



SAS
I B É R I C A

Catálogo | *catalogue*

SAS 500 / 550 | SAS 550 / 620 | grado 75

SAS 555 / 700 | grado 80

SAS 670 / 800 | grado 97

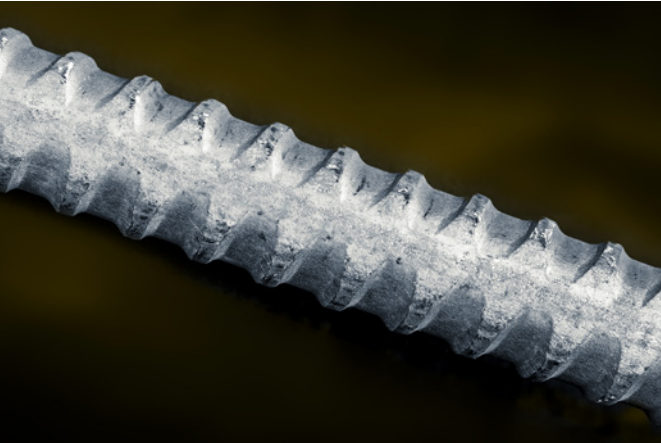
SAS 950 / 1050 | SAS 835 / 1035 | grado 150

SAS SYSTEMS



MAX AICHER

SAS barras roscadas | *SAS thread bars*



SAS barra roscada laminada en caliente - rosca a izquierdas | *SAS thread bar hot rolled, ribbed - left hand thread*

SAS 500 / 550 Ø 12 - 50 mm + 75 mm | *grade 75*
SAS 555 / 700 Ø 57,5 mm + 63,5 mm | *grade 80*

Ø _{NENN} / Ø _{NOM}	[mm]	12	14	16	20	25	28	32	36	40	43	50	57,5	63,5	75
max d _A	[mm]	14	16	19	23	29	32	36	41	45	48	56	63	70	82
c	[mm]	7	7,5	8	10	12,5	14	16	18	20	21,5	26	20	21	24
f _{yk} (f _{0,2k}) / f _{tk} / A _{gt} ¹⁾		500 N/mm² / 550 N/mm² / ≥ 6 %											555 N/mm² 700 N/mm² ≥ 5 %	500 N/mm² 550 N/mm² ≥ 5 %	
F _{yk} (F _{0,2k})	[kN]	57	77	100	160	245	310	405	510	630	726	980	1441	1760	2209
F _{tk}	[kN]	62	85	110	175	270	340	440	560	690	799	1080	1818	2215	2430
A	[mm²]	113	154	201	314	491	616	804	1020	1260	1452	1960	2597	3167	4418
G	[kg/m]	0,89	1,21	1,58	2,47	3,85	4,83	6,31	7,99	9,87	11,40	15,40	20,38	24,86	34,68

SAS 550 / 620 Ø 12 - 50 mm | *grade 75*

Ø _{NENN} / Ø _{NOM}	[mm]	12	14	16	20	25	26	28	30	32	36	40	43	50
max d _A	[mm]	14	16	19	23	29	30	32	34	36	41	45	48	56
c	[mm]	7	7,5	8	10	12,5	13	14	15	16	18	20	21,5	26
f _{yk} (f _{0,2k}) / A _{gt} ¹⁾		550 N/mm² / 620 N/mm² ≥ 6 %												
F _{yk} (F _{0,2k})	[kN]	62	85	110	175	270	290	340	390	440	560	690	799	1080
F _{tk} = 1,08 x F _{yk}	[kN]	67	92	119	189	292	313	367	421	475	605	745	862	1166
A	[mm²]	113	154	201	314	491	531	616	707	804	1020	1260	1452	1960
G	[kg/m]	0,89	1,21	1,58	2,47	3,85	4,17	4,83	5,55	6,31	7,99	9,87	11,40	15,40

¹⁾ Deformación total porcentual para carga máxima | *Percentage total elongation at maximum force*
Los pesos reales pueden variar dentro de las tolerancias de fabricación. | *Weight specifications of bar and accessories are average values. The actual values may deviate due to fabrication tolerances.*

Accesorios | *accessories*

SAS SYSTEMS

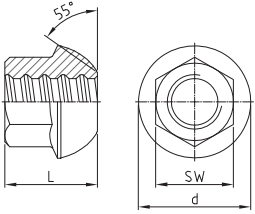
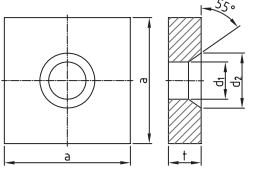
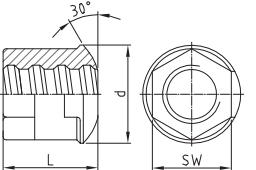
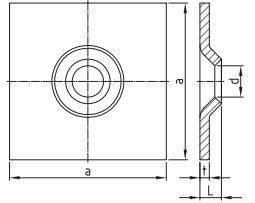
tuerca hexagonal anchor nut		tuerca hexagonal larga anchor nut long		tuerca hexagonal apoyo circular anchor nut with flange		placa de anclaje lisa anchor plate flat	
Ø [mm]	SW x L x d [mm] [kg]	SW x L [mm] [kg]		SW x L x d [mm] [kg]		a x t x d [mm] [kg]	
T 2002 - Ø							
12	22 x 25 0,10	22 x 35 0,08		- -		50 x 8 x 16 0,14	
14	27 x 35 0,12	27 x 45 0,16		- -		50 x 8 x 18 0,14	
16	32 x 40 0,20	32 x 50 0,25		- -		50 x 8 x 20 0,15	
20	36 x 45 0,27	32 x 65 0,25		- -		70 x 12 x 25 0,42	
25	41 x 50 0,34	41 x 75 0,52		- -		90 x 15 x 30 0,87	
26	46 x 50 0,45	41 x 80 0,56		- -		100 x 15 x 33 1,08	
28	46 x 55 0,48	41 x 85 0,48		- -		100 x 15 x 33 1,08	
30	50 x 60 0,65	46 x 90 0,77		- -		120 x 20 x 36 2,10	
32	55 x 60 0,78	50 x 90 0,90		- -		120 x 20 x 40 2,06	
36	60 x 65 1,00	55 x 95 1,17		- -		150 x 30 x 44 4,94	
40	65 x 70 1,19	60 x 100 1,30		65 x 70 x 85 1,20		150 x 30 x 47 4,89	
43	70 x 75 1,51	- -		70 x 80 x 90 1,81		160 x 40 x 50 7,42	
50	79 x 90 2,17	79 x 120 3,00		80 x 85 x 100 2,35		190 x 45 x 58 11,82	
57,5	90 x 110 x 102 4,13	- -		90 x 100 x 110 3,50		220 x 50 x 67 17,61	
63,5	100 x 115 x 108 4,72	- -		100 x 115 x 125 4,90		245 x 50 x 70 22,05	
75	100 x 100 x 108 2,99	- -		100 x 120 x 115 4,15		275 x 65 x 88 35,48	

SAS SYSTEMS

placa de anclaje lisa pequeña anchor plate flat small			contratuercas larga lock nut long		contratuercas corta lock nut short		pieza de anclaje anchor piece	
Ø [mm]	a x t x d [mm] [kg]		SW x L x d [mm] [kg]		SW x L x d [mm] [kg]		SW x L x d [mm] [kg]	
T 2008 - Ø **								
12	40 x 6 x 16 0,06		19 x 20 0,04		19 x 13 0,03		- -	
14	- -		27 x 25 0,09		27 x 15 0,06		- -	
16	50 x 8 x 20 0,10		32 x 30 0,15		32 x 20 0,10		30 x 33 x 50 0,25	
20	60 x 10 x 25 0,16		32 x 40 0,16		32 x 20 0,09		36 x 40 x 70 0,43	
25	70 x 12 x 30 0,40		41 x 40 0,25		41 x 20 0,14		41 x 45 x 70 0,50	
26	- -		41 x 45 0,35		41 x 25 0,20		41 x 50 x 90 0,70	
28	85 x 14 x 33 0,70		41 x 45 0,26		41 x 25 0,15		46 x 50 x 90 0,77	
30	- -		50 x 50 0,55		50 x 30 0,35		50 x 55 x 95 1,00	
32	100 x 15 x 38 1,00		50 x 50 0,47		50 x 30 0,30		50 x 60 x 100 1,40	
36	- -		55 x 55 0,85		55 x 30 0,40		60 x 65 x 110 1,64	
40	120 x 17 x 47 1,69		60 x 65 0,85		60 x 35 0,45		65 x 70 x 120 2,10	
43	- -		70 x 65 1,31		70 x 40 0,80		70 x 80 x 130 2,43	
50	150 x 20 x 58 3,12		79 x 80 2,10		79 x 50 1,30		80 x 85 x 150 3,88	
57,5	- -		90 x 80 x 102 2,87		90 x 60 x 102 2,08		90 x 100 x 175 6,09	
63,5	- -		90 x 115 x 102 3,74		90 x 75 x 102 2,28		100 x 115 x 190 7,38	
75	- -		100 x 80 x 108 2,37		100 x 80 x 108 2,37		- -	

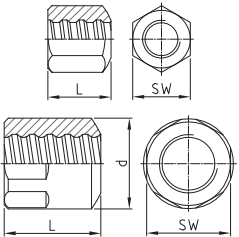
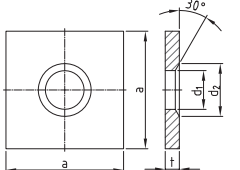
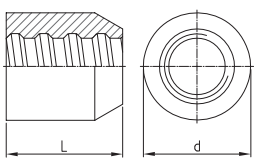
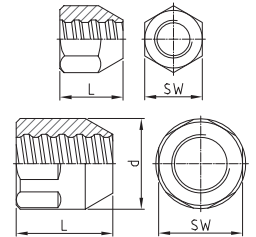
** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | *Rust formation cannot be ruled out due to storage and transport conditions*

SAS SYSTEMS

tuerca asiento esférico 55° domed nut 55°			placa de anclaje asiento esférico 55° anchor plate cone 55°			tuerca asiento esférico 30° dome nut 30°			placa de anclaje abombada 30°/55° domed washer 30°/55°		
											
