SAH
Stahlwerk Annahütte

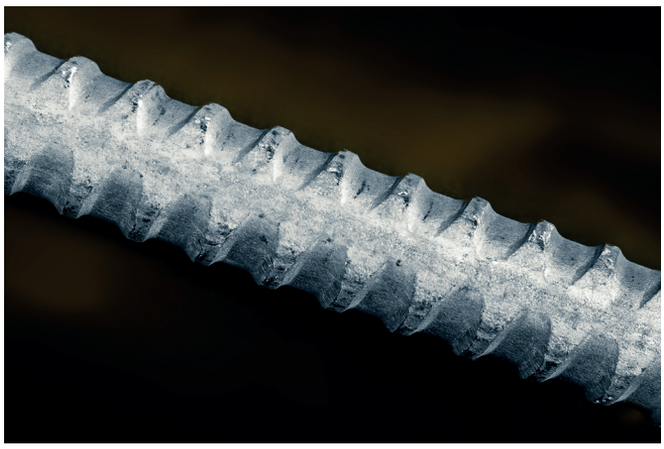
# Katalog | *catalogue*

## SAS 500 / 550 | SAS 550 / 620 | *grade 75*
## SAS 555 / 700 | *grade 80*
## SAS 670 / 800 | *grade 97*
## SAS 950 / 1050 | SAS 835 / 1035 | *grade 150*

SAS SYSTEMS



# SAS Gewindestäbe | *SAS thread bars*






**SAS Gewindestab warmgewalzt, Rippenstahl - linksgängig** | ***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 |

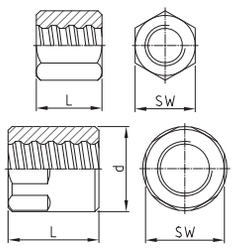
## SAS 550 / 620 Ø 12 - 50 mm | *grade 75*

| $Ø_{NENN} / Ø_{NOM}$ | [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] Prozentuale Gesamtdehnung bei Höchstlast | *Percentage total elongation at maximum force*
Die Gewichtsangaben von Stab und Zubehör sind Mittelwerte. Die tatsächlichen Gewichte können aufgrund von Fertigungstoleranzen abweichen.
*Weight specifications of bar and accessories are average values. The actual values may deviate due to fabrication tolerances.*

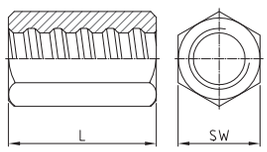
SAS SYSTEMS

**Ankermutter**
*anchor nut*



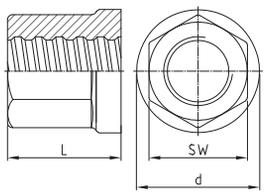

| Ø [mm] | SW x L x d [mm] | [kg] |
|---|---|---|
| 12 | 22 x 25 | 0,10 |
| 14 | 27 x 35 | 0,12 |
| 16 | 32 x 40 | 0,20 |
| 20 | 36 x 45 | 0,27 |
| 25 | 41 x 50 | 0,34 |
| 26 | 46 x 50 | 0,45 |
| 28 | 46 x 55 | 0,48 |
| 30 | 50 x 60 | 0,65 |
| 32 | 55 x 60 | 0,78 |
| 36 | 60 x 65 | 1,00 |
| 40 | 65 x 70 | 1,19 |
| 43 | 70 x 75 | 1,51 |
| 50 | 79 x 90 | 2,17 |
| 57,5 | 90 x 110 x 102 | 4,13 |
| 63,5 | 100 x 115 x 108 | 4,72 |
| 75 | 100 x 100 x 108 | 2,99 |

**Ankermutter lang**
*anchor nut long*



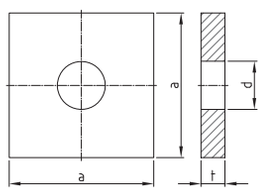

| SW x L [mm] | [kg] |
|---|---|
| 22 x 35 | 0,08 |
| 27 x 45 | 0,16 |
| 32 x 50 | 0,25 |
| 32 x 65 | 0,25 |
| 41 x 75 | 0,52 |
| 41 x 80 | 0,56 |
| 41 x 85 | 0,48 |
| 46 x 90 | 0,77 |
| 50 x 90 | 0,90 |
| 55 x 95 | 1,17 |
| 60 x 100 | 1,30 |
| - | - |
| 79 x 120 | 3,00 |
| - | - |
| - | - |
| - | - |

**Ankermutter mit Bund**
*anchor nut with flange*




| SW x L x d [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 65 x 70 x 85 | 1,20 |
| 70 x 80 x 90 | 1,81 |
| 80 x 85 x 100 | 2,35 |
| 90 x 100 x 110 | 3,50 |
| 100 x 115 x 125 | 4,90 |
| 100 x 120 x 115 | 4,15 |

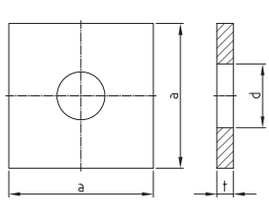
**Ankerplatte gerade**
*anchor plate flat*




| a x t x d [mm] | [kg] |
|---|---|
| 50 x 8 x 16 | 0,14 |
| 50 x 8 x 18 | 0,14 |
| 50 x 8 x 20 | 0,15 |
| 70 x 12 x 25 | 0,42 |
| 90 x 15 x 30 | 0,87 |
| 100 x 15 x 33 | 1,08 |
| 100 x 15 x 33 | 1,08 |
| 120 x 20 x 36 | 2,10 |
| 120 x 20 x 40 | 2,06 |
| 150 x 30 x 44 | 4,94 |
| 150 x 30 x 47 | 4,89 |
| 160 x 40 x 50 | 7,42 |
| 190 x 45 x 58 | 11,82 |
| 220 x 50 x 67 | 17,61 |
| 245 x 50 x 73 | 22,05 |
| 275 x 65 x 88 | 35,48 |

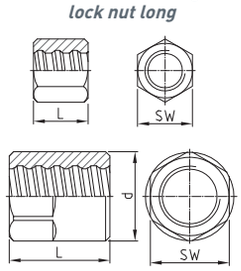
SAS SYSTEMS

**Ankerplatte gerade klein**
*anchor plate flat small*



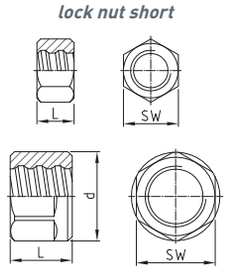

| Ø [mm] | a x t x d [mm] | [kg] |
|---|---|---|
| 12 | 40 x 6 x 16 | 0,06 |
| 14 | - | - |
| 16 | 50 x 8 x 20 | 0,10 |
| 20 | 60 x 10 x 25 | 0,16 |
| 25 | 70 x 12 x 30 | 0,40 |
| 26 | - | - |
| 28 | 85 x 14 x 33 | 0,70 |
| 30 | - | - |
| 32 | 100 x 15 x 38 | 1,00 |
| 36 | - | - |
| 40 | 120 x 17 x 47 | 1,69 |
| 43 | - | - |
| 50 | 150 x 20 x 58 | 3,12 |
| 57,5 | - | - |
| 63,5 | - | - |
| 75 | - | - |

**Kontermutter lang**
*lock nut long*



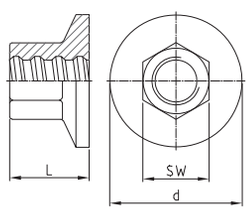

| SW x L x d [mm] | [kg] |
|---|---|
| 19 x 20 | 0,04 |
| 27 x 25 | 0,09 |
| 32 x 30 | 0,15 |
| 32 x 40 | 0,16 |
| 41 x 40 | 0,25 |
| 41 x 45 | 0,35 |
| 41 x 45 | 0,26 |
| 50 x 50 | 0,55 |
| 50 x 50 | 0,47 |
| 55 x 55 | 0,85 |
| 60 x 65 | 0,85 |
| 70 x 65 | 1,31 |
| 79 x 80 | 2,10 |
| 90 x 80 x 102 | 2,87 |
| 90 x 115 x 102 | 3,74 |
| 100 x 80 x 108 | 2,37 |

**Kontermutter kurz**
*lock nut short*




| SW x L x d [mm] | [kg] |
|---|---|
| 19 x 13 | 0,03 |
| 27 x 15 | 0,06 |
| 32 x 20 | 0,10 |
| 32 x 20 | 0,09 |
| 41 x 20 | 0,14 |
| 41 x 25 | 0,20 |
| 41 x 25 | 0,15 |
| 50 x 30 | 0,35 |
| 50 x 30 | 0,30 |
| 55 x 30 | 0,40 |
| 60 x 35 | 0,45 |
| 70 x 40 | 0,80 |
| 79 x 50 | 1,30 |
| 90 x 60 x 102 | 2,08 |
| 90 x 75 x 102 | 2,28 |
| 100 x 80 x 108 | 2,37 |

