

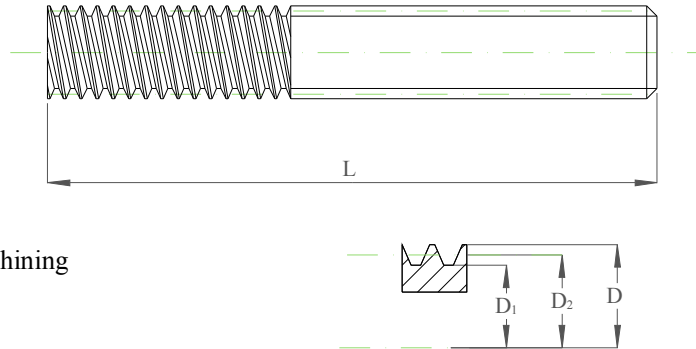


Trapezoidal Screw Shafts

A popular linear drive mechanism for situations where constant motion is not required. Can be hand or motor driven and ideal for machine adjustment, gate or guard openers and presses. Due to its self-locking characteristics it is ideal for intermittent lift mechanisms.

Trapezoidal Shafts

- Available in left and right hand threads
- Material S45C (1045 med tensile)
- Also available in SUS303 stainless (designation TMS)
- Talk to us about bearing journals and machining



Items in **bold** are normal stock items

We will cut to your length for a nominal cutting charge

| Part No. | Lead P | Lead Angle | Standard Measurement | | | Max length | Weight kg/m |
|--------------|----------|-------------|----------------------|----------------|----------------|-------------|-------------|
| | | | D | D ₂ | D ₁ | | |
| TMR10 | 2 | 4.05 | 10 | 9.0 | 7.5 | 1000 | 0.5 |
| TMR12 | 2 | 3.31 | 12 | 11.0 | 9.5 | 1000 | 0.8 |
| TMR14 | 3 | 4.37 | 14 | 12.5 | 10.5 | 2000 | 1.0 |
| TMR16 | 3 | 3.77 | 16 | 14.5 | 12.5 | 3000 | 1.3 |
| TMR18 | 4 | 4.55 | 18 | 16.0 | 13.5 | 3000 | 1.6 |
| TMR20 | 4 | 4.05 | 20 | 18.0 | 15.5 | 3000 | 2.0 |
| TMR22 | 5 | 4.67 | 22 | 19.5 | 16.5 | 3000 | 2.3 |
| TMR25 | 5 | 4.05 | 25 | 22.5 | 19.5 | 3000 | 3.1 |
| TMR28 | 5 | 3.57 | 28 | 25.5 | 22.5 | 3000 | 4.0 |
| TMR32 | 6 | 3.77 | 32 | 29.0 | 25.5 | 3000 | 5.2 |
| TMR36 | 6 | 3.31 | 36 | 33.0 | 29.5 | 3000 | 6.7 |
| TMR40 | 6 | 2.96 | 40 | 37.0 | 33.5 | 3000 | 8.4 |
| TMR45 | 8 | 3.55 | 45 | 41.0 | 36.5 | 3000 | 10.4 |
| TMR50 | 8 | 3.17 | 50 | 46 | 41.5 | 3000 | 13 |

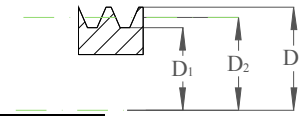
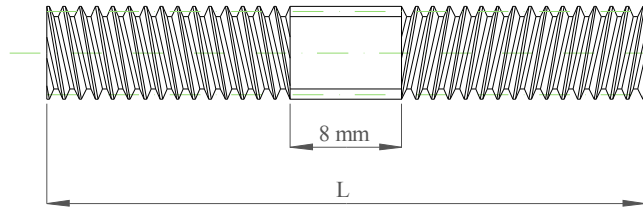
Analogue indicators and hand wheels to suit can also be supplied from stock and make an ideal machine adjuster mechanism.





Double Acting Thread

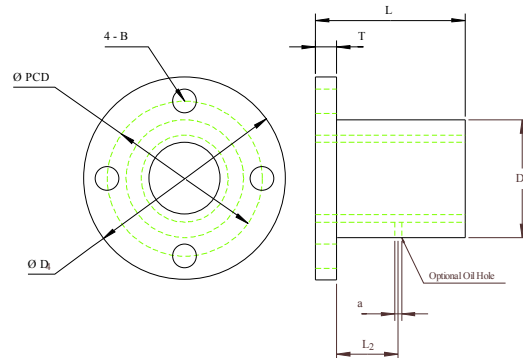
- Material S45C (1045 med tensile)
- Single shaft with left and right hand threads
- Talk to us about non standard lengths and machining



