

Thrust Bearing Solutions



Smoother. Faster. Longer.
Because That's How We Roll.



RBC Bearings® provides global industrial, aerospace, and defense customers with unique design solutions to complex problems and an unparalleled level of service, quality, and support.

RBC manufactures highly engineered precision plain, roller and ball bearings, shaft collars, rigid couplings and keyless locking devices. While RBC designs and manufactures products in these major product categories, RBC excels at solving the most demanding and difficult applications with solutions that improve customers' products and process performance and deliver the lowest total cost of ownership. This has been achieved by providing products such as maintenance free bearings, components, and bearings designed

to withstand environments with extreme temperature, high speed, contamination, corrosion, and severe shock loading.

RBC Bearings® has been providing engineered solutions to customers since 1919. RBC has significantly broadened our end markets, products, customer base and geographic reach through organic growth and through acquisitions. These acquisitions fit well with our philosophy of providing high quality products and solutions to our customer base. They have enhanced our customer solutions and experience, further diversifying our offering to our target markets.

RBC currently has 31 facilities in five countries, with manufacturing in 28 locations.





RBC Bearings®—A Tradition of Excellence

RBC Bearings® has had a long tradition of innovation, commitment, and quality since the company was founded in 1919. Today, RBC Bearings has grown into a world-class manufacturer of standard and custom-engineered bearings and related products, with a product focus on research, testing, and development of the best product for specific applications.

How We Can Serve You

RBC Bearings® has implemented a total quantity control system that uses statistical quality control at all facilities, and manufactures in high volume to a just-in-time delivery program.

To serve the ongoing needs of customers, RBC Bearings® has a network of over 2,400 distributors and sales engineers throughout North and South America and Europe, with authorized agents worldwide.

Customer Service – 800.390.3300

Warranty

RBC Bearings® products are warranted for material and workmanship for period not to exceed 90 days from shipment and for a value not to exceed purchase price.

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What We Manufacture

RBC Bearings®, with facilities throughout North America and Europe, provides bearings and precision products for applications in the construction, mining, material handling, transportation and off-highway equipment, robotics and automation, farming, machine tool, and semiconductor equipment industries. Through RBC Aerospace Bearings®, the company is a major manufacturer of highly-engineered bearings and precision products for military, defense, and commercial aerospace applications.

RBC’s High-Quality Bearings Include:

- **Heavy Duty Needle Roller Bearings** – Pitchlign® caged heavy needle roller bearings, inner rings, type TJ TandemRoller® bearings for long life.
- **Spherical Plain Bearings** – Radial, angular contact, high misalignment, extended inner ring, DuraLube™, maintenance-free spherical plain bearings, QuadLube® long life bearings, ImpactTuff® case carburized bearings, ShimPack® double acting angular-contact bearings, CrossLube® lubrication groove systems, and SpreadLock® Seal.
- **Cam Followers and Yoke Rollers** - Standard stud, heavy stud, yoke type, caged roller followers, RBC Roller® long life came followers, Hexlube® universal cam followers, airframe track rollers. Mastguide rollers and carriage rollers, chain sheaves (for leaf chain), toothless sprockets (for roller chain), and heavy-duty roller bearing construction.
- **Rod End** – Commercial and aerospace, precision, Mil-Spec series, self-lubricating, inch and metric. Heim®, Unibal®, and Spherco® brands.
- **Self-Lubricating Bearings** – radial, thrust, rod ends, spherical plain bearings, high temperature, high loads, inch and metric. Fiberglide®.
- **Thin Section Ball Bearings** – Standard cross sections to one inch. Sizes to 40 inches. Stainless steel and other materials available. Seal available on all sizes and standard cross sections.
- **Airframe Control Bearings** – Ball bearing types, self-lubricating types, needle roller track rollers.
- **Ground, Semiground, and Unground Ball Bearings** – Full complement, utilizes design and burnished races for higher loads, long life, and smooth operation
- **Dowel Pins, Loose Needle Rollers, Shafts**
- **Large Bearings** – A full range of high quality, large diameter, Cylindrical Roller and Tapered Roller bearings in standard and custom designs for applications that require increased load capacity. Common uses in oil, mining, paper, steel, gear box, and swivel applications.
- **Tapered Roller Thrust Bearings** – Case-hardened. Sealed and unsealed for truck, tractor, and construction equipment, steer axles, and Class 8 trailer landing gear.
- **Custom Designed Bearings** – RBC produces a wide range of custom bearings in various materials for specific applications.

Smoother. Faster. Longer.

Because That's How We Roll.

Product Overview

- ✓ Ball Bearings
- ✓ Cam Followers
- ✓ Cylindrical Roller Bearings
- ✓ Dowel Pins
- ✓ Heavy Duty Needle Roller Bearings
- ✓ Integrated Assemblies
- ✓ Keyless Locking Assemblies
- ✓ Keyless Rigid Couplings
- ✓ Loose Needle Rollers and Shafts
- ✓ Maintenance-Free Bearings
- ✓ Rigid Couplings
- ✓ Rod Ends
- ✓ Self-Lubricating/Lined Bearings
- ✓ Shaft Collars
- ✓ Shrink Discs
- ✓ Spherical Plain Bearings
- ✓ Tapered Roller Bearings
- ✓ Tapered Roller Thrust Bearings
- ✓ Thin Section Ball Bearings

Industrial Markets Served

- ✓ Automation
- ✓ Construction
- ✓ Food & Beverage
- ✓ Material Handling
- ✓ Mining
- ✓ Oil & Gas
- ✓ Packaging Machinery
- ✓ Refuse & Recycling
- ✓ Renewable Energy
- ✓ Military & Defense
- ✓ Power Generation
- ✓ Robotics
- ✓ Semiconductor
- ✓ Transportation
- ✓ Hydropower & Dams

Custom Engineered Solutions

- ✓ Maintenance-Free Bearings
- ✓ Bearings & Components for Harsh Environments
 - Extreme Temperatures
 - High Speed
 - Contamination
 - Corrosion
 - Shock Loading
- ✓ Advanced Sub-Assemblies



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Product Selection Guide



Series	Rolling Element	Retainer Type	O.D. Range
Tapered Roller Thrust Bearings (TRTB)	Tapered Roller	Brass Separator, Full Complement, Pin-Type	3.336" - 40.000" 84.73 - 1016.00 mm
V-Flat Tapered Roller Thrust Bearings (TRTB-VF)	Tapered Roller	Pin-Type	11.000" - 40.000" 279.40 - 1016.00 mm
Tapered Thrust Bearing (T)	Tapered Roller	Full Complement	1.901" - 5.265" 48.29 - 133.73 mm
Friction Disk Thrust Bearings (F)	N/A	N/A	1.901" - 5.265" 48.29 - 133.73 mm
NICE® 600 Series® Unground Thrust Bearings	Ball	Full Complement	27/32" - 2-19/32" 21.43 - 65.88 mm
TP Style Cylindrical Roller Thrust Bearings (TP)	Cylindrical Roller	Brass Separator	5.220" - 40.000" 132.59 - 1016.00 mm



Bore Range		Common Applications
1.750" - 16.000" 44.45 - 406.40 mm		Oilfield Top Drives and Swivels, Extruders, Pulp and Paper Mill Equipment, Boring Mill Tables
5.000" - 17.000" 127.00 - 431.80 mm		Oilfield Top Drives and Swivels, Extruders, Coal and Rock Crushers, Steel Mills
0.885" - 3.010" 22.48 - 76.45 mm		Heavy Truck and Trailer Applications, Class 8 Trailer Landing Gear, Construction Equipment, Kingpin Assemblies, Steer Axles, Tractors
0.885" - 3.010" 22.48 - 76.45 mm		Heavy Truck and Trailer Applications, Class 8 Trailer Landing Gear, Construction Equipment, Kingpin Assemblies, Steer Axles, Tractors
Top Bore 0.250" - 1.500" 6.35 - 38.10 mm	Bottom Bore 0.275" - 1.525" 6.99 - 38.74 mm	Small Crane Hooks, Handheld Pneumatic Tools, Scissor Jacks, Truck Landing Wheel Cranks, Handheld Power Tools
3.500" - 20.000" 88.90 - 508.00 mm		Crane Hooks, Gear Boxes, Pumps, Rolling Mills, Cone Crushers, Winch Systems, Heavy Duty Swivels

TRTB Series

Tapered Roller Thrust Bearings

RBC domestically produces and stocks a line of heavy duty tapered roller thrust bearings with inside diameter sizes ranging from 1.75 inches (44.45 mm) to 16 inches (406.40 mm). These highly engineered bearings are designed for demanding applications operating in harsh environments, such as oilfield top drives, oilfield swivels, extruders, pulp and paper mill equipment, and boring mill tables.

The RBC **TRTB** bearings are manufactured from high quality, high cleanliness, carburizing grade bearing steels for excellent service life and are also available in RBC's proprietary **MAX3™** steel for optimized, extended service life requirements (see page 60 for more **MAX3™** detail).

Standard designs incorporate a robust machined brass cage, however, most of these bearings can be supplied with a pin-type cage for applications requiring increased load capacity.

Key Features:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Load Resistance
- ✓ Application Flexibility – Designs with Bore Reliefs Available
- ✓ Optimized Load Capacity – Maximized Service Life Potential
- ✓ Best Industry Lead Times
- ✓ Available as **MAX3™** Steel Bearings
- ✓ Excellent Engineering Support



Ex: TRTB921MAX3

TRTB Series

Tapered Roller Thrust Bearings

TRTB

1011

P10

MAX3

Tapered
Roller
Thrust
Bearing

MAX3 = MAX3™ Steel
Bearing

If 3 #'s

1st designates bore in inches
Ex: TRTB811 – 8" bore

If 4 #'s

1st 2 designate bore in inches
Ex: TRTB1120 – 11" bore

If 5 #'s

1st 3 designate bore in inches
Ex: TRTB11500 – 11.5" bore

*Refer to product table for exact dimensions.

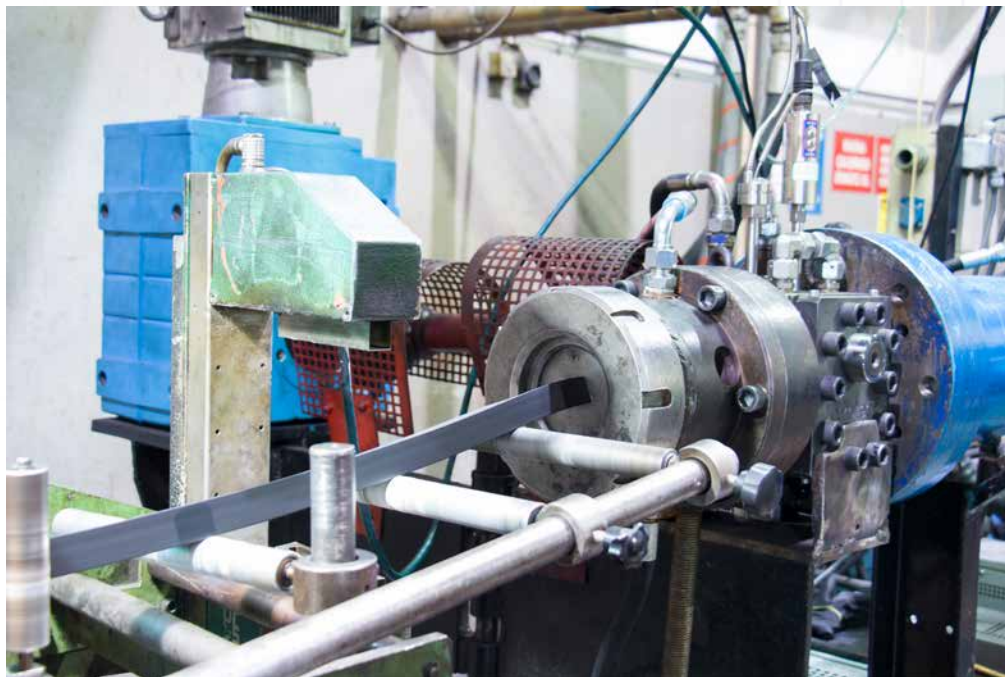
Features:

P = Pin Type Cage

V = Full Complement

10 = Special Dimensions

A = Design Variant



TRTB bearing used in plastic extruder gearbox/drive.

TRTB Series

Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty tapered roller thrust bearing line from 1.75 inch (44.45 mm) to 16 inch bore (406.40 mm). RBC heavy duty tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB Series** tapered roller thrust bearings are available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

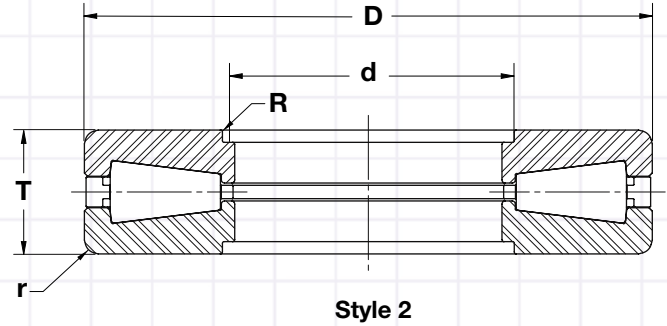
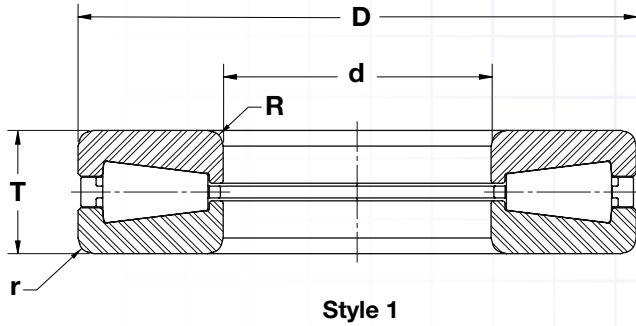
RBC's **TRTB Series** tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

Advantages of RBC heavy-duty tapered roller thrust bearings:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Resistance
- ✓ Application Flexibility – Assemblies are available with bore reliefs on larger sizes, optional on smaller sizes – to fit a variety of unique applications.