**Ankerstück**
*anchor piece*



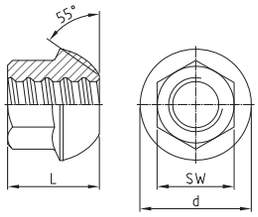

| SW x L x d [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| 30 x 33 x 50 | 0,25 |
| 36 x 40 x 70 | 0,43 |
| 41 x 45 x 70 | 0,50 |
| 41 x 50 x 90 | 0,70 |
| 46 x 50 x 90 | 0,77 |
| 50 x 55 x 95 | 1,00 |
| 50 x 60 x 100 | 1,40 |
| 60 x 65 x 110 | 1,64 |
| 65 x 70 x 120 | 2,10 |
| 70 x 80 x 130 | 2,43 |
| 80 x 85 x 150 | 3,88 |
| 90 x 100 x 175 | 6,09 |
| 100 x 115 x 190 | 7,38 |
| - | - |

** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

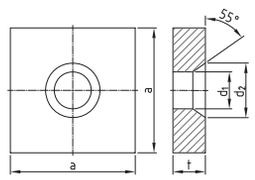
# Zubehör | *accessories*

SAS SYSTEMS

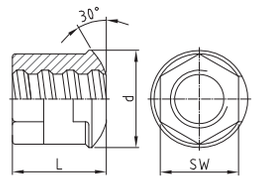
**Kugelbundmutter 55°**
***domed nut 55°***



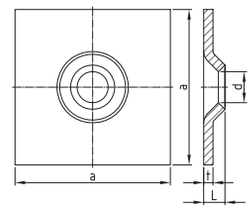

**Ankerplatte Konus 55°**
***anchor plate cone 55°***




**Kalottenmutter 30°**
***dome nut 30°***



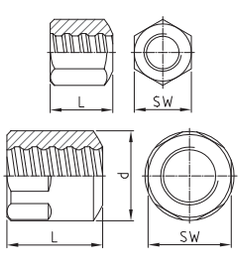

**Ankerplatte ballig 30°/55°**
***domed washer 30°/55°***



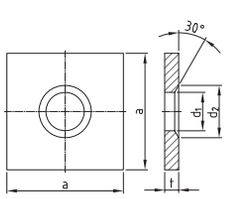

| Ø [mm] | SW x L x d [mm] | [kg] | a x t x $d_1$ x $d_2$ [mm] | [kg] | SW x L x d [mm] | [kg] | a x L x t x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 2044 - Ø** | | **T 2011 - Ø **** | | **T 2944 - Ø** | | **T 2132 - Ø **** | |
| **12** | - | - | - | - | - | - | - | - |
| **14** | - | - | - | - | - | - | - | - |
| **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 15 x 40 x 54 | 0,99 | 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

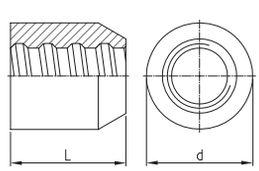
**Ankermutter ballig 30°**
***bull nose nut 30°***



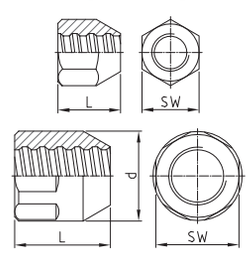

**Ankerplatte Konus 30°**
***anchor plate cone 30°***




**Anschweißstück**
***welding bolt***




**Anschweißstück SW**
***welding bolt hexagonal***

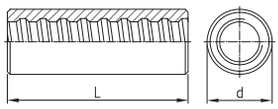



| Ø [mm] | SW x L x d [mm] | [kg] | a x t x $d_1$ x $d_2$ [mm] | [kg] | d x L [mm] | [kg] | SW x L x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 2963 - Ø** | | **T 1928 - Ø **** | | **T 3022 - Ø** | | **T 3026 - Ø** | |
| **12** | 22 x 25 | 0,05 | 50 x 8 x 16 x 26 | 0,14 | 30 x 30 | 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 73 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 | - | - | - | - |

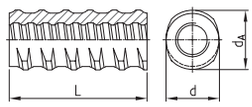
** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

SAS SYSTEMS

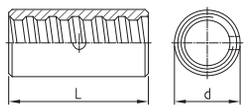
**Muffe standard**
*coupler standard*



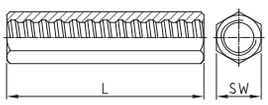

**Gewindemuffe**
*thread coupler*




**Kontaktmuffe**
*contact coupler*



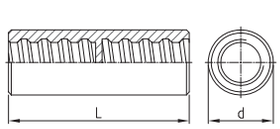

**Sechskantmuffe lang**
*hexagonal coupler long*



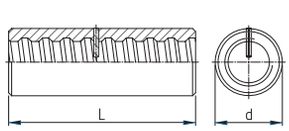

| Ø [mm] | d x L [mm] | [kg] | d x $d_A$ x L [mm] | [kg] | d x L [mm] | [kg] | SW x L [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 3003 - Ø** | | **T 3087 - Ø** | | **T 3006 - Ø** | | **T 3010 - Ø** | |
| **12** | 22 x 60 | 0,11 | - | - | - | - | 22 x 80 | 0,20 |
| **14** | 27 x 75 | 0,22 | - | - | - | - | 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

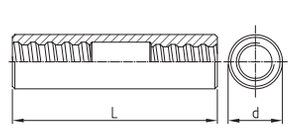
**Muffe standard mit Mittelstop**
*coupler standard with center stop*



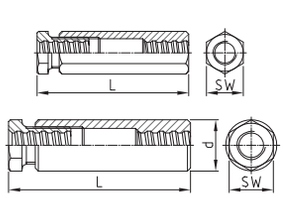

**Muffe standard mit Kerbstift**
*coupler standard with grooved pin*




**Reduziermuffe**
*reducing coupler*




**Spannschloss**
*turnbuckle*

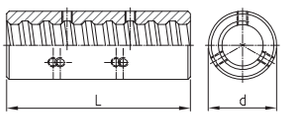



| Ø [mm] | d x L [mm] | [kg] | d x L [mm] | [kg] | Ø x d x L [mm] | [kg] | SW x L x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 3002 - Ø** | | **T 3043 - Ø** | | **T 3102 - Ø** | | **T 3105 - Ø** | |
| **12** | 22 x 60 | 0,12 | - | - | - | - | 32 x 126 | 0,65 |
| **14** | 27 x 75 | 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 |

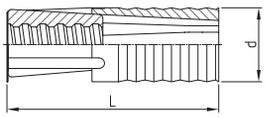
# Zubehör | *accessories*

**SAS** SYSTEMS

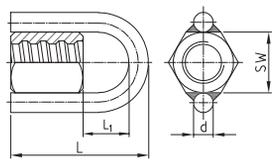
**Muffe mit Drehsicherung**
*coupler with set screws*




**Spreizdübel**
*expansion shell*



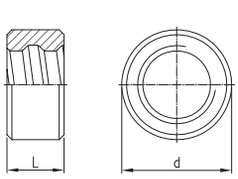

**Ringmutter**
*ring nut*



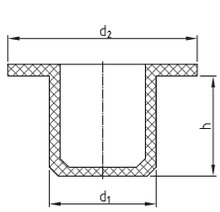

| Ø [mm] | d x L [mm] | [kg] | d x L [mm] | [kg] | SW x L x $L_1$ x d [mm] | [kg] |
|---|---|---|---|---|---|---|
| | **T 3020 - Ø** | | **T 2136 - Ø *** | | **T 2927 - Ø *** | |
| **12** | - | - | - | - | - | - |
| **14** | - | - | - | - | 32 x 110 x 54 x 16 | 0,58 |
| **16** | - | - | 32 x 92 | 0,22 | 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

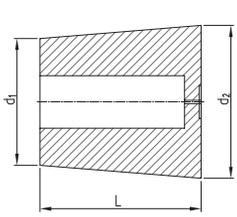
**Haltering**
*fix ring*



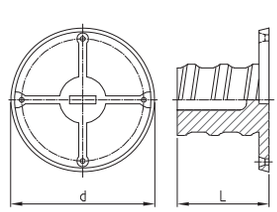

**Verschlussstöpsel**
*inner cap*




**Aussparungskegel**
*recess cone*




**Nagelplatte**
*nail plate*

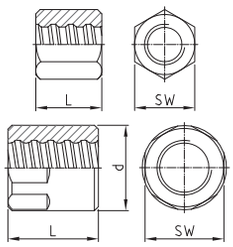



| Ø [mm] | d x L [mm] | [kg] | $d_1$ x $d_2$ x h [mm] | [kg] | $d_1$ x $d_2$ x L [mm] | [kg] | d x L [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 5003 - Ø** | | **T 5025 - Ø** | | **T 5050 - Ø** | | **T 5979 - Ø** | |
| **12** | - | - | 12 x 19 x 7 | 0,01 | 36 x 42 x 40 | 0,02 | 36 x 20 | 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 | 46 x 53 x9 | 0,01 | - | - | - | - |
| **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 | - | - | - | - | - | - |

