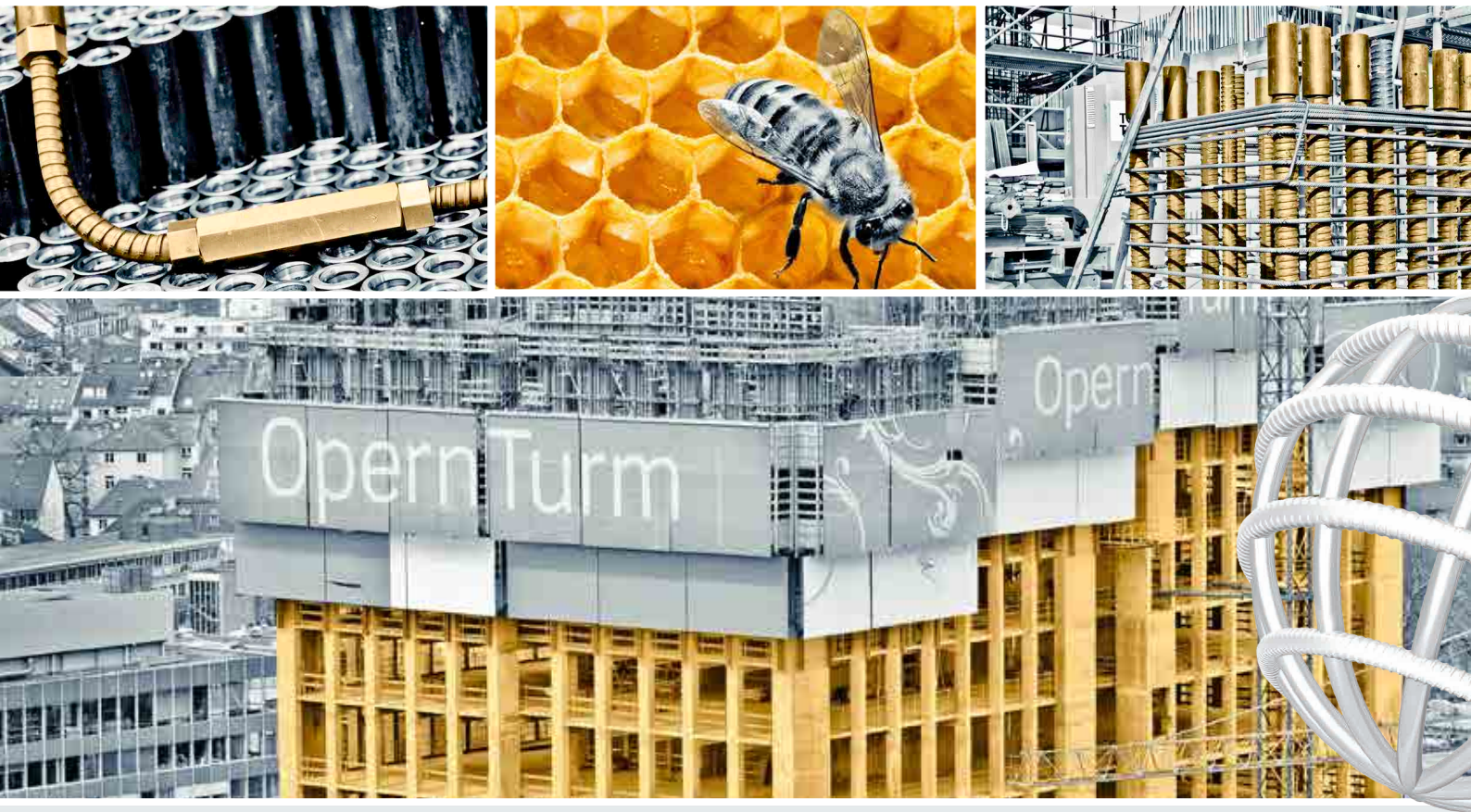


SAS 500 / 550 Bewehrungssystem Gewindestahl - Muffe

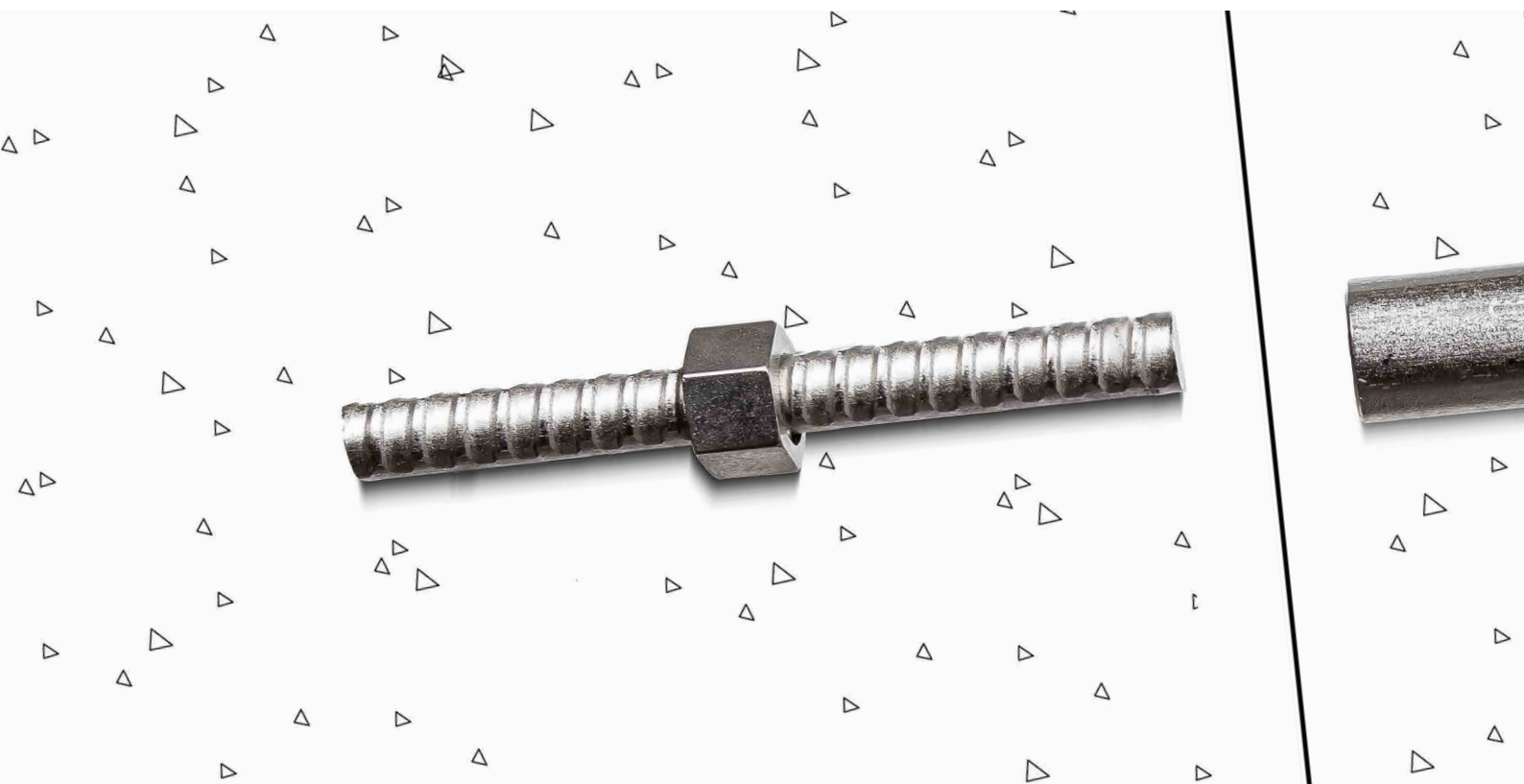
SAS 500 / 550 Reinforcing thread bar - coupling system