PART NUMBER	Style Number	Cage Type	Bearing Dimensions		
			Bore	OD	Stack Height
			d	D	T
			in	in	in
			mm	mm	mm
TRTB1750	1	Brass Separator	1.7500	3.3360	0.7188
			44.450	84.734	18.258
TRTB311	1	Brass Separator	3.0000	6.3750	1.3125
			76.200	161.925	33.338
TRTB411	1	Brass Separator	4.0000	8.5000	1.8125
			101.600	215.900	46.038
TRTB441	1	Brass Separator	4.4000	8.8000	2.2000
			111.760	223.520	55.880
TRTB441MAX3	1	Brass Separator	4.4000	8.8000	2.2000
			111.760	223.520	55.880
TRTB451	1	Brass Separator	4.5000	9.8750	2.1250
			114.300	250.825	53.975
TRTB520	1	Brass Separator	5.0000	9.8750	2.1875
			127.000	250.825	55.563
TRTB520MAX3	1	Brass Separator	5.0000	9.8750	2.1875
			127.000	250.825	55.563
TRTB511	1	Brass Separator	5.0000	10.5000	2.3125
			127.000	266.700	58.738

TRTB Series Tapered Roller Thrust Bearings



Fillet Radius		Load Rating		API 8C Capacity	Bearing Weight	PART NUMBER
Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity			
in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
0.09 2.3	0.09 2.3	99,000 440	9,400 42	9	1 0.5	TRTB1750
0.13 3.3	0.13 3.3	407,000 1,810	34,200 152	35	8 3	TRTB311
0.13 3.3	0.13 3.3	712,000 3,167	56,800 253	57	19 9	TRTB411
0.13 3.3	0.13 3.3	771,000 3,430	237,000 1,054	62	24 11	TRTB441
0.13 3.3	0.13 3.3	771,000 3,430	237,000 1,054	86	24 11	TRTB441MAX3
0.16 4.1	0.16 4.1	975,000 4,337	311,000 1,383	82	29 13	TRTB451
0.19 4.8	0.19 4.8	901,000 4,008	278,000 1,237	73	29 13	TRTB520
0.19 4.8	0.19 4.8	901,000 4,008	278,000 1,721	101	29 13	TRTB520MAX3
0.19 4.8	0.19 4.8	1,052,000 4,680	317,000 1,410	83	37 17	TRTB511

TRTB Series

Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty tapered roller thrust bearing line from 1.75 inch (44.45 mm) to 16 inch bore (406.40 mm). RBC heavy duty tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB Series** tapered roller thrust bearings are available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

RBC's **TRTB Series** tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

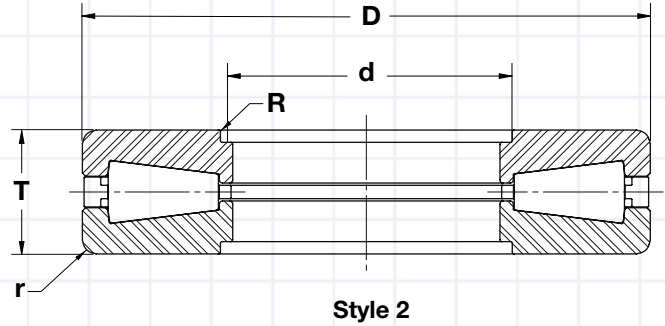
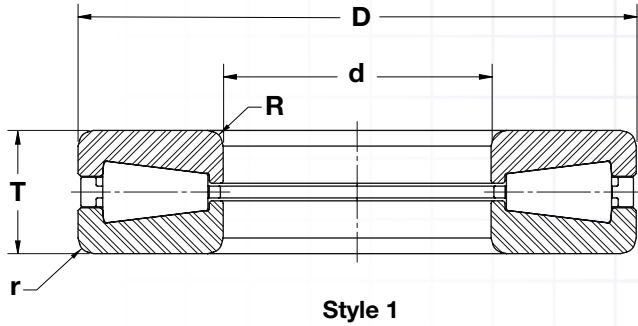
Advantages of RBC heavy-duty tapered roller thrust bearings:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Resistance
- ✓ Application Flexibility – Assemblies are available with bore reliefs on larger sizes, optional on smaller sizes – to fit a variety of unique applications.

PART NUMBER	Style Number	Cage Type	Bearing Dimensions		
			Bore	OD	Stack Height
			d	D	T
TRTB511MAX3	1	Brass Separator	5.0000	10.5000	2.3125
			127.000	266.700	58.738
TRTB511E	1	Brass Separator	5.0000	12.0000	2.0000
			127.000	304.800	50.800
TRTB511A	1	Brass Separator	5.0625	10.5000	2.3125
			128.588	266.700	58.738
TRTB611	1	Brass Separator	6.0000	12.5000	2.7500
			152.400	317.500	69.850
TRTB611MAX3	1	Brass Separator	6.0000	12.5000	2.7500
			152.400	317.500	69.850
TRTB651	1	Brass Separator	6.5000	12.2500	3.5000
			165.100	311.150	88.900
TRTB651MAX3	1	Brass Separator	6.5000	12.2500	3.5000
			165.100	311.150	88.900
TRTB661	1	Brass Separator	6.6250	12.0000	2.7500
			168.275	304.800	69.850
TRTB691	1	Brass Separator	6.8750	14.1250	3.2500
			174.625	358.775	82.550

TRTB Series

Tapered Roller Thrust Bearings



Fillet Radius		Load Rating		API 8C Capacity	Bearing Weight	PART NUMBER
Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity			
in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
0.19 4.8	0.19 4.8	1,052,000 4,680	317,000 1,410	116	37 17	TRTB511MAX3
0.13 3.3	0.13 3.3	1,052,000 4,680	317,000 1,410	83	40 18	TRTB511E
0.19 4.8	0.19 4.8	1,073,000 4,773	324,000 1,441	85	36 16	TRTB511A
0.25 6.4	0.25 6.4	1,483,000 6,597	434,000 1,931	114	61 28	TRTB611
0.25 6.4	0.25 6.4	1,483,000 6,597	434,000 1,931	158	61 28	TRTB611MAX3
0.25 6.4	0.25 6.4	1,316,000 5,854	411,000 1,828	108	72 33	TRTB651
0.25 6.4	0.25 6.4	1,316,000 5,854	411,000 1,828	150	72 33	TRTB651MAX3
0.25 6.4	0.25 6.4	1,280,000 5,694	386,000 1,717	101	51 23	TRTB661
0.25 6.4	0.25 6.4	1,874,000 8,336	538,000 2,393	141	94 42	TRTB691

TRTB Series

Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty tapered roller thrust bearing line from 1.75 inch (44.45 mm) to 16 inch bore (406.40 mm). RBC heavy duty tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB Series** tapered roller thrust bearings are available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

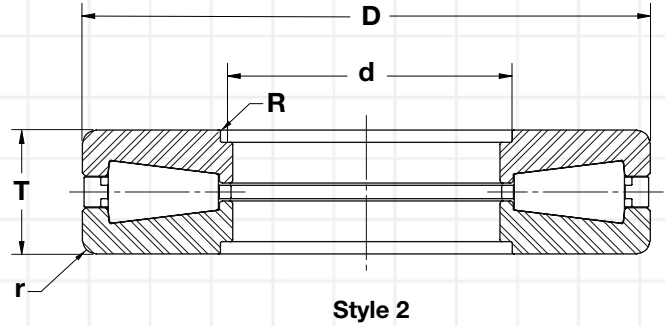
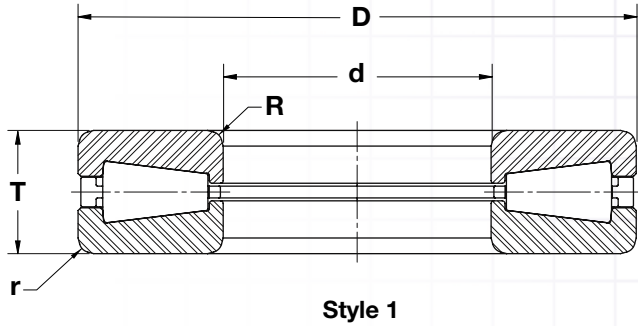
RBC's **TRTB Series** tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

Advantages of RBC heavy-duty tapered roller thrust bearings:

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			Bore	OD	Stack Height
			d	D	T
			in	in	in
			mm	mm	mm
TRTB691MAX3	1	Brass Separator	6.8750	14.1250	3.2500
			174.625	358.775	82.550
TRTB711	1	Brass Separator	7.0000	14.5000	3.2500
			177.800	368.300	82.550
TRTB711V	1	Full Complement	7.0000	14.5000	3.2500
			177.800	368.300	82.550
TRTB709	1	Brass Separator	7.0000	17.0000	4.0000
			177.800	431.800	101.600
TRTB7519	1	Brass Separator	7.4803	14.0000	2.9220
			190.000	355.600	74.219
TRTB76733	1	Brass Separator	8.0000	14.5000	3.2500
			203.200	368.300	82.550
TRTB811	1	Brass Separator	8.0000	16.5000	3.6250
			203.200	419.100	92.075
TRTB811MAX3	1	Brass Separator	8.0000	16.5000	3.6250
			203.200	419.100	92.075
TRTB911	2	Brass Separator	9.0000	19.0000	4.1250
			228.600	482.600	104.775

TRTB Series Tapered Roller Thrust Bearings



Fillet Radius		Load Rating		API 8C Capacity	Bearing Weight	PART NUMBER
Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity			
in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
0.25 6.4	0.25 6.4	1,874,000 8,336	538,000 2,393	196	94 42	TRTB691MAX3
0.31 7.9	0.31 7.9	2,047,900 9,110	603,000 2,682	158	100 45	TRTB711
0.31 7.9	0.31 7.9	2,624,700 11,675	702,300 3,124	184	99 45	TRTB711V
0.25 6.4	0.13 3.3	3,201,000 14,239	882,000 3,923	231	190 86	TRTB709
0.25 6.4	0.25 6.4	1,693,000 7,531	500,000 2,224	131	79 36	TRTB7519
0.31 7.9	0.31 7.9	1,912,000 8,505	592,000 2,633	155	86 39	TRTB76733
0.38 9.7	0.38 9.7	2,590,000 11,521	754,000 3,354	198	144 65	TRTB811
0.38 9.7	0.38 9.7	2,590,000 11,521	754,000 3,354	275	144 65	TRTB811MAX3
0.08 2.0	0.44 11.2	3,517,700 15,648	992,000 4,413	261	214 97	TRTB911

TRTB Series

Tapered Roller Thrust Bearings

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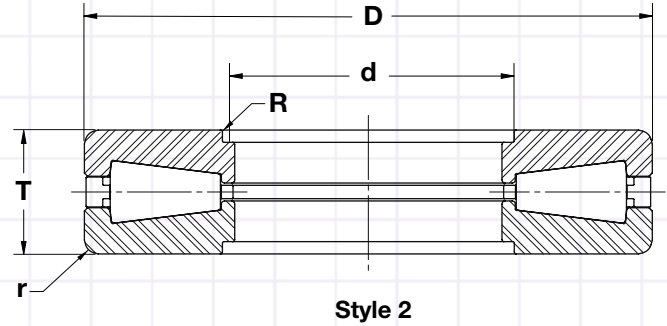
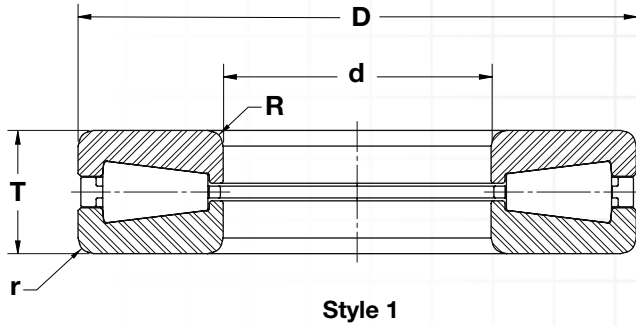
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PART NUMBER	Style Number	Cage Type	Bearing Dimensions		
			Bore	OD	Stack Height
			d	D	T
			in	in	in
			mm	mm	mm
TRTB911MAX3	2	Brass Separator	9.0000	19.0000	4.1250
			228.600	482.600	104.775
TRTB911A	2	Brass Separator	9.2500	19.0000	4.1250
			234.950	482.600	104.775
TRTB921	2	Brass Separator	9.2500	21.5000	5.0000
			234.950	546.100	127.000
TRTB921MAX3	2	Brass Separator	9.2500	21.5000	5.0000
			234.950	546.100	127.000
TRTB921PMAX3	2	Pin Type	9.2500	21.5000	5.0000
			234.950	546.100	127.000
TRTB76723	1	Brass Separator	9.5000	19.5000	5.0000
			241.300	495.300	127.000
TRTB1011	2	Brass Separator	10.0000	21.2500	4.6250
			254.000	539.750	117.475
TRTB1011P	2	Pin Type	10.0000	21.2500	4.6250
			254.000	539.750	117.475
TRTB1011P10	2	Pin Type	10.2500	21.2500	4.6250
			260.350	539.750	117.475

TRTB Series Tapered Roller Thrust Bearings



Fillet Radius		Load Rating		API 8C Capacity	Bearing Weight	PART NUMBER
Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity			
in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
0.08	0.44	3,517,700	992,000	362	214	TRTB911MAX3
2.0	11.2	15,648	4,413		97	
0.08	0.44	3,517,700	992,000	261	210	TRTB911A
2.0	11.2	15,648	4,413		95	
0.08	0.63	3,378,000	1,355,000	356	347	TRTB921
2.0	16.0	15,026	6,027		157	
0.08	0.63	3,427,400	1,370,300	500	346	TRTB921MAX3
2.0	16.0	15,246	6,095		157	
0.08	0.63	5,986,000	1,592,000	581	347	TRTB921PMAX3
2.0	16.0	26,627	7,082		157	
0.44	0.44	3,774,000	996,000	261	279	TRTB76723
11.2	11.2	16,788	4,430		127	
0.08	0.44	4,475,800	1,233,000	324	310	TRTB1011
2.0	11.2	19,909	5,485		141	
0.08	0.44	5,809,000	1,524,000	400	309	TRTB1011P
2.0	11.2	25,840	6,779		140	
0.08	0.44	5,809,000	1,524,000	400	304	TRTB1011P10
2.0	11.2	25,840	6,779		138	

TRTB Series

Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty tapered roller thrust bearing line from 1.75 inch (44.45 mm) to 16 inch bore (406.40 mm). RBC heavy duty tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB Series** tapered roller thrust bearings are available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

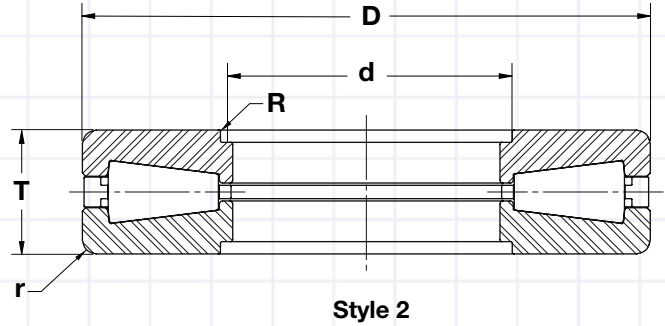
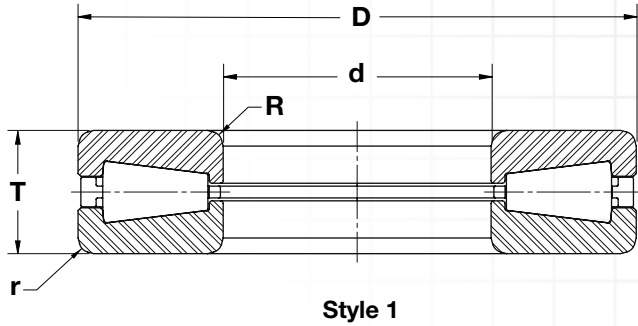
RBC's **TRTB Series** tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

Advantages of RBC heavy-duty tapered roller thrust bearings:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Resistance
- ✓ Application Flexibility – Assemblies are available with bore reliefs on larger sizes, optional on smaller sizes – to fit a variety of unique applications.

