

# TTHD Thrust Bearings

# TIMKEN

For applications with heavy thrust loads, Timken® TTHD Thrust Bearings are designed and manufactured to maximize bearing life and load-carrying capacity. This includes applications such as:

- Oil rig swivels and top drives
- Crane swivel blocks
- Metal mill work and back-up rolls
- Piercing mill thrust blocks
- Pulp refiners and digesters
- Plastic injection machines and screw-type extruders
- Precision machine tool tables
- Radar turntables
- Coal pulverizers
- Gearboxes for vertical rolling mills

The geometry of the TTHD tapered rollers provides increased capacity over cylindrical thrust and spherical thrust bearings with the same envelope dimensions. The extensions of the raceways and rollers converge at a common point (the apex) on the axis of rotation, resulting in true rolling motion. True rolling motion reduces heat generation and wear on the races and rollers. It also allows higher speeds with minimum roller skewing or skidding.

Enhanced features, such as coatings and finishes, also reduce film and skidding damage and handle high shock loads.

Standard features	Benefits
Latest profiling technology	Allows for maximum load carrying capacity.
Enhanced rib design	Provides higher speed capability (May allow for rib speeds up to <b>2743 meters/minute</b> or 9000 feet/minute. <sup>(1)</sup> )
True rolling motion	Reduces heat generation and wear. Extends bearing life.
Premium material	Provides high shock load resistance. Maximizes service life in applications with heavy loading.
Customized design	Ensures best bearing for application.
Enhanced features	Benefits
Super clean steel	Extends bearing fatigue life.
Coatings/super finish	Reduces film and skidding damage for longer service life. Able to handle high shock loads.

<sup>(1)</sup>Subject to approved load level and lubricant flow.

**Table 1. Features and benefits of TTHD thrust bearings.**



For more information, visit [www.timken.com](http://www.timken.com) or contact your Timken representative.



**Table 2. TTHD thrust bearing types. Note that certain housing and shaft changes may be needed. Please consult your Timken representative.**

Timken Part Number	d Bore	D Outside Diameter	T Width	R Max Shaft and Housing Fillet Radii	C <sub>0a</sub> Static Load Rating	C <sub>0b</sub> Dynamic Load Rating
	mm in.	mm in.	mm in.	mm in.	kN lbs.	kN lbs.
T311	76.200 3.0000	161.925 6.3750	33.338 1.3125	3.30 0.13	1760 395000	587 132000
T311F	76.200 3.0000	161.925 6.3750	33.338 1.3125	3.30 0.13	2440 545000	1250 281000
T411	101.600 4.0000	215.900 8.5000	46.038 1.8125	3.30 0.13	3030 682000	977 219000
T411F	101.600 4.0000	215.900 8.5000	46.038 1.8125	3.30 0.13	4200 945000	2160 485000
T451	114.300 4.5000	250.825 9.8750	53.975 2.1250	4.00 0.16	4380 985000	1360 305000
T511	127.000 5.0000	266.700 10.5000	58.738 2.3125	4.80 0.19	4580 1030000	1430 322000
T511F	127.000 5.0000	266.700 10.5000	58.738 2.3125	4.80 0.19	6030 1360000	1740 390000
T611	152.400 6.0000	317.500 12.5000	69.850 2.7500	6.40 0.25	6660 1500000	2030 455000
T611F	152.400 6.0000	317.500 12.5000	69.850 2.7500	6.40 0.25	9200 2070000	4750 1060000
T651	165.100 6.5000	311.150 12.2500	88.900 3.5000	6.40 0.25	5730 1290000	1800 405000
T661	168.275 6.6250	304.800 12.0000	69.850 2.7500	6.40 0.25	5340 1200000	1710 383000
T691	174.625 6.8750	358.775 14.1250	82.550 3.2500	6.40 0.25	7870 1770000	2390 537000
T709	177.800 7.0000	431.800 17.0000	101.600 4.0000	3.30 0.13	13600 3060000	3980 892000
T711	177.800 7.0000	368.300 14.5000	82.550 3.2500	8.00 0.31	8950 2010000	2670 602000
T711F	177.800 7.0000	368.300 14.5000	82.550 3.2500	8.00 0.31	12400 2790000	6350 1430000
T811	203.200 8.0000	419.100 16.5000	92.075 3.6250	9.70 0.38	11400 2560000	3350 753000
T811F	203.200 8.0000	419.100 16.5000	92.075 3.6250	9.70 0.38	15750 3540000	8100 1820000
T811V	203.200 8.0000	419.100 16.5000	92.075 3.6250	9.70 0.38	11400 2560000	3350 753000
T911	228.600 9.0000	482.600 19.0000	104.775 4.1250	11.20 0.44	15200 3420000	4400 988000
T911A	234.950 9.2500	482.600 19.0000	104.775 4.1250	11.20 0.44	15200 3420000	4400 988000
T911F	228.600 9.0000	482.600 19.0000	104.775 4.1250	11.20 0.44	21200 4750000	10850 2440000
T921	234.950 9.2500	546.100 21.5000	127.000 5.0000	16.00 0.63	21300 4780000	6060 1360000
T921F	234.950 9.2500	546.100 21.5000	127.000 5.0000	16.00 0.63	30000 6750000	15550 3500000
T1011	254.000 10.0000	539.750 21.2500	117.475 4.6250	11.20 0.44	19400 4350000	5480 1230000
T1120	279.400 11.0000	603.250 23.7500	136.525 5.3750	11.20 0.44	25300 5690000	6990 1570000
T1120F	279.400 11.0000	603.250 23.7500	136.525 5.3750	11.20 0.44	33300 7480000	8490 1907000
T9250F	234.950 9.2500	546.100 21.5000	127.000 5.0000	16.00 0.63	31200 7050000	16050 3600000
T16021	406.400 16.0000	711.200 28.0000	146.050 5.7500	9.70 0.38	29000 6530000	8220 1850000
T16050	406.400 16.0000	838.200 33.0000	177.800 7.0000	12.70 0.50	48000 10800000	12800 2880000

**Popular Applications:**

- Oil field swivels and top drives
- Boring mill tables
- Plastic extruder drives
- Pulp refiners and digesters
- Metal mill work rolls

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