Ø [mm]	SW x L x d [mm]	[kg]	a x t x d ₁ x d ₂ [mm]	[kg]		SW x L x d [mm]	[kg]		a x L x t x d [mm]	[kg]	

T 2044 - Ø			T 2011 - Ø **			T 2944 - Ø			T 2132 - Ø **		
12	-	-	-	-		-	-		-	-	
14	-	-	-	-		-	-		-	-	
16	27 x 33 x 35	0,11	60 x 10 x 25 x 33	0,24		-	-		150 x 25 x 10 x 22	1,77	
20	36 x 42 x 49	0,30	70 x 12 x 30 x 44	0,37		36 x 40 x 51	0,30		150 x 25 x 10 x 26	1,76	
25	41 x 45 x 55	0,35	90 x 15 x 35 x 49	0,81		41 x 45 x 54	0,32		150 x 25 x 10 x 34	1,74	
26	-	-	-	-		-	-		-	-	
28	41 x 54 x 62	0,45	100 x 20 x 40 x 54	1,33		41 x 50 x 58	0,38		200 x 25 x 10 x 34	3,11	
30	-	-	-	-		-	-		-	-	
32	46 x 57 x 70	0,60	120 x 20 x 52 x 60	1,91		50 x 60 x 62	0,70		200 x 27 x 12 x 40	3,70	
36	-	-	-	-		-	-		-	-	
40	60 x 70 x 88	1,50	150 x 30 x 65 x 76	4,48		65 x 70 x 85	1,79		200 x 42 x 20 x 53	5,90	
43	70 x 80 x 100	2,12	160 x 40 x 75 x 93	6,54		-	-		-	-	
50	80 x 85 x 107	2,57	190 x 45 x 83 x 96	10,78		80 x 85 x 100	2,96		-	-	
57,5	90 x 100 x 120	3,79	220 x 50 x 92 x 110	16,25		-	-		-	-	
63,5	100 x 115 x 144	5,51	245 x 50 x 104 x 121	20,09		-	-		-	-	
75	100 x 120 x 160	6,62	275 x 65 x 118 x 145	32,60		-	-		-	-	

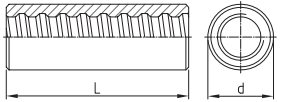
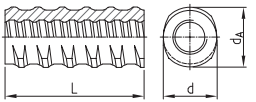
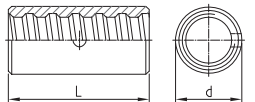
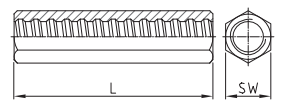
SAS SYSTEMS

tuerca hexagonal asiento esférico 30° bull nose nut 30°			placa de anclaje asiento esférico 30° anchor plate cone 30°			perno de soldadura welding bolt			perno de soldadura hexagonal welding bolt hexagonal		
											
Ø [mm]	SW x L x d [mm]	[kg]	a x t x d ₁ x d ₂ [mm]	[kg]		d x L [mm]	[kg]		SW x L x d [mm]	[kg]	

T 2963 - Ø			T 1928 - Ø **			T 3022 - Ø			T 3026 - Ø		
12	22 x 25	0,05	50 x 8 x 16 x 26	0,14		30 x 30	0,12		32 x 40	0,21	
14	27 x 35	0,12	50 x 8 x 18 x 28	0,14		36 x 40	0,24		36 x 50	0,34	
16	32 x 40	0,18	60 x 8 x 20 x 30	0,20		40 x 45	0,33		41 x 55	0,48	
20	36 x 45	0,25	70 x 12 x 25 x 35	0,41		45 x 50	0,44		46 x 65	0,70	
25	41 x 50	0,33	90 x 15 x 30 x 40	0,87		50 x 55	0,55		50 x 75	0,89	
26	46 x 50	0,42	100 x 15 x 33 x 45	1,07		50 x 55	0,53		50 x 75	0,89	
28	46 x 55	0,47	100 x 15 x 33 x 45	1,07		55 x 60	0,73		55 x 85	1,21	
30	50 x 60	0,61	120 x 20 x 36 x 46	2,09		60 x 65	1,02		60 x 90	1,20	
32	55 x 60	0,75	120 x 20 x 40 x 50	2,06		60 x 65	0,91		60 x 90	1,20	
36	60 x 65	0,94	150 x 30 x 44 x 59	4,92		70 x 70	1,45		70 x 95	1,20	
40	65 x 70	1,15	150 x 30 x 47 x 60	4,88		80 x 80	2,11		79 x 100	2,66	
43	70 x 75	1,47	160 x 40 x 58 x 78	7,16		90 x 90	3,07		80 x 100 x 90	3,11	
50	79 x 90	2,15	190 x 45 x 58 x 75	11,79		90 x 90	2,77		90 x 120 x 100	4,51	
57,5	90 x 110 x 102	3,92	220 x 50 x 67 x 87	17,56		110 x 110	5,29		100 x 120 x 110	5,44	
63,5	100 x 115 x 108	4,65	245 x 50 x 70 x 100	21,92		114 x 120	5,88		100 x 120 x 114	5,25	
75	100 x 100 x 108	2,90	275 x 65 x 88 x 110	35,40		-	-		-	-	

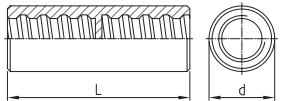
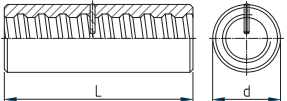
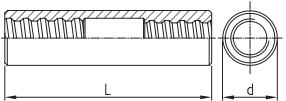
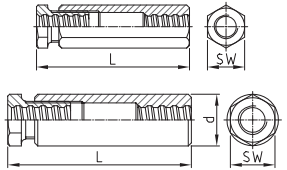
** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | Rust formation cannot be ruled out due to storage and transport conditions

SAS SYSTEMS

manguito estándar coupler standard			manguito de barra roscada thread coupler			manguito de contacto contact coupler			manguito hexagonal largo hexagonal coupler long		
											
Ø [mm]	d x L [mm]	[kg]	d x d ₁ x L [mm]	[kg]		d x L [mm]	[kg]		SW x L [mm]	[kg]	

T 3003 - Ø			T 3087 - Ø			T 3006 - Ø			T 3010 - Ø		
12	22 x 60	0,11	-	-		-	-		22 x 80	0,20	
14	27 x 75	0,22	-	-		-	-		27 x 100	0,34	
16	32 x 90	0,37	26,5 x 31 x 90	0,27		27 x 65	0,17		32 x 120	0,60	
20	36 x 105	0,52	32 x 37 x 105	0,40		32 x 70	0,25		32 x 140	0,55	
25	40 x 115	0,62	40 x 46 x 115	0,68		36 x 80	0,30		41 x 160	1,10	
26	45 x 120	0,80	47 x 53 x 120	1,13		36 x 80	0,30		41 x 170	1,10	
28	45 x 125	0,85	47 x 53 x 125	1,09		40 x 85	0,40		41 x 180	1,05	
30	50 x 135	1,37	47 x 53 x 135	1,10		45 x 90	0,60		50 x 180	1,75	
32	52 x 140	1,32	57 x 64 x 140	1,93		45 x 90	0,50		50 x 180	1,76	
36	60 x 150	2,10	57 x 64 x 150	1,78		50 x 120	1,25		60 x 190	2,75	
40	65 x 160	2,34	65 x 72 x 160	2,52		54 x 120	0,82		65 x 210	3,67	
43	80 x 170	4,49	75 x 82 x 170	3,79		60 x 130	1,19		70 x 220	4,46	
50	80 x 200	4,49	-	-		63 x 160	1,09		79 x 240	5,97	
57,5	102 x 230	9,54	-	-		83 x 170	3,36		-	-	
63,5	102 x 260	9,45	-	-		90 x 200	4,28		-	-	
75	108 x 240	8,01	-	-		102 x 210	5,33		-	-	

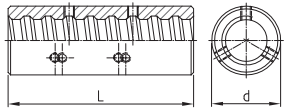
SAS SYSTEMS

manguito estándar con tope central coupler standard with center stop			manguito de barra roscada con tope central thread coupler with center stop			manguito reductor reducing coupler			tensor turnbuckle		
											
Ø [mm]	d x L [mm]	[kg]	d x L [mm]	[kg]		Ø x d x L [mm]	[kg]		SW x L x d [mm]	[kg]	

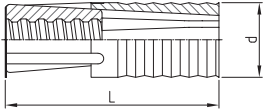
T 3002 - Ø			T 3043 - Ø			T 3102 - Ø			T 3105 - Ø		
12	22 x 60	0,12	-	-		-	-		32 x 126	0,65	
14	27 x 75	0,23	-	-		-	-		32 x 138	0,66	
16	32 x 90	0,38	32 x 90	0,40		16/14 x 32 x 120	0,55		36 x 150	0,92	
20	36 x 105	0,54	36 x 105	0,53		20/16 x 36 x 130	0,65		41 x 175	1,28	
25	40 x 115	0,65	40 x 115	0,62		25/20 x 40 x 150	0,84		46 x 190	1,64	
26	45 x 120	0,83	45 x 120	0,91		26/20 x 40 x 155	0,88		50 x 205	2,17	
28	45 x 125	0,89	45 x 125	0,86		28/26 x 45 x 170	1,20		50 x 205	2,04	
30	50 x 135	1,41	50 x 135	1,21		30/28 x 50 x 180	1,62		60 x 225	3,58	
32	52 x 140	1,37	52 x 140	1,32		32/30 x 52 x 185	1,72		60 x 225	3,41	
36	-	-	60 x 150	1,96		36/32 x 60 x 205	2,61		70 x 250	5,39	
40	-	-	65 x 160	2,38		40/36 x 65 x 215	3,26		79 x 270	7,31	
43	-	-	80 x 170	4,49		43/40 x 80 x 225	5,93		90 x 290 x 105	13,46	
50	-	-	80 x 200	4,55		50/40 x 80 x 240	6,00		100 x 310 x 115	16,89	
57,5	-	-	102 x 230	9,54		57,5/50 x 90 x 280	7,99		100 x 340 x 125	20,37	
63,5	-	-	102 x 260	9,45		63,5/57,5 x 102 x 310	11,56		100 x 395 x 130	24,11	
75	-	-	108 x 240	8,08		75/63,5 x 110 x 290	11,63		110 x 370 x 130	19,67	

