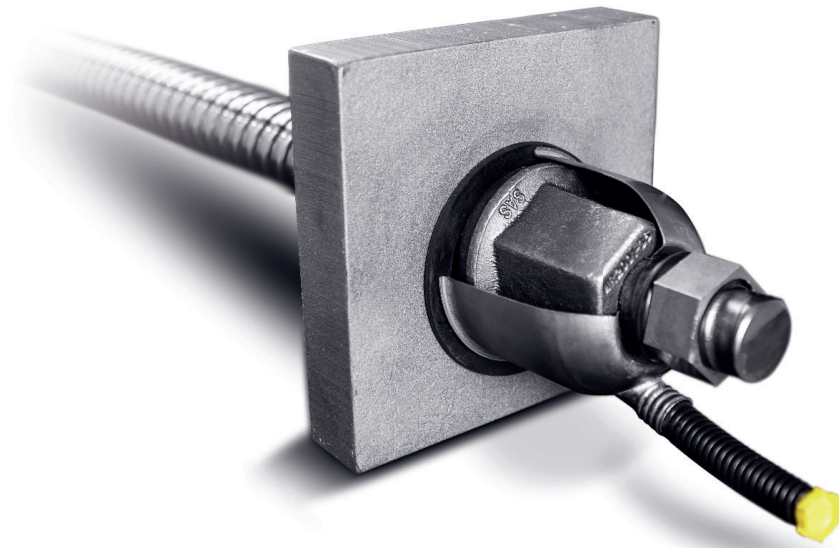


hexagonal coupler EP long



#	[in]	[mm]	d x L [in]	[lb]	d x L [in]	[lb]	F x L [in]	[lb]
			TR 3003 - Ø EP		TR 3006 - Ø EP		TR 3010 - Ø EP	
6	3/4	18	1.42 x 4.72	1.52	1.06 x 2.76	0.35	1.42 x 4.72	1.70
7	7/8	22	1.58 x 4.92	1.79	1.26 x 2.95	0.55	1.61 x 5.32	2.38
8	1	25	1.77 x 5.91	2.73	1.58 x 3.15	1.04	1.81 x 5.91	3.29
9	1 1/8	28	1.97 x 6.30	3.44	1.77 x 3.54	1.48	1.97 x 6.69	4.28
10	1 1/4	30	2.17 x 6.50	4.45	1.77 x 3.54	1.32	2.17 x 7.28	5.78
11	1 3/8	35	2.56 x 7.48	7.28	1.97 x 4.72	1.81	2.36 x 8.27	7.36
14	1 3/4	43	3.15 x 8.86	13.45	2.56 x 6.30	4.59	3.11 x 9.65	15.96
16	2	50	3.54 x 9.25	17.02	2.76 x 6.69	4.87	-	-
18	2 1/4	57.5	4.02 x 10.83	25.05	3.27 x 7.09	7.78	-	-
20	2 1/2	63.5	4.25 x 11.22	28.02	3.54 x 7.87	9.35	-	-
24	3	75	4.25 x 11.42	21.39	4.02 x 9.06	12.77	-	-

** storage- and transport-depending rust formation cannot be ruled out



SAS thread bar hot rolled, ribbed - right hand thread

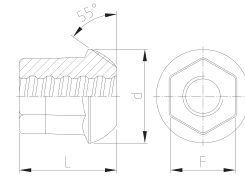
SAS grade 150

d	[in]	3/4	1	1 1/4	1 3/8	1 5/8	1 7/8	2 1/4	2 1/2	3
	[mm]	18	26.5	32	36	40	47	57	65	75
Item no.		180WR	265WR	320WR	360WR	400WR	470WR	570W	650W	750W
max. d _A	[in]	0.83	1.22	1.46	1.65	1.81	2.09	2.52	2.84	3.23
c	[in]	0.32	0.51	0.63	0.71	0.79	0.83	0.83	0.83	0.95
f _{p0,1k} /f _{pk} /A _{gt} ¹¹		137.8 ksi / 150 ksi / ≥ 5%						121.1 ksi / 150 ksi / ≥ 4%		
F _{yk} (F _{p0,1k})	[kips]	51.7	118.0	170.9	215.8	267.5	370.9	484.5	625.0	829.5
F _{pk}	[kips]	57.3	130.4	190.0	240.5	296.7	409.2	600.5	774.9	1027.8
A	[in ²]	0.374	0.85	1.25	1.58	1.95	2.69	4.00	5.16	6.85
G	[lb/ft]	1.32	3.01	4.39	5.56	6.86	9.47	14.08	18.21	24.12