PART NUMBER	Style Number	Cage Type	Bearing Dimensions		
			Bore	OD	Stack Height
			d	D	T
			in	in	in
			mm	mm	mm
TRTB76716	1	Brass Separator	10.7500	21.7500	5.2500
			273.050	552.450	133.350
TRTB1115	2	Brass Separator	11.0000	19.5000	5.2500
			279.400	495.300	133.350
TRTB1120	2	Brass Separator	11.0000	23.7500	5.3750
			279.400	603.250	136.525
TRTB1120P	2	Pin Type	11.0000	23.7500	5.3750
			279.400	603.250	136.525
TRTB1120MAX3	2	Brass Separator	11.0000	23.7500	5.3750
			279.400	603.250	136.525
TRTB1421	2	Brass Separator	14.0000	21.0000	4.0000
			355.600	533.400	101.600
TRTB16021	2	Brass Separator	16.0000	28.0000	5.7500
			406.400	711.200	146.050
TRTB16050	2	Brass Separator	16.0000	33.0000	7.0000
			406.400	838.200	177.800

TRTB Series Tapered Roller Thrust Bearings



Fillet Radius			Load Rating		API 8C Capacity	Bearing Weight	PART NUMBER
Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity				
in mm	in mm	lbf kN	lbf kN	tons	lbs kg		
0.25 6.4	0.25 6.4	4,674,000 20,791	1,292,000 5,747	339	362 164	TRTB76716	
0.25 6.4	0.25 6.4	2,930,000 13,033	927,000 4,124	243	271 123	TRTB1115	
0.08 2.0	0.44 11.2	5,851,200 26,027	1,590,000 7,073	418	445 202	TRTB1120	
0.08 2.0	0.44 11.2	7,065,000 31,427	2,015,000 8,963	529	450 204	TRTB1120P	
0.08 2.0	0.44 11.2	5,851,200 26,027	1,590,000 7,073	581	445 202	TRTB1120MAX3	
0.08 2.0	0.25 6.4	2,408,000 10,711	730,000 3,247	192	178 81	TRTB1421	
0.08 2.0	0.38 9.7	6,870,000 30,559	1,860,000 8,274	490	565 256	TRTB16021	
0.08 2.0	0.50 12.7	7,352,000 32,703	2,673,000 11,890	703	1,114 505	TRTB16050	

TRTB-VF Series

V-Flat Tapered Roller Thrust Bearings

These unique tapered roller thrust bearings are designed with one tapered thrust washer and one flat washer to maximize rolling contact. RBC domestically produces these V-Flat bearings with inside diameters ranging from 5 inches (127.0 mm) to 17 inches (431.8 mm). These bearings are suitable for heavy duty applications in oilfield top drives, oilfield swivels, extruders, coal and rock crushers, and steel mills where increased thrust loading and shock loads are prevalent.

The RBC **TRTB-VF** bearings are manufactured from high quality, high cleanliness, carburizing grade bearing steels for excellent service life and are also available in RBC's proprietary **MAX3™** steel for optimized, extended service life requirements (see page 60 for more **MAX3™** detail).

These bearings are designed with a pin-type cage for maximum load capacity and all components are separable.

Key Features:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Load Resistance
- ✓ Application Flexibility – Designs with Bore Reliefs Available
- ✓ Optimized Load Capacity – Maximized Service Life Potential
- ✓ Best Industry Lead Times
- ✓ Available as **MAX3™** Steel Bearings
- ✓ Excellent Engineering Support



Ex: TRTB76573VFMAX3

TRTB-VF Series V-Flat Tapered Roller Thrust Bearings

TRTB 76714 VF MAX3

Tapered
Roller
Thrust
Bearing

MAX3 = MAX3™ Steel
Bearing

5 Digit Special #'s
start with 7 or greater

Special #
(No dimensional information)

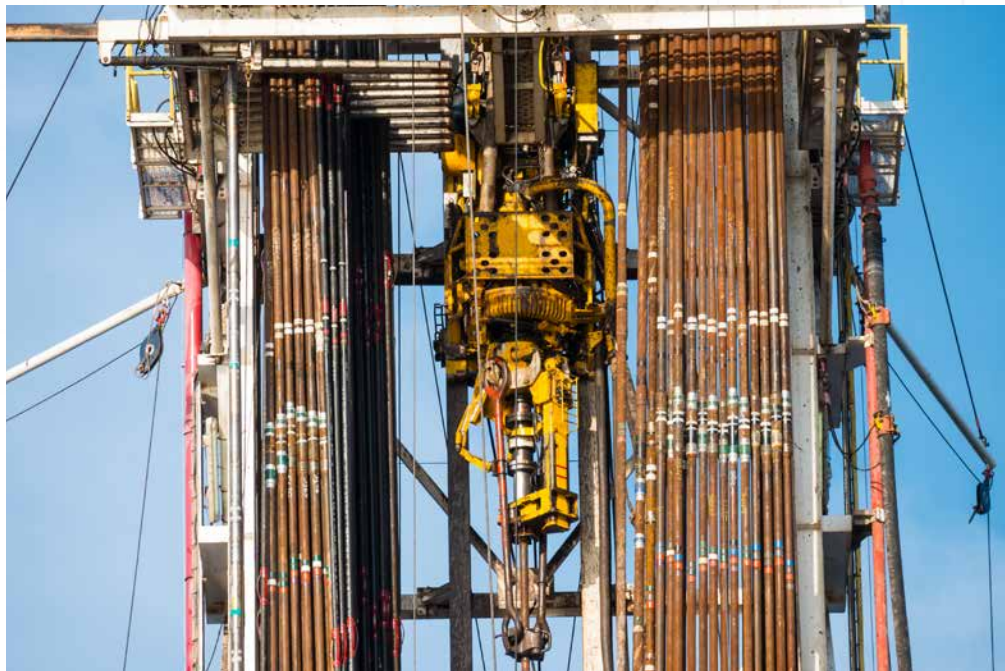
If 5 #'s (except starting with 7)
1st 3 designate bore in inches
Ex: TRTB11500 – 11.5" bore

*Refer to product table for exact dimensions.

Features:

VF = V-Flat Configuration

10 = Special Dimensions



TRTB-VF bearing used in oilfield top drives

TRTB-VF Series

V-Flat Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty V-Flat tapered roller thrust bearing line from 5 inch (127 mm) to 17 inch bore (431.8 mm). RBC heavy duty V-Flat tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB-VF Series** V-Flat tapered roller thrust bearings incorporate one tapered raceway, one flat raceway, with a pin type cage and roller assembly utilizing controlled contour rollers to optimize the distribution of stress on the contact surface. These design features combine to provide the highest possible capacity for a given envelope, is available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

RBC's **TRTB-VF Series** V-Flat tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

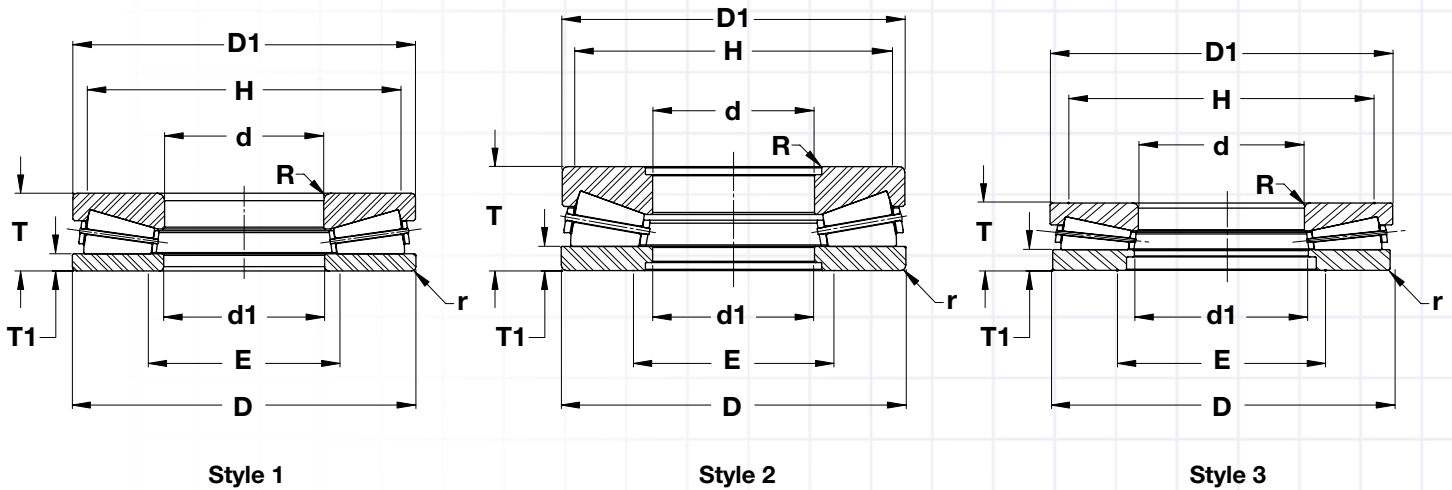
Advantages of RBC heavy-duty tapered roller thrust bearings:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Resistance
- ✓ Application Flexibility – Assemblies are available with bore reliefs on larger sizes, optional on smaller sizes – to fit a variety of unique applications.

PART NUMBER	Style Number	Cage Type	Bearing Dimensions			Rings		
			Bore d	OD D	Stack Height T	Thick-ness T1	Small Diameter O.D. D1	Large Bore I.D. d1
			in mm	in mm	in mm	in mm	in mm	in mm
TRTB76612VFMAX	1	Pin Type	5.0000 127.000	11.0000 279.400	2.3130 58.750	0.500 12.70	10.970 278.64	5.125 130.18
TRTB76561VF	1	Brass Separator	7.0000 177.800	16.2500 412.750	4.3750 111.125	0.750 19.05	16.500 419.10	7.531 191.29
TRTB10100VF	2	Pin Type	10.1000 256.540	21.5000 546.100	6.5000 165.100	1.505 38.23	21.375 542.93	10.100 256.54
TRTB76912VF	1	Pin Type	11.0000 279.400	23.7500 603.250	5.3750 136.525	1.188 30.18	23.688 601.68	11.125 282.58
TRTB76573VFMAX3	2	Pin Type	11.0000 279.400	23.7500 603.250	5.3750 136.525	1.500 38.10	23.750 603.25	11.000 279.40
TRTB11500MAX3	2	Pin Type	11.5000 292.100	26.0000 660.400	5.0000 127.000	0.925 23.50	26.000 660.40	11.500 292.10
TRTB76805VFMAX3	1	Brass Separator	11.8110 300.000	26.1220 663.500	6.4961 165.001	1.575 40.00	25.906 658.00	12.047 306.00
TRTB76780VFMAX3	3	Pin Type	12.0000 304.800	26.5000 673.100	6.7350 171.069	1.350 34.29	26.500 673.10	12.000 304.80

TRTB-VF Series

V-Flat Tapered Roller Thrust Bearings



Shoulder Diameter		Fillet Radius		Load Rating				PART NUMBER
Shaft (Min.) H	Housing (Max.) E	Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity	API 8C Capacity	Bearing Weight	
in mm	in mm	in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
10.29 261.3	5.77 146.5	0.13 3.2	0.19 4.7	1,485,700 6,609	349,400 1,554	113	40 18	TRTB76612VFMAX
15.43 391.9	8.29 210.7	0.25 6.4	0.25 6.4	3,339,700 14,856	965,000 4,293	352	168 76	TRTB76561VF
20.33 516.3	11.80 299.7	0.08 2.0	0.25 6.4	4,504,000 20,035	1,384,000 6,156	363	432 196	TRTB10100VF
21.75 552.5	12.50 317.5	0.44 11.2	0.19 4.8	7,508,000 33,397	1,974,000 8,781	518	429 195	TRTB76912VF
21.87 555.6	11.79 299.5	0.06 1.5	0.44 11.2	7,163,000 31,863	1,756,000 7,811	642	437 198	TRTB76573VFMAX3
23.88 606.7	12.64 321.0	0.06 1.5	0.31 7.9	9,990,000 44,438	2,402,000 10,685	877	487 221	TRTB11500MAX3
23.67 601.2	13.04 331.1	0.39 10.0	0.39 10.0	7,784,000 34,625	2,230,000 9,920	814	640 290	TRTB76805VFMAX3
24.82 630.4	13.86 352.0	0.30 7.6	0.30 7.6	9,125,000 40,590	2,763,000 12,290	1,009	689 313	TRTB76780VFMAX3

TRTB-VF Series

V-Flat Tapered Roller Thrust Bearings

RBC produces an extensive heavy duty V-Flat tapered roller thrust bearing line from 5 inch (127 mm) to 17 inch bore (431.8 mm). RBC heavy duty V-Flat tapered roller thrust bearings are designed for demanding applications in harsh environments, such as oil field top drives and swivels, and extruders among others.