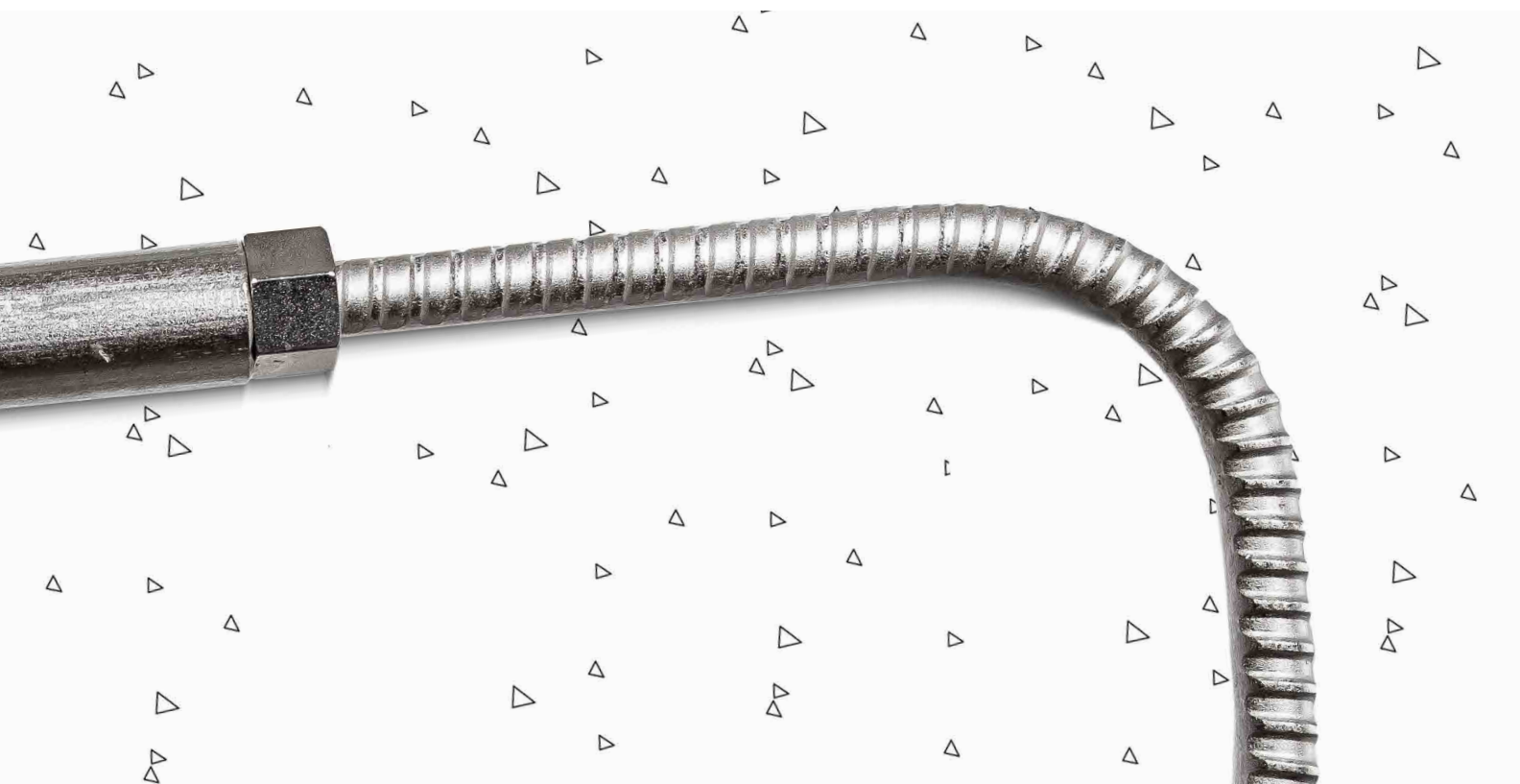
SAS SYSTEMS

Vorteile Bewehrungssystem Gewindestahl - Muffe

advantages of reinforcing thread bar coupling system



- Muffe und Stab in höchster Qualität aufeinander abgestimmt
- Endlos schraubbares, robustes und baustellen-gerechtes Grobgewinde
- Vollstoß (100%) in einer Ebene zulässig
- Stahllängen werden individuell zugeschnitten und gebogen
- Sonderausführungen möglich (z.B. Verzinken von Stahl und Zubehör)
- Zulassungen in diversen Europäischen Ländern für Stabdurchmesser 12 mm bis 50 mm verfügbar
- Zugelassen für außergewöhnliche Lastfälle wie z.B. zur Verwendung in Kernkraftwerken
- Umwandlung aller Systeme in SAS 500 möglich
- Einfach und günstig
- *thread bars and coupler coordinated in highest quality*
- *screwable thread ribs along full length of the bar, robust, site-proven self-cleaning thread*
- *mechanical thread bar splicing allow 100 % in one section*
- *individual customized bar lengths available*
- *hot-dip galvanized bars as well as accessories are available*
- *approvals for thread bar diameter 12 - 50 mm available in several European countries*
- *approved for extreme load cases e.g. like the using in nuclear power plants*
- *SAS 500 reinforcing thread bar coupling systems replaces many other bar connection systems*
- *simple and low cost*

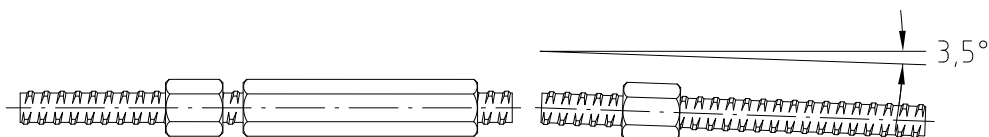


- Vorteile gegenüber Feingewinde:

- unempfindliches Grobgewinde, dass beschädigt oder verschmutzt werden kann
- Kürzen und Verlängern des Gewindestahls problemlos möglich
- keine teuren Sondermuffen oder Adapter erforderlich (z.B. für gekrümmte Stützeisen)
- Montage trotz Winkelabweichung bis zu $3,5^\circ$ leicht durchführbar

- *advantages compared to fine metric thread:*

- *robust thread can be damaged or soiled*
- *cutting or extension possible at any position of the bar*
- *no need of expensive special couplers (e.g. for coupling bended bars)*
- *installation possible up to a bar inclination of $3,5^\circ$*



- Benutzerfreundlich integriert in den Konstruktions- und Bewehrungsprogrammen, wie

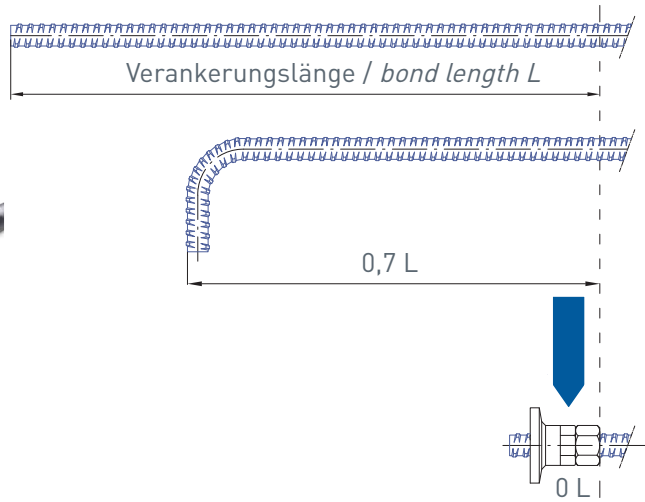
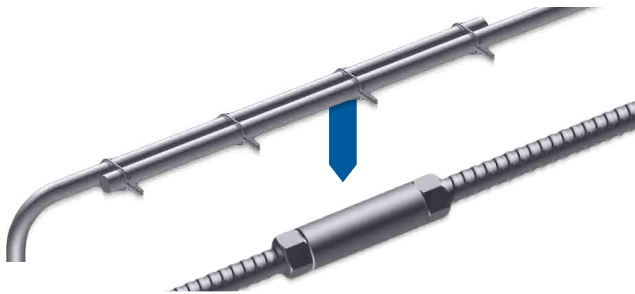
- *user-optimized integration into the construction and reinforcing programs, as*



Muffen - Stab - System

thread bar coupling system

Einsparung an Platz und Material
saving space and material



Verwendung der SAS Muffenverbindung anstatt eines Überlappungsstoßes.

Using SAS coupler connection instead of lap splices.

Verwendung der SAS Endverankerung anstatt eines geraden Verankerungsstabes oder Hakens.

Using SAS end anchorage instead of hook or long straight bar.

Muffenverbindung für gerade Anschlussstäbe

coupler connection for straight connecting bars

Sechskantmuffe für gebogene Anschlussstäbe

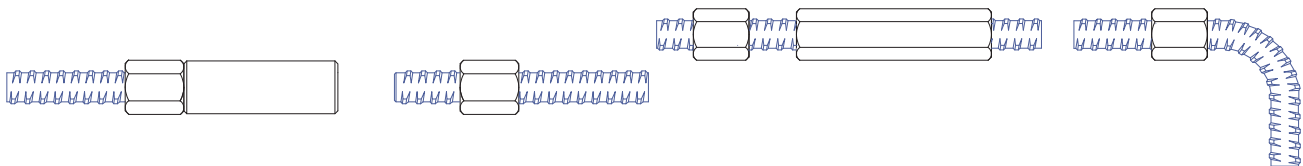
hexagonal coupler for bent connecting bars

Halbmuffenstoß
coupling bar

Anschlussstab
connecting bar

Halbmuffenstoß
coupling bar

Anschlussstab
connecting bar



Sechskantmuffe für Verbindung mit Aussparungskegel

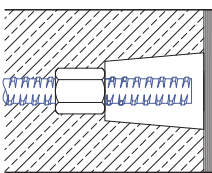
connecting bar with hexagonal coupler & recess cone

Endverankerung

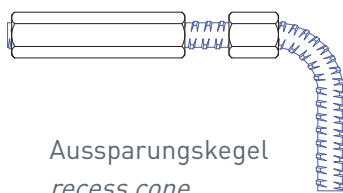
end anchorage

Stab mit Aussparungskegel
thread bar with recess cone

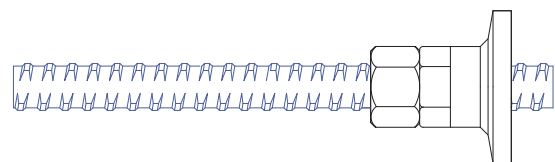
Anschlussstab mit Sechskantmuffe
connecting bar with hexagonal coupler



