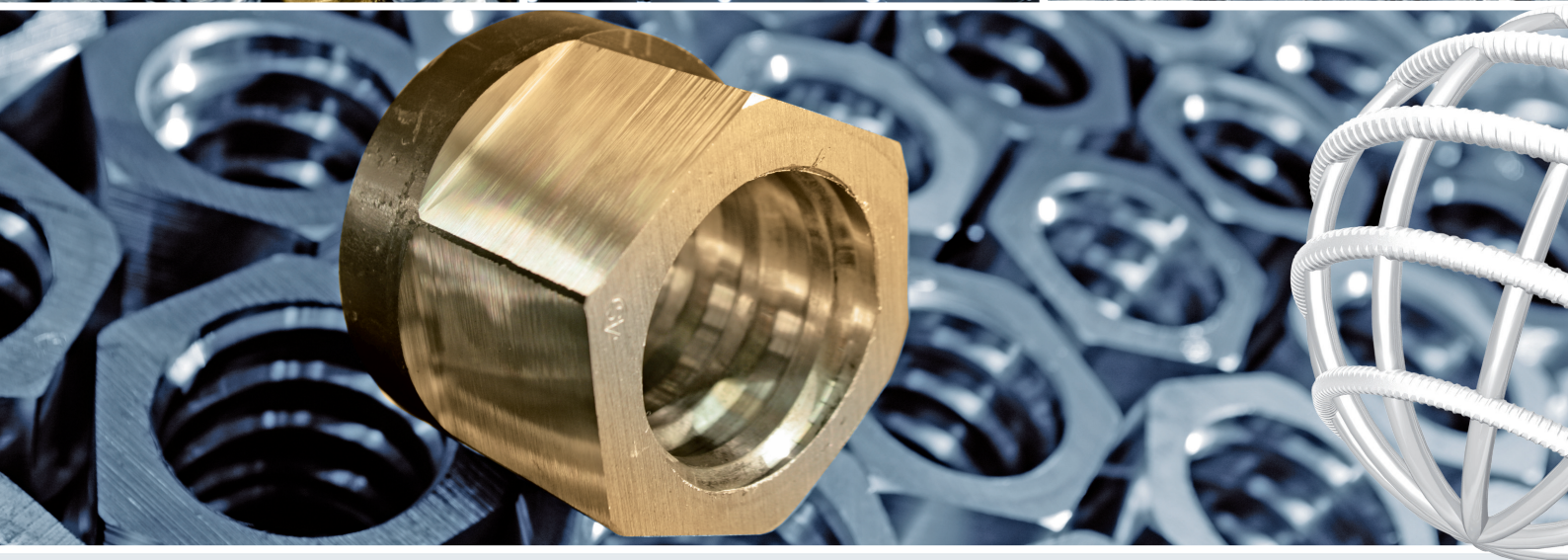


Katalog / catalogue

SAS 950 / 1050 Ø 18 - 47 mm

SAS 835 / 1035 Ø 57 - 75 mm

SAS 950 / 1050 Ø 32, 36 mm glatt / smooth



SAS SYSTEMS

Artikel WR <i>item WR</i>	Bezeichnung <i>specification</i>	Ø [mm]								
		18	26,5	32	36	40	47	57	65	75
SAS 950/1050 SAS 835/1035	SAS Spannstab, warm gewalzt, rechtsgängig <i>SAS stress bar, hot rolled, right hand thread</i>	EU	EU	EU	EU	EU	EU			
		●	●	●	●	●	○	○	○	○
WR 1928	Ankerplatte Konus 30° <i>anchor plate cone 30°</i>	○	○	○	○	○	○	○	○	○
WR 2001	Kugelbundmutter 55° <i>domed nut 55°</i>	EU	EU	EU	EU	EU	EU	-	-	-
WR 2002	Ankermutter gerade <i>anchor nut flat</i>	○	○	○	○	○	○	○	○	○
WR 2002 EP	Ankermutter gerade EP <i>anchor nut flat EP</i>	○	○	○	○	○	○	○	○	○
WR 2011	Ankerplatte quadratisch 55° <i>anchor plate square 55°</i>	EU	EU	EU	EU	EU	EU	-	-	-
WR 2012	Ankerplatte rechteckig 55° <i>anchor plate rectangular 55°</i>	EU	EU	EU	EU	EU	EU	-	-	-
WR 2074	QR Platte <i>QR plate</i>	-	EU	EU	EU	EU	-	-	-	-
WR 2099	Kugelbundmutter 55° mit Verpressnuten <i>domed nut 55° with grout slots</i>	EU	EU	EU	EU	EU	EU	-	-	-
WR 2139	Ankerplatte gerade <i>anchor plate flat</i>	○	○	○	○	○	○	○	○	○
WR 2927	Ringmutter <i>ring nut</i>	○	○	○	○	○	○	-	-	-
WR 2963	Ankermutter ballig 30° <i>bull nose nut 30°</i>	○	○	○	○	○	○	○	○	○
WR 2963 EP	Ankermutter EP, ballig 30° <i>bull nose nut EP 30°</i>	○	○	○	○	○	○	○	○	○
WR 3003	Muffe standard <i>coupler standard</i>	EU	EU	EU	EU	EU	EU	○	○	○
WR 3003 EP	Muffe standard EP <i>coupler standard EP</i>	○	○	○	○	○	○	○	○	○
WR 3009	Sechskantmuffe <i>hexagonal coupler</i>	○	○	○	○	○	-	-	-	-
WR 3009 EP	Sechskantmuffe EP <i>hexagonal coupler EP</i>	○	○	○	○	○	-	-	-	-