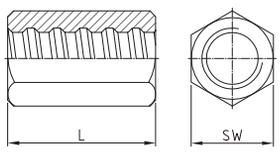
* Bzgl. Traglast und Einbau bitte Datenblatt auf der Homepage beachten | *with regard to load capacity and installation, please note data sheet available on the homepage*

SAS SYSTEMS

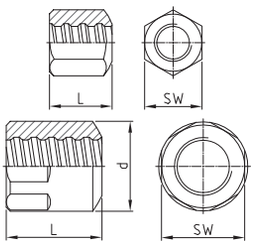
**Ankermutter EP gerade**
*anchor nut EP flat*



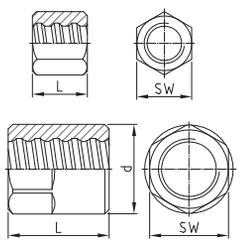

**Ankermutter EP lang**
*anchor nut EP long*




**Ankermutter EP ballig 30°**
*bull nose nut EP 30°*



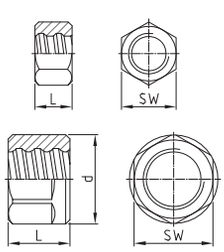

**Kontermutter EP lang**
*lock nut EP long*



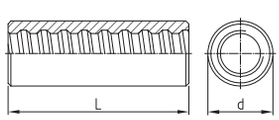

| Ø [mm] | SW x L x d [mm] | [kg] | SW x L [mm] | [kg] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **T 2002 - Ø EP** | | **T 2024 - Ø EP** | | **T 2963 - Ø EP** | | **T 2003 - Ø EP** | |
| **12** | 22 x 30 | 0,06 | 22 x 35 | 0,08 | 22 x 30 | 0,06 | 19 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

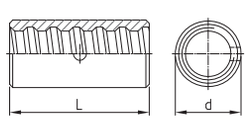
**Kontermutter EP kurz**
*lock nut EP short*



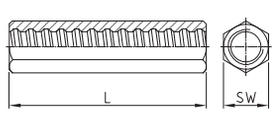

**Muffe EP standard**
*coupler EP standard*




**Kontaktmuffe EP**
*contact coupler EP*




**Sechskantmuffe EP lang**
*hexagonal coupler EP long*




| Ø [mm] | SW x L 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 | - | - |

# SAS Gewindestäbe | *SAS thread bars*







**SAS Gewindestab warmgewalzt, Rippenstahl - rechtsgängig** | ***SAS thread bar hot rolled, ribbed - right hand thread***

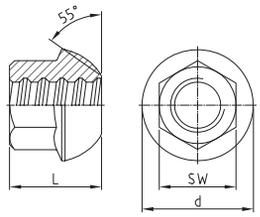
## SAS 670 / 800 Ø 18 - 75mm | *grade 97*

| $Ø_{NENN}$ / $Ø_{NOM}$ | [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] | | 670 N/mm² / 800 N/mm² / ≥ 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 | [mm²] | 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 |

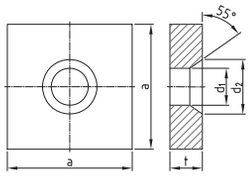
[1] Prozentuale Gesamtdehnung bei Höchstlast | *Percentage total elongation at maximum force*
Die Gewichtsangaben sind Mittelwerte. Die tatsächlichen Gewichte können aufgrund von Fertigungstoleranzen abweichen.
*Weight specifications are average values. The actual values may deviate due to fabrication tolerances.*

SAS SYSTEMS

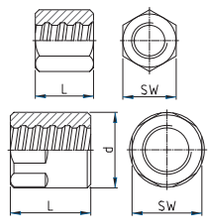
**Kugelbundmutter 55°**
*dome nut 55°*



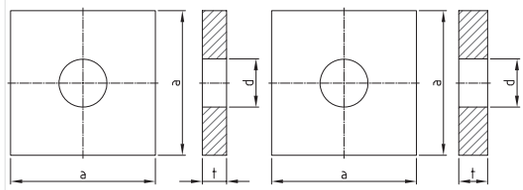

**Ankerplatte Konus 55°**
*anchor plate cone 55°*




**Ankermutter**
*anchor nut*



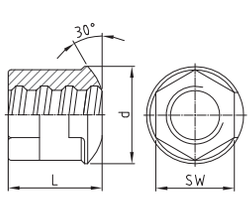

**Ankerplatte gerade**
*anchor plate flat*



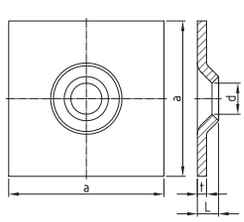

| Ø [mm] | SW x L x d [mm] | [kg] | a x t x $d_1$ x $d_2$ [mm] | [kg] | SW x L x d [mm] | [kg] | a x t x d [mm] | [kg] | a x t x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| | **TR 2001 - Ø** | | **TR 2011 - Ø **** | | **TR 2002 - Ø** | | **TR 2138 - Ø **** | | **TR 2139 - Ø **** | |
| **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

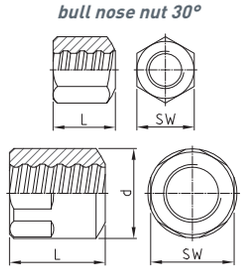
**Kalottenmutter 30°**
*dome nut 30°*



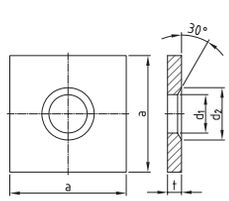

**Ankerplatte ballig 30°**
*domed washer 30°*




**Ankermutter ballig 30°**
*bull nose nut 30°*




**Ankerplatte Konus 30°**
*anchor plate cone 30°*



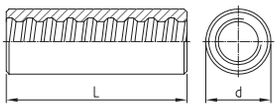

| Ø [mm] | SW x L x d [mm] | [kg] | a x L x t x d [mm] | [kg] | SW x L x d [mm] | [kg] | a x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **TR 2944 - Ø** | | **TR 2132 - Ø **** | | **TR 2963 - Ø** | | **TR 1928 - Ø **** | |
| **18** | 30 x 35 x 46 | 0,20 | 150 x 25 x 10 x 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 |

** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

# Zubehör | *accessories*

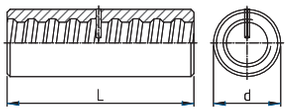
SAS SYSTEMS

**Muffe standard**
*coupler standard*



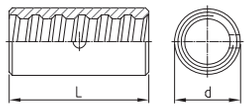

| Ø [mm] | d x L [mm] | [kg] |
|---|---|---|
| | **TR 3003 - Ø** | |
| **18** | 36 x 100 | 0,57 |
| **22** | 40 x 110 | 0,55 |
| **25** | 45 x 130 | 1,05 |
| **28** | 50 x 140 | 1,36 |
| **30** | 55 x 150 | 1,84 |
| **35** | 65 x 180 | 3,16 |
| **43** | 80 x 200 | 5,42 |
| **50** | 90 x 210 | 6,92 |
| **57,5** | 102 x 250 | 10,37 |
| **63,5** | 114 x 300 | 15,85 |
| **75** | 108 x 260 | 8,98 |

**Muffe standard mit Kerbstift**
*coupler standard with grooved pin*



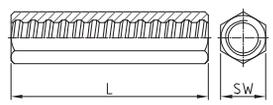

| d x L [mm] | [kg] |
|---|---|
| **TR 3043 - Ø** | |
| 36 x 100 | 0,57 |
| 40 x 110 | 0,71 |
| 45 x 130 | 1,05 |
| 50 x 140 | 1,39 |
| 55 x 150 | 1,85 |
| 65 x 180 | 3,17 |
| 80 x 200 | 5,35 |
| 90 x 210 | 6,92 |
| 102 x 250 | 10,38 |
| 114 x 300 | 15,86 |
| 108 x 260 | 8,76 |

**Kontaktmuffe**
*contact coupler*




| d x L [mm] | [kg] |
|---|---|
| **TR 3006 - Ø** | |
| 27 x 70 | 0,16 |
| 32 x 75 | 0,22 |
| 40 x 80 | 0,43 |
| 45 x 90 | 0,67 |
| 45 x 90 | 0,60 |
| 50 x 120 | 0,82 |
| 65 x 160 | 2,08 |
| 70 x 170 | 2,23 |
| 83 x 180 | 3,55 |
| 90 x 200 | 4,24 |
| 102 x 230 | 5,83 |