The RBC **TRTB-VF Series** V-Flat tapered roller thrust bearings incorporate one tapered raceway, one flat raceway, with a pin type cage and roller assembly utilizing controlled contour rollers to optimize the distribution of stress on the contact surface. These design features combine to provide the highest possible capacity for a given envelope, is available in both bronze and pin-type cages offering significantly increased capacity for highly loaded applications.

RBC's **TRTB-VF Series** V-Flat tapered roller thrust bearings are available in **MAX3™** steel for improved fatigue life when needed.

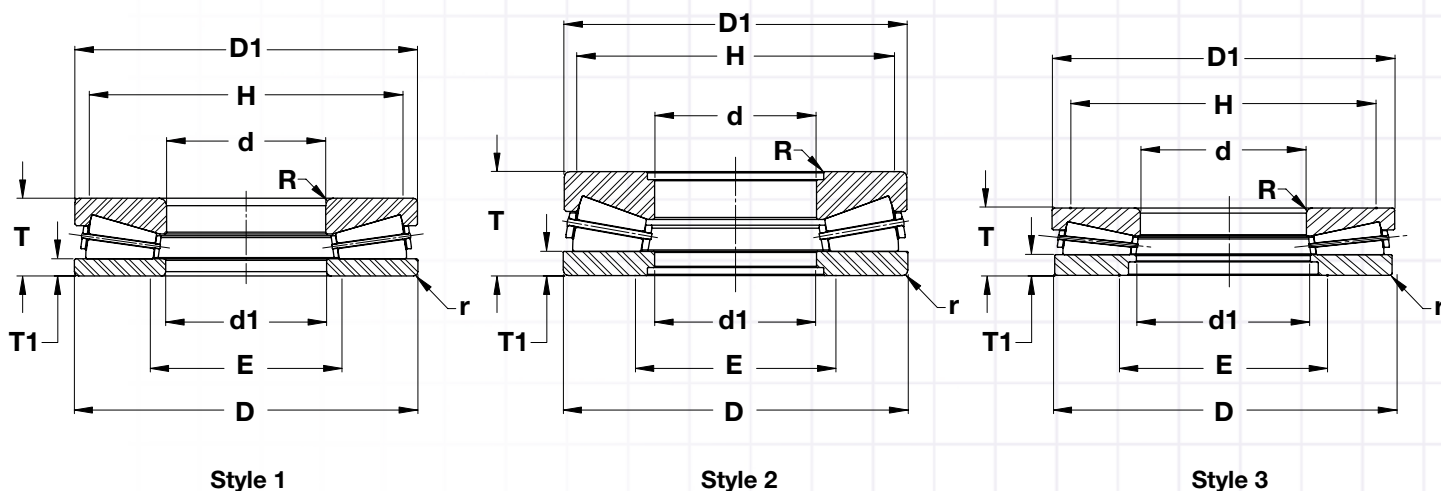
Advantages of RBC heavy-duty tapered roller thrust bearings:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ High Shock Resistance
- ✓ Application Flexibility – Assemblies are available with bore reliefs on larger sizes, optional on smaller sizes – to fit a variety of unique applications.

PART NUMBER	Style Number	Cage Type	Bearing Dimensions			Rings		
			Bore d	OD D	Stack Height T	Thick-ness T1	Small Diameter O.D. D1	Large Bore I.D. d1
			in mm	in mm	in mm	in mm	in mm	in mm
TRTB76972VF	3	Pin Type	12.6250 320.675	26.5000 673.100	6.7350 171.069	1.350 34.29	26.500 673.10	12.625 320.68
TRTB76821VFMAX3	1	Pin Type	13.3858 340.000	21.2598 540.000	4.7830 121.500	1.327 33.71	21.260 540.00	13.780 350.00
TRTB76681VFMAX3	3	Pin Type	15.7500 400.050	32.0000 812.800	7.5060 190.652	2.310 58.67	32.500 825.50	16.500 419.10
TRTB76781VFMAX3	3	Pin Type	16.0000 406.400	28.0000 711.200	6.5781 167.084	1.400 35.56	28.000 711.20	16.000 406.40
TRTB76779VFMAX3	3	Pin Type	16.0000 406.400	28.0470 712.394	5.7500 146.050	1.150 29.21	28.047 712.39	16.000 406.40
TRTB76693VF	1	Pin Type	17.0000 431.800	34.0000 863.600	9.0000 228.600	1.755 44.58	33.938 862.03	17.125 434.98
TRTB76714VFMAX3	3	Pin Type	17.0000 431.800	36.0000 914.400	7.1330 181.178	1.425 36.20	36.000 914.40	18.000 457.20
TRTB76734VFMAX3	3	Pin Type	17.0000 431.800	37.7500 958.850	7.6250 193.675	1.588 40.34	37.750 958.85	17.000 431.80

TRTB-VF Series

V-Flat Tapered Roller Thrust Bearings



Shoulder Diameter		Fillet Radius		Load Rating				PART NUMBER
Shaft (Min.) H	Housing (Max.) E	Shaft (Max.) R	Housing (Max.) r	Static Capacity	Dynamic Capacity	API 8C Capacity	Bearing Weight	
in mm	in mm	in mm	in mm	lbf kN	lbf kN	tons	lbs kg	
25.08 636.9	14.41 366.1	0.30 7.6	0.30 7.6	8,883,000 39,514	2,772,000 12,330	728	675 306	TRTB76972VF
20.38 517.5	14.51 368.5	0.20 5.1	0.20 5.1	4,201,000 18,687	948,000 4,217	346	238 108	TRTB76821VFMAX3
30.11 764.9	17.55 445.7	0.50 12.7	0.13 3.3	13,830,000 61,519	3,321,000 14,773	1,213	1,099 498	TRTB76681VFMAX3
26.44 671.6	17.77 451.3	0.36 9.1	0.36 9.1	7,821,000 34,790	2,313,000 10,289	844	640 290	TRTB76781VFMAX3
26.18 665.0	17.58 446.6	0.30 7.6	0.30 7.6	7,654,000 34,047	2,051,000 9,123	749	548 249	TRTB76779VFMAX3
31.76 806.6	19.48 494.9	0.40 10.2	0.40 10.2	8,480,000 37,721	4,232,000 18,825	1,111	1,450 658	TRTB76693VF
33.50 850.8	19.64 498.9	0.50 12.7	0.50 12.7	16,621,000 73,934	4,109,000 18,278	1,500	1,289 585	TRTB76714VFMAX3
35.12 892.1	19.72 500.8	0.50 12.7	0.25 6.4	20,039,000 89,138	4,506,000 20,044	1,645	1,574 714	TRTB76734VFMAX3

T Style

Tapered Thrust Bearings

RBC domestically manufactures and stocks a full line of tapered thrust bearings in Oklahoma City, Oklahoma. The primary use for these bearings is heavy truck and trailer applications including steer axles and landing gears.

Due to the tapered roller design these bearings can also be designed into a variety of other applications where high thrust load capacity is required. The rollers and thrust races are manufactured from high grade bearing steel and are case hardened for excellent wear life and fracture toughness. The RBC designs utilize a full complement of rollers to maximize load capacity and minimize roller skewing.

Roller separators or cages are available in some sizes. RBC manufactures six different styles with variations of integral seals, no seals, and a variety of band configurations. The bearings can be supplied greased as an option.

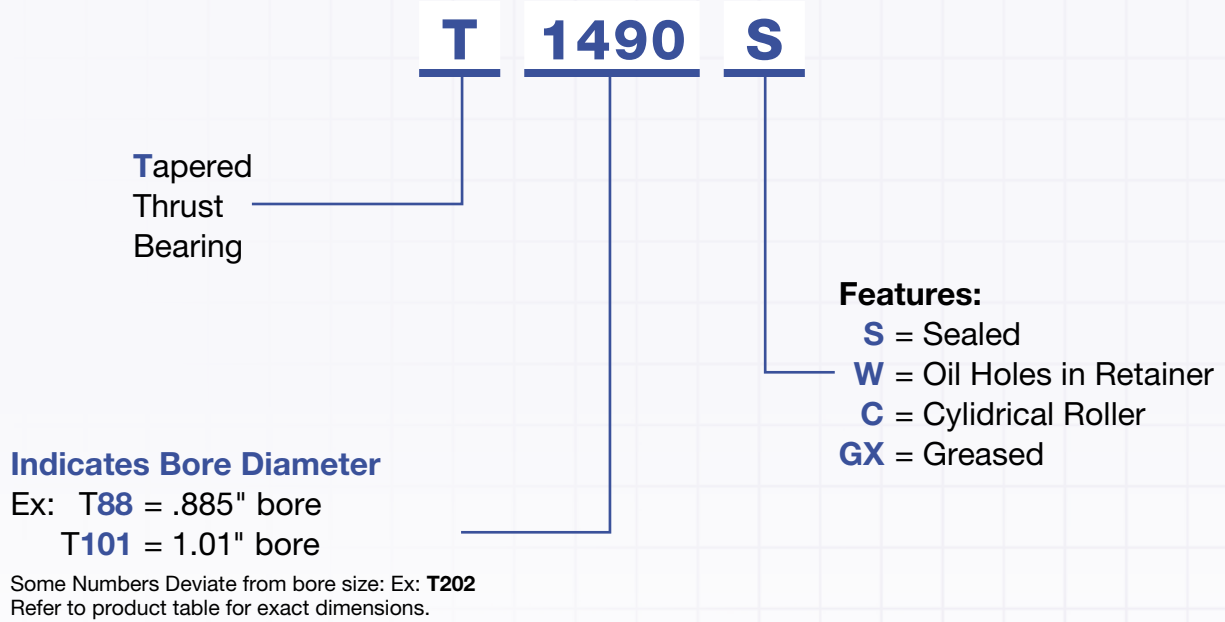
Key Features:

- ✓ Case Hardened Thrust Washers and Rollers
- ✓ Full Complement of Rollers
- ✓ High Thrust Load and Moderate Speed Applications
- ✓ Seals and Grease Styles Available
- ✓ Cylindrical Roller Designs Available
- ✓ Excellent Engineering Support



Ex: T188S

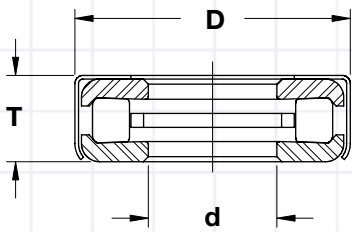
T Style Tapered Thrust Bearings



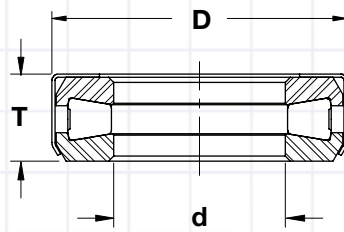
Tapered Thrust Bearing application used in kingpin assembly for Class 8 trucks.

T Style

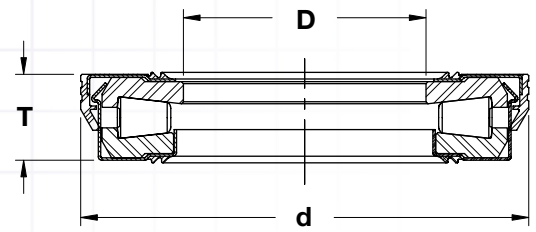
Tapered Thrust Bearings



Style 1



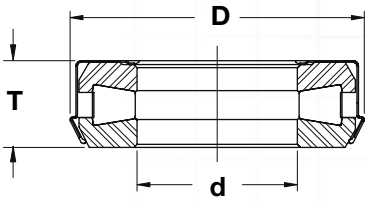
Style 2



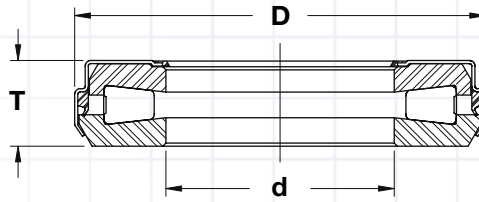
Style 3

PART NUMBER		Style Number	Description
T88		1	Cage
T101	T101W	1	Cage
T1130		2	Full Complement
T110		1	Cage
T1190		2	Full Complement
T126		2	Full Complement
T1260S		4	Full Complement, Sealed
T127		2	Full Complement
T1320		2	Full Complement
T1370C		2	Cage, Cylindrical Roller
T1390		2	Full Complement

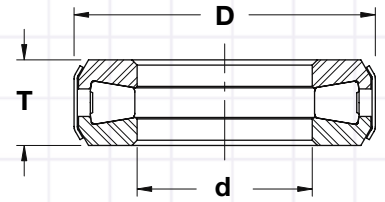
T Style Tapered Thrust Bearings



Style 4



Style 5

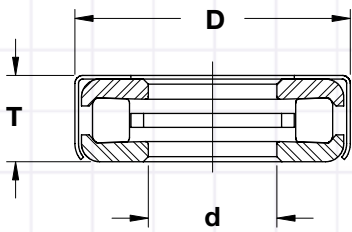


Style 6

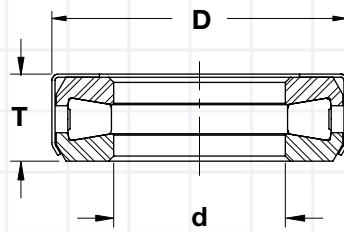
Bearing Dimensions						Fillet Radius	Load Rating		Bearing Weight	PART NUMBER
Bore		O.D.		Stack Height		Shaft R	Static Capacity	Dynamic Capacity	Bearing Weight	
d	D	T	R	lbf	kgN					
in	mm	in	mm	in	mm	in	mm	mm	mm	mm
Size	Tolerance	Size	Tolerance	Size	Tolerance	Max.				
0.885	± 0.003	1.901	Max.	0.594	± 0.010	0.03	13700	7500	0.24	T88
22.500	± 0.100	48.300		15.100	± 0.300	0.8	60965	33375	0.10	
1.010	± 0.010	2.010	Max.	0.6250	± 0.010	0.03	15600	8200	0.30	T101
25.700	± 0.300	51.100		15.900	± 0.300	0.8	69420	36490	0.10	
1.135	± 0.010	2.198	Max.	0.625	± 0.010	0.03	34100	12000	0.33	T1130
28.800	± 0.300	55.800		15.900	± 0.300	0.8	151745	53400	0.10	
1.135	± 0.004	2.104	Max.	0.625	± 0.010	0.03	17000	8700	0.3	T110
28.800	± 0.100	53.400		15.900	± 0.300	0.8	75650	38715	0.10	
1.198	± 0.010	2.198	Max.	0.625	± 0.010	0.03	34100	12000	0.346	T1190
30.400	± 0.300	55.800		15.900	± 0.300	0.8	151745	53400	0.20	
1.260	± 0.010	2.198	Max.	0.625	± 0.010	0.03	34100	12000	0.346	T126
32.000	± 0.300	55.800		15.900	± 0.300	0.8	151745	53400	0.20	
1.260	± 0.005	2.290	Max.	0.677	± 0.012	0.03	34100	12000	0.357	T1260S
32.000	± 0.100	58.200		17.200	± 0.300	0.8	151745	53400	0.20	
1.260	± 0.004	2.635	Max.	0.766	± 0.010	0.03	55500	18300	0.68	T127
32.000	± 0.100	66.900		19.500	± 0.300	0.8	246975	81435	0.30	
1.332	± 0.004	2.323	Max.	0.625	± 0.010	0.03	41850	14400	0.375	T1320
33.800	± 0.100	59.000		15.900	± 0.300	0.8	186238	64080	0.20	
1.379	± 0.010	2.198	Max.	0.625	± 0.010	0.03	25500	7000	0.279	T1370C
35.000	± 0.300	55.800		15.900	± 0.300	0.8	113475	31150	0.10	
1.385	± 0.010	2.323	Max.	0.625	± 0.010	0.03	41850	14400	0.375	T1390
35.200	± 0.300	59.000		15.900	± 0.300	0.8	186238	64080	0.20	