Schalung
formwork



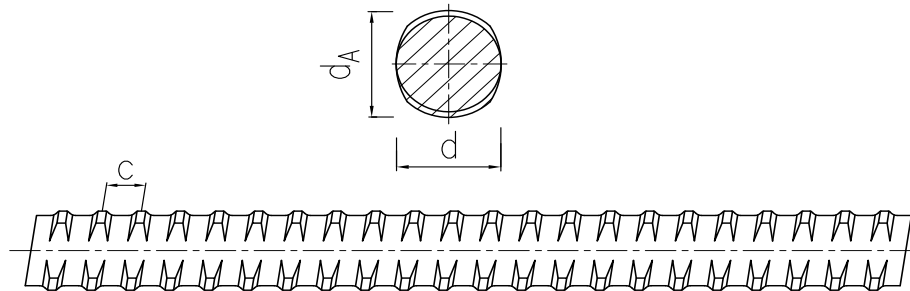
Aussparungskegel
recess cone



SAS Gewindestäbe

SAS thread bars

SAS 500 / 550 Ø 12 - 50 mm



SAS Gewindestab

warmgewalzt, Rippenstahl - linksgängig

SAS thread bar

hot rolled, ribbed - left hand thread

d Ø	[mm]	12	14	16	20	25	28	32	40	50
max dA	[mm]	14	16	19	23	29	32	36	45	56
c	[mm]	7	7,5	8	10	12,5	14	16	20	26
$f_{0,2k}/f_{tk}/A_{gt}^{11}$		500 N/mm ² / 550N/mm ² / ≥ 6 %								
$F_{yk} (F_{0,2k})$	[kN]	57	77	100	160	245	310	405	630	980
F_{tk}	[kN]	62	85	110	175	270	340	440	690	1080
$F_d (F_{0,2k}/1,75)$	[kN]	32	44	57	91	140	177	231	360	560
A	[mm ²]	113	154	201	314	491	616	804	1260	1960
G	[kg/m]	0,89	1,21	1,58	2,47	3,85	4,83	6,31	9,87	15,40

¹¹ Prozentuale Gesamtdehnung bei Höchstlast / percentage total elongation at maximum force

Zubehör accessories

14.0 16.0 20.0 25.0 40.0

Artikel item	Bezeichnung specification	Ø [mm]											
		Ø12	Ø14	Ø16	Ø20	Ø25	Ø26	Ø28	Ø30	Ø32	Ø36	Ø40	Ø50
SAS 500 / 550	SAS Gewindestab, warm gewalzt SAS thread bar, hot rolled	●	●	●	●	●	-	●	-	●	-	●	●
SAS 555 / 700		□	□	□	□	□	□	□	□	□	□	□	□
SAS 550 / 620		□	□	□	□	□	□	□	□	□	□	□	□
T 1928	Ankerplatte Konus 30° anchor plate cone 30°	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2002	Ankermutter gerade anchor nut flat	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2003	Kontermutter lang lock nut long	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2008	Ankerplatte gerade klein anchor plate flat small	-	-	-	-	-	-	-	-	-	-	● -	● -
T 2011	Ankerplatte Konus 55° anchor plate conus 55°	-	-	○	○	○	-	○	-	○	-	○	○
T 2024	Ankermutter lang anchor nut long	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	○ □	○ □
T 2040	Kontermutter kurz lock nut short	○	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2044	Kugelbundmutter 55° domed nut 55°	-	-	○	○	○	-	○	-	○	-	○	○
T 2073	Ankerstück anchor piece	-	-	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2132	Ankerplatte ballig 30°/55° domed anchor plate 30°/55°	-	-	○	○	○	-	○	-	○	-	-	-
T 2136	Spreizdübel expansion shell	-	-	○	○	○	-	○	-	○	-	-	-
T 2139	Ankerplatte gerade anchor plate flat	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2163	Ankermutter mit Bund anchor nut with flange	-	-	-	-	-	-	-	-	-	-	● □	● □
T 2926	Gabelstück fork piece	-	-	-	○	○	-	-	-	-	-	-	-
T 2927	Ringmutter ring nut	-	-	-	○	○	-	○	-	○	-	-	-
T 2928	Ankerplatte Konus 30°groß anchor plate 30° big	-	-	-	-	-	-	○	-	○	-	-	-
T 2944	Kalottenmutter 30° dome nut 30°	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 2963	Ankermutter ballig 30° bull nose nut 30°	○	○	○	○	○	○	○	○	○	○	○	○

Artikel item	Bezeichnung specification	Ø [mm]											
		Ø12	Ø14	Ø16	Ø20	Ø25	Ø26	Ø28	Ø30	Ø32	Ø36	Ø40	Ø50
T 2973	Ankerstück geschweißt anchor piece welded	=	=	=	=	=	=	=	=	=	=	○	○
T 3003	Muffe standard coupler standard	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3006	Kontaktmuffe contact coupler	=	=	=	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3010	Sechskantmuffe lang hexagonal coupler long	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3012	Reduziermuffe lang reducing coupler long	=	=	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3020	Muffe mit Drehsicherung coupler with set screws	=	=	=	=	=	=	=	=	○	○	○	○
T 3022	Anschweißstück welding bolt	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3024	Anschweißstück mit Schlüsselfläche	=	=	=	=	=	=	=	=	=	=	● ○	● ○
T 3026	Anschweißstück sechskant welding bolt	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3087	Gewindestahlmuffe thread bar coupler	=	=	● ○	● ○	● ○	○	● ○	○	● ○	○	○	-
T 3102	Reduziermuffe rund reducing coupler round	=	=	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3105	Spannschloss tensioning lock	● □	● □	● □	● □	● □	- □	● □	- □	● □	- □	● □	● □
T 3901	Muffe angeschrägt coupler chamfered	=	=	=	○	○	-	○	-	○	-	-	-
T 3927	Muffe vergütet coupler tempered	=	=	=	=	=	=	=	=	=	=	○	○
T 5025	Verschlussstöpsel inner cap	○	○	○	○	○	○	○	○	○	○	○	○
T 5050	Aussparungskegel recess cone	○	○	○	○	○	-	○	-	○	-	-	-
T 5979	Nagelplatte nail plate	○	○	○	○	○	○	○	○	○	-	-	-

● erhältlich - zugelassen DIBt Deutschland / available - approved DIBt Germany

□ erhältlich - zugelassen BMVIT Österreich / available - approved BMVIT Austria

○ erhältlich - auf Anfrage / available - on inquiry

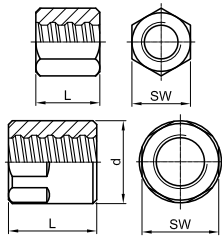
- nicht erhältlich / not available

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.

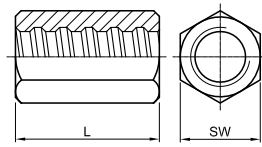
Zubehör accessories

SAS SYSTEMS

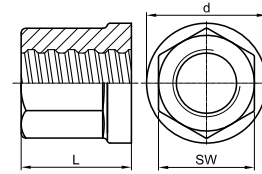
Ankermutter gerade
anchor nut flat



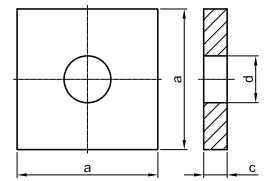
Ankermutter lang
anchor nut long



Ankermutter mit Bund 30°
bull nose nut 30°



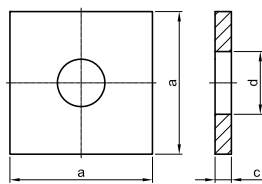
Ankerplatte gerade
anchor plate flat



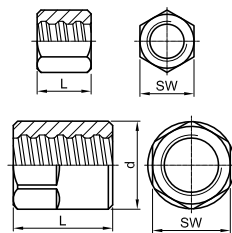
Ø [mm]	SW x L x d [mm]	[kg]	SW x L [mm]	[kg]	SW x L x d [mm]	[kg]	a x c x d [mm]	[kg]
T 2002			T 2024		T 2163		T 2139	
12	22 x 25	0,05	22 x 35	0,08	-	-	50 x 8 x 16	0,14
14	27 x 35	0,12	27 x 45	0,17	-	-	50 x 8 x 18	0,14
16	32 x 40	0,20	32 x 50	0,25	-	-	50 x 8 x 20	0,15
20	36 x 45	0,26	32 x 65	0,26	-	-	70 x 10 x 25	0,33
25	41 x 50	0,34	41 x 75	0,51	-	-	70 x 10 x 30	0,35
26	46 x 50	0,45	41 x 80	0,48	-	-	70 x 10 x 33	0,47
28	46 x 55	0,48	41 x 85	0,44	-	-	100 x 12 x 33	0,86
30	50 x 60	0,65	46 x 90	0,77	-	-	120 x 20 x 36	1,87
32	55 x 60	0,78	50 x 90	0,86	-	-	120 x 20 x 40	2,06
36	60 x 65	1,00	55 x 95	1,17	-	-	150 x 30 x 44	4,50
40	65 x 70	1,19	60 x 100	1,27	65 x 70 x 85	1,42	150 x 30 x 47	4,90
50	80 x 90	2,17	80 x 120	2,92	80 x 85 x 100	2,48	190 x 45 x 58	11,82

SAS SYSTEMS

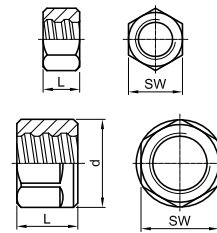
Ankerplatte gerade klein
anchor plate flat small