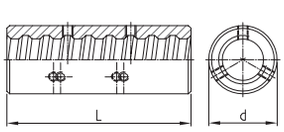
**Sechskantmuffe lang**
*hexagonal coupler long*




| SW x L [mm] | [kg] |
|---|---|
| **TR 3010 - Ø** | |
| 36 x 120 | 0,78 |
| 41 x 135 | 1,08 |
| 46 x 150 | 1,49 |
| 50 x 170 | 1,96 |
| 55 x 185 | 2,63 |
| 60 x 210 | 3,36 |
| 79 x 245 | 7,27 |
| - | - |
| - | - |
| - | - |
| - | - |

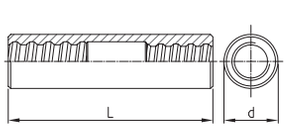
SAS SYSTEMS

**Muffe mit Drehsicherung**
*coupler with set screws*



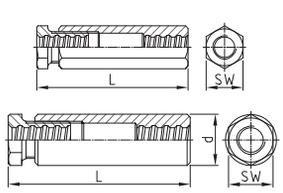

| Ø [mm] | d x L [mm] | [kg] |
|---|---|---|
| | **TR 3020 - Ø** | |
| **18** | 36 x 100 | 0,56 |
| **22** | 40 x 110 | 0,70 |
| **25** | 45 x 130 | 1,03 |
| **28** | 50 x 140 | 1,37 |
| **30** | 55 x 150 | 1,85 |
| **35** | 65 x 180 | 3,13 |
| **43** | 80 x 200 | 5,40 |
| **50** | 90 x 210 | 6,82 |
| **57,5** | 102 x 250 | 10,00 |
| **63,5** | 114 x 300 | 14,70 |
| **75** | 108 x 260 | 8,90 |

**Reduziermuffe**
*reducing coupler*



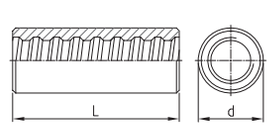

| Ø x d x L [mm] | [kg] |
|---|---|
| **TR 3102 - Ø** | |
| - | - |
| 22/18 x 40 x 145 | 1,00 |
| 25/22 x 45 x 160 | 1,40 |
| 28/25 x 50 x 180 | 2,00 |
| 30/28 x 55 x 195 | 2,50 |
| 35/30 x 60 x 215 | 3,00 |
| 43/35 x 80 x 250 | 5,50 |
| 50/43 x 85 x 270 | 7,68 |
| 57,5/50 x 100 x 295 | 11,94 |
| 63,5/57,5 x 110 x 305 | 14,89 |
| 75/63,5 x 110 x 335 | 13,24 |

**Spannschloss**
*turnbuckle*




| SW x L x d [mm] | [kg] |
|---|---|
| **TR 3105 - Ø** | |
| 41 x 175 | 1,34 |
| 46 x 190 | 1,78 |
| 55 x 205 | 2,94 |
| 60 x 225 | 3,74 |
| 65 x 260 | 5,11 |
| 79 x 275 | 8,27 |
| 90 x 330 x 105 | 15,14 |
| 100 x 350 x 115 | 19,04 |
| 100 x 405 x 125 | 24,46 |
| 100 x 425 x 120 | 21,56 |
| 110 x 460 x 130 | 25,20 |

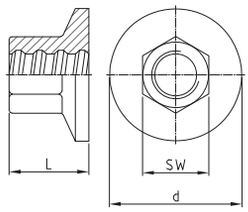
**Muffe vergütet**
*coupler tempered*




| d x L [mm] | [kg] |
|---|---|
| **TR 3927 - Ø** | |
| - | - |
| 36 x 90 | 0,41 |
| 38 x 100 | 0,45 |
| 42 x 120 | 0,64 |
| 50 x 130 | 1,18 |
| 55 x 150 | 1,52 |
| 65 x 170 | 2,26 |
| 75 x 180 | 3,17 |
| 85 x 220 | 4,92 |
| 95 x 240 | 6,81 |
| - | - |

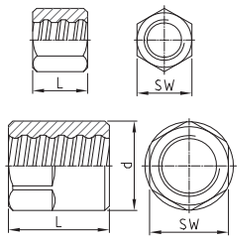
SAS SYSTEMS

**Ankerstück**
*anchor piece*



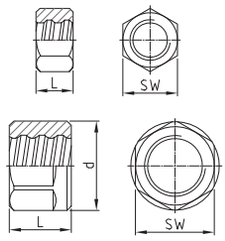

| Ø [mm] | SW x L x d [mm] | [kg] |
|---|---|---|
| | **TR 2073 - Ø** | |
| **18** | 32 x 35 x 55 | 0,28 |
| **22** | 36 x 45 x 65 | 0,43 |
| **25** | 41 x 50 x 75 | 0,62 |
| **28** | 46 x 55 x 85 | 0,85 |
| **30** | 50 x 60 x 90 | 1,03 |
| **35** | 60 x 70 x 105 | 1,66 |
| **43** | 70 x 85 x 130 | 2,74 |
| **50** | 80 x 100 x 150 | 3,63 |
| **57,5** | 90 x 115 x 175 | 6,96 |
| **63,5** | 100 x 125 x 190 | 8,78 |
| **75** | 120 x 150 x 230 | 15,03 |

**Kontermutter lang**
*lock nut long*



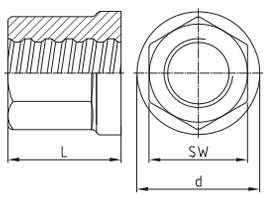

| SW x L x d [mm] | [kg] |
|---|---|
| **TR 2003 - Ø** | |
| 30 x 40 | 0,16 |
| 36 x 45 | 0,25 |
| 41 x 50 | 0,37 |
| 46 x 55 | 0,50 |
| 50 x 60 | 0,67 |
| 55 x 65 | 0,78 |
| 70 x 80 | 1,60 |
| 79 x 90 | 2,27 |
| 90 x 100 x 102 | 3,71 |
| 100 x 115 x 114 | 5,45 |
| 100 x 120 x 108 | 4,20 |

**Kontermutter kurz**
*lock nut short*




| SW x L x d [mm] | [kg] |
|---|---|
| **TR 2040 - Ø** | |
| 30 x 22 | 0,10 |
| 36 x 22 | 0,12 |
| 41 x 22 | 0,16 |
| 46 x 30 | 0,26 |
| 50 x 30 | 0,31 |
| 55 x 40 | 0,47 |
| 70 x 50 | 1,00 |
| 79 x 50 | 1,26 |
| 90 x 60 x 102 | 2,04 |
| 100 x 70 x 114 | 3,07 |
| 100 x 80 x 108 | 2,70 |

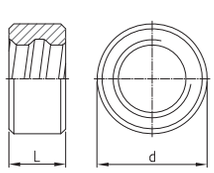
**Ankermutter mit Bund**
anchornut with flange




| SW x L x d [mm] | [kg] |
|---|---|
| **TR 2163 - Ø** | |
| 36 x 45 x 42 | 0,31 |
| 41 x 50 x 47 | 0,43 |
| 46 x 55 x 53 | 0,59 |
| 50 x 65 x 58 | 0,80 |
| 55 x 65 x 64 | 0,98 |
| 65 x 70 x 75 | 1,51 |
| 80 x 90 x 92 | 2,99 |
| 80 x 100 x 92 | 2,84 |
| 90 x 120 x 102 | 4,15 |
| 100 x 145 x 114 | 6,23 |
| - | - |

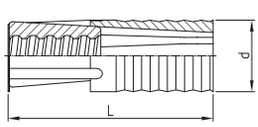
SAS SYSTEMS

**Haltering**
*fix ring*



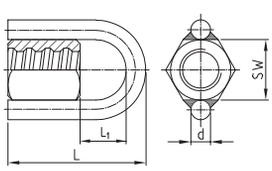

| Ø [mm] | d x L [mm] | [kg] |
|---|---|---|
| | **TR 5003 - Ø** | |
| **18** | - | - |
| **22** | 31 x 20 | 0,06 |
| **25** | - | - |
| **28** | 45 x 20 | 0,14 |
| **30** | 45 x 20 | 0,06 |
| **35** | 50 x 20 | 0,13 |
| **43** | 65 x 25 | 0,33 |
| **50** | 70 x 30 | 0,39 |
| **57,5** | 81 x 35 | 0,60 |
| **63,5** | 89 x 40 | 0,85 |
| **75** | 102 x 40 | 1,01 |