T Style

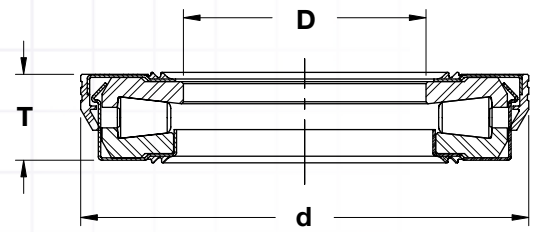
Tapered Thrust Bearings



Style 1



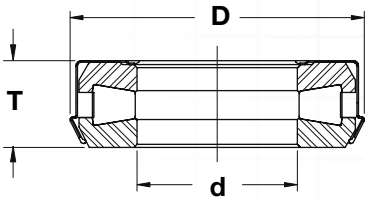
Style 2



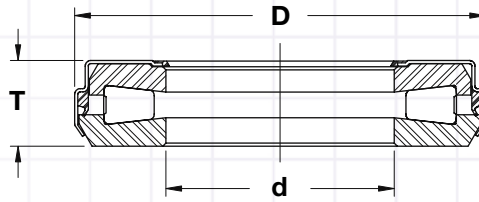
Style 3

PART NUMBER		Style Number	Description
T139S		4	Full Complement, Sealed
T149		2	Full Complement
T1490S		4	Full Complement, Sealed
T151	T151W	2	Full Complement
T163		2	Full Complement
T163S		4	Full Complement, Sealed
T1910		3	Full Complement
T1760C		6	Cage, Cylindrical Roller
T176	T176W	1	Full Complement
T182		2	Full Complement
T18294S		4	Full Complement, Sealed

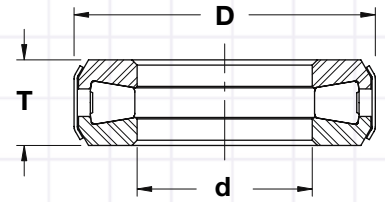
T Style Tapered Thrust Bearings



Style 4



Style 5

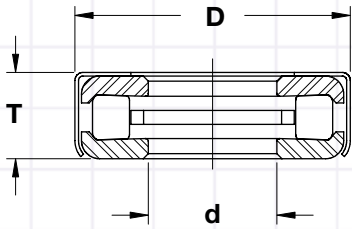


Style 6

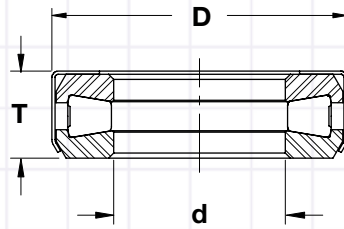
Bearing Dimensions							Fillet Radius	Load Rating		Bearing Weight	PART NUMBER
Bore		O.D.		Stack Height		Shaft R	Static Capacity	Dynamic Capacity	Weight		
d	D	T	R	lbf	kgN						
in	mm	in	mm	in	mm	mm	kN	kN	Kg		
Size	Tolerance	Size	Tolerance	Size	Tolerance	Max.					
1.385	± 0.004	2.398	Max.	0.656	± 0.010	0.03	41850	14400	0.375	T139S	
35.200	± 0.100	60.900		16.700	± 0.300	0.8	186233	64080	0.20		
1.508	± 0.010	2.604	Max.	0.765	± 0.010	0.03	58000	20300	0.57	T149	
38.300	± 0.300	66.100		19.400	± 0.300	0.8	258100	90335	0.30		
1.508	± 0.005	2.705	Max.	0.815	± 0.012	0.03	58000	20300	0.625	T1490S	
38.300	± 0.100	68.700		20.700	± 0.300	0.8	258100	90335	0.30		
1.510	± 0.010	2.869	Max.	0.844	± 0.010	0.03	62500	20500	0.78	T151	
38.400	± 0.300	72.900		21.400	± 0.300	0.8	278125	91225	0.40		
1.635	± 0.010	2.869	Max.	0.844	± 0.010	0.03	62500	20500	0.77	T163	
41.500	± 0.300	72.900		21.400	± 0.300	0.8	278125	91225	0.30		
1.635	± 0.006	2.980	Max.	0.844	± 0.010	0.03	62500	20500	1.15	T163S	
41.500	± 0.200	75.700		21.400	± 0.300	0.8	278125	91225	0.50		
1.635	± 0.004	3.365	Max.	0.645	± 0.015	0.03	89500	24500	0.63	T1910	
41.500	± 0.100	85.500		16.400	± 0.400	0.8	398275	109025	0.30		
1.757	± 0.010	3.010	Max.	0.430	± 0.010	0.03	56400	13800	0.397	T1760C	
44.600	± 0.300	76.500		10.900	± 0.300	0.8	250980	61410	0.20		
1.760	± 0.010	3.276	Max.	0.938	± 0.010	0.03	91400	28400	1.15	T176	
44.700	± 0.300	83.200		23.800	± 0.300	0.8	406730	126380	0.50		
1.822	± 0.010	3.276	Max.	0.938	± 0.010	0.03	91400	28400	1.15	T182	
46.300	± 0.300	83.200		23.800	± 0.300	0.8	406730	126380	0.50		
1.822	± 0.006	3.455	Max.	0.938	± 0.010	0.03	91400	28400	1.15	T18294S	
46.300	± 0.200	87.800		23.800	± 0.300	0.8	406730	126380	0.50		

T Style

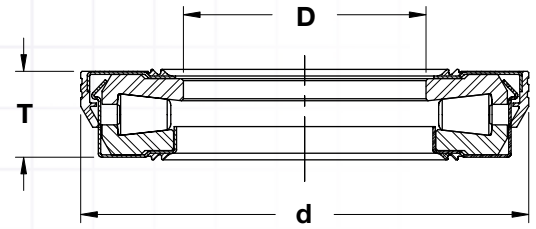
Tapered Thrust Bearings



Style 1



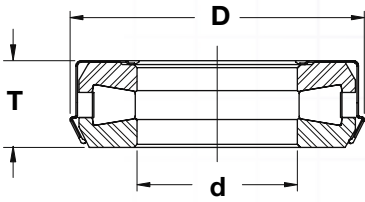
Style 2



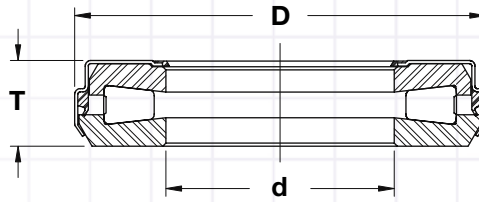
Style 3

PART NUMBER		Style Number	Description
T182S		4	Full Complement, Sealed
T1822S		5	Full Complement, Sealed
T1920		3	Full Complement
T1921		2	Full Complement
T188S		4	Full Complement, Sealed
T189S		4	Full Complement, Sealed
T195S		4	Full Complement, Sealed
T193		6	Full Complement
T194		2	Full Complement
T194S		4	Full Complement, Sealed
T201	T201W	6	Full Complement

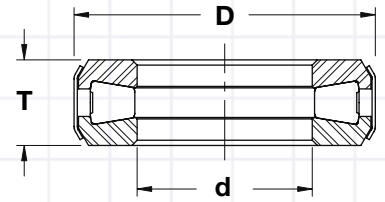
T Style Tapered Thrust Bearings



Style 4



Style 5

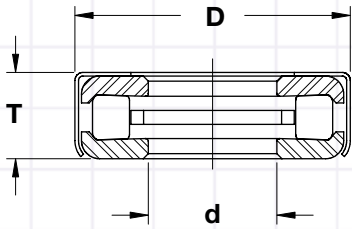


Style 6

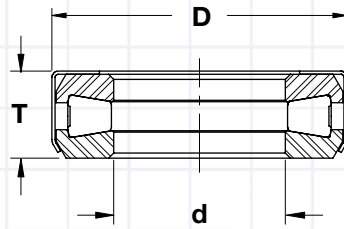
Bearing Dimensions							Fillet Radius	Load Rating		Bearing Weight	PART NUMBER
Bore		O.D.		Stack Height		Shaft R	Static Capacity	Dynamic Capacity	lbs Kg		
d	D	T									
in mm	in mm	in mm				in mm	lbf kN	lbf kN			
Size	Tolerance	Size	Tolerance	Size	Tolerance	Max.					
1.822	± 0.006	3.455	Max.	0.990	± 0.015	0.03	91400	28400	1.15	T182S	
46.300	± 0.200	87.800		25.100	± 0.400	0.8	406730	126380	0.50		
1.822	± 0.004	3.300	Max.	0.684	± 0.010	0.03	89500	24500	0.63	T1822S	
46.300	± 0.100	83.800		17.400	± 0.300	0.8	398275	109025	0.30		
1.822	± 0.004	3.365	Max.	0.645	± 0.015	0.03	89500	24500	0.63	T1920	
46.300	± 0.100	85.500		16.400	± 0.400	0.8	398275	109025	0.30		
1.822	± 0.010	3.160	Max.	0.629	± 0.010	0.03	89500	24500	0.63	T1921	
46.300	± 0.300	80.300		16.000	± 0.300	0.8	398275	109025	0.30		
1.885	± 0.006	3.455	Max.	0.937	± 0.010	0.03	91400	28400	1.12	T188S	
47.900	± 0.200	87.800		23.800	± 0.300	0.8	406730	126380	0.50		
1.885	± 0.006	3.455	Max.	0.906	± 0.010	0.03	91400	28400	1.15	T189S	
47.900	± 0.200	87.800		23.000	± 0.300	0.8	406730	126380	0.50		
1.885	± 0.004	3.823	Max.	1.121	± 0.010	0.03	115000	37500	1.73	T195S	
47.900	± 0.100	97.100		28.500	± 0.300	0.8	511750	166875	0.80		
1.947	± 0.006	3.685	Max.	1.031	± 0.010	0.03	115000	37500	1.3	T193	
49.500	± 0.200	93.600		26.200	± 0.300	0.8	511750	166875	0.60		
1.947	± 0.006	3.685	Max.	1.062	± 0.010	0.03	115000	37500	1.73	T194	
49.500	± 0.200	93.600		27.000	± 0.300	0.8	511750	166875	0.80		
1.947	± 0.004	3.823	Max.	1.121	± 0.010	0.03	115000	37500	1.82	T194S	
49.500	± 0.100	97.100		28.500	± 0.300	0.8	511750	166875	0.80		
2.010	± 0.006	3.685	Max.	1.031	± 0.010	0.03	115000	37500	1.73	T201	
51.100	± 0.200	93.600		26.200	± 0.300	0.8	511750	166875	0.80		

T Style

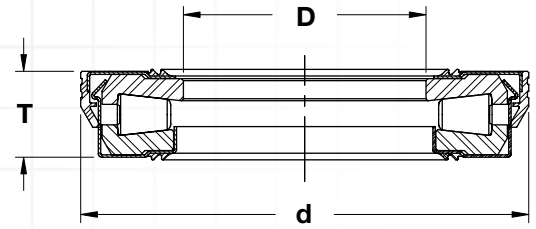
Tapered Thrust Bearings



Style 1



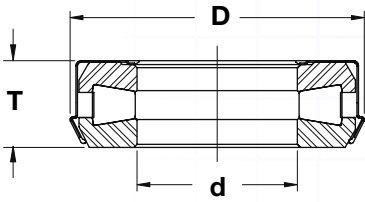
Style 2



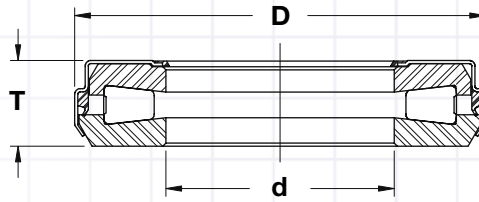
Style 3

PART NUMBER		Style Number	Description
T202		2	Full Complement
T199		1	Cage
T204S		4	Full Complement, Sealed
T208		2	Full Complement
T209		6	Full Complement
T208S		4	Full Complement, Sealed
T237S		4	Full Complement, Sealed
T251	T251W	1	Full Complement
T252	T252W	6	Full Complement
T301	T301W	6	Full Complement
T302	T302W	1	Full Complement