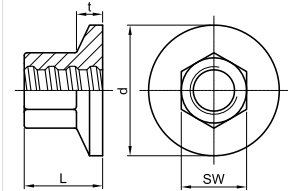
Kontermutter lang
lock nut long



Kontermutter kurz
lock nut short



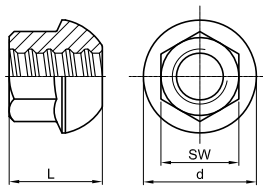
Ankerstück
anchor piece



Ø [mm]	a x c x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L x d x t [mm]	[kg]
T 2008			T 2003		T 2040		T 2073	
12	-	-	19 x 20	0,03	19 x 13	0,03	-	-
14	-	-	27 x 35	0,08	27 x 15	0,06	-	-
16	-	-	32 x 30	0,15	32 x 20	0,10	30 x 33 x 50 x 8	0,19
20	-	-	32 x 40	0,16	32 x 20	0,08	36 x 40 x 65 x 10	0,36
25	-	-	41 x 40	0,25	41 x 20	0,14	41 x 45 x 70 x 10	0,50
26	-	-	41 x 45	0,26	41 x 25	0,15	41 x 50 x 90 x 12	0,70
28	-	-	41 x 45	0,26	41 x 25	0,15	46 x 50 x 90 x 12	0,77
30	-	-	50 x 50	0,52	50 x 30	0,28	50 x 55 x 95 x 16	1,00
32	-	-	50 x 50	0,47	50 x 30	0,28	50 x 60 x 100 x 20	1,34
36	-	-	55 x 55	0,61	55 x 30	0,37	60 x 65 x 110 x 20	1,70
40	120 x 17 x 45	1,74	60 x 65	0,83	60 x 35	0,45	65 x 70 x 120 x 17	1,89
50	150 x 20 x 58	3,83	80 x 80	1,94	80 x 50	1,21	80 x 85 x 150 x 20	3,38

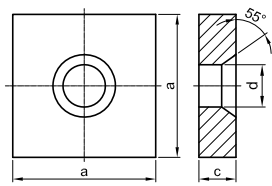
SAS SYSTEMS

Kugelbundmutter 55°
domed nut 55°



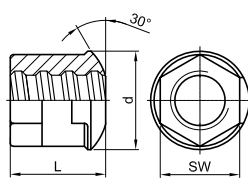
∅ [mm] SW x L x d [mm] [kg]

Ankerplatte Konus 55°
anchor plate cone 55°



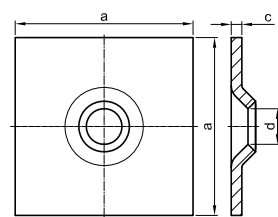
a x c x d [mm] [kg]

Kalottenmutter 30°
dome nut 30°



SW x L x d [mm] [kg]

Ankerplatte ballig 30°
domed washer 30°

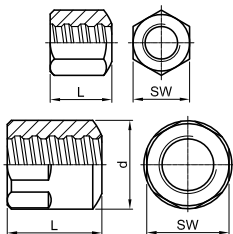


a x c x d [mm] [kg]

	T 2044		T 2011		T 2944		T 2132	
12	-	-	-	-	30 x 33 x 40	0,20	-	-
14	-	-	-	-	30 x 33 x 40	0,20	-	-
16	27 x 33 x 35	0,11	50 x 10 x 25	0,15	30 x 33 x 40	0,20	150 x 10 x 22	1,75
20	36 x 42 x 49	0,30	70 x 12 x 30	0,37	36 x 40 x 51	0,29	150 x 10 x 26	1,65
25	41 x 45 x 55	0,35	70 x 12 x 35	0,34	41 x 45 x 54	0,32	150 x 10 x 34	1,60
26	-	-	-	-	-	-	-	-
28	41 x 54 x 62	0,45	100 x 20 x 40	1,33	41 x 50 x 58	0,38	200 x 10 x 34	3,05
30	-	-	-	-	-	-	-	-
32	46 x 57 x 70	0,60	120 x 20 x 52	1,91	50 x 60 x 62	0,63	200 x 12 x 40	3,65
36	-	-	-	-	-	-	-	-
40	60 x 70 x 88	1,50	150 x 30 x 65	4,48	65 x 70 x 85	1,47	-	-
50	80 x 85 x 107	2,80	190 x 45 x 83	10,78	80 x 85 x 100	2,45	-	-

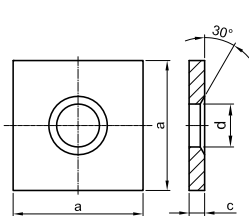
SAS SYSTEMS

Ankermutter ballig 30°
bull nose nut 30°



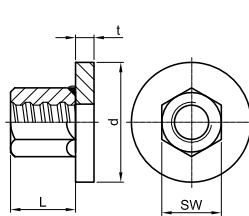
∅ [mm] SW x L x d [mm] [kg]

Ankerplatte Konus 30°
anchor plate cone 30°



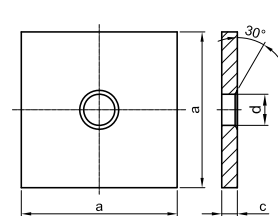
a x c x d [mm] [kg]

Ankerstück geschweißt
anchor piece welded



SW x L x d x t [mm] [kg]

Ankerplatte Konus 30° groß
anchor plate cone 30° big



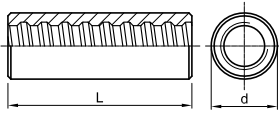
a x c x d [mm] [kg]

	T 2963		T 1928		T 2973		T 2928	
12	22 x 25	0,09	50 x 8 x 20	0,13	-	-	-	-
14	27 x 35	0,14	50 x 8 x 20	0,13	-	-	-	-
16	32 x 40	0,18	50 x 8 x 20	0,13	-	-	-	-
20	36 x 45	0,25	70 x 10 x 25	0,32	-	-	-	-
25	41 x 50	0,33	70 x 10 x 30	0,34	-	-	-	-
26	46 x 50	0,42	70 x 10 x 33	0,41	-	-	-	-
28	46 x 55	0,47	100 x 12 x 33	0,85	-	-	200 x 20 x 33	6,15
30	50 x 60	0,61	120 x 20 x 36	1,95	-	-	-	-
32	55 x 60	0,75	120 x 20 x 40	2,06	-	-	200 x 20 x 40	6,10
36	60 x 65	0,94	150 x 30 x 44	4,29	-	-	-	-
40	65 x 70	1,15	150 x 30 x 47	4,56	60 x 70 x 120 x 17	2,10	-	-
50	80 x 90	2,10	190 x 45 x 58	11,90	80 x 80 x 150 x 20	4,04	-	-

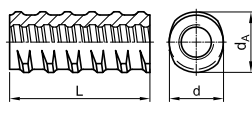
Zubehör accessories

SAS SYSTEMS

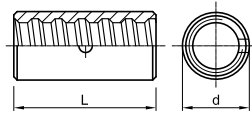
Muffe standard
coupler standard



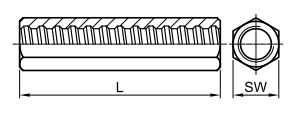
Gewindestahlmuffe
Thread bar coupler



Kontaktmuffe
contact coupler



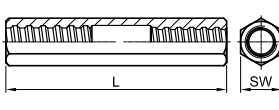
Sechskantmuffe lang
hexagonal coupler long



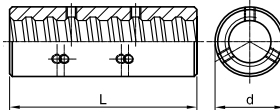
Ø [mm]	d x L	[kg]	d x dA x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
T 3003			T 3087		T 3006		T 3010	
12	22 x 60	0,11	-	-	-	-	22 x 80	0,17
14	27 x 75	0,22	-	-	-	-	27 x 100	0,34
16	32 x 90	0,37	26,5 x 31 x 90	0,25	-	-	32 x 120	0,59
20	36 x 105	0,52	32 x 37 x 105	0,40	32 x 70	0,22	32 x 140	0,54
25	40 x 115	0,61	40 x 46 x 115	0,68	36 x 70	0,26	41 x 160	1,08
26	45 x 120	0,91	47 x 53 x 120	1,13	36 x 80	0,26	41 x 170	1,08
28	45 x 125	0,85	47 x 53 x 125	1,09	40 x 85	0,34	41 x 180	1,02
30	50 x 135	1,19	47 x 53 x 135	1,10	45 x 90	0,46	50 x 180	1,71
32	52 x 140	1,32	57 x 64 x 140	1,92	45 x 90	0,46	50 x 180	1,71
36	60 x 150	1,92	57 x 64 x 150	1,78	50 x 120	0,73	60 x 180	2,75
40	65 x 160	2,34	65 x 72 x 160	2,52	54 x 120	0,82	65 x 210	3,58
50	80 x 200	4,49	-	-	65 x 160	1,09	80 x 240	6,12

SAS SYSTEMS

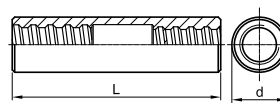
Reduziermuffe lang
reducing coupler long



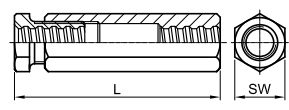
Muffe mit Drehsicherung
coupler with set screws