SAS SYSTEMS

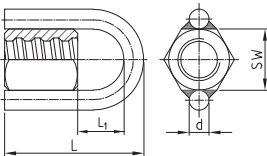
manguito con tornillos de apriete
coupler with set screws



perno expansivo
expansion shell



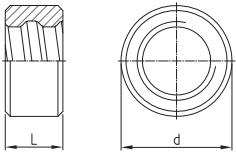
tuerca hexagonal con argolla
ring nut



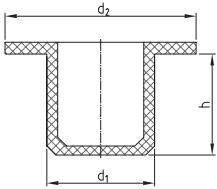
Ø [mm]	d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L x L ₁ x d [mm]	[kg]
T 3020 - Ø			T 2136 - Ø *		T 2927 - Ø *	
12	-	-	-	-	-	-
14	-	-	-	-	32 x 110 x 54 x 16	0,58
16	-	-	32 x 92	0,22	32 x 110 x 54 x 16	0,57
20	-	-	39 x 109	0,44	36 x 120 x 59 x 16	0,67
25	-	-	49 x 121	0,60	41 x 135 x 69 x 16	0,78
26	-	-	-	-	-	-
28	45 x 125	0,82	49 x 121	0,60	46 x 145 x 74 x 16	0,97
30	-	-	-	-	-	-
32	52 x 140	1,35	59 x 149	1,00	55 x 165 x 89 x 16	1,34
36	60 x 150	1,94	-	-	-	-
40	65 x 160	2,35	-	-	65 x 193 x 103 x 20	2,10
43	80 x 170	4,41	-	-	70 x 200 x 105 x 20	2,56
50	80 x 200	4,50	-	-	79 x 220 x 110 x 20	3,33
57,5	102 x 230	9,45	-	-	90 x 270 x 140 x 20	5,57
63,5	102 x 260	9,41	-	-	100 x 279 x 144 x 20	6,07
75	108 x 240	8,02	-	-	100 x 279 x 159 x 20	4,43

SAS SYSTEMS

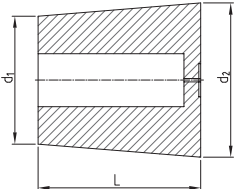
tuerca de fijación
fix ring



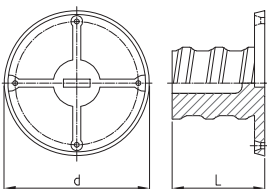
tapón interior
inner cap



cono hueco
recess cone



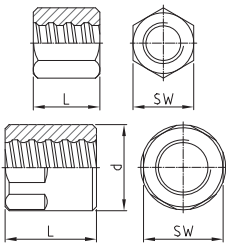
tape con tornillos
nail plate



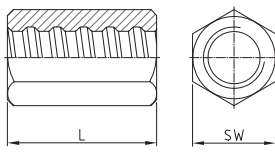
Ø [mm]	d x L [mm]	[kg]	d ₁ x d ₂ x h [mm]	[kg]	d ₁ x d ₂ x L [mm]	[kg]	d x L [mm]	[kg]
T 5003 - Ø			T 5025 - Ø		T 5050 - Ø		T 5979 - Ø	
12	-	-	12 x 19 x 7	0,01	36 x 42 x 40	0,02	36 x 20	0,01
14	-	-	14 x 19 x 7	0,01	41 x 49 x 49	0,03	42 x 20	0,01
16	-	-	16 x 25 x 9	0,01	48 x 58 x 64	0,05	48 x 25	0,01
20	-	-	20 x 25 x 9	0,01	50 x 62 x 74	0,07	48 x 30	0,01
25	-	-	25 x 30 x 9	0,01	63 x 76 x 78	0,10	58 x 35	0,02
26	-	-	26 x 31 x 9	0,01	-	-	58 x 35	0,02
28	-	-	28 x 35 x 9	0,01	74 x 89 x 89	0,14	58 x 40	0,02
30	-	-	30 x 35 x 9	0,01	-	-	68 x 45	0,03
32	-	-	32 x 37 x 9	0,01	77 x 93 x 98	0,14	68 x 45	0,03
36	50 x 25	0,15	36 x 42 x 9	0,01	-	-	-	-
40	55 x 25	0,18	40 x 48 x 10	0,01	-	-	-	-
43	65 x 25	0,33			-	-	-	-
50	65 x 30	0,25	50 x 58 x 10	0,01	-	-	-	-
57,5	81 x 35	0,60			-	-	-	-
63,5	89 x 40	0,85	64 x 74 x 10	0,01	-	-	-	-
75	102 x 40	1,01	-	-	-	-	-	-

SAS SYSTEMS

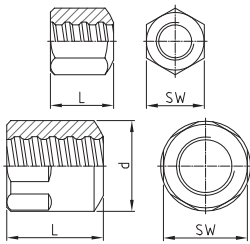
tuerca hexagonal EP
anchor nut EP flat



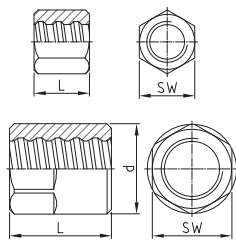
tuerca hexagonal larga EP
anchor nut EP long



tuerca hexagonal
asiento esférico 30° EP
bull nose nut EP 30°



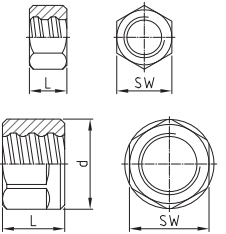
contratuerca larga EP
lock nut EP long



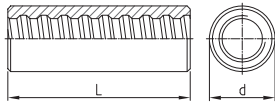
Ø [mm]	SW x L x d [mm]	[kg]	SW x L [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]
T 2002 - Ø EP			T 2024 - Ø EP		T 2963 - Ø EP		T 2003 - Ø EP	
12	22 x 30	0,06	22 x 35	0,08	22 x 30	0,06	19 x 25	0,05
14	27 x 40	0,14	27 x 45	0,16	27 x 40	0,14	27 x 30	0,12
16	32 x 50	0,25	32 x 50	0,25	32 x 50	0,24	32 x 35	0,18
20	36 x 55	0,31	32 x 65	0,26	36 x 55	0,31	32 x 45	0,19
25	41 x 60	0,40	41 x 75	0,51	41 x 60	0,40	41 x 50	0,35
26	46 x 60	0,57	41 x 80	0,52	-	-	41 x 55	0,36
28	46 x 65	0,55	41 x 85	0,49	46 x 65	0,55	41 x 55	0,31
30	50 x 75	0,79	46 x 90	0,71	-	-	50 x 60	0,63
32	55 x 75	0,97	50 x 90	0,87	55 x 75	0,96	50 x 60	0,57
36	60 x 80	1,22	55 x 95	1,08	60 x 80	1,18	55 x 65	1,01
40	65 x 85	1,43	60 x 100	1,31	65 x 85	1,43	60 x 75	1,00
43	70 x 90	1,81	-	-	70 x 90	1,77	70 x 75	1,51
50	79 x 105	2,71	79 x 120	2,97	79 x 105	2,62	79 x 95	2,50
57,5	90 x 125 x 102	4,72	-	-	90 x 125 x 102	4,53	90 x 100 x 102	3,68
63,5	100 x 130 x 108	5,53	-	-	100 x 130 x 108	5,30	90 x 130 x 102	4,26
75	100 x 115 x 108	3,48	-	-	100 x 115 x 108	3,38	100 x 100 x 108	2,97

SAS SYSTEMS

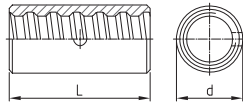
contratuerca corta EP
lock nut EP short



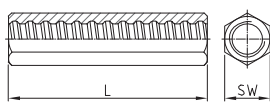
manguito EP estándar
coupler EP standard



manguito de contacto EP
contact coupler EP



manguito hexagonal largo EP
hexagonal coupler EP long



Ø [mm]	SW x L x d [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
T 2040 - Ø EP			T 3003 - Ø EP		T 3006 - Ø EP		T 3010 - Ø EP	
12	19 x 20	0,03	22 x 75	0,15	-	-	22 x 80	0,17
14	27 x 25	0,09	27 x 90	0,32	-	-	27 x 100	0,34
16	32 x 30	0,15	32 x 105	0,46	-	-	32 x 120	0,60
20	32 x 40	0,17	36 x 120	0,59	32 x 70	0,25	32 x 140	0,56
25	41 x 40	0,28	40 x 135	0,71	36 x 80	0,30	41 x 160	1,10
26	41 x 45	0,29	45 x 140	1,06	36 x 80	0,24	41 x 170	1,11
28	41 x 45	0,41	45 x 145	0,97	40 x 85	0,40	41 x 200	1,22
30	50 x 50	0,52	50 x 155	1,38	45 x 90	0,53	50 x 180	1,89
32	50 x 50	0,50	52 x 160	1,49	45 x 90	0,50	50 x 180	1,75
36	55 x 55	0,73	60 x 170	2,30	50 x 120	0,74	60 x 190	2,90
40	60 x 65	0,85	65 x 190	3,07	54 x 120	0,90	65 x 210	3,66
43	70 x 65	1,30	80 x 200	5,28	60 x 130	1,18	70 x 220	4,44
50	79 x 80	2,10	80 x 235	5,60	64 x 160	1,35	79 x 240	5,95
57,5	90 x 80 x 102	2,85	102 x 260	10,75	80 x 170	2,90	-	-
63,5	90 x 85 x 102	2,62	102 x 300	10,87	90 x 200	4,25	-	-
75	100 x 80 x 108	2,36	108 x 270	9,00	102 x 210	5,30	-	-

* Para más información respecto de la capacidad de carga e instalación, consulte por favor la ficha técnica incluida en nuestra página web
with regard to load capacity and installation, please note data sheet available on the homepage



SAS barra roscada laminada en caliente, rosca a derechas | *SAS thread bar hot rolled, ribbed - right hand thread*