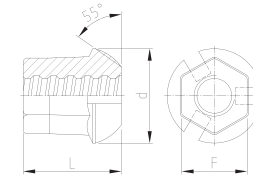
¹¹ Percentage total elongation at maximum force
 For 3/4" to 1-7/8" diameter bars, yield stress is 137 ksi (0.91 fu) and maximum jacking stress 120 ksi (0.80 fu)
 For 2-1/4" to 3" diameter bars, yield stress is 120 ksi (0.80 fu) and maximum jacking stress 105 ksi (0.70 fu)
 Weight specifications are average values. The actual values may deviate due to fabrication tolerances.

SAS SYSTEMS

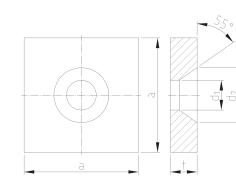
dome nut 55°



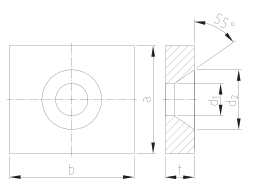
domed nut 55° with grout slots



anchor plate square 55°



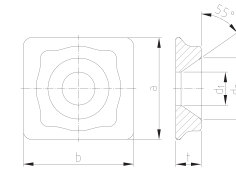
anchor plate rectangular 55°



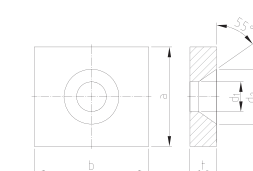
[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	a x b x t x d ₁ x d ₂ [in]	[lb]
		WR 2001 - Ø		WR 2099 - Ø		WR 2011 - Ø**		WR 2012 - Ø**	
3/4	18	1.42 x 2.17 x 1.97	0.95	1.42 x 2.17 x 1.97	0.88	4.33 x 1.18 x 1.10 x 1.77	5.86	3.94 x 5.12 x 1.18 x 1.10 x 1.77	5.27
1	26.5	1.97 x 2.95 x 2.84	2.40	1.97 x 2.95 x 2.84	2.25	5.91 x 1.38 x 1.54 x 2.84	12.37	5.12 x 5.91 x 1.38 x 1.54 x 2.84	9.92
1 1/4	32	2.36 x 3.54 x 3.15	3.75	2.36 x 3.54 x 3.15	3.64	7.09 x 1.58 x 1.77 x 3.23	20.57	5.51 x 7.09 x 1.58 x 1.77 x 3.23	15.59
1 3/8	36	2.56 x 3.94 x 3.54	4.94	2.56 x 3.94 x 3.54	4.70	7.87 x 1.77 x 1.93 x 3.62	28.55	5.91 x 8.66 x 1.97 x 1.93 x 3.62	25.79
1 5/8	40	2.76 x 4.53 x 3.94	6.42	2.76 x 4.53 x 3.94	5.98	8.66 x 1.77 x 2.13 x 3.94	34.48	6.30 x 9.84 x 2.36 x 2.13 x 3.94	37.70
1 7/8	47	3.15 x 5.32 x 4.33	9.02	3.15 x 5.32 x 4.33	8.36	10.24 x 1.97 x 2.52 x 4.33	53.99	7.87 x 11.02 x 2.36 x 2.52 x 4.33	53.18
2 1/4	57	-	-	-	-	-	-	-	-
2 1/2	65	-	-	-	-	-	-	-	-
3	75	-	-	-	-	-	-	-	-