WR 3303	Muffe lang <i>coupler long</i>	EU	EU	EU	EU	EU	EU	-	-	-
WR 5005	Haltemutter <i>fix nut</i>	○	○	○	○	○	○	○	○	○
WR 5005 EP	Haltemutter EP <i>fix nut EP</i>	○	○	○	○	○	○	○	○	○
WR 8002	Spannverankerung <i>stressing anchorage</i>	○	○	○	○	○	○	○	○	○
WR 8003	Spannmuffe <i>stressing coupler</i>	○	○	○	○	○	○	○	○	○

EU

erhältlich - entsprechend ETA 05/122 / available - acc. to ETA 05/122

●

erhältlich - Spannstahl zugelassen durch DIBt, für das Spannverfahren ist das deutsche Anwendungsdokument anzuwenden / available - prestressing steel approved by DIBt, for PT system please refer to German application document

○

erhältlich / available

ø18.0 26.5 32.0 36.0 40.0

Zubehör accessories

Artikel item	WS WS	Bezeichnung specification	Ø [mm]							
			18	26,5	32	36	40	47	57	65
SAS 950/1050		SAS Spannstab, warm gewalzt, rechtsgängig	-	-	●	●	-	-	-	-
SAS 835/1035		SAS stress bar, hot rolled, right hand thread	-	-	●	●	-	-	-	-
WS 1928		Ankerplatte Konus 30° anchor plate cone 30°	-	-	○	○	-	-	-	-
WS 2001		Kugelbundmutter 55° domed nut 55°	-	-	EU	EU	-	-	-	-
WS 2002		Ankermutter gerade anchor nut flat	-	-	○	○	-	-	-	-
WS 2011		Ankerplatte quadratisch 55° anchor plate square 55°	-	-	EU	EU	-	-	-	-
WS 2012		Ankerplatte rechteckig 55° anchor plate rectangular 55°	-	-	EU	EU	-	-	-	-
WS 2099		Kugelbundmutter 55° mit Verpressnuten domed nut 55° with grout slots	-	-	EU	EU	-	-	-	-
WS 2927		Ringmutter ring nut	-	-	○	○	-	-	-	-
WS 2963		Ankermutter ballig 30° bull nose nut 30°	-	-	○	○	-	-	-	-
WS 3003		Muffe standard coupler standard	-	-	EU	EU	-	-	-	-
WR 3004		Übergangsmuffe transition coupler	-	-	EU	EU	-	-	-	-
WR 5005		Haltemutter fix nut	-	-	○	○	-	-	-	-
WR 8004		Spannmuffe stressing coupler	-	-	○	○	-	-	-	-