SAS 670 / 800 Ø 18 - 75mm | *grado 97*

$\varnothing_{NEN}/\varnothing_{NOM}$	[mm]	18	22	25	28	30	35	43	50	57,5	63,5	75
max d _A	[mm]	21	25	28	32	34	40	48	55	63	70	82
c	[mm]	8	8	10	11	11	14	17	18	20	21	24
$f_{yk}(f_{0,2k})/f_{tk}/A_{gt}^{1)}$		670N/mm ² / 800N/mm ² / ≥ 5%										
F _{yk} (F _{0,2k})	[kN]	170	255	329	413	474	645	973	1315	1740	2122	2960
F _{tk}	[kN]	204	304	393	493	565	770	1162	1570	2077	2534	3535
A	[mm ²]	254	380	491	616	707	962	1452	1963	2597	3167	4418
G	[kg/m]	2,00	2,98	3,85	4,83	5,55	7,55	11,40	15,40	20,38	24,86	34,68

¹⁾ Deformación total porcentual para carga máxima | *Percentage total elongation at maximum force*
Los pesos reales pueden variar dentro de las tolerancias de fabricación. | *Weight specifications of bar and accessories are average values. The actual values may deviate due to fabrication tolerances.*

SAS SYSTEMS

tuerca asiento esférico 55° <i>dome nut 55°</i>			placa de anclaje asiento esférico 55° <i>anchor plate cone 55°</i>			tuerca hexagonal <i>anchor nut</i>			placa de anclaje lisa <i>anchor plate flat</i>		
Ø [mm]	SW x L x d [mm]	[kg]	a x t x d ₁ x d ₂ [mm]	[kg]		SW x L x d [mm]	[kg]		a x t x d [mm]	[kg]	a x t x d [mm] [kg]
TR 2001 - Ø			TR 2011 - Ø **			TR 2002 - Ø			TR 2138 - Ø **		
18	32 x 35 x 43	0,18	100 x 25 x 27 x 39	1,83		36 x 45	0,29		100 x 20 x 23	1,51	100 x 25 x 23 1,88
22	36 x 45 x 53	0,27	110 x 30 x 32 x 47	2,62		41 x 50	0,39		110 x 25 x 27	2,26	110 x 30 x 27 2,72
25	41 x 50 x 60	0,47	125 x 30 x 35 x 53	3,40		46 x 55	0,53		110 x 25 x 30	2,20	115 x 30 x 30 2,95
28	46 x 55 x 67	0,62	135 x 35 x 40 x 59	4,59		50 x 60	0,67		115 x 30 x 34	2,90	120 x 30 x 34 3,18
30	50 x 60 x 71	0,66	145 x 35 x 40 x 63	5,32		55 x 65	0,90		130 x 30 x 36	3,74	130 x 35 x 36 4,36
35	60 x 70 x 83	1,40	170 x 40 x 47 x 73	8,36		65 x 70	1,41		150 x 35 x 42	5,80	150 x 40 x 42 6,63
43	70 x 85 x 102	2,22	210 x 50 x 58 x 90	15,96		79 x 90	2,62		185 x 45 x 50	11,40	185 x 55 x 50 13,93
50	80 x 100 x 116	3,44	240 x 55 x 70 x 110	22,59		79 x 100	2,53		215 x 50 x 60	17,03	215 x 60 x 60 20,44
57,5	90 x 115 x 137	5,69	275 x 60 x 75 x 119	32,77		90 x 120 x 102	4,53		250 x 55 x 67	25,46	245 x 65 x 67 28,83
63,5	100 x 125 x 151	7,52	300 x 65 x 82 x 131	42,19		100 x 145 x 114	6,97		265 x 60 x 74	31,05	270 x 70 x 74 37,70
75	120 x 150 x 178	12,94	325 x 70 x 100 x 159	51,89		100 x 130 x 108	3,86		320 x 70 x 86	53,10	325 x 70 x 86 54,85

SAS SYSTEMS

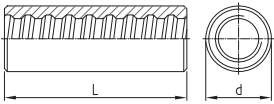
tuerca asiento esférico 30° <i>dome nut 30°</i>			placa de anclaje abombada 30° <i>domed washer 30°</i>			tuerca hexagonal sientto esférico 30° <i>bull nose nut 30°</i>			placa de anclaje asiento esférico 30° <i>anchor plate cone 30°</i>		
Ø [mm]	SW x L x d [mm]	[kg]	a x L x t x d [mm]	[kg]		SW x L x d [mm]	[kg]		a x t x d ₁ x d ₂ [mm]	[kg]	
TR 2944 - Ø			TR 2132 - Ø **			TR 2963 - Ø			TR 1928 - Ø **		
18	30 x 35 x 46	0,20	150 x 25 x 10 x 26	1,76		36 x 45	0,28		70 x 10 x 25 x 35	0,34	
22	36 x 40 x 51	0,29	150 x 25 x 10 x 34	1,74		41 x 50	0,39		90 x 12 x 30 x 40	0,69	
25	41 x 50 x 58	0,45	200 x 25 x 10 x 34	3,11		46 x 55	0,53		100 x 12 x 33 x 45	0,85	
28	46 x 60 x 62	0,67	200 x 27 x 12 x 40	3,70		50 x 60	0,66		120 x 20 x 40 x 50	2,06	
30	46 x 60 x 62	0,65	200 x 27 x 12 x 40	3,70		55 x 65	0,82		120 x 20 x 40 x 50	2,06	
35	-	-	-	-		65 x 70	1,35		150 x 30 x 47 x 60	4,88	
43	-	-	-	-		79 x 90	2,50		190 x 45 x 58 x 75	11,79	
50	-	-	-	-		79 x 100	2,46		215 x 50 x 60 x 80	16,99	
57,5	-	-	-	-		90 x 120 x 102	4,32		245 x 50 x 70 x 90	22,00	
63,5	-	-	-	-		100 x 145 x 114	6,67		280 x 60 x 78 x 100	34,60	
75	-	-	-	-		100 x 130 x 108	3,93		325 x 70 x 88 x 120	54,52	

** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | *Rust formation cannot be ruled out due to storage and transport conditions*

Accesorios | *accessories*

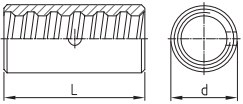
SAS SYSTEMS

manguito estándar
coupler standard



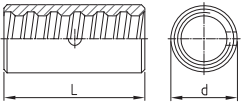
Ø [mm] d x L [mm] [kg]

manguito de barra roscada
thread bar coupler



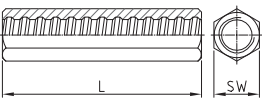
d x L [mm] [kg]

manguito de contacto
contact coupler



d x L [mm] [kg]

manguito hexagonal largo
hexagonal coupler long

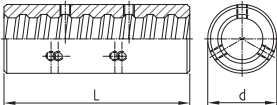


SW x L [mm] [kg]

TR 3003 - Ø			TR 3043 - Ø		TR 3006 - Ø		TR 3010 - Ø	
18	36 x 100	0,57	36 x 100	0,57	27 x 70	0,16	36 x 120	0,78
22	40 x 110	0,55	40 x 110	0,71	32 x 75	0,22	41 x 135	1,08
25	45 x 130	1,05	45 x 130	1,05	40 x 80	0,43	46 x 150	1,49
28	50 x 140	1,36	50 x 140	1,39	45 x 90	0,67	50 x 170	1,96
30	55 x 150	1,84	55 x 150	1,85	45 x 90	0,60	55 x 185	2,63
35	65 x 180	3,16	65 x 180	3,17	50 x 120	0,82	60 x 210	3,36
43	80 x 200	5,42	80 x 200	5,35	65 x 160	2,08	79 x 245	7,27
50	90 x 210	6,92	90 x 210	6,92	70 x 170	2,23	-	-
57,5	102 x 250	10,37	102 x 250	10,38	83 x 180	3,55	-	-
63,5	114 x 300	15,85	114 x 300	15,86	90 x 200	4,24	-	-
75	108 x 260	8,98	108 x 260	8,76	102 x 230	5,83	-	-

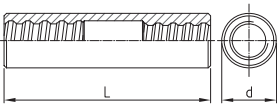
SAS SYSTEMS

manguito con tornillos de apriete
coupler with set screws



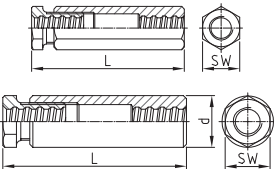
Ø [mm] d x L [mm] [kg]

manguito reductor
reducing coupler



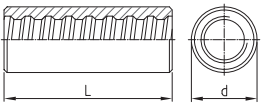
Ø x d x L [mm] [kg]

manguito tensor
turnbuckle



SW x L x d [mm] [kg]

manguito acero templado
coupler tempered



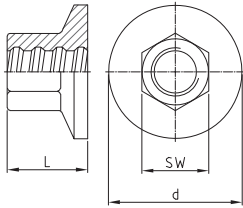
d x L [mm] [kg]

TR 3020 - Ø			TR 3102 - Ø		TR 3105 - Ø		TR 3927 - Ø	
18	36 x 100	0,56	-	-	41 x 175	1,34	-	-
22	40 x 110	0,70	22/18 x 40 x 145	1,00	46 x 190	1,78	36 x 90	0,41
25	45 x 130	1,03	25/22 x 45 x 160	1,40	55 x 205	2,94	38 x 100	0,45
28	50 x 140	1,37	28/25 x 50 x 180	2,00	60 x 225	3,74	42 x 120	0,64
30	55 x 150	1,85	30/28 x 55 x 195	2,50	65 x 260	5,11	50 x 130	1,18
35	65 x 180	3,13	35/30 x 60 x 215	3,00	79 x 275	8,27	55 x 150	1,52
43	80 x 200	5,40	43/35 x 80 x 250	5,50	90 x 330 x 105	15,14	65 x 170	2,26
50	90 x 210	6,82	50/43 x 85 x 270	7,68	100 x 350 x 115	19,04	75 x 180	3,17
57,5	102 x 250	10,00	57,5/50 x 100 x 295	11,94	100 x 405 x 125	24,46	85 x 220	4,92
63,5	114 x 300	14,70	63,5/57,5 x 110 x 305	14,89	100 x 425 x 120	21,56	95 x 240	6,81
75	108 x 260	8,90	75/63,5 x 110 x 335	13,24	110 x 460 x 130	25,20	-	-