**Spreizdübel**
*expansion shell*



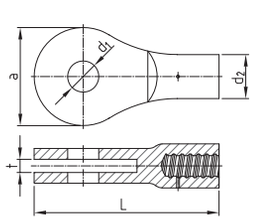

| d x L [mm] | [kg] |
|---|---|
| **TR 2136 - Ø *** | |
| 39 x 109 | 0,44 |
| 49 x 121 | 0,60 |
| 49 x 121 | 0,60 |
| 59 x 149 | 1,00 |
| 59 x 149 | 1,00 |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |

**Ringmutter**
*ring nut*




| SW x L x d x $L_1$ [mm] | [kg] |
|---|---|
| **TR 2927 - Ø *** | |
| 36 x 120 x 16 x 59 | 0,68 |
| 41 x 135 x 16 x 69 | 0,83 |
| 46 x 145 x 16 x 74 | 1,02 |
| 50 x 155 x 16 x 79 | 1,19 |
| 55 x 165 x 16 x 84 | 1,46 |
| 65 x 193 x 20 x 103 | 2,42 |
| 79 x 220 x 20 x 110 | 3,78 |
| 79 x 220 x 20 x 100 | 3,69 |
| 90 x 270 x 20 x 130 | 5,97 |
| 100 x 305 x 20 x 140 | 8,60 |
| 100 x 279 x 20 x 129 | 5,30 |

**Gabelstück**
*fork piece*



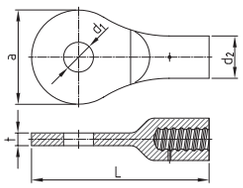

| a x L x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| **TR 2090 - Ø EP** | |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 167 x 315 x 27 x 53 x 75 | 7,40 |
| 197 x 384 x 29 x 63 x 92 | 12,80 |
| 221 x 406 x 35 x 75 x 94 | 14,75 |
| 248 x 454 x 42 x 88 x 96 | 20,40 |
| 298 x 553 x 42 x 98 x 114 | 34,50 |
| 328 x 627 x 54 x 108 x 116 | 44,40 |

* Bzgl. Traglast und Einbau bitte Datenblatt auf der Homepage beachten | *with regard to load capacity and installation, please note data sheet available on the homepage*

# Zubehör | *accessories*

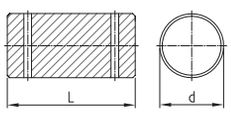
**SAS SYSTEMS**

## Augenstück
*eye piece*



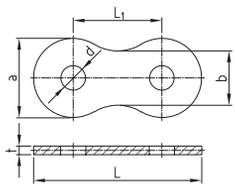

| Ø [mm] | a x L x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|---|
| 18 | - | - |
| 22 | - | - |
| 25 | - | - |
| 28 | - | - |
| 30 | - | - |
| 35 | 167 x 315 x 23 x 53 x 75 | 7,18 |
| 43 | 197 x 384 x 25 x 63 x 92 | 12,54 |
| 50 | 221 x 406 x 31 x 75 x 92 | 17,99 |
| 57,5 | 248 x 469 x 38 x 88 x 96 | 21,57 |
| 63,5 | 298 x 558 x 38 x 98 x 114 | 33,45 |
| 75 | 328 x 627 x 50 x 108 x 116 | 46,13 |

## Bolzen Augenstück
*bolt eye piece*



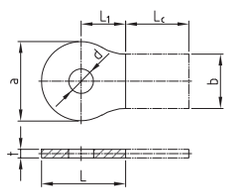

| d x L [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 50 x 100 | 1,52 |
| 60 x 110 | 2,40 |
| 72 x 105 | 3,31 |
| 85 x 145 | 6,45 |
| 95 x 145 | 8,02 |
| 105 x 165 | 11,21 |

## Verbindungslasche Augenstück
*strap connection eye piece*




| a x L x t x d x $L_1$ x b [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 167 x 354 x 18 x 53 x 187 x 114 | 7,00 |
| 197 x 414 x 20 x 63 x 217 x 134 | 9,60 |
| 221 x 467 x25 x 75 x 246 x 160 | 14,91 |
| 248 x 526 x 30 x 88 x 278 x 160 | 22,00 |
| 298 x 626 x 30 x 98 x 328 x 200 | 31,80 |
| 328 x 691 x 35 x 108 x 363 x 220 | 45,80 |

## Anschweißlasche Augenstück
*welding plate eye piece*

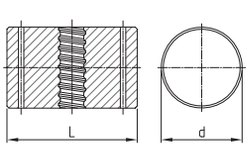



| a x L x $L_1$ x t x d x b [mm] | [kg+Lc] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 167 x 177 x 94 x 18 x 53 x 114 x Lc | 3,10 + Lc |
| 197 x 207 x 109 x 20 x 63 x 134 x Lc | 4,72 + Lc |
| 221 x 224 x 114 x 25 x 75 x 160 | 7,15 + Lc |
| 248 x 263 x 139 x 30 x 88 x 160 x Lc | 10,95 + Lc |
| 298 x 313 x 164 x 30 x 98 x 200 x Lc | 17,95 + Lc |
| 328 x 346 x 182 x 35 x 108 x 220 x Lc | 22,75 + Lc |

Lc nach Kundenwunsch / *Lc on customer request*

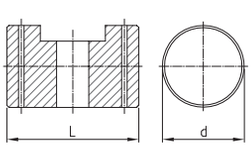
**SAS SYSTEMS**

## Gelenkmutter
*joint nut*



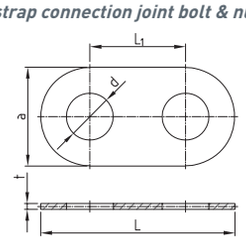

| Ø [mm] | d x L [mm] | [kg] |
|---|---|---|
| 18 | - | - |
| 22 | - | - |
| 25 | - | - |
| 28 | - | - |
| 30 | - | - |
| 35 | 120 x 193 | 16,00 |
| 43 | 140 x 212 | 23,80 |
| 50 | 150 x 222 | 24,39 |
| 57,5 | 150 x 222 | 27,00 |
| 63,5 | 190 x 265 | 53,40 |
| 75 | 190 x 279 | 55,00 |

## Gelenkbolzen
*joint bolt*



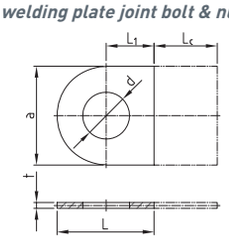

| d x L [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 120 x 193 | 14,60 |
| 140 x 212 | 21,20 |
| 150 x 212 | 21,20 |
| 150 x 222 | 24,60 |
| 190 x 265 | 51,06 |
| 190 x 279 | 52,00 |

## Verbindungslasche Gelenkmutter und Gelenkbolzen
*strap connection joint bolt & nut*




| a x L x t x d x $L_1$ [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 260 x 512 x 15 x 123 x 252 | 11,00 |
| 320 x 626 x 15 x 145 x 306 | 16,60 |
| 355 x 680 x 20 x 155 x 325 | 27,73 |
| 420 x 780 x 20 x 155 x 360 | 40,20 |
| 460 x 894 x 25 x 195 x 434 | 59,60 |
| 470 x 912 x 35 x 195 x 442 | 88,40 |

## Anschweißlasche Gelenkmutter und Gelenkbolzen
*welding plate joint bolt & nut*



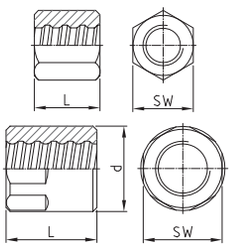

| a x L x t x d x $L_1$ x Lc [mm] | [kg+Lc] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 260 x 256 x 15 x 123 x 126 x Lc | 5,60 + Lc |
| 320 x 313 x 15 x 145 x 153 x Lc | 8,55 + Lc |
| 355 x 340 x 20 x 155 x 163 x Lc | 13,87 + Lc |
| 420 x 390 x 20 x 155 x 180 x Lc | 19,80 + Lc |
| 460 x 447 x 25 x 195 x 217 x Lc | 30,05 + Lc |
| 470 x 456 x 35 x 195 x 221 x Lc | 44,20 + Lc |

Lc nach Kundenwunsch / *Lc on customer request*

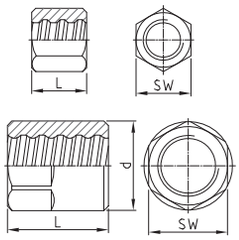
** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

SAS SYSTEMS

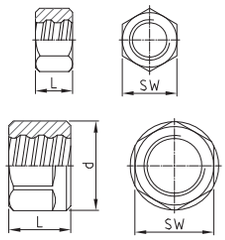
## Ankermutter EP gerade
*anchor nut EP flat*