EU

erhältlich - entsprechend ETA 05/122 / *available - acc. to ETA 05/122*



erhältlich - Spannstahl zugelassen durch DIBt, für das Spannverfahren ist das deutsche Anwendungsdokument anzuwenden / *available - prestressing steel approved by DIBt, for PT system please refer to German application document*



erhältlich / *available*

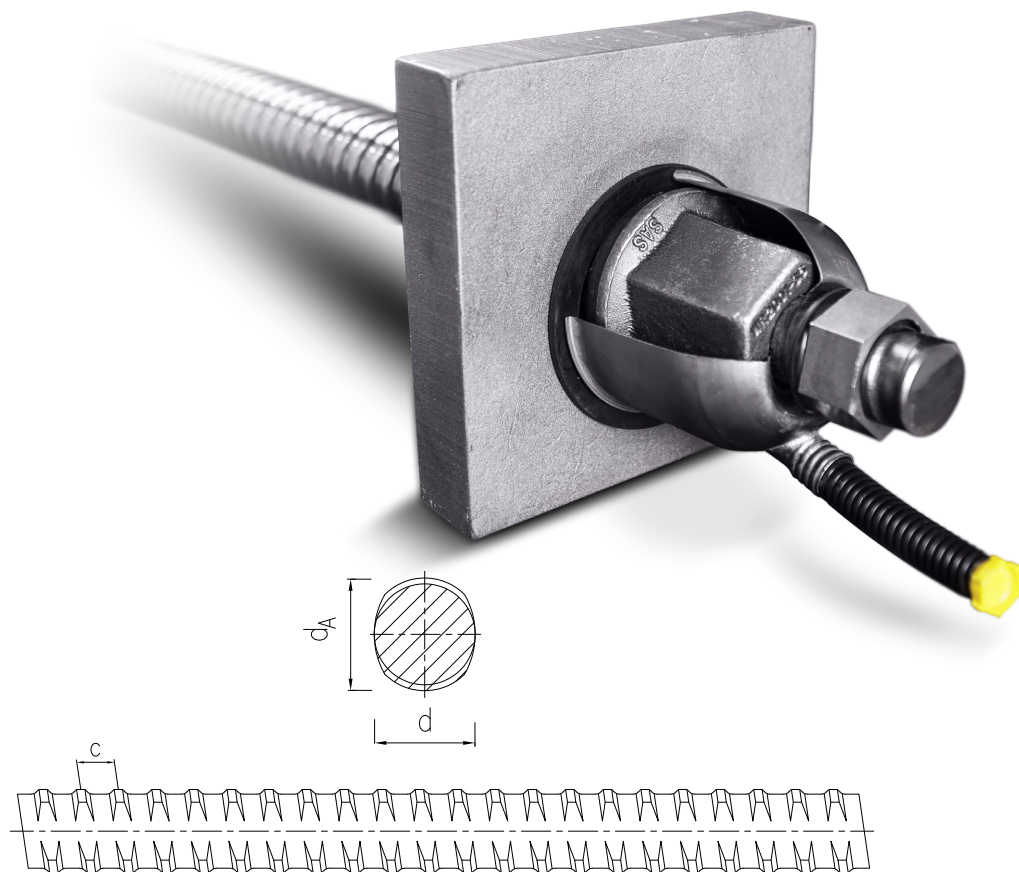
Die Gewichtsangaben sind Mittelwerte. Die tatsächlichen Gewichte können auf Grund von Fertigungstoleranzen abweichen / *Weight specifications are average values. The actual values may deviate due to fabrication tolerances*