Reduziermuffe
reducing coupler



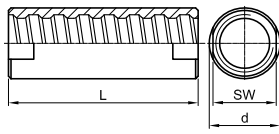
Spannschloss
tensioning lock



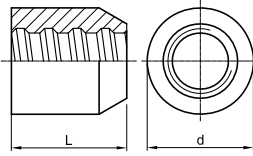
Ø [mm]	Ø x SW x L [mm]	[kg]	d x L [mm]	[kg]	Ø x d x L [mm]	[kg]	SW x ~L [mm]	[kg]
T 3012		T 3020		T 3102		T 3105		
12	-	-	-	-	-	-	32 x 130	0,60
14	-	-	-	-	-	-	32 x 140	0,62
16	16/14 x 32 x 120	0,62	-	-	16/14 x 32 x 120	0,55	36 x 150	0,89
20	20/16 x 32 x 140	0,65	-	-	20/16 x 36 x 130	0,67	41 x 175	1,20
25	25/20 x 41 x 175	1,33	-	-	25/20 x 40 x 150	1,00	46 x 190	1,33
26	26/20 x 41 x 175	1,31	-	-	26/20 x 40 x 150	1,10	50 x 205	1,70
28	28/25 x 41 x 175	1,80	-	-	28/25 x 45 x 170	1,24	50 x 205	1,92
30	30/26 x 50 x 225	2,35	-	-	30/25 x 50 x 180	1,71	60 x 225	3,10
32	32/28 x 50 x 225	2,41	52 x 140	1,35	32/28 x 52 x 180	1,80	60 x 225	2,83
36	36/32 x 60 x 245	3,10	60 x 150	2,00	36/32 x 60 x 235	2,70	70 x 250	5,00
40	40/32 x 65 x 260	5,00	65 x 160	2,35	40/32 x 65 x 240	3,90	80 x 270	6,60
50	50/40 x 80 x 290	7,48	80 x 200	4,50	50/40 x 80 x 240	6,00	100 x 310	10,70

SAS SYSTEMS

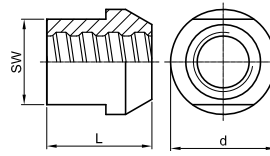
Muffe vergütet
coupler tempered



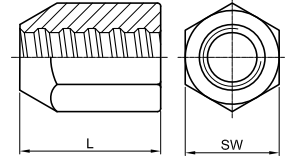
Anschweißstück
welding bolt



Anschweißstück mit Schlüsselfläche
welding bolt with wrench flat



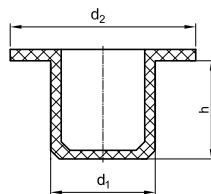
Anschweißstück SW
welding bolt hexagona



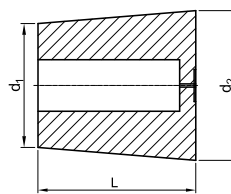
Ø [mm]	SW x d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L x d [mm]	[kg]	SW x L [mm]	[kg]
	T 3927		T 3022		T 3024		T 3026	
12	-	-	30 x 30	0,18	-	-	32 x 40	0,21
14	-	-	36 x 40	0,23	-	-	36 x 50	0,34
16	-	-	40 x 45	0,33	-	-	41 x 55	0,48
20	-	-	45 x 50	0,42	-	-	46 x 65	0,70
25	-	-	50 x 55	0,72	-	-	50 x 75	0,89
26	-	-	50 x 55	0,72	-	-	50 x 70	0,98
28	-	-	55 x 60	0,94	-	-	55 x 85	1,15
30	-	-	60 x 65	1,10	-	-	60 x 90	1,31
32	-	-	60 x 65	1,10	-	-	60 x 90	1,31
36	-	-	70 x 70	1,45	-	-	70 x 95	1,70
40	50 x 56 x 150	1,65	80 x 80	2,59	65 x 80 x 80	1,96	80 x 100	2,60
50	60 x 70 x 180	2,14	90 x 90	2,65	80 x 100 x 90	2,64	90 x 120	3,50

SAS SYSTEMS

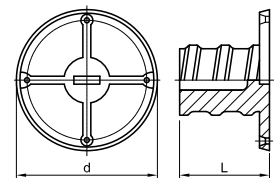
Verschlussstöpsel
inner cap



Aussparungskegel
recess cone



Nagelplatte
nail platet

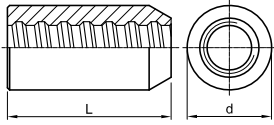


Ø [mm]	d ₁ x d ₂ x h [mm]	[kg]	d ₁ x d ₂ x L [mm]	[kg]	d x L [mm]	[kg]
	T 5025		T 5050		T 5979	
12	12 x 19 x 7	0,001	36 x 42 x 40	0,023	36 x 20	0,005
14	14 x 19 x 7	0,001	41 x 49 x 49	0,035	42 x 20	0,007
16	16 x 25 x 9	0,001	48 x 85 x 64	0,042	48 x 25	0,010
20	20 x 25 x 9	0,001	50 x 62 x 74	0,078	48 x 30	0,012
25	25 x 30 x 9	0,001	63 x 76 x 78	0,108	58 x 30	0,019
26	26 x 31 x 9	0,002	-	-	58 x 35	0,019
28	28 x 35 x 9	0,002	74 x 89 x 89	0,132	58 x 40	0,023
30	30 x 35 x 9	0,002	-	-	68 x 45	0,034
32	32 x 37 x 9	0,003	77 x 93 x 98	0,181	68 x 45	0,034
36	36 x 42 x 9	0,003	-	-	-	-
40	40 x 48 x 10	0,004	-	-	-	-
50	50 x 58 x 10	0,005	-	-	-	-

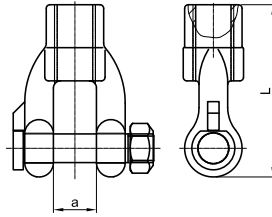
Zubehör accessories

SAS SYSTEMS

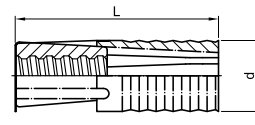
Muffe angeschrägt
coupler chamfered



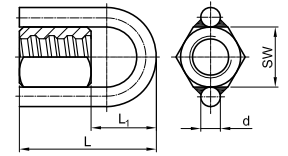
Gabelstück
fork piece



Spreizdübel
expansion shell



Ringmutter
ring nut



Ø [mm]	d x L [mm]	[kg]	a x d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L x L ₁ x d [mm]	[kg]
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T 3901

T 2926

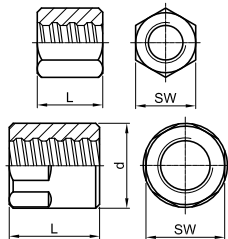
T 2136

T 2927

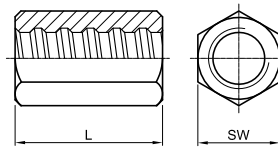
12	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
16	-	-	-	-	32 x 92	0,22	-	-
20	36 x 105	0,42	30 x 20 x 120	1,17	39 x 110	0,45	36 x 120 x 59 x 16	0,67
25	40 x 115	0,50	30 x 20 x 120	1,10	49 x 120	0,63	41 x 130 x 64 x 16	0,77
26	-	-	-	-	-	-	-	-
28	45 x 125	0,74	-	-	49 x 120	0,57	46 x 145 x 74 x 16	0,97
30	-	-	-	-	-	-	-	-
32	52 x 140	1,22	-	-	59 x 150	1,02	55 x 165 x 89 x 16	1,34
36	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	65 x 195 x 103 x 21	2,31
50	-	-	-	-	-	-	80 x 235 x 123 x 21	3,55

SAS SYSTEMS

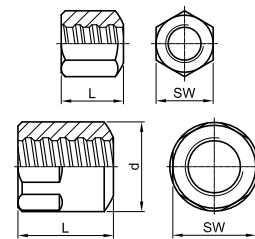
Ankermutter EP gerade
anchor nut EP flat



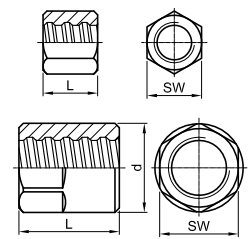
Ankermutter EP lang
anchor nut EP long



Ankermutter EP ballig 30°
bull nose nut EP 30°



Kontermutter EP lang
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]
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T 2002 EP

T 2024 EP

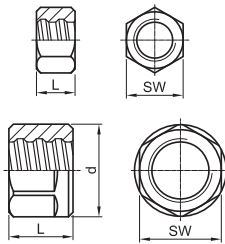
T 2963 EP

T 2003 EP

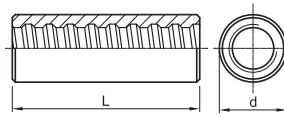
12	22 x 30	0,07	22 x 35	0,08	-	-	19 x 25	0,05
14	27 x 40	0,14	27 x 45	0,17	-	-	27 x 30	0,12
16	32 x 50	0,25	32 x 50	0,25	32 x 50	0,21	32 x 35	0,17
20	36 x 55	0,31	32 x 65	0,26	36 x 55	0,28	32 x 45	0,18
25	41 x 60	0,40	41 x 75	0,44	41 x 60	0,40	41 x 50	0,31
26	46 x 60	0,60	41 x 80	0,48	-	-	41 x 55	0,38
28	46 x 65	0,55	41 x 85	0,51	46 x 65	0,46	41 x 55	0,31
30	50 x 75	0,84	46 x 90	0,77	-	-	50 x 60	0,67
32	55 x 75	0,97	50 x 90	0,86	55 x 75	0,93	50 x 60	0,57
36	60 x 80	1,28	55 x 95	1,17	-	-	55 x 65	0,77
40	65 x 85	1,43	60 x 100	1,27	65 x 85	1,40	60 x 75	0,96
50	80 x 105	2,45	80 x 120	2,92	80 x 105	2,41	80 x 95	2,50