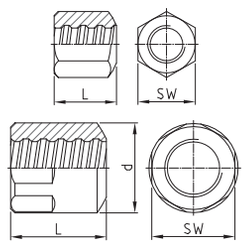

## Kontermutter EP lang
*lock nut EP long*




## Kontermutter EP kurz
*lock nut EP short*



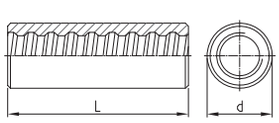

## Ankermutter EP ballig 30°
*bull nose EP 30°*



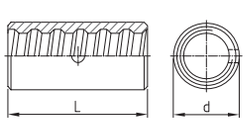

| Ø [mm] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | TR 2002 - Ø EP | | TR 2003 - Ø EP | | TR 2040 - Ø EP | | TR 2963 - Ø EP | |
| 18 | 36 x 55 | 0,40 | 30 x 50 | 0,20 | 30 x 40 | 0,15 | 36 x 55 | 0,38 |
| 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

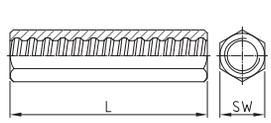
## Muffe EP standard
*coupler EP standard*




## Kontaktmuffe EP
*contact coupler EP*

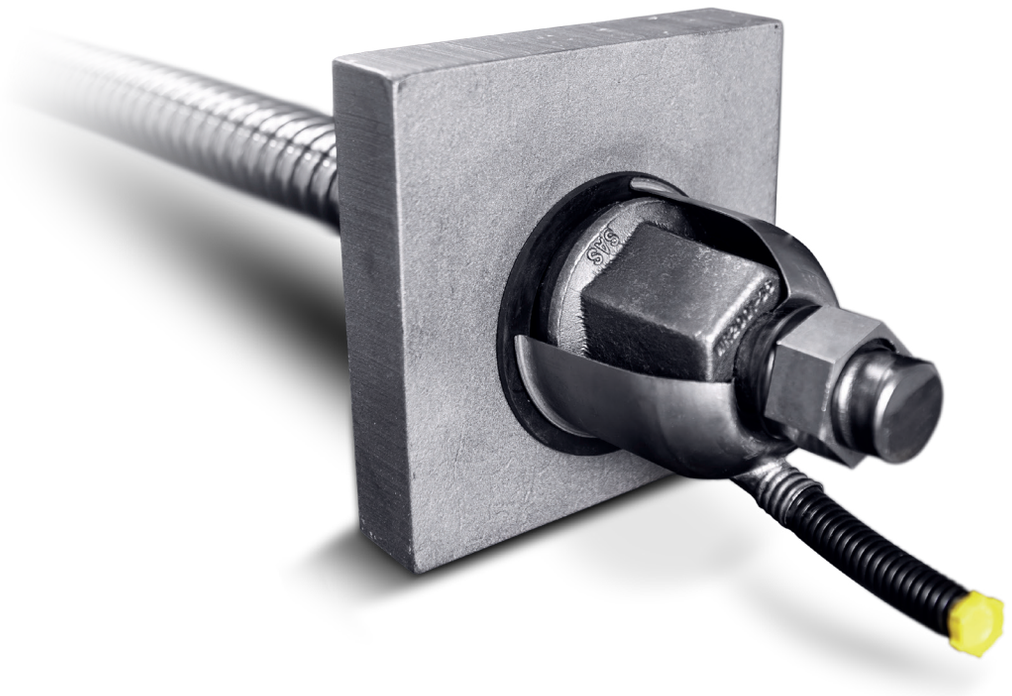



## Sechskantmuffe EP lang
*hexagonal coupler EP long*




| 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 | - | - |

# SAS Spannstahlstäbe | *SAS stress bars*






**SAS Gewindestab warmgewalzt, Rippenstahl - rechtsgängig** | ***SAS thread bar hot rolled, ribbed - right hand thread***

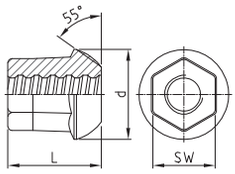
## SAS 950 / 1050 Ø 18 - 47 mm | SAS 835 / 1035 Ø 57 - 75 mm | *grade150*

| $Ø_{NENN}$ / $Ø_{NOM}$ | [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 % | | |
| $F_{yk}$ ($F_{p0,1k}$) | [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] Prozentuale Gesamtdehnung bei Höchstlast | *Percentage total elongation at maximum force*
Die Gewichtsangaben sind Mittelwerte. Die tatsächlichen Gewichte können aufgrund von Fertigungstoleranzen abweichen.
*Weight specifications are average values. The actual values may deviate due to fabrication tolerances.*

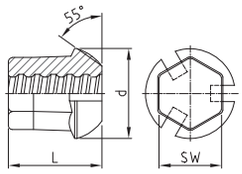
SAS SYSTEMS

**Kugelbundmutter 55°**
*dome nut 55°*



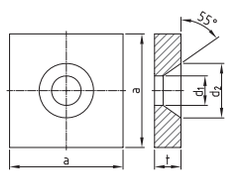

| Ø [mm] | SW x L x d [mm] | [kg] |
|---|---|---|
| | **WR 2001 - Ø** | |
| **18** | 36 x 55 x 50 | 0,43 |
| **26,5** | 50 x 75 x 72 | 1,09 |
| **32** | 60 x 90 x 80 | 1,70 |
| **36** | 65 x 100 x 90 | 2,24 |
| **40** | 70 x 115 x 100 | 2,91 |
| **47** | 80 x 135 x 110 | 4,09 |
| **57** | - | - |
| **65** | - | - |
| **75** | - | - |

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



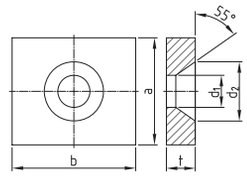

| SW x L x d [mm] | [kg] |
|---|---|
| **WR 2099 - Ø** | |
| 36 x 55 x 50 | 0,40 |
| 50 x 75 x 72 | 1,02 |
| 60 x 90 x 80 | 1,65 |
| 65 x 100 x 90 | 2,13 |
| 70 x 115 x 100 | 2,71 |
| 80 x 135 x 110 | 3,79 |
| - | - |
| - | - |
| - | - |

**Ankerplatte quadratisch 55°**
*anchor plate square 55°*




| a x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| **WR 2011 - Ø **** | |
| 110 x 30 x 28 x 45 | 2,66 |
| 150 x 35 x 39 x 72 | 5,61 |
| 180 x 40 x 45 x 82 | 9,33 |
| 200 x 45 x 49 x 92 | 12,95 |
| 220 x 45 x 54 x 100 | 15,64 |
| 260 x 50 x 64 x 110 | 24,49 |
| - | - |
| - | - |
| - | - |

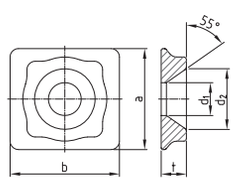
**Ankerplatte rechteckig 55°**
*anchor plate rectangular 55°*




| a x b x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| **WR 2012 - Ø **** | |
| 100 x 130 x 30 x 28 x 45 | 2,39 |
| 130 x 150 x 35 x 39 x 72 | 4,50 |
| 140 x 180 x 40 x 45 x 82 | 7,07 |
| 150 x 220 x 50 x 49 x 92 | 11,70 |
| 160 x 250 x 60 x 54 x 100 | 17,10 |
| 200 x 280 x 60 x 64 x 110 | 24,12 |
| - | - |
| - | - |
| - | - |

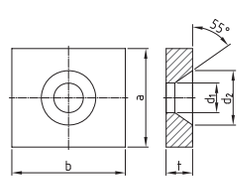
SAS SYSTEMS

**QR Platte**
*QR plate*



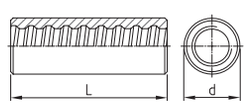

| Ø [mm] | b x a x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|---|
| | **WR 2074 - Ø **** | |
| **18** | - | - |
| **26,5** | 130 x 120 x 30 x 39 x 72 | 2,00 |
| **32** | 165 x 140 x 35 x 45 x 82 | 3,30 |
| **36** | 180 x 160 x 40 x 49 x 93 | 4,90 |
| **40** | 195 x 180 x 45 x 54 x 100 | 7,20 |
| **47** | - | - |
| **57** | - | - |
| **65** | - | - |
| **75** | - | - |

**Ankerplatte 55° rechteckig klein**
*anchor plate rectangular 55°, small*



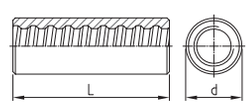

| a x b x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| **WR 2076 - Ø **** | |
| 80 x 90 x 25 x 28 x 45 | 1,25 |
| 120 x 130 x 30 x 39 x 72 | 3,15 |
| 140 x 165 x 35 x 45 x 82 | 5,57 |
| 160 x 180 x 40 x 49 x 92 | 7,94 |
| 180 x 195 x 45 x 54 x 100 | 10,95 |
| 210 x 235 x 55 x 64 x 110 | 19,20 |
| - | - |
| - | - |
| - | - |