SAS Spannstäbe

SAS stress bars

SAS 950 / 1050 Ø 18 - 47 mm

SAS 835 / 1035 Ø 57 - 75 mm



SAS Spannstahl

warmgewalzt - rechtsgängig

SAS stress bar

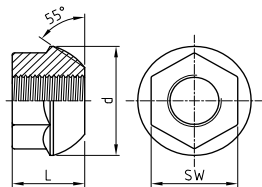
hot rolled - right hand thread

d	[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 ₁₀ ¹⁾		950 N/mm ² / 1050 N/mm ² / ≥ 7 %						835 N/mm ² / 1035 N/mm ² / ≥ 7 %		
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	[mm ²]	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

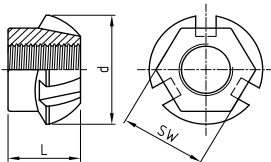
¹⁾ Bruchdehnung bezogen auf den 10-fachen Stabdurchmesser / ultimate elongation in a gauge length to 10 bar diameters

SAS SYSTEMS

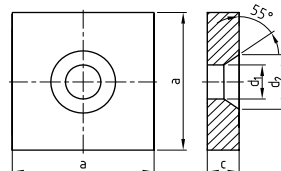
Kugelmutter 55°
dome nut 55°



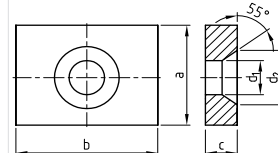
Kugelmutter 55° mit Verpressnuten
domed nut 55° with grout slots



Ankerplatte quadratisch 55°
anchor plate square 55°



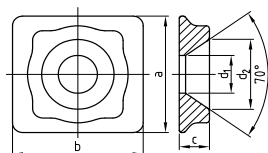
Ankerplatte rechteckig 55°
anchor plate rectangular 55°



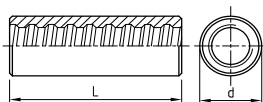
Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	a x c x d ₁ x d ₂ [mm]	[kg]	a x b x c x d ₁ x d ₂ [mm]	[kg]
WR 2001			WR 2099		WR 2011		WR 2012	
18	36 x 55 x 50	0,43	36 x 55 x 50	0,42	110 x 30 x 28 x 45	2,66	100 x 130 x 30 x 28 x 45	2,39
26,5	50 x 75 x 72	1,09	50 x 75 x 72	1,02	150 x 35 x 39 x 72	5,61	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

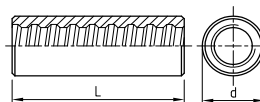
QR Platte
QR plate



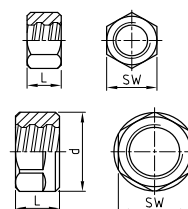
Muffe standard
coupler standard



Muffe lang
coupler long



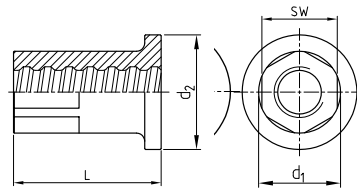
Haltemutter
fix nut



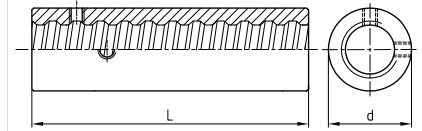
Ø [mm]	a x b x c x d ₁ x d ₂ [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]
WR 2074			WR 3003		WR 3303		WR 5005	
18	-	-	36 x 100	0,56	36 x 115	0,64	30 x 22	0,08
26,5	130 x 120 x 30 x 39 x 72	2,00	50 x 170	1,73	50 x 195	2,00	36 x 22	0,08
32	165 x 140 x 35 x 45 x 82	3,30	60 x 200	2,91	60 x 230	3,40	41 x 22	0,09
36	180 x 160 x 40 x 49 x 93	4,90	68 x 210	3,98	68 x 245	4,68	46 x 25	0,12
40	195 x 180 x 45 x 54 x 100	7,20	70 x 245	4,59	70 x 285	5,38	50 x 25	0,13
47	-	-	83 x 270	9,44	-	-	60 x 30	0,22
57	-	-	95 x 240	7,75	-	-	85 x 40 x 90	0,99
65	-	-	105 x 260	10,18	-	-	90 x 40 x 102	1,25
75	-	-	114 x 290	12,17	-	-	105 x 50 x 114	2,10

