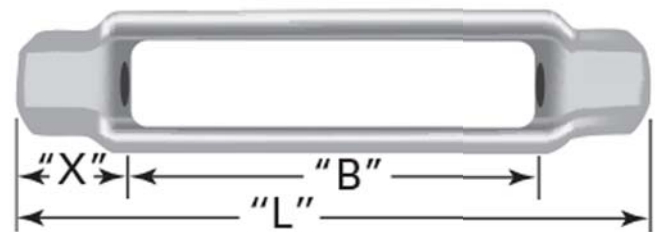
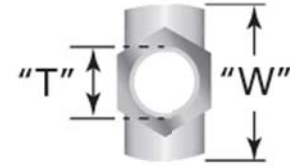


Turnbuckles

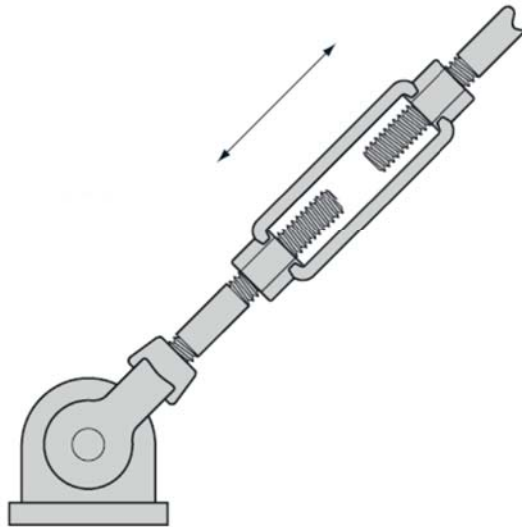


THREAD DIA. "TD"	PART NO.	TAKEUP LENGTH "B"	NUT LENGTH "X"	OVERALL LENGTH "L"	BODY WIDTH "W"	SAFE WORKING LOAD (lbs)	WEIGHT EACH (lbs)
3/8"	27TB12SP	6"	5/8"	7 1/4"	1 1/32"	1,200	0.4
1/2"	27TB16SP1	6"	3/4"	7 1/2"	1 5/16"	2,200	0.8
1/2"	27TB16SP2	12"	3/4"	13 1/2"	1 5/16"	2,200	1.3
5/8"	27TB20SP1	6"	15/16"	7 7/8"	1 17/32"	3,500	1.0
5/8"	27TB20SP2	12"	15/16"	13 7/8"	1 17/32"	3,500	1.7
3/4"	27TB24SP1	6"	1 1/8"	8 1/4"	1 25/32"	5,200	1.5
3/4"	27TB24SP2	12"	1 1/8"	14 1/4"	1 25/32"	5,200	2.5
7/8"	27TB28SP1	6"	1 5/16"	8 5/8"	1 7/8"	7,200	1.6
7/8"	27TB28SP2	12"	1 5/16"	14 5/8"	1 7/8"	7,200	3.4
1"	27TB32SP1	6"	1 3/8"	8 3/4"	2 1/32"	10,000	2.0
1"	27TB32SP2	12"	1 1/2"	15"	2 1/32"	10,000	4.6
1 1/8"	27TB36SP	6"	1 3/4"	9 1/2"	2 17/32"	15,200	3.8
1 1/4"	27TB40SP	6"	1 3/4"	9 1/2"	2 17/32"	15,200	3.5
1 3/8"	27TB44SP	6"	1 7/8"	9 3/4"	2 3/4"	21,400	6.0
1 1/2"	27TB48SP	6"	1 7/8"	9 3/4"	3 1/32"	21,400	5.8
1 5/8"	27TB52SP	6"	2 7/16"	10 3/4"	3 9/16"	27,600	9.8
1 3/4"	27TB56SP	6"	2 7/16"	10 3/4"	3 9/16"	27,600	9.5
1 7/8"	27TB60SP	6"	2 9/16"	11 1/8"	4"	34,500	13.4
2"	27TB64SP	6"	2 9/16"	11 1/8"	4"	34,500	13.0
2 1/4"	27TB72SP	6"	3 3/8"	13 1/2"	4 5/8"	48,000	23.5
2 1/2"	27TB80SP	6"	3 3/8"	13 1/2"	5"	60,000	23.5

Specifying Turnbuckles

APPLICATIONS

Turnbuckles are used to provide length and tension adjustment of tie rods and hanger assemblies. They are widely used in structural steel bracing and pipe support applications.



Typical turnbuckle application

RELEVANT STANDARDS

Our forged turnbuckle bodies are manufactured to meet Federal Spec. FF-T-791b, Type 1, Form 1 Class 2 (superseded by ASTM F1145, Type 1, Grade 1 Class B). They also meet the dimensions and load ratings shown in the American Institute of Steel Construction (AISC) Manual of Steel Construction, 9th edition, page 4-149.

MATERIALS

We stock turnbuckle bodies in C1035 steel, forged and normalized in accordance with ASTM A668 Class C. Heat-treated carbon steel turnbuckle bodies and stainless steel turnbuckle bodies are available by special order.

FINISHES

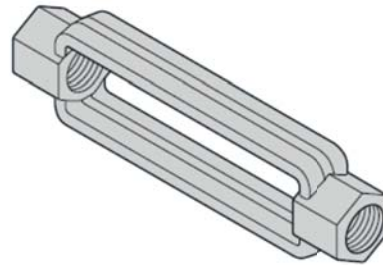
Standard finish is plain steel, shot blasted after forging. Hot dip galvanizing is available as well as zinc electroplating.

THREADS

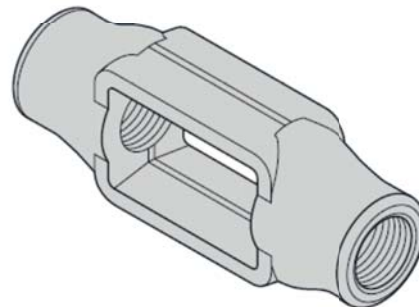
Standard threads are UNC 2B, RH/LH, with other thread series and profiles also available by special order. Hot dip galvanized turnbuckles are normally tapped oversize after galvanizing to accommodate the zinc coating on the rod threads.

DIMENSIONS

Refer to the table above for turnbuckle body dimensions. Note that for the 2 1/4" and 2 1/2" sizes, the nut area is round instead of hex-shaped.



Turnbuckle with hexagonal ends



Turnbuckle with round ends

FITTINGS

Left and right hand stub end fittings are also available. Dimensions for these components are available upon request.

NOTES REGARDING STRENGTH

ASTM F1145 and Federal Specification FF-T-791b tabulate the recommended working loads and minimum breaking strengths for each size of turnbuckle body. Our turnbuckles meet the slightly higher safe working loads listed in the table which are taken from the AISC Manual of Steel Construction. These safe working loads are based on safety factor of 5:1.

From a thread strength standpoint, the nut area of carbon steel turnbuckle bodies forged to ASTM A668 Class C is roughly equivalent to an ASTM A563 Grade C heavy hex nut. For applications where high strength rods are specified and ASTM A563 Grade DH or ASTM A194 Grade 2H nuts would normally be used, sleeve nuts should be considered in place of turnbuckles. Sleeve nuts can be manufactured to meet all of the strength requirements of the ASTM nut specifications and will allow the full strength of the rod to be exploited.

SPECIFYING AND ORDERING TURNBUCKLE BODIES

- Determine turnbuckle thread size based on safe working load and rod diameter using the table above. Also select take up length for sizes 1" and under.
- Specify the desired finish (typically plain or HDG) and any other special requirements.