| Part No. | Lead P | Lead Angle | Standard Measurement | | | Max Length | Weight Kg/m |
|----------|--------|------------|----------------------|----------------|----------------|------------|-------------|
| | | | D | D ₂ | D ₁ | | |
| TMC10 | 2 | 4°02'46" | 10 | 9.0 | 7.5 | 500 | 0.5 |
| TMC12 | 2 | 3°18'44" | 12 | 11.0 | 9.5 | 750 | 0.8 |
| TMC14 | 3 | 4°22'07" | 14 | 12.5 | 10.5 | 750 | 1.0 |
| TMC16 | 3 | 3°46'04" | 16 | 14.5 | 12.5 | 1000 | 1.3 |
| TMC18 | 4 | 4°32'59" | 18 | 16.0 | 13.5 | 1000 | 1.6 |
| TMC20 | 4 | 4°02'46" | 20 | 18.0 | 15.5 | 1250 | 2.0 |
| TMC22 | 5 | 4°39'58" | 22 | 19.5 | 16.5 | 1250 | 2.3 |
| TMC25 | 5 | 4°02'56" | 25 | 22.5 | 19.5 | 1500 | 3.1 |
| TMC28 | 5 | 3°34'17" | 28 | 25.5 | 22.5 | 1500 | 4.0 |
| TMC32 | 6 | 3°46'04" | 32 | 29.0 | 25.5 | 1500 | 5.2 |

Flanged Nuts

- Available in left and right hand threads
- Material BC6 Bronze
- Optional oil hole (code -O ex TTM25-O)
- Plastic nut available (code -P ex TTMP25)
 - Material Acetal (POM)



Items in **bold** are normal stock items

| Part No. | Lead P | Lead Angle | Standard Measurement | | | D ₃ | L | D ₄ | T | PCD | B | a | L ₂ | Weight kg | Load Plastic nut Kg | Load BC6 nut Kg |
|--------------|----------|-------------|----------------------|----------------|----------------|----------------|-----------|----------------|-----------|-----------|-------------|------------|----------------|--------------|---------------------|-----------------|
| | | | D | D ₂ | D ₁ | | | | | | | | | | | |
| TTM10 | 2 | 4.05 | 10.5 | 9.0 | 8.5 | 20 | 24 | 36 | 5 | 26 | 4.3 | 1.5 | 9.5 | 0.079 | 23 | 260 |
| TTM12 | 2 | 3.31 | 12.5 | 11.0 | 10.5 | 22 | 30 | 44 | 5 | 31 | 5.4 | 1.5 | 12.5 | 0.118 | 31 | 400 |
| TTM14 | 3 | 4.37 | 14.5 | 12.5 | 12.5 | 22 | 30 | 44 | 5 | 31 | 5.4 | 1.5 | 12.5 | 0.111 | 37 | 500 |
| TTM16 | 3 | 3.77 | 16.5 | 14.5 | 13.5 | 28 | 35 | 51 | 6 | 38 | 6.6 | 1.5 | 14.5 | 0.201 | 52 | 640 |
| TTM18 | 4 | 4.55 | 18.5 | 16.0 | 14.5 | 32 | 40 | 56 | 6 | 42 | 6.6 | 2 | 14.5 | 0.284 | 71 | 890 |
| TTM20 | 4 | 4.05 | 20.5 | 18.0 | 16.5 | 32 | 40 | 56 | 6 | 42 | 6.6 | 2 | 18 | 0.266 | 80 | 1000 |
| TTM22 | 5 | 4.67 | 22.5 | 19.5 | 18.0 | 36 | 50 | 61 | 7 | 47 | 6.6 | 2.5 | 21.5 | 0.412 | 103 | 1260 |
| TTM25 | 5 | 4.05 | 25.5 | 22.5 | 21.0 | 36 | 50 | 61 | 7 | 47 | 6.6 | 2.5 | 21.5 | 0.370 | 118 | 1440 |
| TTM28 | 5 | 3.57 | 28.5 | 25.5 | 24.0 | 44 | 56 | 76 | 8 | 58 | 9.0 | 2.5 | 23 | 0.671 | 153 | 1800 |
| TTM32 | 6 | 3.77 | 32.5 | 29.0 | 27.0 | 44 | 56 | 76 | 8 | 58 | 9.0 | 2.5 | 23 | 0.599 | 176 | 2090 |
| TTM36 | 6 | 3.31 | 36.5 | 33.0 | 31.0 | 52 | 60 | 84 | 8 | 66 | 9.0 | 3 | 26 | 0.865 | 222 | 2630 |
| TTM40 | 6 | 2.96 | 40.5 | 37.0 | 35.0 | 58 | 70 | 98 | 10 | 76 | 11.0 | 3 | 30 | 1.321 | 293 | 3240 |
| TTM45 | 8 | 3.55 | 45.5 | 41.0 | 38.0 | 64 | 75 | 104 | 10 | 80 | 11 | 4 | 32.5 | 1.631 | | 4110 |
| TTM50 | 8 | 3.17 | 50.5 | 46.0 | 43.0 | 68 | 80 | 109 | 10 | 85 | 11 | 4 | 35 | 1.798 | | 5110 |