**Muffe standard**
*coupler standard*




| d x L [mm] | [kg] |
|---|---|
| **WR 3003 - Ø** | |
| 36 x 100 | 0,56 |
| 50 x 170 | 1,73 |
| 60 x 200 | 2,91 |
| 68 x 210 | 3,98 |
| 70 x 245 | 4,59 |
| 83 x 270 | 7,23 |
| 95 x 240 | 7,75 |
| 106 x 260 | 10,37 |
| 114 x 290 | 12,14 |

**Muffe lang**
*coupler long*



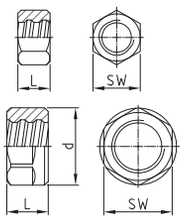

| d x L [mm] | [kg] |
|---|---|
| **WR 3303 - Ø** | |
| 36 x 115 | 0,64 |
| 50 x 195 | 2,00 |
| 60 x 230 | 3,40 |
| 68 x 245 | 4,68 |
| 70 x 285 | 5,38 |
| - | - |
| - | - |
| - | - |
| - | - |

** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

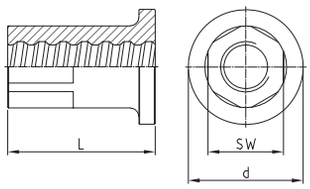
# Zubehör | *accessories*

SAS SYSTEMS

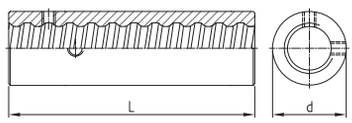
**Haltemutter**
***fix nut***




**Spannverankerung**
***stressing anchorage***



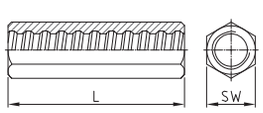

**Spannmuffe**
***stressing-coupler***



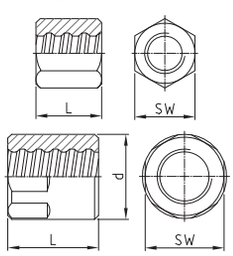

| Ø [mm] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] | d x L [mm] | [kg] |
|---|---|---|---|---|---|---|
| | **WR 5005 - Ø** | | **WR 8002 - Ø** | | **WR 8003 - Ø** | |
| **18** | 30 x 22 | 0,08 | 41 x 70 x 65 | 0,82 | 45 x 100 | 1,00 |
| **26,5** | 36 x 22 | 0,08 | 46 x 90 x 70 | 1,03 | 45 x 150 | 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

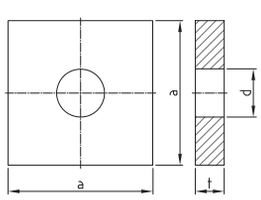
**Sechskantmuffe**
***hexagonal coupler***



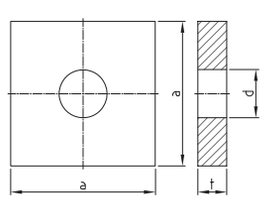

**Ankermutter gerade**
***anchor nut flat***




**Ankerplatte gerade**
***anchor plate flat***




**Ankerplatte gerade**
***anchor plate flat***

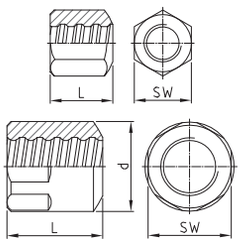



| Ø [mm] | SW x L [mm] | [kg] | SW x L x d [mm] | [kg] | a x t x d [mm] | [kg] | a x t x d [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **WR 3009 - Ø** | | **WR 2002 - Ø** | | **WR 2139 - Ø**** | | **WR 2140 - Ø **** | |
| **18** | 36 x 100 | 0,67 | 41 x 60 | 0,55 | 120 x 20 x 25 | 2,20 | - | - |
| **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 |

** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

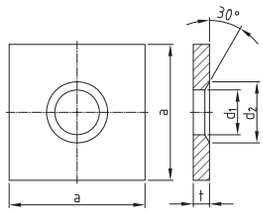
SAS SYSTEMS

**Ankermutter ballig 30°**
***bull nose nut 30°***



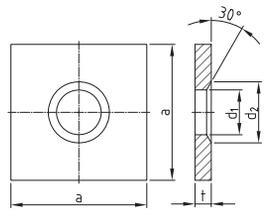

| Ø [mm] | SW x L x d [mm] | [kg] |
|---|---|---|
| **18** | 41 x 60 | 0,52 |
| **26,5** | 46 x 80 | 0,71 |
| **32** | 55 x 90 | 1,14 |
| **36** | 60 x 110 | 1,57 |
| **40** | 70 x 120 | 2,53 |
| **47** | 79 x 140 | 3,60 |
| **57** | 90 x 120 x 95 | 3,67 |
| **65** | 100 x 130 x 106 | 4,90 |
| **75** | 105 x 145 x 114 | 5,51 |

**Ankerplatte Konus 30°**
***anchor plate cone 30°***



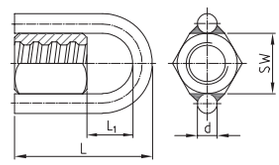

| a x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| 120 x 20 x 25 x 35 | 2,18 |
| 150 x 35 x 32 x 45 | 5,95 |
| 180 x 40 x 38 x 50 | 9,81 |
| 200 x 45 x 45 x 60 | 13,55 |
| 220 x 45 x 50 x 70 | 16,36 |
| 240 x 55 x 58 x 80 | 23,50 |
| 285 x 65 x 70 x 90 | 39,30 |
| 325 x 70 x 78 x 110 | 55,50 |
| 370 x 80 x 88 x 120 | 82,00 |

**Ankerplatte Konus 30°**
***anchor plate cone 30°***




| a x t x $d_1$ x $d_2$ [mm] | [kg] |
|---|---|
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
| 220 x 50 x 70 x 90 | 17,43 |
| 245 x 60 x 78 x 110 | 25,86 |
| 275 x 70 x 88 x 120 | 38,03 |

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

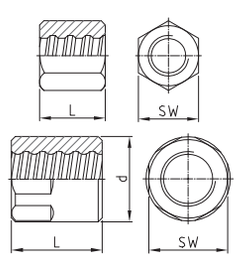



| SW x L x $L_1$ x d [mm] | [kg] |
|---|---|
| 41 x 135 x 59 x 16 | 0,99 |
| 46 x 165 x 69 x 16 | 1,28 |
| 55 x 190 x 84 x 16 | 1,81 |
| 60 x 219 x 89 x 20 | 2,78 |
| 70 x 244 x 104 x 20 | 3,87 |
| 79 x 274 x 114 x 20 | 5,10 |
| 90 x 255 x 115 x 20 | 5,08 |
| 100 x 280 x 130 x 20 | 6,48 |
| 105 x 305 x 140 x 20 | 7,31 |

| Ø [mm] | WR 2963 - Ø * | | WR 1928 - Ø ** | | WR 1929 - Ø ** | | WR 2927- 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 |

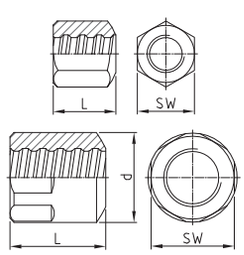
SAS SYSTEMS

**Ankermutter EP gerade**
***anchor nut EP flat***



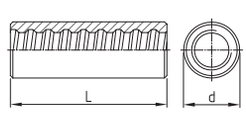

| Ø [mm] | SW x L x d [mm] | [kg] |
|---|---|---|
| **18** | 41 x 70 | 0,62 |
| **26,5** | 46 x 90 | 0,81 |
| **32** | 55 x 100 | 1,30 |
| **36** | 60 x 120 | 1,75 |
| **40** | 70 x 130 | 2,77 |
| **47** | 79 x 150 | 3,92 |
| **57** | 90 x 145 x 95 | 4,59 |
| **65** | 100 x 155 x 106 | 5,82 |
| **75** | 105 x 180 x 114 | 7,60 |

**Ankermutter EP ballig 30°**
***bull nose nut EP 30°***



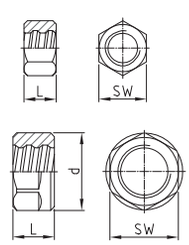

| SW x L x d [mm] | [kg] |
|---|---|
| 41 x 70 | 0,60 |
| 46 x 90 | 0,79 |
| 55 x 100 | 1,27 |
| 60 x 120 | 1,71 |
| 70 x 130 | 2,70 |
| 79 x 150 | 3,81 |
| 90 x 145 x 95 | 4,46 |
| 100 x 155 x 106 | 5,66 |
| 105 x 180 x 114 | 6,96 |