SAS SYSTEMS

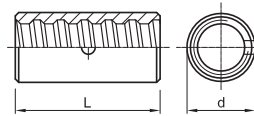
Kontermutter EP kurz lock nut EP short



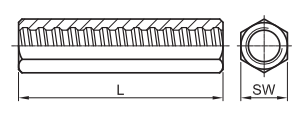
Muffe EP standard coupler EP standard



Kontaktmuffe EP contact coupler EP



Sechskantmuffe EP lang hexagonal coupler EP long



Ø [mm]	SW x L [mm]	[kg]	d x L [mm]	[kg]	d x L [mm]	[kg]	SW x L [mm]	[kg]
T 2040 EP			T 3003 EP			T 3006 EP		
12	19 x 20	0,03	22 x 75	0,15	-	-	22 x 80	0,16
14	27 x 25	0,09	27 x 90	0,27	-	-	27 x 100	0,33
16	32 x 30	0,15	32 x 105	0,46	-	-	32 x 120	0,54
20	32 x 40	0,17	36 x 120	0,59	32 x 70	0,22	32 x 140	0,59
25	41 x 40	0,28	40 x 135	0,71	36 x 80	0,26	41 x 160	1,07
26	41 x 45	0,31	45 x 140	1,13	36 x 80	0,27	41 x 170	1,01
28	41 x 45	0,41	45 x 145	0,97	40 x 85	0,34	41 x 180	1,10
30	50 x 50	0,54	50 x 155	1,50	45 x 90	0,50	50 x 180	1,75
32	50 x 50	0,50	52 x 160	1,49	45 x 90	0,45	50 x 180	1,71
36	55 x 55	0,64	60 x 170	2,30	50 x 110	0,72	60 x 190	2,75
40	60 x 65	0,85	65 x 190	3,07	52 x 120	0,82	65 x 210	2,71
50	80 x 80	2,10	80 x 235	5,50	65 x 160	1,11	80 x 240	5,88

Zulassungen approvals



Unsere aktuellen Zulassungen können Sie jederzeit direkt aus dem Downloadbereich unserer Homepage herunterladen.

www.annahuette.com

Current approvals and certificates can be downloaded from our homepage.

www.annahuette.com

Darüber hinaus verfügen auch unsere Partner-Unternehmen in weiteren Ländern über zusätzliche Zulassungen und Zertifikate für die verschiedensten Anwendungen.

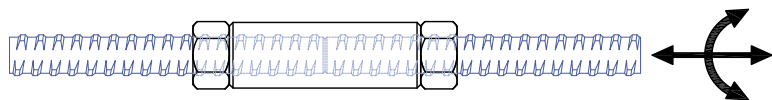
Furthermore, the partner-companies of SAH own further approvals and certificates in several countries for different applications as well.

Muffenverbindung

coupler connection

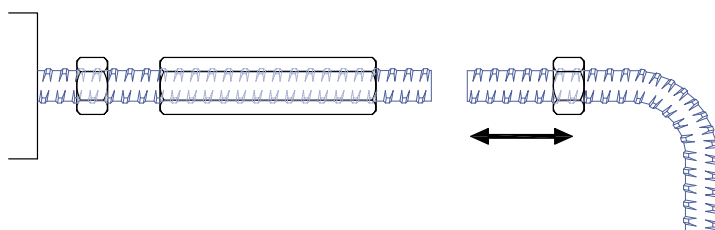
Anschlussstab ist längs verschiebbar und frei drehbar.
Connecting bar is lengthwise moveable and rotatable.

T 3003	T 2003 (T 2040)
Muffe standard	Kontermutter
<i>coupler standard</i>	<i>lock nut</i>



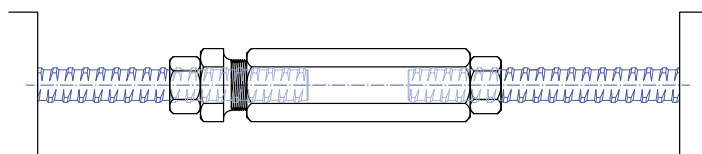
Anschlussstab ist längs verschiebbar und nicht frei drehbar
Connecting bar is lengthwise moveable and not rotatable

T 3010	T 2003 (T 2040)
Sechskantmuffe	Kontermutter
<i>hexagonal coupler</i>	<i>lock nut</i>



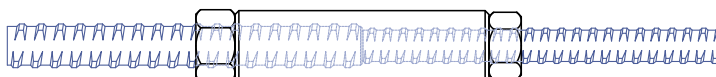
Anschlussstab ist weder längs verschiebbar noch frei drehbar
Connecting bar is neither moveable nor rotatable

T 3105	T 2003 (T2040)
Spannschloss	Kontermutter
<i>turnbuckle</i>	<i>lock nut</i>



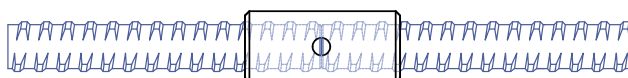
Verbindung unterschiedlicher Stabdurchmesser
Connecting of different bar diameters

T 3102	T 2003 (T2040)
Reduziermuffe	Kontermutter
<i>reducing coupler</i>	<i>lock nut</i>



Verbindung von Druckstäben
Connecting of compression bars

T 3006
Kontaktmuffe
<i>contact coupler</i>



Endverankerung

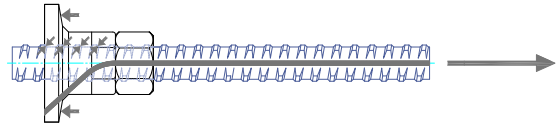
end anchorage

Endverankerung unter Zuglast

End anchorage under tensile load

T 2073
Ankerstück
anchor piece

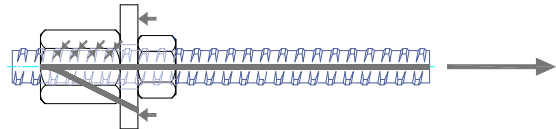
T 2040
Kontermutter kurz
lock nut



T 2002
Ankermutter
anchor nut

T 2139
Ankerplatte
anchor plate

T 2040
Kontermutter kurz
lock nut short

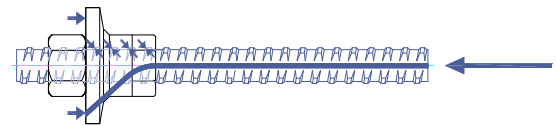


Endverankerung unter Drucklast

end anchorage under compression load

T 2040
Kontermutter kurz
lock nut short

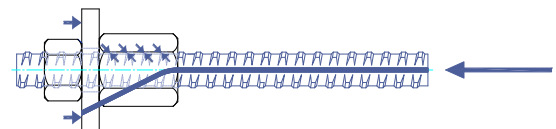
T 2073
Ankerstück
anchor piece



T 2040
Kontermutter kurz
lock nut short

T 2139
Ankerplatte
anchor plate

T 2002
Ankermutter
anchor nut

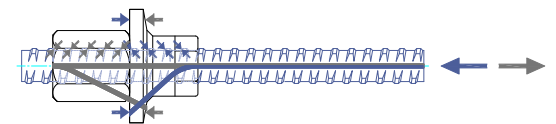


Endverankerung unter Wechsellast

end anchorage under alternating load

T 2002
Ankermutter
anchor nut

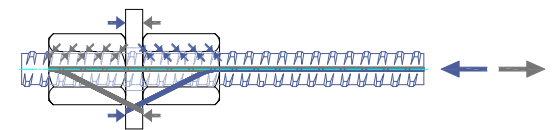
T 2073
Ankerstück
anchor piece



T 2002
Ankermutter
anchor nut

T 2139
Ankerplatte
anchor plate

T 2002
Ankermutter
anchor nut



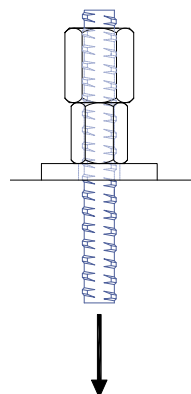
Abhängung (Stab ist nicht fixiert)

suspension (thread bar is not fixed)

T 2002
Ankermutter
anchor nut

T 2003
Kontermutter lang
lock nut long

T 2139
Ankerplatte gerade
anchor plate flat



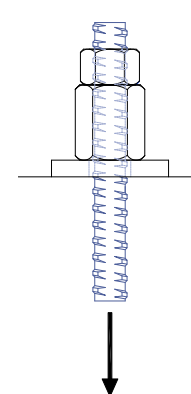
Aufgesetzte Endverankerung (Stab ist fixiert)

external end anchorage (thread bar is fixed)