SAS SYSTEMS

Spannverankerung stressing anchorage



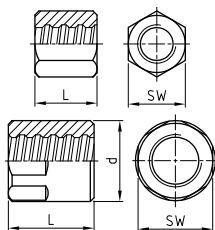
Spannmuffe stressing-coupler



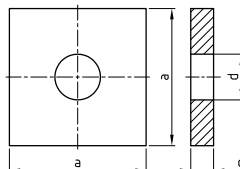
Ø [mm]	SW x L x d ₁ x d ₂ [mm]	[kg]	d ₁ x L [mm]	[kg]
WR 8002			WR 8003	
18	41 x 70 x 45 x 65	0,82	45 x 100	1,00
26,5	46 x 90 x 50 x 70	1,15	45 x 150	1,17
32	50 x 110 x 56 x 70	1,31	53 x 180	1,88
36	55 x 120 x 60 x 80	1,80	58 x 200	2,43
40	55 x 130 x 65 x 80	1,91	65 x 220	3,44
47	65 x 140 x 75 x 90	2,83	75 x 240	4,87
57	90 x 160 x 100 x 110	6,75	95 x 270	9,40
65	100 x 180 x 120	9,53	108 x 290	12,39
75	105 x 200 x 133	12,28	120 x 320	15,47

SAS SYSTEMS

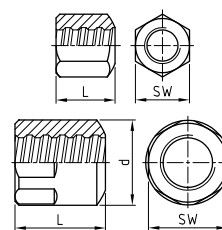
Ankermutter gerade anchor nut flat



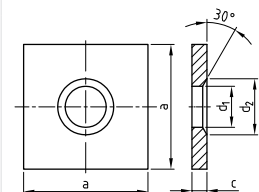
Ankerplatte gerade anchor plate flat



Ankermutter ballig 30° bull nose nut 30°



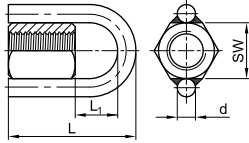
Ankermutter Konus 30° anchor plate cone 30°



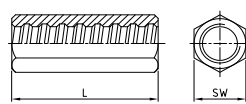
Ø [mm]	SW x L x d [mm]	[kg]	a x c x d [mm]	[kg]	SW x L x d [mm]	[kg]	a x c x d ₁ x d ₂ [mm]	[kg]
WR 2002			WR 2139		WR 2963		WR 1928	
18	41 x 60	0,54	120 x 20 x 25	2,20	41 x 60	0,52	120 x 20 x 25 x 35	2,18
26,5	46 x 80	0,73	150 x 35 x 32	5,90	46 x 80	0,71	150 x 35 x 32 x 45	5,95
32	55 x 90	1,17	180 x 40 x 38	9,82	55 x 90	1,14	180 x 40 x 38 x 50	9,81
36	60 x 110	1,63	200 x 45 x 45	13,57	60 x 110	1,59	200 x 45 x 45 x 60	13,55
40	70 x 120	2,56	220 x 45 x 50	16,40	70 x 120	2,49	220 x 45 x 50 x 70	16,36
47	80 x 140	3,65	240 x 55 x 58	23,73	80 x 140	3,54	240 x 55 x 58 x 80	23,67
57	90 x 120 x 95	3,72	285 x 65 x 70	39,48	90 x 120 x 95	3,65	285 x 65 x 70 x 90	39,30
65	100 x 130 x 105	4,75	325 x 70 x 78	55,42	100 x 130 x 105	4,59	325 x 70 x 78 x 110	55,50
75	105 x 145 x 114	5,57	370 x 80 x 88	82,15	105 x 145 x 114	5,41	370 x 80 x 88 x 120	82,00