Accesorios | *accessories*

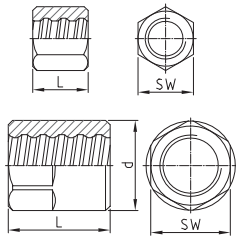
SAS SYSTEMS

pieza de anclaje
anchor piece



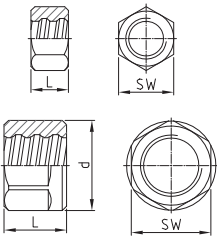
Ø [mm] SW x L x d [mm] [kg]

contratuercas larga
lock nut long



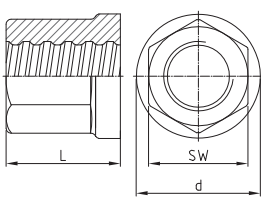
SW x L x d [mm] [kg]

contratuercas corta
lock nut short



SW x L x d [mm] [kg]

Tuerca hexagonal apoyo circular
anchornut with flange

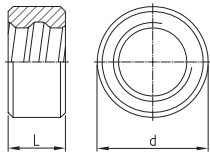


SW x L x d [mm] [kg]

TR 2073 - Ø			TR 2003 - Ø		TR 2040 - Ø		TR 2163 - Ø	
18	32 x 35 x 55	0,28	30 x 40	0,16	30 x 22	0,10	36 x 45 x 42	0,31
22	36 x 45 x 65	0,43	36 x 45	0,25	36 x 22	0,12	41 x 50 x 47	0,43
25	41 x 50 x 75	0,62	41 x 50	0,37	41 x 22	0,16	46 x 55 x 53	0,59
28	46 x 55 x 85	0,85	46 x 55	0,50	46 x 30	0,26	50 x 65 x 58	0,80
30	50 x 60 x 90	1,03	50 x 60	0,67	50 x 30	0,31	55 x 65 x 64	0,98
35	60 x 70 x 105	1,66	55 x 65	0,78	55 x 40	0,47	65 x 70 x 75	1,51
43	70 x 85 x 130	2,74	70 x 80	1,60	70 x 50	1,00	80 x 90 x 92	2,99
50	80 x 100 x 150	3,63	79 x 90	2,27	79 x 50	1,26	80 x 100 x 92	2,84
57,5	90 x 115 x 175	6,96	90 x 100 x 102	3,71	90 x 60 x 102	2,04	90 x 120 x 102	4,15
63,5	100 x 125 x 190	8,78	100 x 115 x 114	5,45	100 x 70 x 114	3,07	100 x 145 x 114	6,23
75	120 x 150 x 230	15,03	100 x 120 x 108	4,20	100 x 80 x 108	2,70	-	-

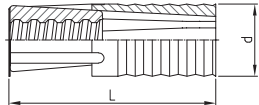
SAS SYSTEMS

tuerca de fijación
fix ring



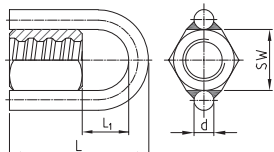
Ø [mm] d x L [mm] [kg]

perno expansivo
expansion shell



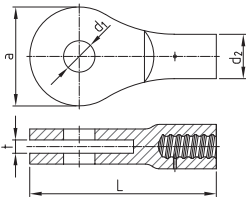
d x L [mm] [kg]

tuerca hexagonal con argolla
ring nut



SW x L x d x L₁ [mm] [kg]

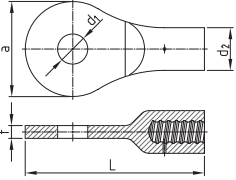
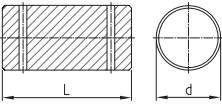
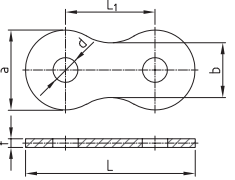
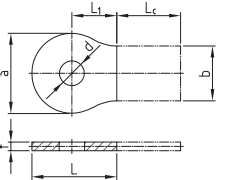
pieza de tenedor
fork piece

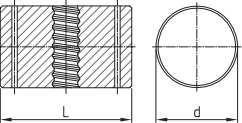
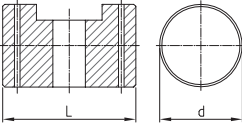
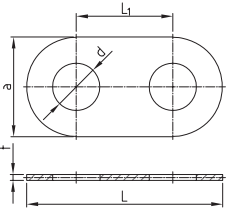
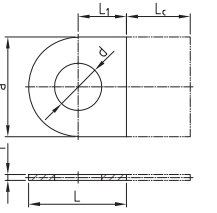


a x L x t x d₁ x d₂ [mm] [kg]

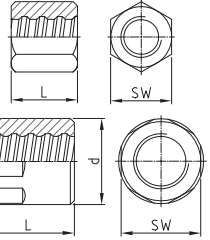
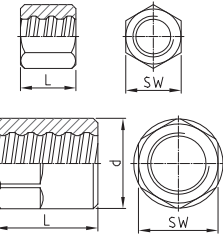
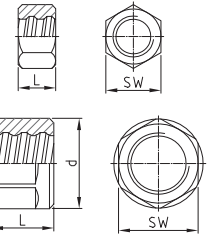
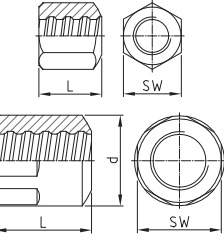
TR 5003 - Ø			TR 2136 - Ø *		TR 2927 - Ø *		TR 2090 - Ø EP	
18	-	-	39 x 109	0,44	36 x 120 x 16 x 59	0,68	-	-
22	31 x 20	0,06	49 x 121	0,60	41 x 135 x 16 x 69	0,83	-	-
25	-	-	49 x 121	0,60	46 x 145 x 16 x 74	1,02	-	-
28	45 x 20	0,14	59 x 149	1,00	50 x 155 x 16 x 79	1,19	-	-
30	45 x 20	0,06	59 x 149	1,00	55 x 165 x 16 x 84	1,46	-	-
35	50 x 20	0,13	-	-	65 x 193 x 20 x 103	2,42	167 x 315 x 27 x 53 x 75	7,40
43	65 x 25	0,33	-	-	79 x 220 x 20 x 110	3,78	197 x 384 x 29 x 63 x 92	12,80
50	70 x 30	0,39	-	-	79 x 220 x 20 x 100	3,69	221 x 406 x 35 x 75 x 94	14,75
57,5	81 x 35	0,60	-	-	90 x 270 x 20 x 130	5,97	248 x 454 x 42 x 88 x 96	20,40
63,5	89 x 40	0,85	-	-	100 x 305 x 20 x 140	8,60	298 x 553 x 42 x 98 x 114	34,50
75	102 x 40	1,01	-	-	100 x 279 x 20 x 129	5,30	328 x 627 x 54 x 108 x 116	44,40

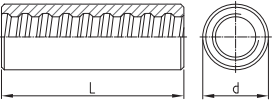
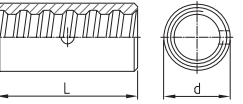
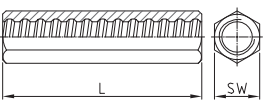
* Para más información respecto de la capacidad de carga e instalación, consulte por favor la ficha técnica incluida en nuestra página web
with regard to load capacity and installation, please note data sheet available on the homepage

SAS SYSTEMS		pieza tipo argolla eye piece		pasador para pieza perforada bolt eye piece		pieza de conexión tipo argolla strap connection eye piece		pieza tipo argolla para soldar welding plate eye piece	
									
Ø [mm]		a x L x t x d ₁ x d ₂ [mm]	[kg]	d x L [mm]	[kg]	a x L x t x d x L ₁ x b [mm]	[kg]	a x L x L ₁ x t x d x b [mm]	[kg+Lc]
TR 2080 - Ø EP **		TR 2081 - Ø		TR 3080 - Ø **		TR 3081 - Ø **			
18	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-
35	167 x 315 x 23 x 53 x 75	7,18		50 x 100	1,52	167 x 354 x 18 x 53 x 187 x 114	7,00	167 x 177 x 94 x 18 x 53 x 114 x Lc	3,10 + Lc
43	197 x 384 x 25 x 63 x 92	12,54		60 x 110	2,40	197 x 414 x 20 x 63 x 217 x 134	9,60	197 x 207 x 109 x 20 x 63 x 134 x Lc	4,72 + Lc
50	221 x 406 x 31 x 75 x 92	17,99		72 x 105	3,31	-	-	-	-
57,5	248 x 469 x 38 x 88 x 96	21,57		85 x 145	6,45	248 x 526 x 30 x 88 x 278 x 160	22,00	248 x 263 x 139 x 30 x 88 x 160 x Lc	10,95 + Lc
63,5	298 x 558 x 38 x 98 x 114	33,45		95 x 145	8,02	298 x 626 x 30 x 98 x 328 x 200	31,80	298 x 313 x 164 x 30 x 98 x 200 x Lc	17,95 + Lc
75	328 x 627 x 50 x 108 x 116	46,13		105 x 165	11,21	328 x 691 x 35 x 108 x 363 x 220	45,80	328 x 346 x 182 x 35 x 108 x 220 x Lc	22,75 + Lc

SAS SYSTEMS		tuerca articulada joint nut		perno articulado joint bolt		pieza de conexión para tuerca y perno articulados strap connection joint bolt & nut		placa soldada para tuerca y perno articulados welding plate joint bolt & nut	
									