SAS SYSTEMS

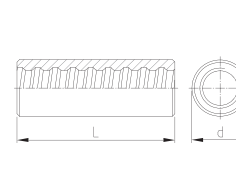
QR plate 55°



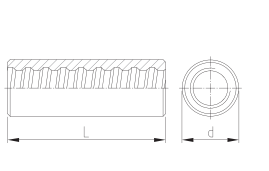
anchor plate rectangular 55°, small



coupler standard



coupler long

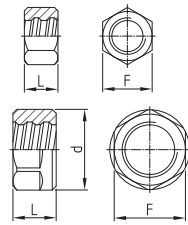


[in]	[mm]	b x a x t x d ₁ x d ₂ [in]	[lb]	a x b x t x d ₁ x d ₂ [in]	[lb]	d x L [in]	[lb]	d x L [in]	[lb]
		WR 2074 - Ø**		WR 2076 - Ø**		WR 3003 - Ø		WR 3303 - Ø	
3/4	18	-	-	3.15 x 3.54 x 0.98 x 1.10 x 1.77	2.76	1.42 x 3.94	1.24	1.42 x 4.53	1.41
1	26.5	5.12 x 4.72 x 1.18 x 1.54 x 2.84	4.41	4.72 x 5.12 x 1.18 x 1.54 x 2.84	6.95	1.97 x 6.69	3.81	1.97 x 7.68	4.41
1 1/4	32	6.50 x 5.51 x 1.38 x 1.77 x 3.23	7.28	5.51 x 6.50 x 1.38 x 1.77 x 3.23	12.28	2.36 x 7.87	6.42	2.36 x 9.06	7.50
1 3/8	36	7.09 x 6.30 x 1.58 x 1.93 x 3.66	10.80	6.30 x 7.09 x 1.58 x 1.93 x 3.62	17.51	2.68 x 8.27	8.77	2.68 x 9.65	10.32
1 5/8	40	7.68 x 7.09 x 1.77 x 2.13 x 3.94	15.87	7.09 x 7.68 x 1.77 x 2.13 x 3.94	24.14	2.76 x 9.65	10.12	2.76 x 11.22	11.86
1 7/8	47	-	-	8.27 x 9.25 x 2.17 x 2.52 x 4.33	42.33	3.27 x 10.63	15.94	-	-
2 1/4	57	-	-	-	-	3.74 x 9.45	17.09	-	-
2 1/2	65	-	-	-	-	4.17 x 10.24	22.86	-	-
3	75	-	-	-	-	4.49 x 11.42	26.76	-	-

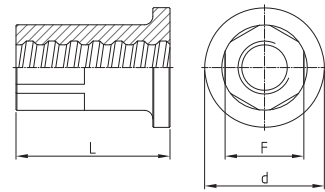
** storage- and transport-depending rust formation cannot be ruled out

SAS SYSTEMS

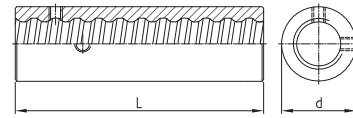
fix nut



stressing anchorage



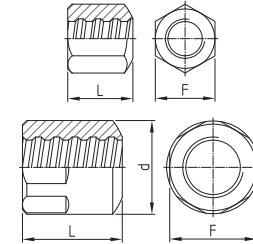
stressing coupler



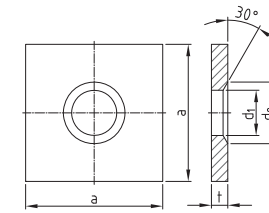
[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	d x L [in]	[lb]
		WR 5005 - Ø		WR 8002 - Ø		WR 8003 - Ø	
3/4	18	1.18 x 0.87	0.18	1.61 x 2.76 x 2.56	1.81	1.77 x 3.94	2.21
1	26.5	1.42 x 0.87	0.18	1.81 x 3.54 x 2.76	2.27	1.77 x 5.91	2.58
1 1/4	32	1.61 x 0.87	0.20	1.97 x 4.33 x 2.76	2.87	2.17 x 7.09	4.45
1 3/8	36	1.81 x 0.98	0.27	2.17 x 4.72 x 3.15	3.92	2.36 x 7.87	5.62
1 5/8	40	1.97 x 0.98	0.29	2.17 x 5.12 x 3.15	4.19	2.26 x 8.66	7.58
1 7/8	47	2.36 x 1.18	0.53	2.56 x 5.51 x 3.54	6.20	2.95 x 9.45	10.74
2 1/4	57	3.35 x 1.58 x 3.54	2.25	3.54 x 6.30 x 4.33	16.05	3.74 x 10.63	20.72
2 1/2	65	3.54 x 1.58 x 4.02	2.54	3.94 x 7.09 x 4.72	21.30	4.33 x 11.42	28.95
3	75	4.13 x 1.97 x 4.49	4.19	4.13 x 7.87 x 5.32	28.57	4.72 x 12.60	34.06