SAS SYSTEMS

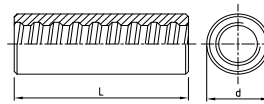
Ringmutter
(Gebrauchslast des
Rings max. 60 kN)
ring nut
(working load of ring
max. 60 kN)



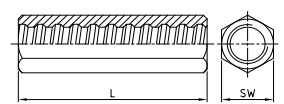
Sechskantmuffe
hexagonal coupler



Muffe EP standard
coupler EP standard



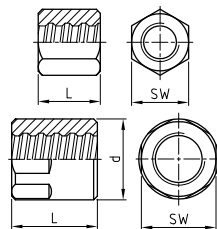
Sechskantmuffe EP
hexagonal coupler EP



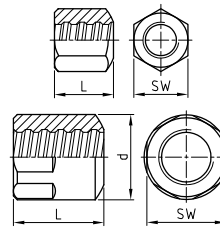
Ø [mm]	SW x L x L ₁ [mm]	[kg]	SW x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
WR 2927			WR 3009		WR 3003 EP		WR 3009 EP	
18	41 x 135 x 59	0,99	36 x 100	0,65	36 x 120	0,68	36 x 120	0,78
26,5	46 x 165 x 69	1,28	50 x 170	2,01	50 x 185	1,94	50 x 185	2,24
32	55 x 187 x 84	1,81	60 x 200	3,41	60 x 220	3,33	60 x 220	3,83
36	60 x 219 x 89	2,90	70 x 210	5,03	68 x 240	4,72	70 x 240	5,87
40	70 x 241 x 104	3,98	70 x 245	5,37	70 x 270	5,26	70 x 270	5,99
47	80 x 272 x 114	5,25	80 x 280	7,78	83 x 310	8,65	80 x 310	8,97
57	-	-	-	-	95 x 270	9,32	-	-
65	-	-	-	-	105 x 290	11,75	-	-
75	-	-	-	-	320 x 114	14,15	-	-

SAS SYSTEMS

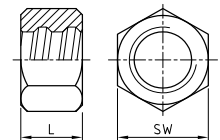
Ankermutter EP gerade
anchor nut EP flat



Ankermutter EP ballig 30°
bull nose nut EP 30°



Haltemutter EP
fix nut EP

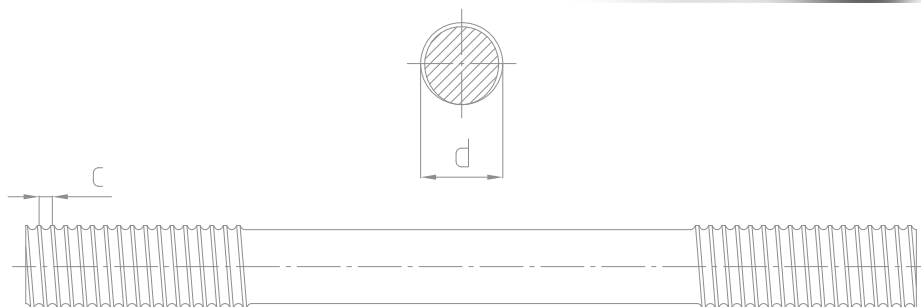


Ø [mm]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L [mm]	[kg]
WR 2002 EP			WR 2963 EP		WR 5005 EP	
18	41 x 70	0,62	41 x 70	0,60	30 x 22	0,08
26,5	46 x 90	0,81	46 x 90	0,79	36 x 22	0,08
32	55 x 100	1,30	55 x 100	1,27	41 x 22	0,09
36	60 x 120	1,75	60 x 120	1,71	46 x 25	0,12
40	70 x 130	2,77	70 x 130	2,70	50 x 25	0,13
47	80 x 150	3,92	80 x 150	3,81	60 x 30	0,22
57	90 x 145 x 95	4,59	90 x 145 x 95	4,46	85 x 40	1,01
65	100 x 155 x 105	5,82	100 x 155 x 105	5,66	90 x 40	1,13
75	105 x 180 x 114	7,60	105 x 180 x 114	6,96	105 x 50	1,92