Ø [mm]		d x L [mm]	[kg]	d x L [mm]	[kg]	a x L x t x d x L ₁ [mm]	[kg]	a x L x t x d x L ₁ x Lc [mm]	[kg+Lc]
TR 2020 - Ø		TR 2021 - Ø		TR 2022 - Ø **		TR 2023 - Ø **			
18	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-
35	120 x 193	16,00		120 x 193	14,60	260 x 512 x 15 x 123 x 252	11,00	260 x 256 x 15 x 123 x 126 x Lc	5,60 + Lc
43	140 x 212	23,80		140 x 212	21,20	320 x 626 x 15 x 145 x 306	16,60	320 x 313 x 15 x 145 x 153 x Lc	8,55 + Lc
50	-	-		-	-	-	-	-	-
57,5	150 x 222	27,00		150 x 222	24,60	420 x 780 x 20 x 155 x 360	40,20	420 x 390 x 20 x 155 x 180 x Lc	19,80 + Lc
63,5	190 x 265	53,40		190 x 265	51,06	460 x 894 x 25 x 195 x 434	59,60	460 x 447 x 25 x 195 x 217 x Lc	30,05 + Lc
75	190 x 279	55,00		190 x 279	52,00	470 x 912 x 35 x 195 x 442	88,40	470 x 456 x 35 x 195 x 221 x Lc	44,20 + Lc

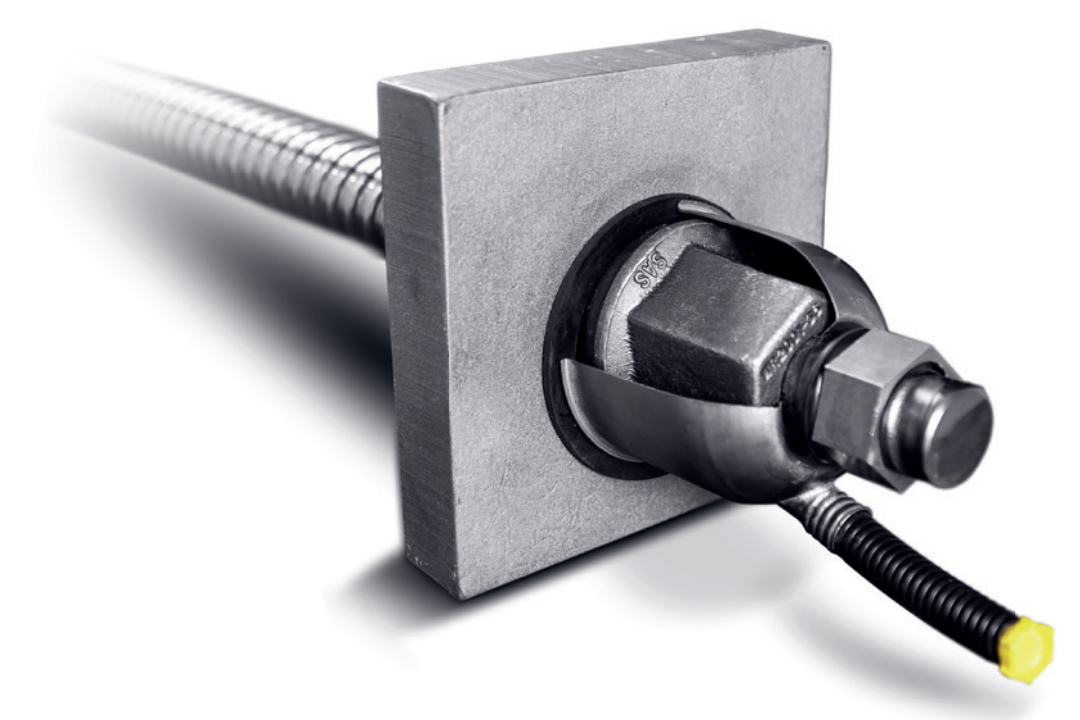
Lc a petición del cliente / Lc on customer request

SAS SYSTEMS		tuerca hexagonal EP anchor nut EP flat		contratuerca larga EP lock nut EP long		contratuerca corta EP lock nut EP short		tuerca hexagonal asiento esférico 30° EP bull nose EP 30°	
									
Ø [mm]		SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]
TR 2002 - Ø EP		TR 2003 - Ø EP		TR 2040 - Ø EP		TR 2963 - Ø EP			
18	36 x 55	0,40		30 x 50	0,20	30 x 40	0,15	36 x 55	0,38
22	41 x 60	0,45		36 x 60	0,33	36 x 45	0,24	41 x 60	0,43
25	46 x 70	0,65		41 x 65	0,44	41 x 50	0,36	46 x 70	0,64
28	50 x 75	0,90		46 x 70	0,59	46 x 55	0,50	50 x 75	0,67
30	55 x 80	1,00		50 x 75	0,77	50 x 60	0,66	55 x 80	0,98
35	65 x 85	1,75		55 x 80	0,94	55 x 65	0,76	65 x 85	1,70
43	79 x 105	3,30		70 x 100	2,00	70 x 80	1,65	79 x 105	3,20
50	79 x 115	2,91		79 x 110	2,78	79 x 90	2,26	79 x 115	2,83
57,5	90 x 140 x 102	5,34		90 x 120 x 102	4,51	90 x 100 x 102	3,54	90 x 140 x 102	5,14
63,5	100 x 170 x 114	8,27		100 x 140 x 114	6,73	100 x 115 x 114	5,44	100 x 170 x 114	7,79
75	100 x 150 x 108	4,67		100 x 140 x 108	4,32	100 x 120 x 108	3,65	100 x 150 x 108	4,60

SAS SYSTEMS		manguito estándar EP coupler EP standard		manguito de contacto EP contact coupler EP		manguito hexagonal largo EP hexagonal coupler EP long	
							
Ø [mm]		d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
TR 3003 - Ø EP		TR 3006 - Ø EP		TR 3010 - Ø EP			
18	36 x 120	0,69		27 x 70	0,16	36 x 120	0,77
22	40 x 125	0,81		32 x 75	0,25	41 x 135	1,08
25	45 x 150	1,24		40 x 80	0,47	46 x 150	1,49
28	50 x 160	1,56		45 x 90	0,67	50 x 170	1,94
30	55 x 165	2,02		45 x 90	0,60	55 x 185	2,62
35	65 x 190	3,30		50 x 120	0,82	60 x 210	3,34
43	80 x 225	6,10		65 x 160	2,08	79 x 245	7,24
50	90 x 235	7,72		70 x 170	2,21	-	-
57,5	102 x 275	11,36		83 x 180	3,53	-	-
63,5	108 x 285	12,71		90 x 200	4,24	-	-
75	108 x 290	9,70		102 x 230	5,79	-	-

** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | Rust formation cannot be ruled out due to storage and transport conditions

Barra SAS de pretensado | *SAS stress bars*



Barra SAS de pretensado laminada en caliente - rosca a derechas | *SAS thread bar hot rolled, ribbed - right hand thread*

SAS 950 / 1050 Ø 18 - 47 mm | SAS 835 / 1035 Ø 57 - 75 mm | *grado150*

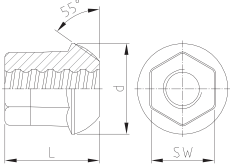
Ø _{NENN} / Ø _{NOM}	[mm]	18	26,5	32	36	40	47	57	65	75
max d _A	[mm]	21	31	37	42	46	53	64	72	82
c	[mm]	8	13	16	18	20	21	21	21	24
f _{p0,1k} /f _{pk} /A _{gt} ¹⁾		950 N/mm² / 1050 N/mm² / ≥ 5 %						835 N/mm² / 1035 N/mm² / ≥ 4 %		
F _{yk} (F _{0,1k})	[kN]	230	525	760	960	1190	1650	2155	2780	3690
F _{pk}	[kN]	255	580	845	1070	1320	1820	2671	3447	4572
A	[mm²]	241	551	804	1020	1257	1735	2581	3331	4418
G	[kg/m]	1,96	4,48	6,53	8,27	10,21	14,10	20,95	27,10	35,90

¹⁾ Deformación total porcentual para carga máxima | *Percentage total elongation at maximum force*
Los pesos reales pueden variar dentro de las tolerancias de fabricación. | Weight specifications are average values. The actual values may deviate due to fabrication tolerances.

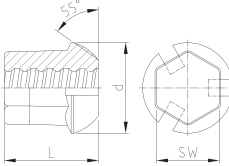
Accesorios | *accessories*

SAS SYSTEMS

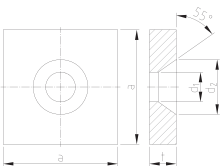
tuerca asiento esférico 55°
dome nut 55°



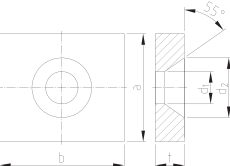
tuerca asiento esférico 55° con
ranuras de inyección
domed nut 55° with grout slots



placa de anclaje asiento esférico
55° cuadrada
anchor plate square 55°



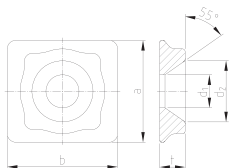
placa de anclaje asiento esférico
55° rectangular
anchor plate rectangular 55°



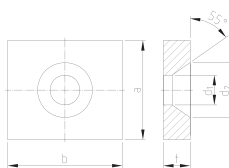
Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	a x t x d ₁ x d ₂ [mm]	[kg]	a x b x t x d ₁ x d ₂ [mm]	[kg]
WR 2001 - Ø			WR 2099 - Ø		WR 2011 - Ø **		WR 2012 - Ø **	
18	36 x 55 x 50	0,43	36 x 55 x 50	0,40	110 x 30 x 28 x 45	2,66	100 x 130 x 30 x 28 x 45	2,39
26,5	50 x 75 x 72	1,09	50 x 75 x 72	1,02	150 x 35 x 39 x 72	5,61	130 x 150 x 35 x 39 x 72	4,50
32	60 x 90 x 80	1,70	60 x 90 x 80	1,65	180 x 40 x 45 x 82	9,33	140 x 180 x 40 x 45 x 82	7,07
36	65 x 100 x 90	2,24	65 x 100 x 90	2,13	200 x 45 x 49 x 92	12,95	150 x 220 x 50 x 49 x 92	11,70
40	70 x 115 x 100	2,91	70 x 115 x 100	2,71	220 x 45 x 54 x 100	15,64	160 x 250 x 60 x 54 x 100	17,10
47	80 x 135 x 110	4,09	80 x 135 x 110	3,79	260 x 50 x 64 x 110	24,49	200 x 280 x 60 x 64 x 110	24,12
57	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-