SAS SYSTEMS

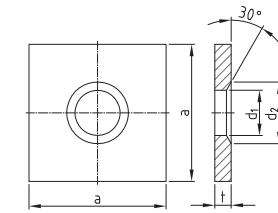
bull nose nut 30°



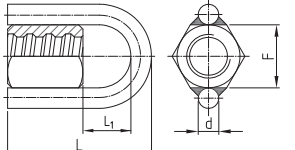
anchor plate cone 30°



anchor plate cone 30°



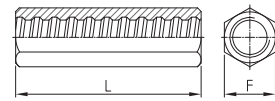
ring nut
(working load of ring max. 60 kN)



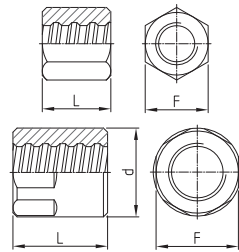
[in]	[mm]	F x L x d [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	a x t x d ₁ x d ₂ [in]	[lb]	F x L x L ₁ x d [in]	[lb]
		WR 2963 - Ø *		WR 1928 - Ø **		WR 1929 - Ø **		WR 2927 - Ø	
3/4	18	1.61 x 2.36	1.15	4.72 x 0.79 x 0.98 x 1.38	4.81	-	-	1.61 x 5.32 x 2.32 x 0.63	2.18
1	26.5	1.81 x 3.15	1.57	5.91 x 1.38 x 1.26 x 1.77	13.12	-	-	1.81 x 6.50 x 2.72 x 0.63	2.82
1 1/4	32	2.17 x 3.54	2.51	7.09 x 1.58 x 1.50 x 1.97	21.63	-	-	2.17 x 7.48 x 3.31 x 0.63	3.99
1 3/8	36	2.36 x 4.33	3.46	7.87 x 1.77 x 1.77 x 2.36	29.87	-	-	2.36 x 8.62 x 3.50 x 0.79	6.13
1 5/8	40	2.76 x 4.72	5.58	8.66 x 1.77 x 1.97 x 2.76	36.07	-	-	2.76 x 9.61 x 4.10 x 0.79	8.53
1 7/8	47	3.11 x 5.51	7.94	9.45 x 2.17 x 2.28 x 3.15	51.81	-	-	3.11 x 10.79 x 4.49 x 0.79	11.24
2 1/4	57	3.54 x 4.72 x 3.74	8.09	11.22 x 2.56 x 2.76 x 3.54	86.64	8.66 x 1.97 x 2.76 x 3.54	38.43	3.54 x 10.04 x 4.53 x 0.79	11.20
2 1/2	65	3.94 x 5.12 x 4.17	10.80	12.80 x 2.76 x 3.07 x 4.33	122.36	9.65 x 2.36 x 3.07 x 4.33	57.01	3.94 x 11.02 x 5.12 x 0.79	14.29
3	75	4.13 x 5.71 x 4.49	12.15	14.57 x 3.15 x 3.47 x 4.72	180.78	10.83 x 2.76 x 3.47 x 4.72	83.84	4.13 x 12.01 x 5.51 x 0.79	16.12