T 2040
Kontermutter kurz
lock nut short

T 2002
Ankermutter
anchor nut

T 2139
Ankerplatte gerade
anchor plate flat

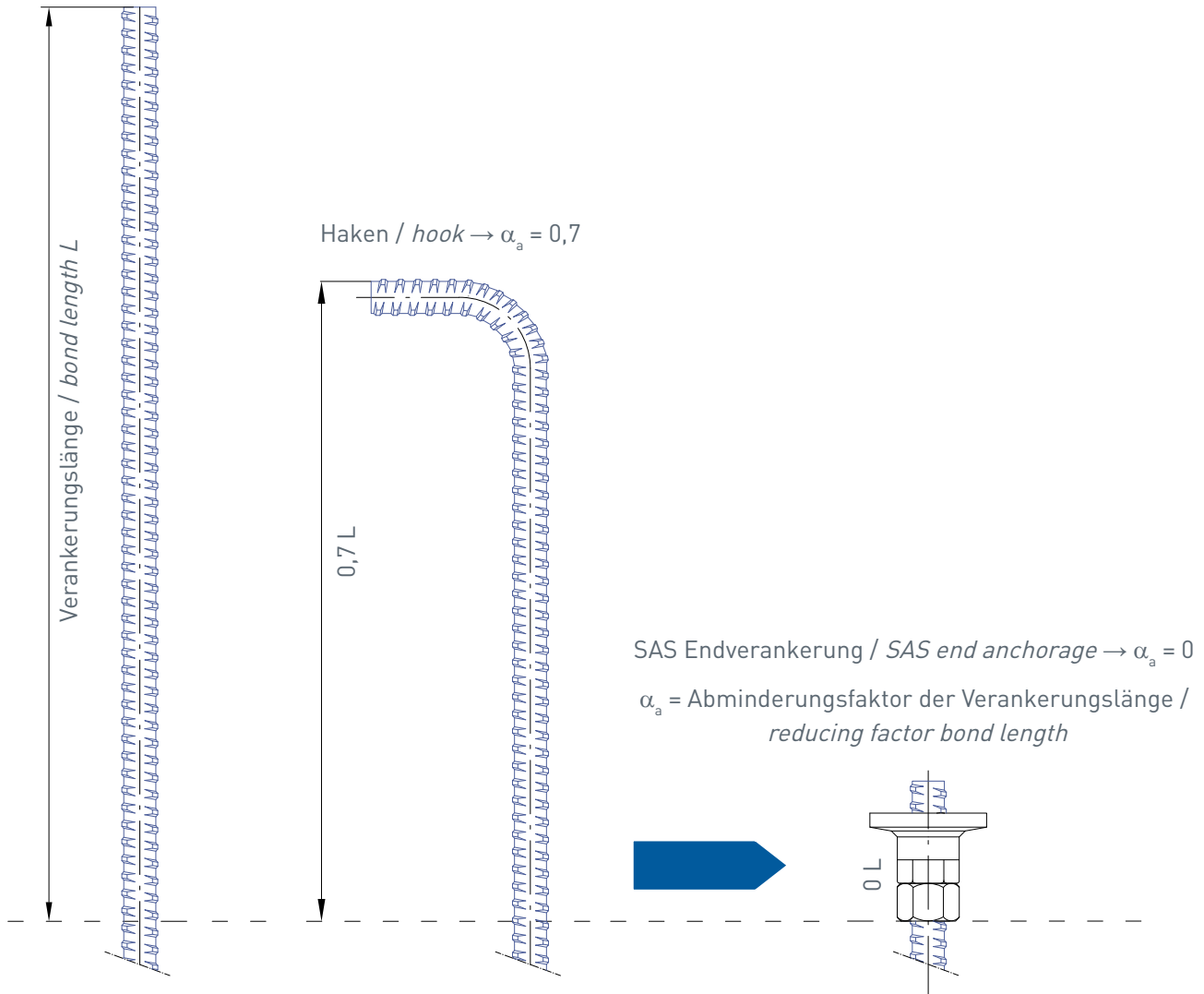


Planungsunterlagen

design documents

Einsparung an Platz und Material
saving space and material

gerader Stab / *straight bar*



Bei Verwendung der SAS Endverankerung ist keine Verankerungslänge notwendig ($\alpha_a = 0$), wenn die Zusatzbewehrung nach Zulassung eingehalten wird. Die Lastabtragung erfolgt über die Flächenpressung der Ankerplatte bzw. des Ankerstückes.

By using SAS end anchorage no bond length is necessary ($\alpha_a = 0$), if the additional reinforcing according approval is used. The load will be transferred due to the contact pressure of anchor plate or anchor piece.

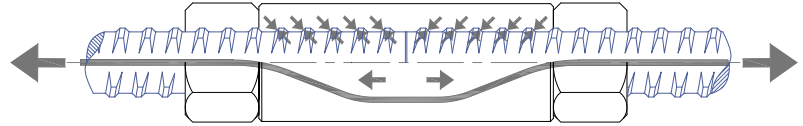
Kraftverlauf - Muffenstoß

load transfer - coupler connection

Zuglast tension load

T 2040
Verwendung der Kontermutter, kurz

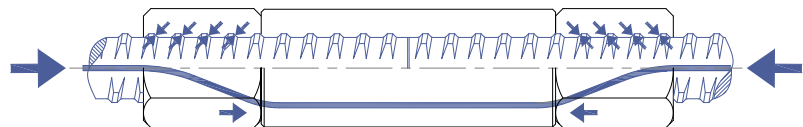
using lock nut, short



Drucklast compression load

T 2003
Verwendung der Kontermutter, lang

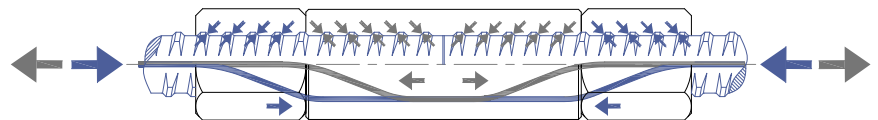
using lock nut, long



Wechsellast alternating load

T 2003
Verwendung der Kontermutter, lang

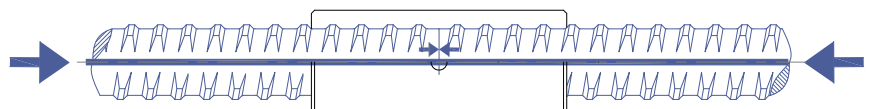
using lock nut, long



Drucklast compression load

T 3006
Verwendung der Kontaktmuffe

using contact coupler



Planungsunterlagen

design documents

Halbmuffenstoß <i>coupling bar</i>	Typ HMS <i>type HMS</i>	Anschlussstab <i>connecting bar</i>	Typ AS <i>type AS</i>
Halbmuffenstab, gebogen <i>hook extension bar</i>	Typ HMSG <i>type HMSG</i>	Anschlussstab <i>connecting bar</i>	Typ AS <i>type AS</i>
Doppelmuffenstab <i>fitting bar</i>	Typ DMS <i>type DMS</i>	Anschlussstäbe (2 Stück) <i>connecting bars (2 pieces)</i>	Typ AS <i>type AS</i>
Halbmuffenstab, Schlaufe <i>loop bar</i>	Typ HMSS <i>type HMSS</i>	Anschlussstäbe (2 Stück) <i>connecting bars (2 pieces)</i>	Typ AS <i>type AS</i>
Endverankerungsstab <i>end anchorage bar</i>	Typ EVS <i>type EVS</i>	Endverankerung vorgekorkert <i>end anchorage bar torqued</i>	Typ EVV <i>type EVV</i>

Legende

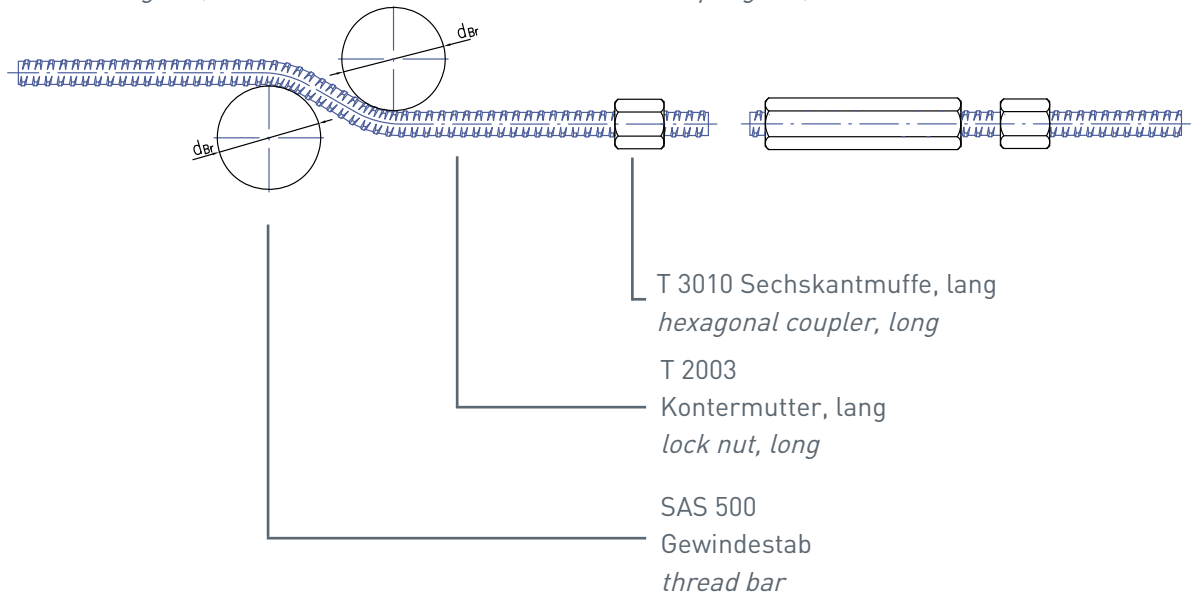
legend

- L_M = Länge Muffenstab inkl. 1/2 Muffenlänge / length of coupling bar incl. 1/2 coupler length
- L_S = Länge Stab / length of cennctig bar
- X = Schenkellänge / side length
- Y = Außenmaß bei Schlaufen / overall dimension of loop
- d_{Br} = Biegerollendurchmesser / bending roll diameter
- alle Maße sind Außenmaße / all dimensions are overall dimensions