SAS SYSTEMS

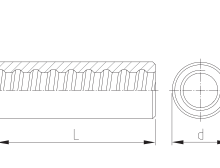
placa QR
QR plate



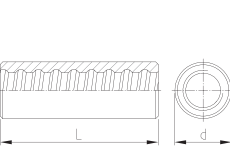
placa de anclaje asiento esférico
55° rectangular pequeña
anchor plate rectangular 55°, small



manguito estándar
coupler standard



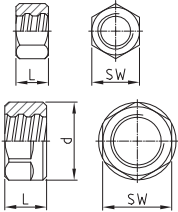
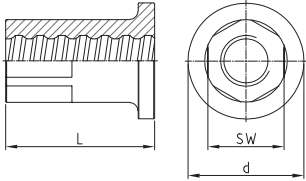
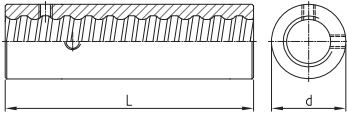
manguito largo
coupler long



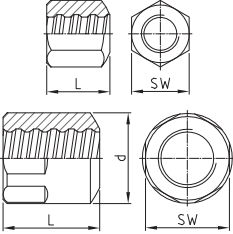
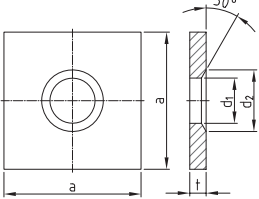
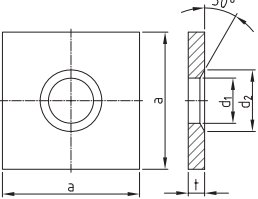
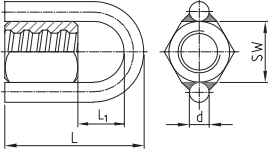
Ø [mm]	b x a x t x d ₁ x d ₂ [mm]	[kg]	a x b x t x d ₁ x d ₂ [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]
WR 2074 - Ø **			WR 2076 - Ø **		WR 3003 - Ø		WR 3303 - Ø	
18	-	-	80 x 90 x 25 x 28 x 45	1,25	36 x 100	0,56	36 x 115	0,64
26,5	130 x 120 x 30 x 39 x 72	2,00	120 x 130 x 30 x 39 x 72	3,15	50 x 170	1,73	50 x 195	2,00
32	165 x 140 x 35 x 45 x 82	3,30	140 x 165 x 35 x 45 x 82	5,57	60 x 200	2,91	60 x 230	3,40
36	180 x 160 x 40 x 49 x 93	4,90	160 x 180 x 40 x 49 x 92	7,94	68 x 210	3,98	68 x 245	4,68
40	195 x 180 x 45 x 54 x 100	7,20	180 x 195 x 45 x 54 x 100	10,95	70 x 245	4,59	70 x 285	5,38
47	-	-	210 x 235 x 55 x 64 x 110	19,20	83 x 270	7,23	-	-
57	-	-	-	-	95 x 240	7,75	-	-
65	-	-	-	-	106 x 260	10,37	-	-
75	-	-	-	-	114 x 290	12,14	-	-

* Para más información respecto de la capacidad de carga e instalación, consulte por favor la ficha técnica incluida en nuestra página web
with regard to load capacity and installation, please note data sheet available on the homepage
** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | *Rust formation cannot be ruled out due to storage and transport conditions*

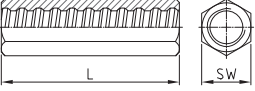
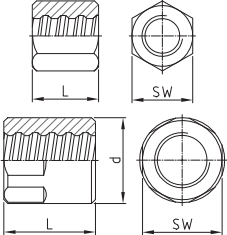
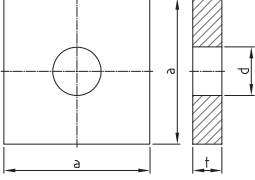
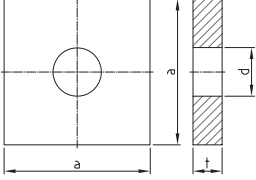
SAS SYSTEMS

tuerca de fijación fix nut			anclaje de tesado stressing anchorage		manguito de tesado stressing-coupler	
						
Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	d x L [mm]	[kg]
WR 5005 - Ø			WR 8002 - Ø		WR 8003 - Ø	
18	30 x 22	0,08	41 x 70 x 65	0,82	45 x 100	1,00
26,5	36 x 22	0,08	46 x 90 x 70	1,03	45 x 150	1,17
32	41 x 22	0,09	50 x 110 x 70	1,30	55 x 180	2,02
36	46 x 25	0,12	55 x 120 x 80	1,78	60 x 200	2,55
40	50 x 25	0,13	55 x 130 x 80	1,90	65 x 220	3,44
47	60 x 30	0,24	65 x 140 x 90	2,81	75 x 240	4,87
57	85 x 40 x 90	1,02	90 x 160 x 110	7,28	95 x 270	9,40
65	90 x 40 x 102	1,15	100 x 180 x 120	9,66	110 x 290	13,13
75	105 x 50 x 114	1,90	105 x 200 x 135	12,85	120 x 320	15,45

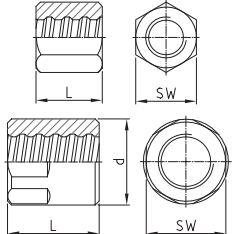
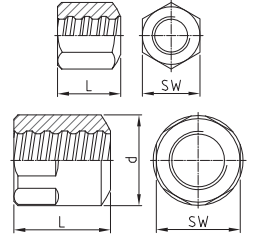
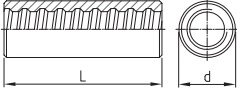
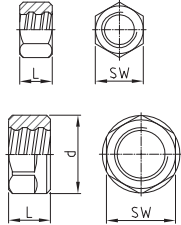
SAS SYSTEMS

tuerca hexagonal 30° bull nose nut 30°			placa de anclaje cono 30° anchor plate cone 30°		placa de anclaje cono 30° anchor plate cone 30°		tuerca hexagonal con argolla (Carga máxima de uso del anillo 60 kN) ring nut (working load of ring max. 60 kN)	
								
Ø [mm]	SW x L x L1 x d [mm]	[kg]	SW x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
WR 2963 - Ø *			WR 1928 - Ø **		WR 1929 - Ø **		WR 2027 - Ø	
18	41 x 60	0,52	120 x 20 x 25 x 35	2,18	-	-	41 x 135 x 59 x 16	0,99
26,5	46 x 80	0,71	150 x 35 x 32 x 45	5,95	-	-	46 x 165 x 69 x 16	1,28
32	55 x 90	1,14	180 x 40 x 38 x 50	9,81	-	-	55 x 190 x 84 x 16	1,81
36	60 x 110	1,57	200 x 45 x 45 x 60	13,55	-	-	60 x 219 x 89 x 20	2,78
40	70 x 120	2,53	220 x 45 x 50 x 70	16,36	-	-	70 x 244 x 104 x 20	3,87
47	79 x 140	3,60	240 x 55 x 58 x 80	23,50	-	-	79 x 274 x 114 x 20	5,10
57	90 x 120 x 95	3,67	285 x 65 x 70 x 90	39,30	220 x 50 x 70 x 90	17,43	90 x 255 x 115 x 20	5,08
65	100 x 130 x 106	4,90	325 x 70 x 78 x 110	55,50	245 x 60 x 78 x 110	25,86	100 x 280 x 130 x 20	6,48
75	105 x 145 x 114	5,51	370 x 80 x 88 x 120	82,00	275 x 70 x 88 x 120	38,03	105 x 305 x 140 x 20	7,31

SAS SYSTEMS

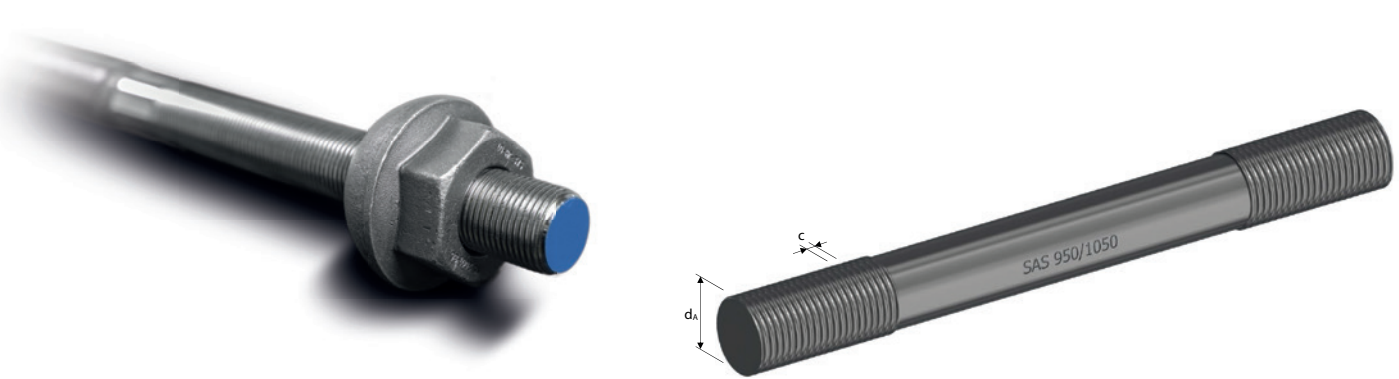
manguito hexagonal hexagonal coupler			tuerca hexagonal anchor nut flat		placa de anclaje lisa anchor plate flat		placa de anclaje lisa anchor plate flat	
								
Ø [mm]	SW x L [mm]	[kg]	SW x L x d [mm]	[kg]	a x t x d [mm]	[kg]	a x t x d [mm]	[kg]
WR 3009 - Ø			WR 2002 - Ø		WR 2139 - Ø**		WR 2140 - Ø **	
18	36 x 100	0,67	41 x 60	0,55	120 x 20 x 25	2,20	-	-
26,5	50 x 170	2,09	46 x 80	0,73	150 x 35 x 32	5,90	-	-
32	60 x 200	3,54	55 x 90	1,18	180 x 40 x 38	9,82	-	-
36	70 x 210	5,01	60 x 110	1,63	200 x 45 x 45	13,57	-	-
40	70 x 245	5,61	70 x 120	2,63	220 x 45 x 50	16,40	-	-
47	79 x 270	7,49	79 x 140	3,72	240 x 55 x 58	23,73	-	-
57	-	-	90 x 120 x 95	3,79	285 x 65 x 70	39,48	220 x 50 x 70	17,49
65	-	-	100 x 130 x 106	4,99	325 x 70 x 78	55,42	245 x 60 x 78	26,02
75	-	-	105 x 145 x 114	5,68	370 x 80 x 88	82,15	275 x 70 x 88	38,21