SAS SYSTEMS

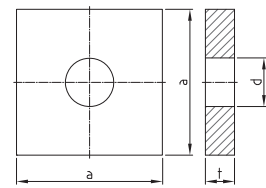
hexagonal coupler



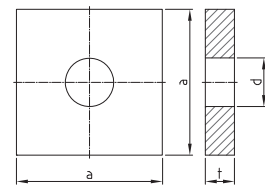
anchor nut flat



anchor plate flat



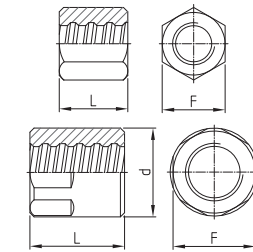
anchor plate flat



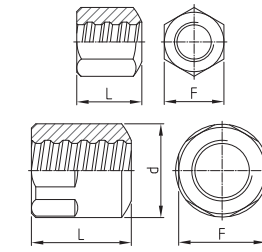
[in]	[mm]	F x L [in]	[lb]	F x L x d [in]	[lb]	a x t x d [in]	[lb]	a x t x d [in]	[lb]
		WR 3009 - Ø		WR 2002 - Ø		WR 2139 - Ø **		WR 2140 - Ø **	
3/4	18	1.42 x 3.94	1.48	1.61 x 2.36	1.21	4.72 x 0.79 x 0.98	4.85	-	-
1	26.5	1.97 x 6.69	4.61	1.81 x 3.15	1.61	5.91 x 1.38 x 1.26	13.01	-	-
1 1/4	32	2.36 x 7.87	7.80	2.17 x 3.54	2.60	7.09 x 1.58 x 1.50	21.65	-	-
1 3/8	36	2.76 x 8.27	11.05	2.36 x 4.33	3.59	7.87 x 1.77 x 1.77	29.92	-	-
1 5/8	40	2.76 x 9.65	12.37	2.76 x 4.72	5.80	8.66 x 1.77 x 1.97	36.16	-	-
1 7/8	47	3.11 x 10.63	16.51	3.11 x 5.51	8.20	9.45 x 2.17 x 2.28	52.32	-	-
2 1/4	57	-	-	3.54 x 4.72 x 3.74	8.36	11.22 x 2.56 x 2.76	87.04	8.66 x 1.97 x 2.76	38.56
2 1/2	65	-	-	3.94 x 5.12 x 4.17	11.00	12.80 x 2.76 x 3.07	122.18	9.65 x 2.36 x 3.07	57.36
3	75	-	-	4.13 x 5.71 x 4.49	12.52	14.57 x 3.15 x 3.47	181.11	10.83 x 2.76 x 3.47	84.24