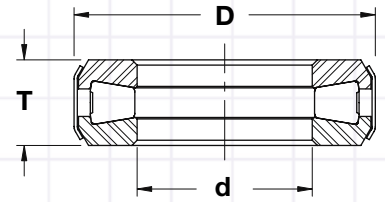
T Style Tapered Thrust Bearings



Style 4



Style 5



Style 6

Bearing Dimensions							Fillet Radius	Load Rating		Bearing Weight	PART NUMBER
Bore		O.D.		Stack Height		Shaft R	Static Capacity	Dynamic Capacity	lbs Kg		
d	D	T	R	lbf kN	lbf kN						
in mm	in mm	in mm	in mm	in mm	in mm	lbf kN	lbf kN	lbs Kg			
Size	Tolerance	Size	Tolerance	Size	Tolerance	Max.					
2.010	± 0.006	3.685	Max.	1.062	± 0.010	0.03	115000	37500	1.73	T202	
51.100	± 0.200	93.600		27.000	± 0.300	0.8	511750	166875	0.80		
2.010	± 0.004	2.948	Max.	0.625	± 0.010	0.03	28700	13325	0.44	T199	
51.100	± 0.100	74.900		15.900	± 0.300	0.8	127715	59296	0.20		
2.040	± 0.004	3.823	Max.	1.000	± 0.010	n/a	115000	37500	0.705	T204S	
51.800	± 0.100	97.100		25.400	± 0.300	n/a	511750	166875	0.30		
2.072	± 0.010	3.682	Max.	1.062	± 0.010	0.03	115000	37500	1.69	T208	
52.600	± 0.300	93.500		27.000	± 0.300	0.8	511750	166875	0.80		
2.072	± 0.006	3.685	Max.	1.031	± 0.010	0.03	115000	37500	1.73	T209	
52.600	± 0.200	93.600		26.200	± 0.300	0.8	511750	166875	0.80		
2.072	± 0.004	3.823	Max.	1.121	± 0.010	0.03	115000	37500	1.73	T208S	
52.600	± 0.100	97.100		28.500	± 0.300	0.8	511750	166875	0.80		
2.400	± 0.006	3.830	Max.	0.814	± 0.015	n/a	108000	48000	1.12	T237S	
61.000	± 0.200	97.300		20.700	± 0.400	n/a	480600	213600	0.50		
2.510	± 0.006	4.385	Max.	1.063	± 0.010	0.03	172000	55000	2.36	T251	
63.800	± 0.200	111.400		27.000	± 0.300	0.8	765400	244750	1.10		
2.510	± 0.006	4.385	Max.	1.016	± 0.010	0.03	172000	55000	2.23	T252	
63.800	± 0.200	111.400		25.800	± 0.300	0.8	765400	244750	1.00		
3.010	± 0.006	5.265	Max.	1.3125	± 0.015	0.09	250000	77500	4.12	T301	
76.500	± 0.200	133.700		33.300	± 0.400	2.3	1112500	344875	1.90		
3.010	± 0.006	5.265	Max.	1.3750	± 0.015	0.09	250000	77500	4.39	T302	
76.500	± 0.200	133.700		34.900	± 0.400	2.3	1112500	344875	2.00		

F Style

Friction Disc Thrust Bearings

RBC can supply Friction Disc Thrust Bearings which are constructed of flat thrust washers and RBC proprietary self-lubricating disk encapsulated by a sealed closure cup. RBC Friction Disc Thrust Bearings can be supplied to the same envelope dimensions as any RBC Tapered Thrust Bearings. RBC Friction Disc Thrust Bearings are ideal for applications that require greater torque to turn in air-ride steer axle applications.

Key Features:

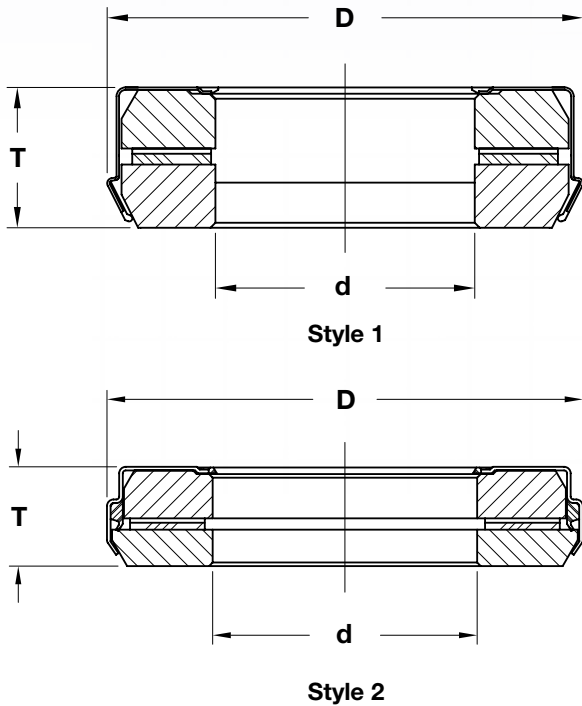
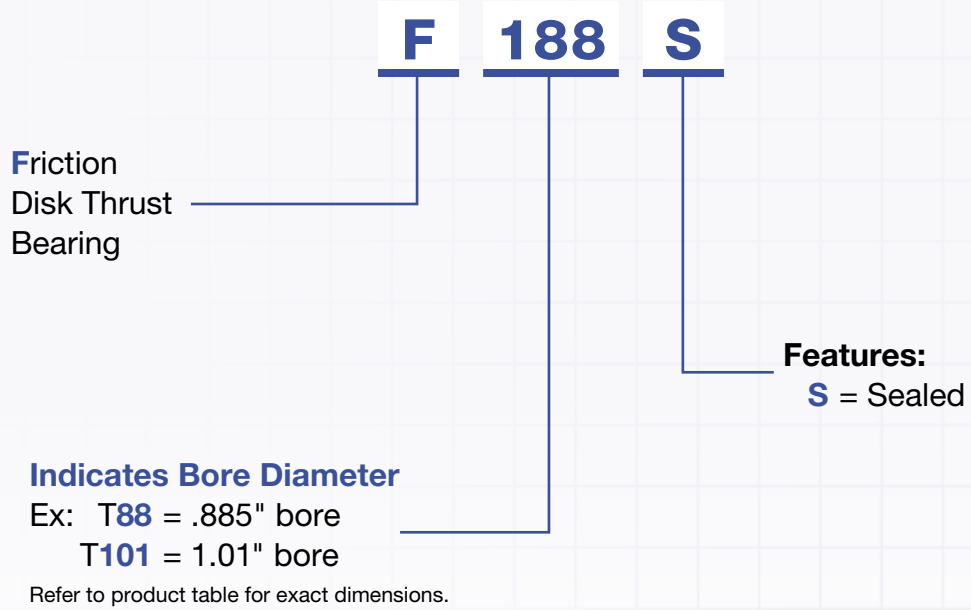
- ✓ RBC Proprietary Self-Lubricating Disk
- ✓ Sealed Closure Cup
- ✓ Greater Torque in Air-Ride Steer Axle Applications
- ✓ Available in all RBC Tapered Thrust Bearing Dimensions
- ✓ Excellent Engineering Support

All Tapered Thrust Bearings shown on pages 28-35 can be supplied in the friction disk variant, but have the nomenclature symbol of **F** instead of **T**. Ex: **T188S** Tapered Thrust Bearing would be a **F188S** Friction Disk Thrust Bearing.



Ex: F188S

F Style Friction Disc Thrust Bearings



Friction Disk Thrust Bearing application used in kingpin assembly for Class 8 trucks.

NICE® 600 Series®

Unground Ball Thrust Bearings

The NICE® 600 Series® unground thrust bearings are designed for moderate speeds and medium thrust loads. The thrust washers are cold forged from strips of structural steel and carburized to provide a hardened wear resistant bearing surface. The thrust washers and full complement of balls are housed in a soft steel band which lends itself to an easy press fit into a housing. The band also serves as a dust shield and helps retain and protect lubricant.

These bearings can be provided plated or manufactured from stainless steel materials for corrosive applications. They are supplied lightly oiled to allow the user to lubricate as needed. Special designs are available upon request.

Key Features:

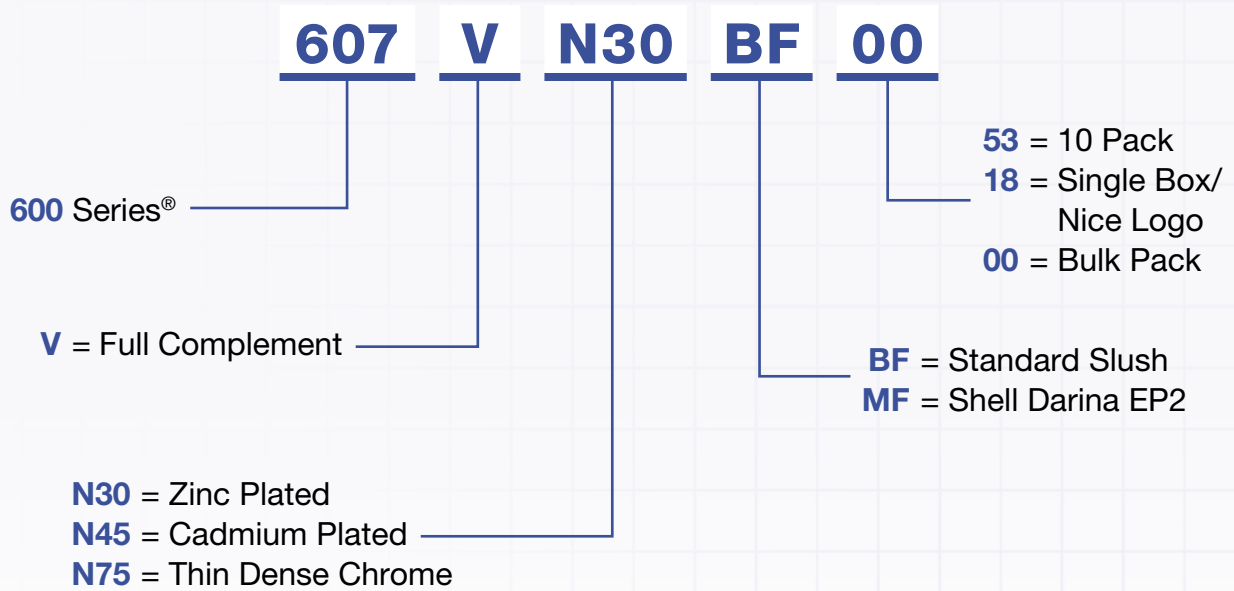
- ✓ Unitized Unground Banded Thrust Bearing
- ✓ Easy To Use Inch Dimensions
- ✓ Moderate Loads
- ✓ Speed Up To 1200 rpm
- ✓ Hardened Thrust Washers
- ✓ Full Complement Of Balls
- ✓ Soft Steel Band For Easy Press Fitting
- ✓ Upper ring is free to rotate and has close fit for shafts
- ✓ Lower ring is fixed and has shaft clearance in the bore
- ✓ Special designs available upon request
- ✓ Excellent Engineering Support



Ex: 608V

NICE® 600 Series®

Unground Ball Thrust Bearings



600 Series® Bearing application used in handheld power drill.

NICE® 600 Series®

Unground Ball Thrust Bearings

Key Features:

- ✓ Unground Thrust Bearing
- ✓ Easy To Use Inch Dimensions
- ✓ Moderate Loads
- ✓ Max Speed Range: 1000 - 1200 RPM
- ✓ Hardened Rings
- ✓ Full Complement of Balls
- ✓ Soft Steel Band Offers Ease of Installation
- ✓ Upper Ring is Free to Rotate and has Close Fit for Shafts
- ✓ Lower Ring is Fixed and has Shaft Clearance in the Bore



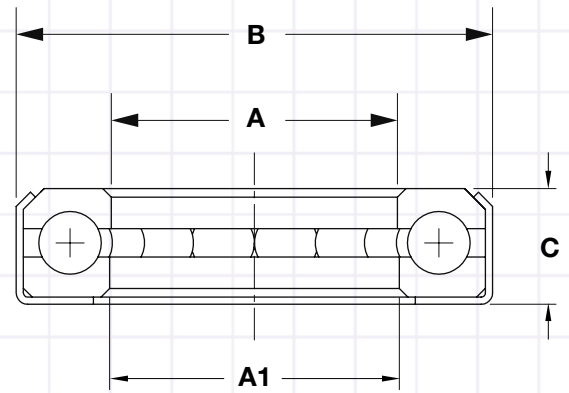
BEARING	Suffix	Bearing Dimensions				Balls	
		Bore A	Bore A1	OD B	Stack Height C	No.	Size
		in mm	in mm	in mm	in mm		in mm
601™	V	0.250	0.275	27/32	0.328	10	5/32
		6.350	6.990	21.430	8.330	10	3.970
602™	V	0.375	0.400	1 3/64	0.359	14	5/32
		9.530	10.160	26.590	9.120	14	3.970
602™	3/4 -V	0.453	0.478	55/64	0.281	15	1/8
		11.510	12.140	21.890	7.140	15	3.180
603™	V	0.500	0.525	1 17/64	0.437	10	1/4
		12.700	13.340	32.150	11.100	10	6.350
603™	1/4 -V	0.500	0.525	1	0.344	12	3/16
		12.700	13.340	25.400	8.740	12	4.760
605™	V	0.625	0.656	1 1/8	0.344	16	5/32
		15.880	16.660	28.580	8.740	16	3.970
606™	V	0.625	0.656	1 27/64	0.453	12	1/4
		15.880	16.660	36.120	11.510	12	6.350
607™	V	0.750	0.775	1 21/32	0.545	15	1/4
		19.050	16.690	42.070	13.840	15	6.350
608™	V	0.875	0.900	1 57/64	0.594	17	1/4
		22.230	22.860	48.020	15.090	17	6.350
608™	1/4 -V	0.984	1.031	1 3/4	0.625	16	1/4
		24.990	26.190	44.450	15.870	16	6.350

NICE® 600 Series®

Unground Ball Thrust Bearings

The **600 Series®** bearing is designed for moderate speeds and medium thrust loads. These bearings utilize a full ball complement. Rings are cold forged from hardenable strip steel and are carefully heat treated. These bearings may be plated or manufactured from stainless steel upon request.

The entire assembly is housed in a soft steel band which lends itself to an easy press fit into a housing. The band also serves as a dust shield and helps retain the bearing lubricant. The upper ring is free to rotate in the band and has a close fit in the bore for the shaft. The lower ring is fixed in the band and has a shaft clearance in the bore.