Stützenverjüngung
tapered column

Anschlussstab, gekröpft
connecting bar, bent

Muffenstoß, lose
coupling bar, loose



Anschluss: Unterzüge, Decken, Rahmenecken
connection: beam, roof, frame corner

Anschlussstab, gekröpft, nicht drehbar
connecting bar, bent, not rotatable

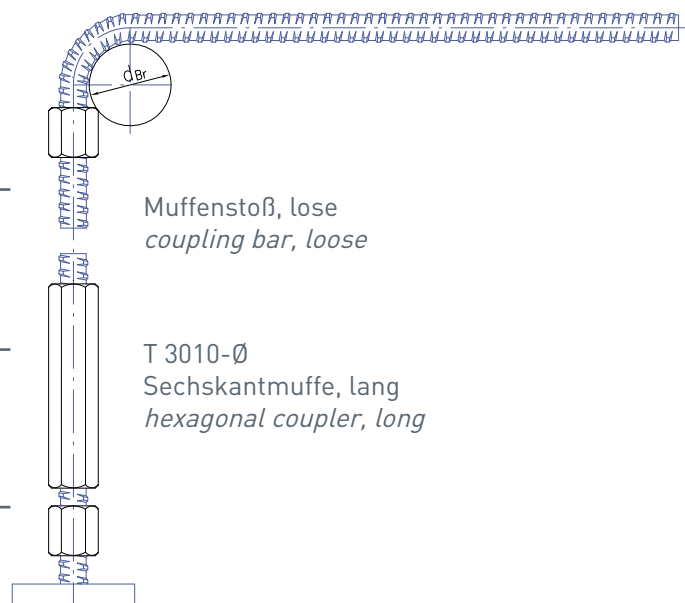
SAS 500
Gewindestab
thread bar

Muffenstoß, lose
coupling bar, loose

Muffenstoß, lose
coupling bar, loose

T 3010-Ø
Sechskantmuffe, lang
hexagonal coupler, long

T 2003-Ø
Kontermutter, lang
lock nut, long



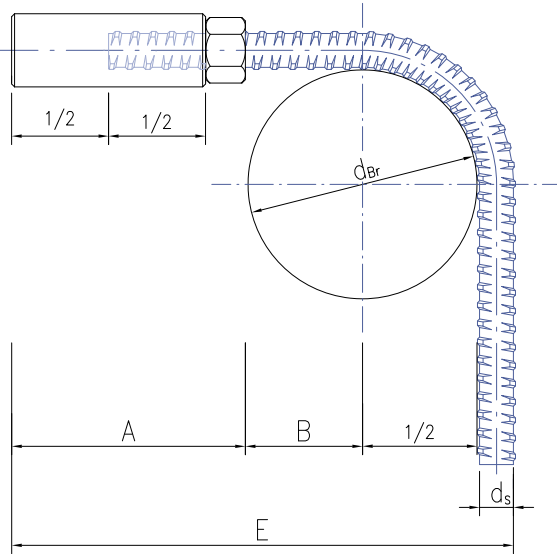
Einfach und günstig - ohne Positionsmuffe!
Simple and low cost - without position coupler!

Planungsunterlagen

design documents

Mindestabmessungen beim Biegen

Minimum dimensions for bending



Legende:

legend:

- d_s = Stabdurchmesser *thread bar diameter*
- d_{Br} = Biegerolldurchmesser *bending roll diameter*
- A = Länge Muffenstoß *length of coupler joint*
- B = $2 \times d_s$ *$2 \times d_s$*
- E = min. Einbaulänge (Außenmaß) *min. total length (overall measure)*

$$E = A + B + d_{Br} / 2 + d_s \text{ [mm]}$$

\emptyset [mm]	A [mm]	B [mm]	$d_{Br} = 4 \times d_s$	$d_{Br} = 7 \times d_s$	$d_{Br} = 10 \times d_s$	$d_{Br} = 15 \times d_s$	$d_{Br} = 20 \times d_s$
12	80	24	140	158	176	206	236
14	90	28	160	181	202	237	272
16	110	32	185	209	233	273	315
20	125	40	-	255	285	335	385
25	135	50	-	397,5	335	397,5	460
28	150	56	-	332	374	444	514
32	170	64	-	378	426	506	586

Kontermomente

torque moments

\emptyset [mm]	12	14	16	20	25	28	32	40	50	
Drehmoment ¹⁾ <i>torque moment</i> [kNm]	0,08	0,15	0,20	0,40	0,70	0,95	1,60	2,90	8,00	
Konterart <i>kind of torquing</i>	manuell mit Drehmomentschlüssel <i>hand operated torque wrench</i>						hydraulisch Kontern mit Kontergerät <i>hydraulic torque wrench</i>			

¹⁾ Standardwert (weitere Werte entnehmen Sie bitte den entsprechenden Zulassungen)

¹⁾ standard value (for further values please check the approvals)

Zur Schlupfminderung sind SAS Muffenverbindungen und Endverankerungen mit definierten Kontermomenten zu kontern.

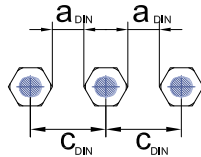
For reducing slip the SAS coupler connections and end anchorages are to torque with a defined torque moment.

Stababstände

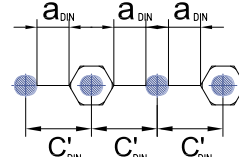
bar distances

Mindestabstand für Muffenstöße
 minimal bar distance for coupler connection

ohne Längenversatz
 without length offset

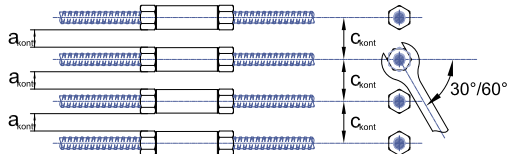


mit Längenversatz
 with length offset

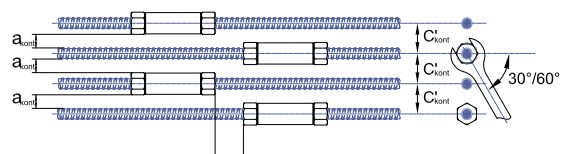


Mindestabstand für Muffenstöße
 minimal bar distance for coupler connection

ohne Längenversatz
 without length offset



mit Längenversatz
 with length offset



Erforderlicher Achsabstand c_{kont} für das Kontern ohne Längenversatz
 required distance c_{kont} for torquing without length offset

Erforderlicher Achsabstand c'_{kont} für das Kontern mit Längenversatz
 required distance c'_{kont} for torquing with length offset














Achsabstände für Muffenstöße [mm] / centre distance for coupler connection [mm]
 für Stabdurchmesser / for bar diameter

\emptyset [mm]		12	14	16	20	25	28	32	40	50
Erforderlicher Achsabstand required centre distance	C_{DIN}	42	47	52	56	65	73	84	105	130
	C'_{DIN}	37	41	44	48	58	65	74	93	115
Erforderlicher Achsabstand für das Kontern (30°) required centre distance for torquing (30°)	C_{30°	55	55	55	55	70	70	90	100	130
	C'_{30°	50	50	50	50	60	60	80	90	115
Erforderlicher Achsabstand für das Kontern (60°) required centre distance for torquing (60°)	C_{60°	90	90	90	90	110	120	130	130	160
	C'_{60°	85	85	85	85	100	110	120	120	145



Projekt: Opernturm Frankfurt
project: Frankfurt opera tower



Streckgrenze / Zugfestigkeit <i>yield stress / ultimate stress</i>		Nenn- \varnothing <i>nom.-\varnothing</i>	Strecklast <i>yield load</i>	Bruchlast <i>ultimate load</i>	Fläche <i>cross section area</i>	Gewicht <i>weight</i>	Dehnung <i>elongation</i>		
Anwendungsbereiche <i>areas of application</i>		[mm]	[kN]	[kN]	[mm ²]	[m/to]	[kg/m]	A _{gt} [%]	A ₁₀ [%]
SAS 500 / 550 - grade 75									
	Bewehrungstechnik / <i>reinforcing systems</i>	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		
	Geotechnik / <i>geotechnical systems</i>	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	
<i>Alternativ SAS 550 / 620 erhältlich / alternative SAS 550 / 620 grade 75 available</i>									
SAS 450 / 700 - grade 60									
	Bergbau / <i>mining</i>	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 / <i>mining</i>	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 / <i>geotechnical systems</i>	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		
		35	645	770	962	132,5	7,55		
	Ankerteknik / <i>tunneling & mining</i>	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		
	Hochfeste Bewehrung / <i>reinforcing coupling system</i>	63,5	2122	2534	3167	40,2	24,86		
		75	2960	3535	4418	28,8	34,68		
SAS 950 / 1050 - grade 150									
	Spanntechnik / <i>post-tensioning systems</i>	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 / <i>geotechnical systems</i>	36	960	1070	1020	120,9	8,27		
		40	1190	1320	1257	97,9	10,21		
		47	1650	1820	1735	70,9	14,10		
		57,5	1740	2077	2597	49,1	20,38		
SAS 835 / 1035 - grade 150									
	Spanntechnik / <i>post-tensioning systems</i>	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 / <i>formwork ties</i>	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		
SAS 900 / 1050 FC - grade 150 FC									
	Schalungstechnik / <i>formwork ties</i>	15	159	186	177	694,4	1,44	3	7
		20	283	330	314	390,6	2,56		
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 / <i>formwork ties</i>	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*