SAS SYSTEMS

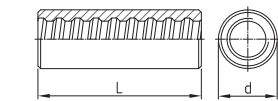
anchor nut EP flat



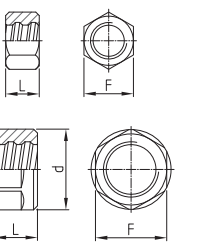
bull nose nut EP 30°



coupler EP standard



fix nut EP

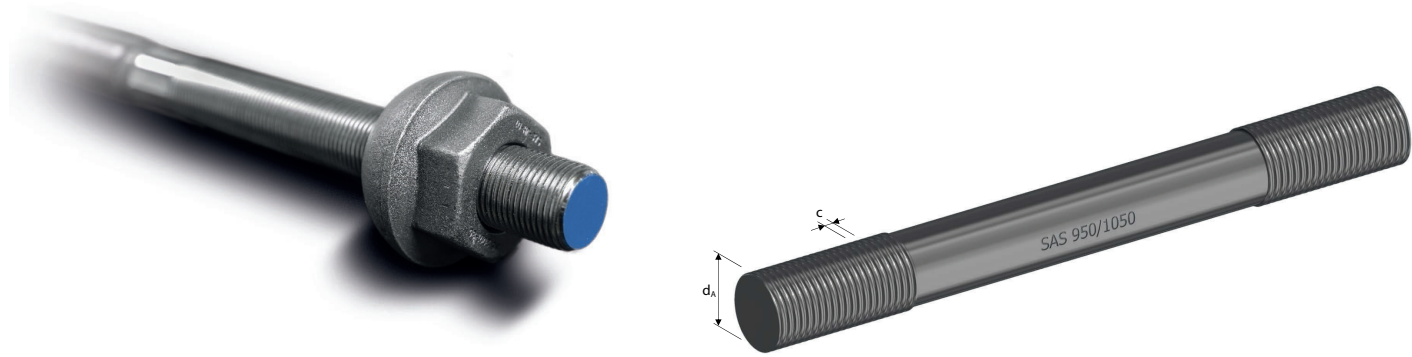


[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	d x L [in]	[lb]	F x L x d [in]	[lb]
		WR 2002 - Ø EP		WR 2963 - Ø EP		WR 3003 - Ø EP		WR 5005 - Ø EP	
3/4	18	1.61 x 2.76	1.37	1.61 x 2.76	1.32	1.42 x 4.72	1.52	1.18 x 0.87	0.18
1	26.5	1.81 x 3.54	1.79	1.81 x 3.54	1.74	1.97 x 7.28	4.28	1.42 x 0.87	0.18
1 1/4	32	2.17 x 3.94	2.87	2.17 x 3.94	2.80	2.36 x 8.66	7.34	1.61 x 0.87	0.20
1 3/8	36	2.36 x 4.72	3.86	2.36 x 4.72	3.77	2.68 x 9.45	10.41	1.81 x 0.98	0.24
1 5/8	40	2.76 x 5.12	6.11	2.76 x 5.12	5.95	2.76 x 10.63	11.60	1.97 x 0.98	0.27
1 7/8	47	3.11 x 5.91	8.64	3.11 x 5.91	8.40	3.27 x 12.21	19.07	2.36 x 1.18	0.51
2 1/4	57	3.54 x 5.71 x 3.74	10.12	3.54 x 5.71 x 3.74	9.83	3.74 x 10.63	20.55	3.35 x 1.58 x 3.54	2.23
2 1/2	65	3.94 x 6.10 x 4.17	12.83	3.94 x 6.10 x 4.17	12.48	4.17 x 11.42	26.48	3.54 x 1.58 x 4.02	2.49
3	75	4.13 x 7.09 x 4.49	16.76	4.13 x 7.09 x 4.49	15.34	4.49 x 12.60	31.20	4.13 x 1.97 x 4.49	4.23

** storage- and transport-depending rust formation cannot be ruled out

* with regard to load capacity and installation, please note data sheet available on the homepage
** storage- and transport-depending rust formation cannot be ruled out

SAS smooth bar



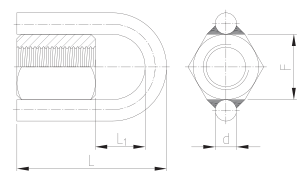
SAS smooth bar with cold rolled thread, right hand thread

SAS grade 150 | smooth

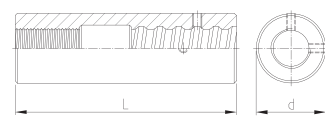
d	[in]	1 1/4	1 3/8
	[mm]	32	36
Item no.		320WS	360WS
max. d _A	[mm]	1.30	1.46
c	[in]	0.12	0.12
f _{p0,1k} /f _{pk} /A ₁₀ ¹⁾		137.8 ksi / 150 ksi / ≥ 7%	
F _{yk} (F _{p0,1k})	[kips]	170.9	215.8
F _{pk}	[kips]	190.0	240.6
A	[in ²]	1.25	1.58
G	[kg/m]	4.24	5.37

¹⁾ Percentage total elongation at maximum force
 For 1-1/4" to 1-5/8" diameter bars, yield stress is 137 ksi (0.91 fu) and maximum jacking stress 120 ksi (0.80 fu)
 Weight specifications are average values. The actual values may deviate due to fabrication tolerances.

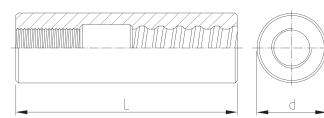
SAS SYSTEMS ring nut (working load of ring max. 60 kN)



stressing coupler for WS



transition coupler



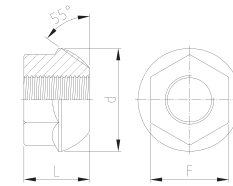
[in]	[mm]	F x L x L ₁ x d [in]	[lb]	d x L [in]	[lb]	d x L [in]	[lb]
		WS 2927 - Ø *		WS 8004 - Ø		WS 3004 - Ø	
1 1/4	32	2.17 x 4.92 x 2.32 x 0.63	2.69	2.36 x 7.48	6.04	2.36 x 7.87	6.48
1 3/8	36	2.36 x 5.87 x 2.52 x 0.79	4.10	2.56 x 9.06	8.38	2.68 x 9.25	9.86

* with regard to load capacity and installation, please note data sheet available on the homepage