Bearing Weight	Thrust Capacity Revolutions Per Minute						BEARING
	10	50	100	250	500	1000	
lbs Kg	lbs N	lbs N	lbs N	lbs N	lbs N	lbs N	
0.030	304	246	182	98	71	51	601™
0.01	1353	1095	810	436	316	227	
0.060	426	344	254	138	100	71	602™
0.03	1896	1531	1130	614	445	316	
0.030	292	236	174	94	68	48	602™
0.01	1299	1050	774	418	303	214	
0.090	780	630	465	252	182	129	603™
0.04	3471	2804	2069	1121	810	574	
0.040	526	425	314	170	123	87	603™
0.02	2341	1891	1397	757	547	387	
0.040	487	394	291	158	114	81	605™
0.02	2167	1753	1295	703	507	360	
0.120	936	750	558	302	218	155	606™
0.05	4165	338	2483	1344	970	690	
0.190	1170	945	698	378	273	194	607™
0.09	5207	4205	3106	1682	1215	963	
0.280	1326	1070	791	428	309	220	608™
0.13	5901	4766	3520	1905	1375	979	
0.190	1248	1008	744	403	291	207	608™
0.09	5551	4484	3309	1793	1294	921	

NICE® 600 Series®

Unground Ball Thrust Bearings

Key Features:

- ✓ Unground Thrust Bearing
- ✓ Easy To Use Inch Dimensions
- ✓ Moderate Loads
- ✓ Max Speed Range: 1000 - 1200 RPM
- ✓ Hardened Rings
- ✓ Full Complement of Balls
- ✓ Soft Steel Band Offers Ease of Installation
- ✓ Upper Ring is Free to Rotate and has Close Fit for Shafts
- ✓ Lower Ring is Fixed and has Shaft Clearance in the Bore



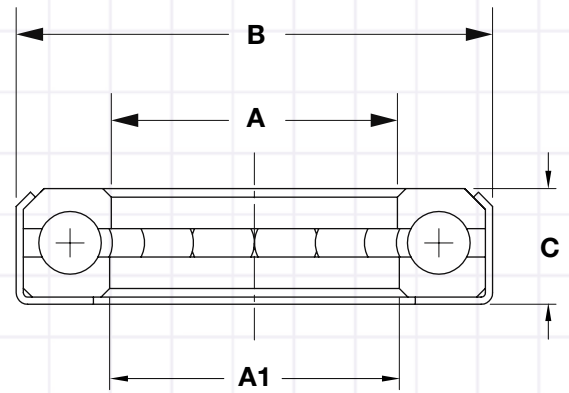
BEARING	Suffix	Bearing Dimensions				Balls	
		Bore A	Bore A1	OD B	Stack Height C	No.	Size
		in mm	in mm	in mm	in mm		in mm
609™	V	1.000	1.075	2	0.630	12	3/8
		25.400	27.310	50.800	16.000	12	9.530
610™	V	1.000	1.031	1 31/32	0.625	18	1/4
		25.400	26.190	50.100	15.880	18	6.350
610™	1/4 -V	1.016	1.031	1 3/4	0.625	16	1/4
		25.810	26.190	44.450	15.880	16	6.350
611™	V	1.063	1.094	1 31/32	0.625	18	1/4
		27.000	27.790	50.010	15.880	18	6.350
613™	V	1.125	1.150	2 3/32	0.625	19	1/4
		28.580	29.210	53.180	15.880	19	6.350
614™	V	1.187	1.212	2 3/32	0.625	19	1/4
		30.150	30.780	53.180	15.880	19	6.350
616™	V	1.250	1.275	2 11/32	0.625	23	1/4
		31.750	32.390	59.530	15.880	23	6.350
618™	V	1.375	1.400	2 15/32	0.625	23	1/4
		34.920	35.560	62.710	15.880	23	6.350
619™	V	1.437	1.462	2 15/32	0.625	23	1/4
		36.500	37.130	62.710	15.880	23	6.350
621™	V	1.500	1.525	2 19/32	0.625	25	1/4
		38.100	38.740	65.880	15.880	25	6.350

NICE® 600 Series®

Unground Ball Thrust Bearings

The **600 Series®** bearing is designed for moderate speeds and medium thrust loads. These bearings utilize a full ball complement. Rings are cold forged from hardenable strip steel and are carefully heat treated. These bearings may be plated or manufactured from stainless steel upon request.

The entire assembly is housed in a soft steel band which lends itself to an easy press fit into a housing. The band also serves as a dust shield and helps retain the bearing lubricant. The upper ring is free to rotate in the band and has a close fit in the bore for the shaft. The lower ring is fixed in the band and has a shaft clearance in the bore.



Bearing Weight	Thrust Capacity Revolutions Per Minute						BEARING
	10	50	100	250	500	1000	
lbs Kg	lbs N	lbs N	lbs N	lbs N	lbs N	lbs N	
0.300 0.14	1312 5835	1050 4670	760 3380	412 1832	300 1334	215 956	609™
0.290 0.13	1404 6248	1134 5046	837 3725	454 2020	328 1460	233 1,037	610™
0.210 0.10	1248 5554	1008 4486	744 3311	403 1793	291 1295	207 921	610™
0.260 0.12	1404 6248	1134 5046	837 3725	454 202	328 1460	233 1,037	611™
0.310 0.14	1482 6592	1197 5327	883 3929	479 2132	346 1540	246 1,095	613™
0.320 0.15	1482 6592	1197 5327	883 3929	479 2132	346 1540	246 1,095	614™
0.400 0.18	1794 7983	1449 6448	1069 4757	579 2577	419 1865	298 1,326	616™
0.450 0.20	1794 7983	1446 6448	1069 4757	579 2577	419 1865	298 1,326	618™
0.430 0.20	1794 7983	1449 6448	1069 4757	579 2577	419 1865	298 1,326	619™
0.450 0.20	1950 8678	1575 7009	1162 5171	630 2804	455 2025	324 1,442	621™

TP Style

Cylindrical Roller Thrust Bearings

RBC domestically produces an extensive range of heavy duty cylindrical roller thrust bearings from 3.5 inches inside diameter to 40 inches outside diameter.

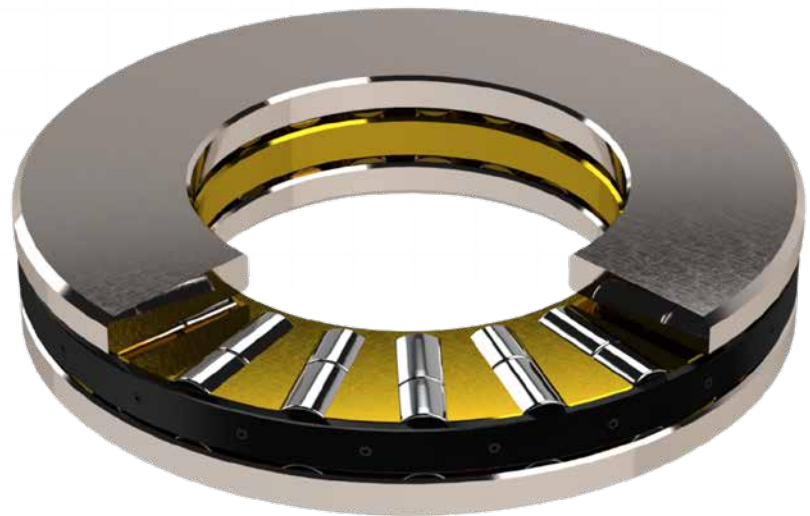
These highly engineered bearings are designed for a wide variety of applications involving high thrust loads at moderate speeds. Typical applications include: crane hooks, gear boxes, pumps, rolling mills, extruders, winch systems, and heavy duty swivels.

The RBC **TP** bearings consist of two hardened and precision ground thrust washers manufactured from high quality, high cleanliness bearing steel, a robust machined brass cage and rollers of hardened bearing steel.

These are also available in RBC's proprietary **MAX3™** steel bearing for optimized, extended service life requirements (see page 60 for more **MAX3™** bearing detail). All components are separable. Special designs are available upon request.

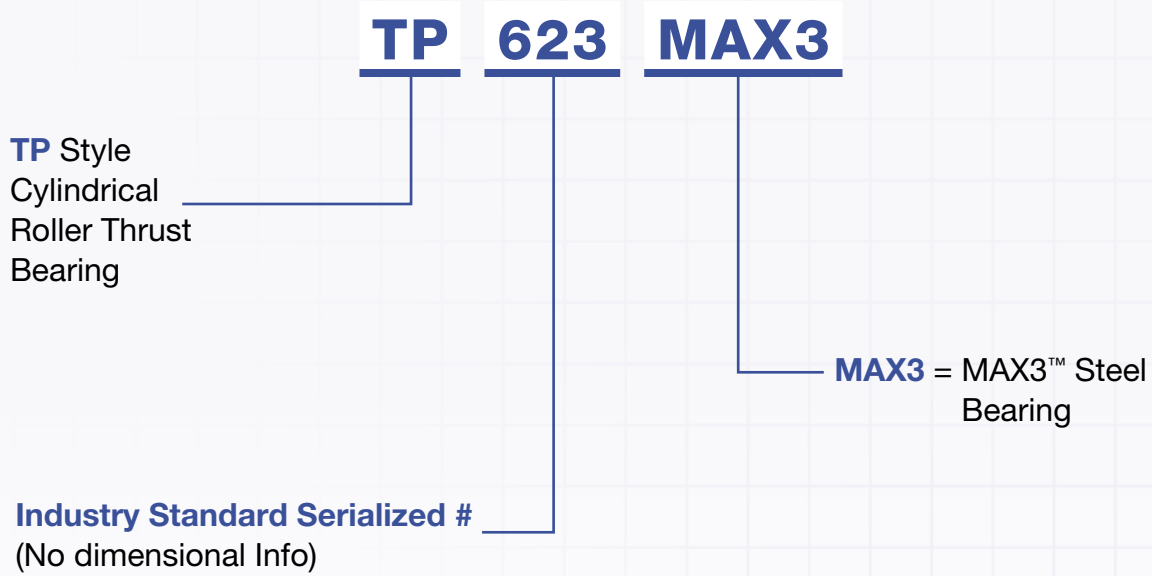
Key Features:

- ✓ Interchangeable with Industry Standard Product Offerings
- ✓ Large Selection of Sizes
- ✓ Robust Design
- ✓ Best Industry Lead Times
- ✓ Available as **MAX3™** Steel Bearings
- ✓ Special designs available upon request
- ✓ Excellent Engineering Support



Ex: TP745

TP Style Cylindrical Roller Thrust Bearings



TP bearing used in large crane hooks

TP Style

Cylindrical Roller Thrust Bearings

RBC produces an extensive range of cylindrical roller thrust bearings from 3.5 inch (88.9 mm) to 28 inch (711.2 mm) bore. RBC cylindrical roller thrust bearings are ideal for applications with heavy loads requiring moderate speeds such as crane hooks, extruders, and gear boxes among others.

The RBC **TP** cylindrical roller thrust bearings are comprised of two hardened and ground steel washers, machined brass cage, and steel rollers.

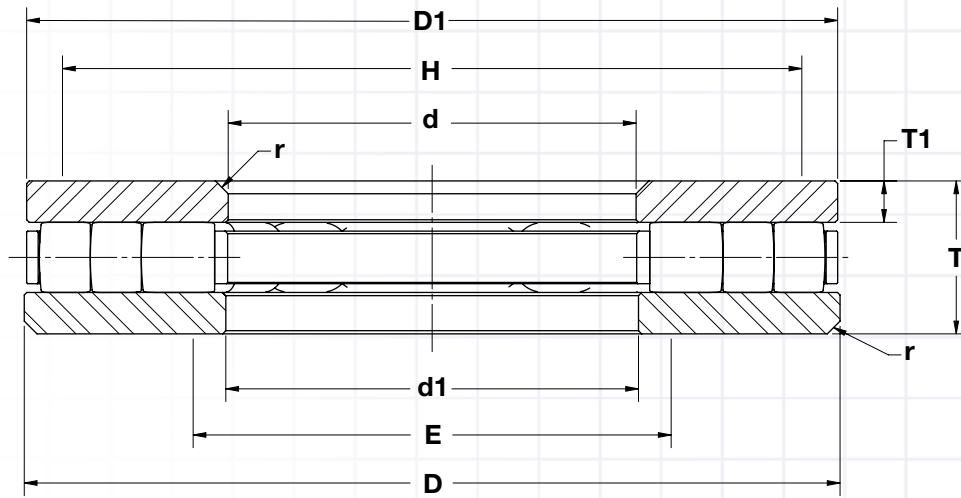
RBC's **TP Series** includes the **MAX3™** steel cylindrical roller thrust bearings for improved fatigue life when needed.

Advantages of RBC Cylindrical Roller Thrust Bearings

- ✓ Interchangeable with industry standard product offering
- ✓ For larger sizes, specials and other variants please contact RBC Customer Service

PART NUMBER	Bearing Dimensions			Rings		
	Bore	OD	Stack Height	Thickness	Small Diameter O.D.	Large Bore I.D.
	d	D	T	T1	D1	d1
	in mm	in mm	in mm	in mm	in mm	in mm
TP626	3.5000	5.2188	1.0000	0.281	5.156	3.562
	88.900	132.558	25.400	7.14	130.96	90.47
TP734	4.0000	7.0000	1.7500	0.500	6.938	4.062
	101.600	177.800	44.450	12.70	176.23	103.17
TP735	4.0000	8.0000	1.7500	0.500	7.938	4.062
	101.600	203.200	44.450	12.70	201.63	103.17
TP738	5.0000	8.0000	1.7500	0.500	7.938	5.062
	127.000	203.200	44.450	12.70	201.63	128.57
TP739	5.0000	9.0000	1.7500	0.500	8.938	5.062
	127.000	228.600	44.450	12.70	227.03	128.57
TP743	6.0000	9.0000	2.0000	0.562	8.938	6.062
	152.400	228.600	50.800	14.27	227.03	153.97
TP753	8.0000	16.0000	3.0000	0.812	15.906	8.094
	203.200	406.400	76.200	20.62	404.01	205.59
TP77050	8.0000	18.0000	3.7500	1.000	17.906	8.094
	203.200	457.200	95.250	25.40	454.81	205.59

TP Style Cylindrical Roller Thrust Bearings



Shoulder Diameter			Load Rating				PART NUMBER
Shaft (Min.) H	Housing (Max.) E	Fillet Radius (Max.) r	Static Capacity	Dynamic Capacity	Limiting Speed	Bearing Weight	
in mm	in mm	in mm	lbf kN	lbf kN	rpm	lbs kg	
4.80 121.8	3.76 95.5	0.06 1.5	147,700 657	37,300 166	2,200	2.9 1.3	TP626
6.50 165.1	4.50 114.3	0.06 1.5	384,500 1,710	99,500 443	1,650	11.6 5.3	TP734
7.50 190.5	4.50 114.3	0.06 1.5	565,500 2,515	131,700 586	1,425	17.0 7.7	TP735
7.50 190.5	5.50 139.7	0.06 1.5	452,300 2,012	108,300 482	1,425	13.6 6.2	TP738
8.50 215.9	5.50 139.7	0.06 1.5	665,300 2,959	143,700 639	1,275	19.8 9.0	TP739
8.50 215.9	6.50 165.1	0.12 3.0	549,400 2,444	132,000 587	1,275	17.7 8.0	TP743
15.46 392.6	8.58 217.9	0.25 6.4	2,489,600 11,074	488,800 2,174	725	116 53	TP753
17.38 441.5	8.58 217.9	0.25 6.4	3,094,600 13,765	652,400 2,902	625	196 89	TP77050

TP Style

Cylindrical Roller Thrust Bearings

RBC produces an extensive range of cylindrical roller thrust bearings from 3.5 inch (88.9 mm) to 28 inch (711.2 mm) bore. RBC cylindrical roller thrust bearings are ideal for applications with heavy loads requiring moderate speeds such as crane hooks, extruders, and gear boxes among others.