SAS Glattstäbe

SAS smooth bar

SAS 950 / 1050 Ø 32, 36 mm glatt / smooth



SAS Spannstahl

rund, glatt mit aufgerolltem Gewinde

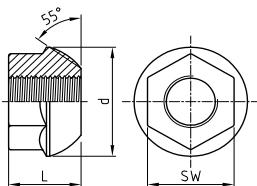
SAS stress bar

round, smooth with rolled on thread

d	[mm]	32	36
c	[mm]	3	3
$f_{p0,1k}/f_{pk}/A_{10}^{1)}$		950 N/mm ² / 1050 N/mm ² / ≥ 7 %	
$F_{yk} (F_{0,1k})$	[kN]	760	960
F_{pk}	[kN]	845	1070
A	[mm ²]	804	1018
G	[kg/m]	6,31	7,99

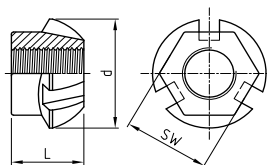
SAS SYSTEMS

Kugelbundmutter 55°
dome nut 55°



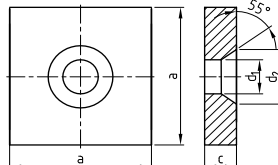
Ø [mm] SW x L x d [mm] [kg]

Kugelbundmutter 55° mit Verpressnuten
domed nut 55° with grout slots



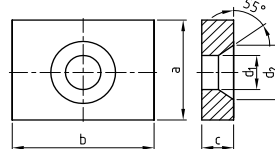
SW x L x d [mm] [kg]

Ankerplatte quadratisch 55°
anchor plate square 55°



a x c x d₁ x d₂ [mm] [kg]

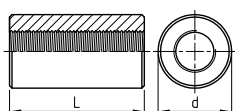
Ankerplatte rechteckig 55°
anchor plate rectangular 55°



a x b x c x d₁ x d₂ [mm] [kg]

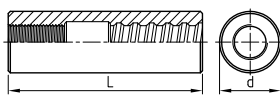
WS 2001			WS 2099		WS 2011		WS 2012	
32	55 x 46 x 72	0,78	55 x 46 x 72	0,74	180 x 40 x 45 x 72	9,50	140 x 180 x 40 x 45 x 72	7,24
36	65 x 60 x 90	1,55	65 x 60 x 90	1,41	200 x 45 x 49 x 92	12,95	150 x 220 x 50 x 49 x 92	11,70

SAS SYSTEMS Muffe standard
coupler standard



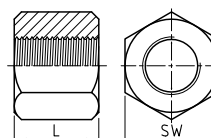
Ø [mm] d x L [mm] [kg]

Übergangsmuffe
transition coupler



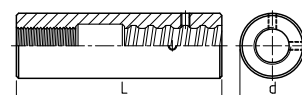
d x L [mm] [kg]

Ankermutter gerade
anchor nut flat



SW x L [mm] [kg]

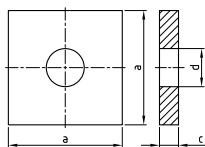
Spannmuffe für WS
stressing coupler for WS



d x L [mm] [kg]

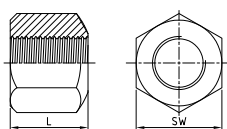
WS 3003			WS 3004		WS 2002		WS 8004	
32	60 x 110	1,74	60 x 200	2,94	55 x 50	0,71	60 x 190	2,79
36	68 x 160	3,25	68 x 235	4,47	60 x 65	1,06	65 x 230	3,80

SAS SYSTEMS Ankerplatte gerade
anchor plate flat



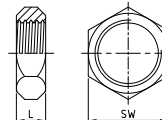
Ø [mm] a x c x d [mm] [kg]

Ankermutter ballig 30°
bull nose 30°



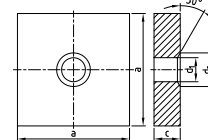
d x L [mm] [kg]