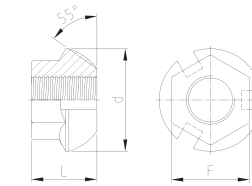
accessories

SAS SYSTEMS

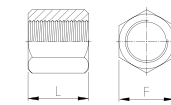
dome nut 55°



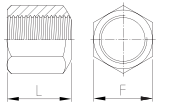
domed nut 55° with grout slots



anchor nut flat



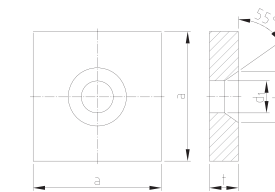
bull nose 30°



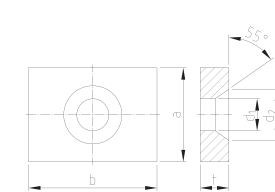
[in]	[mm]	F x L x d [in]	[lb]	F x L x d [in]	[lb]	F x L [in]	[lb]	F x L [in]	[lb]
		WS 2001 - Ø		WS 2099 - Ø		WS 2002 - Ø		WS 2963 - Ø	
1 1/4	32	2.17 x 1.81 x 2.83	1.72	2.17 x 1.81 x 2.83	1.63	2.17 x 1.97	1.74	2.17 x 1.97	1.50
1 3/8	36	2.56 x 2.36 x 3.54	3.42	2.56 x 2.36 x 3.54	3.11	2.36 x 2.56	2.34	2.36 x 2.56	2.27

SAS SYSTEMS

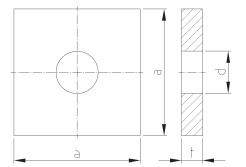
anchor plate square 55°



anchor plate rectangular 55°



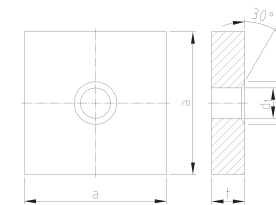
anchor plate flat



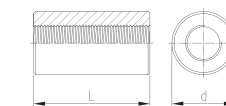
[in]	[mm]	a x t x d ₁ x d ₂ [in]	[lb]	a x b x t x d ₁ x d ₂ [in]	[lb]	a x t x d [in]	[lb]
		WS 2011 - Ø **		WS 2012 - Ø **		WS 2139 - Ø **	
1 1/4	32	7.09 x 1.58 x 1.77 x 2.84	20.94	5.51 x 7.09 x 1.58 x 1.77 x 2.84	15.96	7.09 x 1.58 x 1.50	21.65
1 3/8	36	7.87 x 1.77 x 1.93 x 3.62	28.55	5.91 x 8.66 x 1.97 x 1.93 x 3.62	25.79	7.87 x 1.77 x 1.77	29.92

SAS SYSTEMS

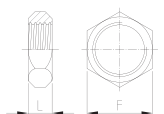
anchor plate rectangular 30°



coupler standard



fix nut



[in]	[mm]	a x t x d ₁ x d ₂ [in]	[lb]	d x L [in]	[lb]	F x L [in]	[lb]
		WS 1928 - Ø **		WS 3003 - Ø		WS 5005 - Ø	
1 1/4	32	7.09 x 1.58 x 1.50 x 1.97	21.63	2.36 x 4.33	3.84	1.61 x 0.59	0.18
1 3/8	36	7.87 x 1.77 x 1.77 x 2.36	29.87	2.68 x 6.30	7.17	1.81 x 0.59	0.20

** storage- and transport-depending rust formation cannot be ruled out

SAS thread bar

areas of application

nominal diameter
Ø

yield load



ultimate load

cross section
area

weight

item no.