**Muffe EP standard**
***coupler EP standard***




| d x L [mm] | [kg] |
|---|---|
| 36 x 120 | 0,69 |
| 50 x 185 | 1,94 |
| 60 x 220 | 3,33 |
| 68 x 240 | 4,72 |
| 70 x 270 | 5,26 |
| 83 x 310 | 8,65 |
| 95 x 270 | 9,32 |
| 106 x 290 | 12,01 |
| 114 x 320 | 14,15 |

**Haltemutter EP**
***fix nut EP***




| SW x L x d [mm] | [kg] |
|---|---|
| 30 x 22 | 0,08 |
| 36 x 22 | 0,08 |
| 41 x 22 | 0,09 |
| 46 x 25 | 0,11 |
| 50 x 25 | 0,12 |
| 60 x 30 | 0,23 |
| 85 x 40 x 90 | 1,01 |
| 90 x 40 x 102 | 1,13 |
| 105 x 50 x 114 | 1,92 |

| Ø [mm] | 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 |

* Bzgl. Traglast und Einbau bitte Datenblatt auf der Homepage beachten | *with regard to load capacity and installation, please note data sheet available on the homepage*
** Aufgrund von Lagerungs- und Transportbedingungen kann Rostbildung nicht ausgeschlossen werden
*Rust formation cannot be ruled out due to storage and transport conditions*

# SAS Glattstahlstäbe | *SAS smooth bar*





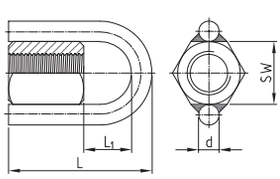

**SAS Glattstahl mit kalt aufgerolltem Gewinde - rechtsgängig** | *SAS smooth bar with cold rolled thread - right hand thread*

## SAS 950 / 1050 Ø 32 - 36 mm | *grade 150* | glatt | *smooth*

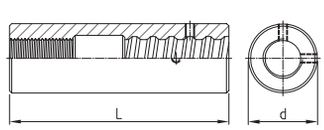
| $Ø_{NENN} / Ø_{NOM}$ | [mm] | 32 | 36 |
|---|---|---|---|
| c | [mm] | 3 | 3 |
| $f_{p0,1k}/f_{pk}/A_{gt}$ | | 950 N/mm² / 1050 N/mm² / ≥ 7 % | |
| $F_{yk}$ ($F_{p0,1k}$) | [kN] | 760 | 960 |
| $F_{pk}$ | [kN] | 845 | 1070 |
| A | [mm²] | 804 | 1018 |
| G | [kg/m] | 6,31 | 7,99 |

**SAS** SYSTEMS

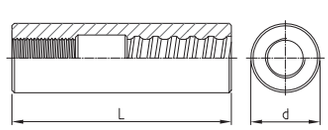
**Ringmutter (Gebrauchslast des Rings max. 60 kN)**
**ring nut (working load of ring max. 60 kN)**




**Spannmuffe für WS**
**stressing coupler for WS**




**Übergangsmuffe**
**transition coupler**

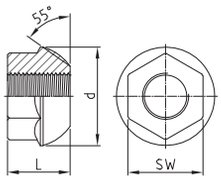



| Ø [mm] | SW x L x $L_1$ x d [mm] | [kg] | d x L [mm] | [kg] | d x L [mm] | [kg] |
|---|---|---|---|---|---|---|
| | **WS 2927 - Ø *** | | **WS 8004 - Ø** | | **WS 3004 - Ø** | |
| **32** | 55 x 125 x 59 x 16 | 1,22 | 60 x 190 | 2,74 | 60 x 200 | 2,94 |
| **36** | 60 x 149 x 64 x 20 | 1,86 | 65 x 230 | 3,80 | 68 x 235 | 4,47 |

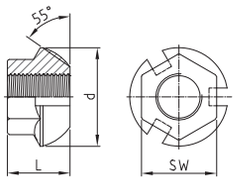
* Bzgl. Traglast und Einbau bitte Datenblatt auf der Homepage beachten | *with regard to load capacity and installation, please note data sheet available on the homepage*

SAS SYSTEMS

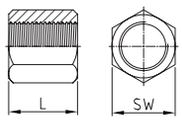
**Kugelbundmutter 55°**
dome nut 55°



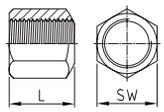

**Kugelbundmutter 55° mit Verpressnuten**
domed nut 55° with grout slots




**Ankermutter gerade**
anchor nut flat



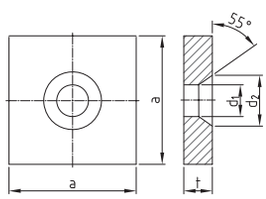

**Ankermutter ballig 30°**
bull nose 30°



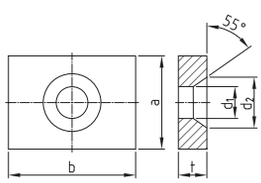

| Ø [mm] | SW x L x d [mm] | [kg] | SW x L x d [mm] | [kg] | SW x L [mm] | [kg] | SW x L [mm] | [kg] |
|---|---|---|---|---|---|---|---|---|
| | **WS 2001 - Ø** | | **WS 2099 - Ø** | | **WS 2002 - Ø** | | **WS 2963 - Ø** | |
| **32** | 55 x 46 x 72 | 0,78 | 55 x 46 x 72 | 0,74 | 55 x 50 | 0,79 | 55 x 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

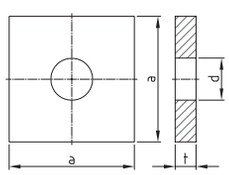
**Ankerplatte quadratisch 55°**
anchor plate square 55°




**Ankerplatte rechteckig 55°**
anchor plate rectangular 55°



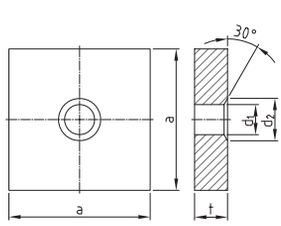

**Ankerplatte gerade**
anchor plate flat



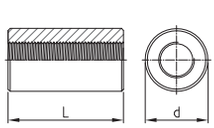

| Ø [mm] | a x t x $d_1$ x $d_2$ [mm] | [kg] | a x b x t x $d_1$ x $d_2$ [mm] | [kg] | a x t x d [mm] | [kg] |
|---|---|---|---|---|---|---|
| | **WS 2011 - Ø **** | | **WS 2012 - Ø **** | | **WS 2139 - Ø **** | |
| **32** | 180 x 40 x 45 x 72 | 9,50 | 140 x 180 x 40 x 45 x 72 | 7,24 | 180 x 40 x 38 | 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

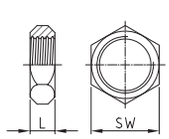
**Ankerplatte Konus 30°**
anchor plate rectangular 30°




**Muffe standard**
coupler standard




**Haltemutter**
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 |

# SAS Gewindestäbe | *SAS thread bar*

| Streckgrenze / Zugfestigkeit \| *yield stress / ultimate stress*<br>Anwendungsbereiche \| *areas of application* | Nenn-ø *nom.-ø* | Streckkast *yield load* | Bruchlast *ultimate load* | Fläche *cross section area* | Gewicht *weight* | | Dehnung *elongation* | |
|---|---|---|---|---|---|---|---|---|
| | [mm] | [kN] | [kN] | [mm²] | [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 | | |
| | **28** | 310 | 340 | 616 | 207,0 | 4,83 | | |
| | **32** | 405 | 440 | 804 | 158,5 | 6,31 | | |
| Geotechnik \| *geotechnical systems* | **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 | | |
| **SAS 555 / 700 – grade 80** | **57,5** | 1441 | 1818 | 2597 | 49,1 | 20,38 | 5 | --- |
| **SAS 555 / 700 – grade 80** | **63,5** | 1760 | 2215 | 3167 | 40,2 | 24,86 | 5 | --- |
| SAS 500 / 550 – grade 75 | **75** | 2209 | 2430 | 4418 | 28,8 | 34,68 | 5 | --- |
| **Alternativ SAS 550 / 620 erhältlich \| alternative SAS 550 / 620 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 | 393 | 491 | 259,7 | 3,85 | | |
| | **28** | 413 | 493 | 616 | 207,0 | 4,83 | | |
| Ankertechnik \| *tunneling & mining* | **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 | | |
| Hochfeste Bewehrung \| *high-strength reinforcement* | **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 – *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 | | |
| | **36** | 960 | 1070 | 1020 | 120,9 | 8,27 | | |
| Geotechnik \| *geotechnical systems* | **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 | --- |
| | **65** | 2780 | 3447 | 3331 | 36,9 | 27,10 | | --- |
| | **75** | 3690 | 4572 | 4418 | 27,9 | 35,90 | | --- |
| **SAS 900 / 1100 FA – *grade 160 FA*** | | | | | | | | |
| 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 |
| | **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*** | | | | | | | | |
| 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*

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