Haltemutter
fix nut



SW x L [mm] [kg]

Ankerplatte Konus 30°
anchor plate rectangular 30°

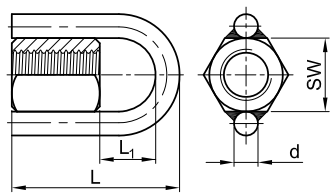


a x c x d₁ x d₂ [mm] [kg]

WS 2139			WS 2963		WS 5005		WS 1928	
32	180 x 40 x 38	10,36	55 x 50	0,68	41 x 15	0,08	180 x 40 x 38 x 50	9,81
36	200 x 45 x 45	13,57	60 x 65	0,93	46 x 15	0,09	200 x 45 x 45 x 60	13,55

SAS SYSTEMS

Ringmutter
(Gebrauchslast des Rings max. 60 kN)
ring nut
(working load of ring max. 60 kN)



Ø [mm]	SW x L x L ₁ [mm]	[kg]
WS 2927		
32	55 x 124 x 59	1,22
36	60 x 149 x 64	1,94



Projekt: Fußballstadion, Johannesburg, Südafrika
project: Soccer City Stadium, Johannesburg, South africa





SAS Vorspanntechnik
SAS post-tensioning system



Streckgrenze / Zugfestigkeit yield stress / ultimate stress		Nenn- $\varnothing$ nom.- $\varnothing$	Strecklast yield load	Bruchlast ultimate load	Fläche cross section area	Gewicht weight	Dehnung elongation			
Anwendungsbereiche areas of application		[mm]	[kN]	[kN]	[mm ²]	[m/to]	[kg/m]	A _{gt} [%]	A ₁₀ [%]	
SAS 500 / 550 - grade 75										
	Bewehrungstechnik / reinforcing 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			
	Geotechnik / geotechnical systems	28	310	340	616	207,0	4,83			
		32	405	440	804	158,5	6,31			
		40	630	690	1260	101,3	9,87			
		50	980	1080	1960	64,9	15,40			
SAS 555 / 700 - grade 80		63,5	1760	2215	3167	40,2	24,86	5		
Alternativ SAS 550 / 620 erhältlich / alternative SAS 550 / 620 grade 75 available										
SAS 450 / 700 - grade 60										
	Bergbau / 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 - grade 90										
	Bergbau / 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 - grade 97										
	Geotechnik / geotechnical systems	18	170	204	254	500,0	2,00	5	10	
		22	255	304	380	335,6	2,98			
		25	329	383	491	259,7	3,85			
		28	413	493	616	207,0	4,83			
		30	474	565	707	180,2	5,55			
	Ankerteknik / tunneling & mining	35	645	770	962	132,5	7,55			
		43	973	1162	1452	87,7	11,40			
		50	1315	1570	1963	64,9	15,40		new	
		57,5	1740	2077	2597	49,1	20,38			
	Hochfeste Bewehrung / reinforcing coupling system	63,5	2122	2534	3167	40,2	24,86			
		75	2960	3535	4418	28,8	34,68			
		SAS 950 / 1050 - grade 150								
	Spanntechnik / post-tensioning 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			
	Geotechnik / geotechnical systems	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 - grade 150										
	Geotechnik / geotechnical systems	57	2155	2671	2581	47,7	20,95	4	7	
		65	2780	3447	3331	36,9	27,10			
		75	3690	4572	4418	27,9	35,90			
SAS 900 / 1100 FA - grade 160 FA										
schweißbar / weldable										
	Schalungstechnik / 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 - grade 150 FC										
	Schalungstechnik / formwork ties	15	159	186	177	694,4	1,44	3	7	new
		20	283	330	314	390,6	2,56			new
SAS 950 / 1050 E - grade 150		26,5	525	580	551	223,2	4,48	5	7	
SAS 750 / 875 FS - kaltgerollt / cold rolled - grade 120 FS										
schweißbar / weldable										
	Schalungstechnik / 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