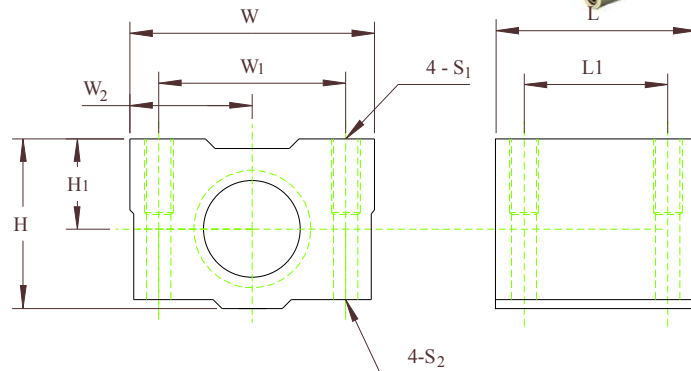
1 kgf = 9.81N



Block Nuts

- Available in left and right hand threads
- Material BC6 Bronze
- Optional oil hole

Items in **bold** are normal stock items



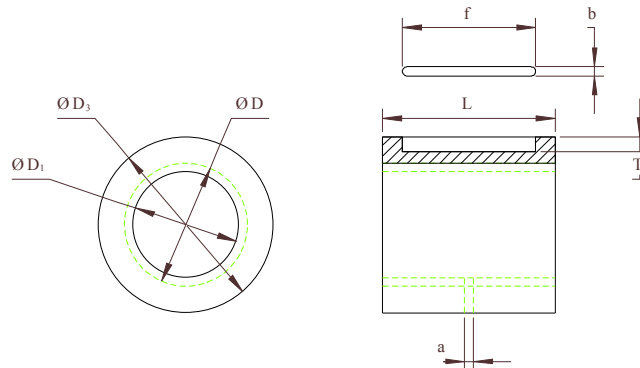
| Part No. | Lead P | Lead Angle | Standard Measurement | | | W | L | H | H ₁ | W ₂ | W ₁ | L ₁ | S ₁ | S ₂ | Weight kg | Load Kgf |
|--------------|----------|-----------------|----------------------|----------------|----------------|-----------|-----------|-----------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|-------------|
| | | | D | D ₂ | D ₁ | | | | | | | | | | | |
| BTM10 | 2 | 4°02'46" | 10.5 | 9.0 | 8.5 | 30 | 24 | 20 | 10 | 15 | 20 | 16 | M4 | 3.3 | 0.09 | 260 |
| BTM12 | 2 | 3°18'44" | 12.5 | 11.0 | 10.5 | 38 | 30 | 22 | 11 | 19 | 26 | 20 | M5 | 4.3 | 0.15 | 400 |
| BTM14 | 3 | 4°22'07" | 14.5 | 12.5 | 12.5 | 38 | 30 | 22 | 11 | 19 | 26 | 20 | M5 | 4.3 | 0.14 | 500 |
| BTM16 | 3 | 3°46'04" | 16.5 | 14.5 | 13.5 | 44 | 35 | 28 | 14 | 22 | 32 | 24 | M5 | 4.3 | 0.26 | 640 |
| BTM18 | 4 | 4°32'59" | 18.5 | 16.0 | 14.5 | 48 | 40 | 32 | 16 | 24 | 36 | 28 | M6 | 5.1 | 0.36 | 890 |
| BTM20 | 4 | 4°02'46" | 20.5 | 18.0 | 16.5 | 48 | 40 | 32 | 16 | 24 | 36 | 28 | M6 | 5.1 | 0.35 | 1000 |
| BTM22 | 5 | 4°39'58" | 22.5 | 19.5 | 18.0 | 62 | 50 | 38 | 20 | 31 | 46 | 34 | M8 | 6.8 | 0.64 | 1260 |
| BTM25 | 5 | 4°02'56" | 25.5 | 22.5 | 21.0 | 62 | 50 | 38 | 20 | 31 | 46 | 34 | M8 | 6.8 | 0.64 | 1440 |
| BTM28 | 5 | 3°34'17" | 28.5 | 25.5 | 24.0 | 68 | 56 | 47 | 25 | 34 | 52 | 40 | M8 | 6.8 | 1.04 | 1800 |
| BTM32 | 6 | 3°46'04" | 32.5 | 29.0 | 27.0 | 68 | 56 | 47 | 25 | 34 | 52 | 40 | M8 | 6.8 | 0.97 | 2090 |

1 kgf = 9.81N

Tubular Nuts

- Available in left and right hand threads
- Material BC6 Bronze
- Optional oil hole
- Also Available with external keyway