SAS SYSTEMS

tuerca hexagonal EP anchor nut EP flat			tuerca hexagonal asiento esférico 30° bull nose nut EP 30°		manguito EP estándar coupler EP standard		tuerca de fijación EP fix nut EP	
								
Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	d x L [mm]	[kg]	SW x L x d [mm]	[kg]
WR 2002 - Ø EP			WR 2963 - Ø EP		WR 3003 - Ø EP		WR 5005 - Ø EP	
18	41 x 70	0,62	41 x 70	0,60	36 x 120	0,69	30 x 22	0,08
26,5	46 x 90	0,81	46 x 90	0,79	50 x 185	1,94	36 x 22	0,08
32	55 x 100	1,30	55 x 100	1,27	60 x 220	3,33	41 x 22	0,09
36	60 x 120	1,75	60 x 120	1,71	68 x 240	4,72	46 x 25	0,11
40	70 x 130	2,77	70 x 130	2,70	70 x 270	5,26	50 x 25	0,12
47	79 x 150	3,92	79 x 150	3,81	83 x 310	8,65	60 x 30	0,23
57	90 x 145 x 95	4,59	90 x 145 x 95	4,46	95 x 270	9,32	85 x 40 x 90	1,01
65	100 x 155 x 106	5,82	100 x 155 x 106	5,66	106 x 290	12,01	90 x 40 x 102	1,13
75	105 x 180 x 114	7,60	105 x 180 x 114	6,96	114 x 320	14,15	105 x 50 x 114	1,92

** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | Rust formation cannot be ruled out due to storage and transport conditions

SAS barra lisa | *SAS smooth bars*



barra de pretensado lisa SAS con rosca laminada en frío - rosca a derechas | *SAS smooth bar with cold rolled thread - right hand thread*

SAS 950 / 1050 Ø 32 - 40 mm | *grade 150* | lisa | *smooth*

Ø _{NENN} / Ø _{NOM}	[mm]	32	36
c	[mm]	3	3
f _{p0,1k} /f _{pk} /A _{gt}		950 N/mm² / 1050 N/mm² / ≥ 7 %	
F _{yk} (F _{0,1k})	[kN]	760	960
F _{pk}	[kN]	845	1070
A	[mm²]	804	1018
G	[kg/m]	6,31	7,99

SAS SYSTEMS

tuerca hexagonal con argolla (Carga máxima de uso del anillo 60 kN) ring nut (working load of ring max. 60 kN)			manguito de tesado stressing coupler for WS		manguito de transición transition coupler	
Ø [mm]	SW x L x L ₁ x d [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]
WS 2927 - Ø *			WS 8004 - Ø		WS 3004 - Ø	
32	55 x 125 x 59 x 16	1,22	60 x 190	2,74	60 x 200	2,94
36	60 x 149 x 64 x 20	1,86	65 x 230	3,80	68 x 235	4,47

* Para más información respecto de la capacidad de carga e instalación, consulte por favor la ficha técnica incluida en nuestra página web
with regard to load capacity and installation, please note data sheet available on the homepage

Accesorios | *accessories*

SAS SYSTEMS

tuerca asiento esférico 55° dome nut 55°			tuerca asiento esférico 55° con muescas por inyección domed nut 55° with grout slots		tuerca hexagonal anchor nut flat		tuerca hexagonal asiento esférico bull nose 30°	
Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L [mm]	[kg]	SW x L [mm]	[kg]
WS 2001 - Ø			WS 2099 - Ø		WS 2002 - Ø		WS 2963 - Ø	
32	55 x 46 x 72	0,78	55 x 46 x 72	0,74	55 x 50	0,79	55 x 50	0,68
36	65 x 60 x 90	1,55	65 x 60 x 90	1,41	60 x 65	1,06	60 x 65	1,03

SAS SYSTEMS

placa de anclaje asiento esférico 55° cuadrada anchor plate square 55°			placa de anclaje asiento esférico 55° rectangular anchor plate rectangular 55°		placa de anclaje lisa anchor plate flat	
Ø [mm]	a x t x d ₁ x d ₂ [mm]	[kg]	a x b x t x d ₁ x d ₂ [mm]	[kg]	a x t x d [mm]	[kg]
WS 2011 - Ø **			WS 2012 - Ø **		WS 2139 - Ø **	
32	180 x 40 x 45 x 72	9,50	140 x 180 x 40 x 45 x 72	7,24	180 x 40 x 38	9,82
36	200 x 45 x 49 x 92	12,95	150 x 220 x 50 x 49 x 92	11,70	200 x 45 x 45	13,57

SAS SYSTEMS

placa de anclaje asiento esférico 30° rectangular anchor plate rectangular 30°			manguito estándar coupler standard		tuerca de fijación fix nut	
Ø [mm]	a x t x d ₁ x d ₂ [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
WS 1928 - Ø **			WS 3003 - Ø		WS 5005 - Ø	
32	180 x 40 x 38 x 50	9,81	60 x 110	1,74	41 x 15	0,08
36	200 x 45 x 45 x 60	13,55	68 x 160	3,25	46 x 15	0,09

** La formación de óxido no se puede descartar debido al almacenamiento y a las condiciones de transporte | *Rust formation cannot be ruled out due to storage and transport conditions*

Barras roscadas SAS | SAS thread bar

Límite elástico / Tensión última | *yield stress / ultimate stress*
Áreas de aplicación | *areas of application*

Ø-nominal
nom.-Ø
[mm]

Carga en límite
elástico
yield load
[kN]

Carga última
ultimate load
[kN]

Sección
cross section area
[mm²]

Peso
weight
[m/to] [kg/m]

Elongación
elongation
A_{gt} [%] A₁₀ [%]

SAS 500 / 550 – grado 75/80



Sistemas de armadura de hormigón |
reinforcing systems



Sistemas geotécnicos | *geotechnical systems*

12	57	62	113	1123,6	0,89	6	10
14	77	85	154	826,4	1,21		
16	100	110	201	632,9	1,58		
20	160	175	314	404,9	2,47		
25	245	270	491	259,7	3,85		
28	310	340	616	207,0	4,83		
32	405	440	804	158,5	6,31		
36	510	560	1020	125,2	7,99		
40	630	690	1260	101,3	9,87		
43	726	799	1452	87,7	11,40		
50	980	1080	1960	64,9	15,40		
57,5	1441	1818	2597	49,1	20,38	5	---
63,5	1760	2215	3167	40,2	24,86	5	---
75	2209	2430	4418	28,8	34,68	5	---

Disponible también SAS 550 | *alternative SAS 550 grade 75 available*

SAS 450 / 700 – grado 60



Minería | *mining*

16	93	145	207	617,3	1,62		[A ₅] 15
25	220	345	491	259,7	3,85		[A ₅] 20

SAS 650 / 800 – grado 90



Minería | *mining*

22	247	304	380	335,6	2,98		[A ₅] 18
25	319	393	491	259,7	3,85		
28	400	493	616	207,0	4,83		
30	460	565	707	180,2	5,55		

SAS 670 / 800 – grado 97



Sistemas geotécnicos | *geotechnical systems*



Túneles y minería | *tunneling & mining*



Sistemas de armadura de hormigón de alta resistencia |
high-strength reinforcement

18	170	204	254	500,0	2,00	5	10
22	255	304	380	335,6	2,98		
25	329	393	491	259,7	3,85		
28	413	493	616	207,0	4,83		
30	474	565	707	180,2	5,55		
35	645	770	962	132,5	7,55		
43	973	1162	1452	87,7	11,40		
50	1315	1570	1963	64,9	15,40		
57,5	1740	2077	2597	49,1	20,38		---
63,5	2122	2534	3167	40,2	24,86		---
75	2960	3535	4418	28,8	34,68		---

SAS 950 / 1050 – grado 150



Sistemas de postesado | *post-tensioning systems*



Sistemas geotécnicos | *geotechnical systems*

18	230	255	241	510,2	1,96	5	7
26,5	525	580	551	223,2	4,48		
32	760	845	804	153,1	6,53		
36	960	1070	1020	120,9	8,27		
40	1190	1320	1257	97,9	10,21		
47	1650	1820	1735	70,9	14,10		

SAS 835 / 1035 – grado 150



Sistemas geotécnicos | *geotechnical systems*

57	2155	2671	2581	47,7	20,95	4	---
65	2780	3447	3331	36,9	27,10		---
75	3690	4572	4418	27,9	35,90		---

SAS 900 / 1100 FA – grado 160 FA



Sistemas de encofrado | *formwork ties*

15	159	195	177	694,4	1,44	3	7
20	283	345	314	390,6	2,56		
26,5	495	606	551	223,2	4,48	2	

SAS 900 / 1050 FC – grado 150 FC



Sistemas de encofrado | *formwork ties*

15	159	186	177	694,4	1,44	3	7
20	283	330	314	390,6	2,56		
26.5	525	580	551	223.2	4.48	5	7

SAS 750 / 875 FS – lamindao en frío | *cold rolled – grado 120 FS*



Sistemas de encofrado | *formwork ties*

12,5	90	120	132,5	961,5	1,04	2	5,5
15	142	165	189	675,7	1,48		
20	245	285	326	390,6	2,56		

Zubehör für alle Abmessungen und Anwendungen lieferbar | *accessories for all dimensions and applications available*

SAS IBERICA
C/ Argelia, N 9 A • P.I. Arrendataria • Ctra. Antigua de Ajalvir Km 2.200
28806 Alcalá de Henares • España
Phone +34 91 880 98 62 • Fax +34 91 879 83 65
www.sasiberica.com

SAS
I B É R I C A