elongation

	#	nominal diameter Ø		yield load [kips]	ultimate load [kips]	cross section area [in ²]	weight [lb/ft]	item no.	elongation	
		[in]	[mm]						A _g [%]	A ₁₀ [%]
SAS grade 75										
 reinforcing systems			12	13.1	15.1	0.175	0.60	120GL	6	10
			14	17.9	20.7	0.239	0.81	140GL		
	5	5/8	16	23.4	26.8	0.312	1.06	160GL		
	6	3/4	20	36.5	42.5	0.487	1.66	200GL		
	8	1	25	57.1	65.6	0.761	2.59	250GL		
	9	1 1/8	28	71.6	82.5	0.955	3.25	280GL		
 geotechnical systems	10	1 1/4	32	93.5	106.8	1.246	4.24	320GL		
	11	1 3/8	36	118.6	136.0	1.581	5.37	360GL		
		1 5/8	40	146.5	167.5	1.953	6.63	400GL		
	14	1 3/4	43	168.8	193.8	2.251	7.66	430GL		
	16	2	50	227.9	262.1	3.038	10.35	500GL		
	24	3	75	513.6	546.3	6.848	23.30	750GL	5	---

SAS grade 80

	18	2 1/4	57.5	322.0	408.7	4.025	13.69	575GL	5	---
	20	2 1/2	63.5	392.7	498.0	4.909	16.71	635GL		---

SAS 500 / 600 - ULTS


 Ultra Low Temperature Steel

			12	12.8	15.3	0.175	0.60	120UT	≥5	[A _g > 3,0] (NSR ≥ 1,0) (Yield ratio ≥ 1,15) acc. EN14620-3:2006
			14	17.3	20.7	0.239	0.81	140UT		
5	5/8	16	22.5	27.2	0.312	1.06	160UT			
6	3/4	20	36.0	42.3	0.487	1.66	200UT			
8	1	25	55.1	66.3	0.761	2.59	250UT			
9	1 1/8	28	69.7	83.2	0.955	3.25	280UT			
	10	1 1/4	32	91.1	108.4	1.246	4.24	320UT		

SAS grade 97


 geotechnical systems

 tunneling & mining

 high-strength reinforcement

	6	3/4	18	38.2	45.9	0.394	1.34	180AT	5	10	
	7	7/8	22	57.1	68.3	0.589	2.00	220AT			
	8	1	25	73.8	88.3	0.761	2.59	250AT			
	9	1 1/8	28	92.6	110.8	0.955	3.25	280AT			
	10	1 1/4	30	106.3	127.0	1.096	3.73	300AT			
	11	1 3/8	35	144.6	173.1	1.491	5.07	350AT			
	14	1 3/4	43	218.3	261.2	2.251	7.66	430AT			
	16	2	50	295.1	353.0	3.043	10.35	500AT			
	18	2 1/4	57.5	390.5	466.9	4.025	13.69	575AT			---
	20	2 1/2	63.5	476.2	569.7	4.909	16.71	635AT			---
	24	3	75	664.2	794.7	6.848	23.30	750AT			---

SAS grade 150

 post-tensioning systems

 geotechnical systems

		3/4	18	51.7	57.3	0.374	1.32	180WR	5	7
		1	26.5	118.0	130.4	0.854	3.01	265WR		
		1 1/4	32	170.9	190.0	1.246	4.39	320WR		
		1 3/8	36	215.8	240.5	1.581	5.56	360WR		
		1 5/8	40	267.5	296.7	1.948	6.86	400WR		
		1 7/8	47	370.9	409.2	2.689	9.47	470WR		
		2 1/4	57	484.5	600.5	4.001	14.08	570W	4	---
		2 1/2	65	625.0	774.9	5.163	18.21	650W	---	
		3	75	829.5	1027.8	6.848	24.12	750W	---	

For 3/4" to 1-7/8" diameter bars, yield stress is 137 ksi (0.91 fu) and maximum jacking stress 120 ksi (0.80 fu)
For 2-1/4" to 3" diameter bars, yield stress is 120 ksi (0.80 fu) and maximum jacking stress 105 ksi (0.70 fu)

SAS grade 160 FA

 formwork ties

		5/8	15	35.7	43.8	0.274	0.97	150FA	3	7
		7/8	20	63.6	77.6	0.487	1.72	200FA		
		26.5	111.3	136.2	0.854	3.01	265FA	2		

SAS grade 150 FC

 formwork ties

		5/8	15	35.7	41.8	0.274	0.97	150FC	3	7
		7/8	20	63.6	74.2	0.487	1.72	200FC		

SAS grade 150 E

		1	26.5	118.0	130.4	0.854	3.01	265E	5	7
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accessories for all dimensions and applications available

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