Items in **bold** are normal stock items



| Part No. | Lead P | Lead Angle | Standard Measurement | | | D ₃ | L | a | b | f | T | Weight kg | Load Kgf |
|--------------|----------|-----------------|----------------------|----------------|----------------|----------------|-----------|------------|-----------|-----------|------------|--------------|-------------|
| | | | D | D ₂ | D ₁ | | | | | | | | |
| STM10 | 2 | 4°02'46" | 10.5 | 9.0 | 8.5 | 20 | 20 | 1.5 | 4 | 14 | 2 | 0.043 | 260 |
| STM12 | 2 | 3°18'44" | 12.5 | 11.0 | 10.5 | 22 | 22 | 1.5 | 4 | 16 | 2 | 0.054 | 400 |
| STM14 | 3 | 4°22'07" | 14.5 | 12.5 | 12.5 | 22 | 22 | 1.5 | 4 | 16 | 2 | 0.048 | 500 |
| STM16 | 3 | 3°46'04" | 16.5 | 14.5 | 13.5 | 28 | 26 | 1.5 | 5 | 18 | 2.5 | 0.100 | 640 |
| STM18 | 4 | 4°32'59" | 18.5 | 16.0 | 14.5 | 32 | 31 | 2 | 7 | 22 | 2.5 | 0.160 | 890 |
| STM20 | 4 | 4°02'46" | 20.5 | 18.0 | 16.5 | 32 | 31 | 2 | 7 | 22 | 2.5 | 0.145 | 1000 |
| STM22 | 5 | 4°39'58" | 22.5 | 19.5 | 18.0 | 36 | 40 | 2.5 | 7 | 26 | 2.5 | 0.245 | 1260 |
| STM25 | 5 | 4°02'56" | 25.5 | 22.5 | 21.0 | 36 | 40 | 2.5 | 7 | 26 | 2.5 | 0.212 | 1440 |
| STM28 | 5 | 3°34'17" | 28.5 | 25.5 | 24.0 | 44 | 45 | 2.5 | 10 | 32 | 4 | 0.388 | 1800 |
| STM32 | 6 | 3°46'04" | 32.5 | 29.0 | 27.0 | 44 | 45 | 2.5 | 10 | 32 | 4 | 0.330 | 2090 |
| STM36 | 6 | 3°18'44" | 36.5 | 33.0 | 31.0 | 52 | 49 | 3 | 12 | 40 | 4.5 | 0.530 | 2630 |
| STM40 | 6 | 2°57'18" | 40.5 | 37.0 | 35.0 | 58 | 57 | 3 | 15 | 42 | 5 | 0.762 | 3240 |

1 kgf = 9.81N

Square and H Flanged Nuts are also available on request.





Technical data

Approximate Precision

| | |
|--------------------------|------------|
| Single Pitch Error | ± 0.02 |
| Accumulative Pitch Error | ± 0.15/300 |

Lubrication

Periodic lubrication is necessary due to the sliding contact between nut and shaft. For demanding applications oil ports are recommended for periodic lubrication. Other types required periodic grease or oil lubrication to their screw shafts.

| Service Conditions | Proper Lubricant |
|---------------------------|--|
| High Speed, Light Load | Turbine Oil 90 |
| Medium Speed, Medium Load | Turbine Oil 140-180, Lithium Soap Group Grease 2 nd Grade |
| Low Speed, Heavy Load | Lithium Soap Group Grease 2 nd -3 rd Grade |

Sizing trapezoidal threads

Sizing can be done by either the PV value or by the rated thrust load (Kgf) for the nut or the PV value for sliding friction. PV values can be calculated from the following.

| | |
|------------|---|
| P_{max} | Maximum contact pressure = 1kgf/mm ² |
| PV_{max} | Maximum PV value = 2.5kgf/mm ² x m/min |
| F | Thrust load (kgf) |
| P | Contact surface pressure (kgf/mm ²) |
| V | Sliding Speed (m/min) |
| α | Lead angle (deg) |
| S/2 | Contact area (half the contact area of the flank surface) |
| N | Rotational speed (rpm) |
| d_o | Pitch circle diameter (mm) |
| β | Flank angle = 15° |
| μ | Friction factor (0.1-0.3) |
| | With lubrication 0.15 for start 0.1 for operation |
| | Without lubrication 0.2 for start, 0.15 during operation |

Acting contact surface pressure: P

$$P = F/(S/2) \quad (\text{kgf/mm}^2)$$

Sliding Speed: V

$$V = (\pi \times d_o \times N) / (\cos\alpha \times 10^3) \quad (\text{m/min})$$

Driving Torque: T

$$T = (F \times d_o/2) \times (\cos\beta \times \tan\alpha + \mu) / (\cos\beta - \mu \tan\alpha) \quad (\text{kgf mm})$$