The RBC **TP** cylindrical roller thrust bearings are comprised of two hardened and ground steel washers, machined brass cage, and steel rollers.

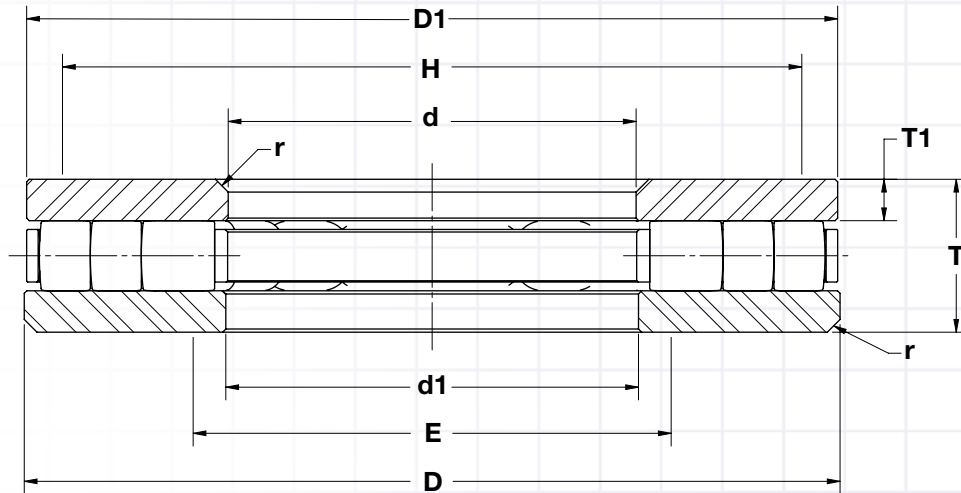
RBC's **TP Series** includes the **MAX3™** steel cylindrical roller thrust bearings for improved fatigue life when needed.

Advantages of RBC Cylindrical Roller Thrust Bearings

- ✓ Interchangeable with industry standard product offering
- ✓ For larger sizes, specials and other variants please contact RBC Customer Service

PART NUMBER	Bearing Dimensions			Rings		
	Bore d	OD D	Stack Height T	Thickness T1	Small Diameter O.D. D1	Large Bore I.D. d1
	in mm	in mm	in mm	in mm	in mm	in mm
TP77051	8.7500	20.5000	4.5000	1.000	20.275	9.000
	222.250	520.700	114.300	25.40	514.99	228.60
TP514	9.0000	14.0000	3.0000	0.812	13.906	9.094
	228.600	355.600	76.200	20.62	353.21	230.99
TP754	10.0000	16.0000	3.0000	0.812	15.906	10.094
	254.000	406.400	76.200	20.62	404.01	256.39
TP756	10.0000	20.0000	3.7500	1.031	19.906	10.094
	254.000	508.000	95.250	26.19	505.61	256.39
TP757	12.0000	18.0000	3.7500	1.031	17.906	12.094
	304.800	457.200	95.250	26.19	454.81	307.19
TP767	18.0000	28.0000	5.0000	1.375	27.875	18.125
	457.200	711.200	127.000	34.93	708.03	460.38
TP771	20.0000	32.0000	6.0000	1.656	31.875	20.125
	508.000	812.800	152.400	42.06	809.63	511.18
TP774	22.0000	34.0000	6.0000	1.656	33.875	22.125
	558.800	863.600	152.400	42.06	860.43	561.98
TP785	28.0000	42.0000	6.7500	1.875	41.875	28.125
	711.200	1066.800	171.450	47.63	1063.63	714.38

TP Style Cylindrical Roller Thrust Bearings



Shoulder Diameter			Load Rating				PART NUMBER
Shaft (Min.) H	Housing (Max.) E	Fillet Radius (Max.) r	Static Capacity	Dynamic Capacity	Limiting Speed	Bearing Weight	
in mm	in mm	in mm	lbf kN	lbf kN	rpm	lbs kg	
20.25 514.4	9.25 235.0	0.25 6.4	4,835,400 21,509	1,076,800 4,790	575	301 137	TP77051
13.46 341.8	9.62 244.4	0.25 6.4	1,518,000 6,752	335,400 1,492	825	68 31	TP514
15.46 392.6	10.71 271.9	0.25 6.4	2,109,000 9,381	419,700 1,867	725	93 42	TP754
19.40 492.8	10.65 270.5	0.25 6.4	4,011,600 17,844	749,700 3,335	575	229 104	TP756
17.38 441.3	12.63 320.7	0.25 6.4	2,418,700 10,759	503,600 2,240	650	135 61	TP757
27.09 688.0	19.09 484.8	0.25 6.4	6,004,000 26,707	1,075,400 4,784	425	463 210	TP767
31.09 789.6	20.96 532.5	0.25 6.4	9,242,300 41,112	1,605,000 7,139	350	744 337	TP771
33.00 838.2	23.00 584.2	0.25 6.4	9,504,000 42,276	1,611,700 7,169	325	802 364	TP774
41.00 1041.4	29.00 736.6	0.38 9.5	12,824,700 57,047	2,043,000 9,088	200	1310 594	TP785

Engineering Section

The information contained in this section of the catalog is intended to aid in the selection of RBC Thrust Bearings for a wide range of applications. For applications with severe or unusual operating conditions, RBC is prepared to provide in-depth technical analysis and recommend a suitable bearing. In the case that a standard bearing cannot be used, RBC can design a bearing to meet your application requirements.

Customer Service – 800.390.3300

The capacity and life calculations presented on the pages that follow do not apply to the **NICE®** brand unground thrust ball bearings. Consult the **NICE® 600 Series®** products section of the engineering write-up for all data relevant to **NICE®** products.

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Capacity and Fatigue Life

Bearing Capacity:

There are two types of bearing capacities specified in the product tables, static and dynamic.

Static Capacity (or Static Load Rating), C_{0a} , is the uniformly distributed load that will produce a theoretical contact stress of 580,000 psi (4,000 MPa) while a bearing is NOT rotating. Depending on type, a bearing can have a static capacity in the radial or axial direction. Static capacity is provided in the bearing tables and is typically noted as " C_{0a} " for thrust bearings.

Dynamic Capacity (or Dynamic Load Rating), C_a , is the load applied to a bearing that will theoretically result in one million revolutions of fatigue life. Depending on type, a bearing can have a dynamic load rating in the radial or axial direction. Dynamic capacity is provided in the bearing tables and is typically noted as " C_a " for thrust bearings.

Adjustments to Bearing Capacity:

Adjustments to the capacity of a bearing can be due to a number of factors. Two of the most commonly utilized modifications are for raceway hardness and operating temperature.

Raceway and Rolling Element Hardness:

The bearing capacities shown in the product tables are valid when all of the load carrying elements are properly heat treated to a minimum surface hardness of 58 HRC. If one or more bearing components possess hardness values less than 58 HRC, both the static and dynamic rating must be adjusted by using the factors shown in Table 1. The use of bearing components with hardness less than 40 HRC is not recommended.

Hardness		Dynamic	Static
HRC	HV	f_{HD}	f_{HS}
58	653	1.00	1.00
56	613	0.88	1.00
54	577	0.77	1.00
52	544	0.67	1.00
50	513	0.59	1.00
48	484	0.51	0.92
46	458	0.43	0.82
44	434	0.37	0.74
42	412	0.31	0.66
40	392	0.26	0.60

Table 1. Adjustment Factors for Capacity Due to Lower Hardness

The adjusted static capacity is:

$$C'_{0a} = C_{0a} \cdot f_{HS}$$

Where:

C'_{0a} = Adjusted Static Thrust Capacity (lb)

C_{0a} = Static Thrust Capacity (lb) – From Bearing Tables

f_{HS} = Adjustment Factor for Hardness for Static Capacity

The adjusted dynamic capacity is:

$$C'_a = C_a \cdot f_{HD}$$

Where:

C'_a = Adjusted Dynamic Thrust Capacity (lb)

C_a = Dynamic Thrust Capacity (lb) – From Bearing Tables

f_{HD} = Adjustment Factor for Hardness for Dynamic Capacity

If applicable, these adjusted values can be used in the equations to calculate bearing life in place of the values shown in the product tables.

Operating Temperature:

RBC thrust bearings can be used normally in operating temperatures ranging from -40° to 300° F (-40° to 149° C) without a loss of capacity. Care must be taken in choosing the appropriate lubricant for the operating temperature.

To be successful at higher operating temperatures may require an alternate heat treatment, which may reduce the hardness. Please consult with RBC Engineering for recommendations for applications that operate in excess of 300° F (149° C).

Engineering Data

Basic Bearing Life:

The basic bearing life for a thrust bearing is calculated using the following equations based on American Bearing Manufacturers Association (ABMA) Standard 11-2014:

$$L_{10} = \left(\frac{C_a}{P_a} \right)^p$$

Where:

L_{10} = Bearing Life, x10⁶ revolutions

C_a = Axial Dynamic Load Rating, lb

P_a = Applied Equivalent Axial Load, lb

p = Exponent (3 for ball bearings,
10/3 for roller bearings)

A calculation of bearing life in hours (instead of millions of revolutions) can be accomplished by using the following equation:

$$L_{10h} = \frac{10^6}{60 \cdot n} \left(\frac{C_a}{P_a} \right)^p$$

Where:

L_{10} = Bearing Life, hours

C_a = Axial Static Load Rating, lb

P_a = Applied Equivalent Axial Load, lb

p = Exponent (3 for ball bearings,
10/3 for roller bearings)

n = Speed, rpm

Adjusted Bearing Life:

If the bearing design and/or operation deviates significantly from a standard application, additional factors can be incorporated into the life analysis:

$$L_{na} = a_1 \cdot a_2 \cdot a_3 \frac{10^6}{60 \cdot n} \left(\frac{C_a}{P_a} \right)^p$$

Where:

L_{na} = Adjusted Bearing Life, hours

a_1 = Life Adjustment Factor for Reliability

a_2 = Life Adjustment Factor for Special Bearing
Properties (i.e. Material)

a_3 = Life Adjustment Factor for Operating Conditions

C_a = Axial Static Load Rating, lb

P_a = Applied Equivalent Axial Load, lb

p = Exponent (3 for ball bearings,
10/3 for roller bearings)

n = Speed, rpm

Life Adjustment Factor for Reliability, a_1 :

The standard bearing life (L_{10}) is the life which 90% of the bearings will meet or exceed. For higher reliability applications, an adjustment factor (shown in Table 2) will apply as shown in the equation above.

Reliability (%)	L_{na}	a_1
90	L_{10}	1
95	L_5	0.64
96	L_4	0.55
97	L_3	0.47
98	L_2	0.37
99	L_1	0.25

Table 2: Reliability Factors

Life Adjustment Factor for Special Bearing Properties, a_2 :

This factor is 1.0 for the majority of standard bearing applications. Increased values for the a_2 factor are usually due to a change in the material of the load bearing components (i.e. rings and rollers).

One commonly used life adjustment factor is for RBC MAX3™ material, which is 3.0.

Life Adjustment Factor for Operating Conditions, a_3 :

Operating conditions can have a profound effect on calculated bearing life. Some of the factors that can influence the a_3 factor:

- Lubrication
- Operating Temperature (as it affects lubricant performance)
- Shock Loading
- Misalignment

Typical values for a_3 will vary from 0.5 to 2.0. Please consult with RBC Engineering for support in calculating a_3 factors for your specific application.

Bearing Life per ISO 281:2007:

The equations for calculating bearing life shown above are based on the methods specified in ABMA Standard 11-2014. The International Standard Organization (ISO) standard for bearing life is ISO-281:2007. That standard provides an alternate, comprehensive method for calculating bearing life using a new factor, a_{ISO} , in place of ABMA factors a_1 , a_2 and a_3 . Please consult with RBC Engineering for assistance if required.

Bearing Loading:

For an application with a single load and speed, those values can be used in the equations detailed above. If the application has several speed and load conditions, the mean effective bearing speed and equivalent bearing load can be calculated to aid in determining bearing life.

Mean Effective Bearing Speed:

A mean effective bearing speed, n_e (rpm), can be calculated for bearings subjected to variable loads and speeds within a duty cycle. The mean effective bearing speed is the weighted average of the individual speeds and can be calculated using the following equation:

$$n_e = \sum \left(\frac{n_i \cdot t_i}{100} \right) = \frac{n_1 \cdot t_1}{100} + \frac{n_2 \cdot t_2}{100} + \dots$$

Where:

- n_e = Mean Effective Bearing Speed (rpm)
- n_1, n_2, \dots = Speed at Each Condition (rpm)
- t_1, t_2, \dots = Percent of Time at Each Condition (%)

Equivalent Bearing Load:

The equivalent bearing load for an application can be calculated using the following equation:

$$P_a = \sqrt[q]{\sum \left(\frac{F_i^q \cdot n_i \cdot t_i}{n_e \cdot 100} \right)} = \sqrt[q]{\left(\frac{F_1^q \cdot n_1 \cdot t_1}{n_e \cdot 100} \right) + \left(\frac{F_2^q \cdot n_2 \cdot t_2}{n_e \cdot 100} \right) + \dots}$$

Where:

- P_a = Equivalent Bearing Load (lb)
- q = Exponent (10/3 for roller bearings, 3 for ball bearings)
- F_1, F_2, \dots = Individual Bearing Load (lb)
- n_1, n_2, \dots = Speed at Each Condition (rpm)
- t_1, t_2, \dots = Percent of Time at Each Condition (%)
- n_e = Mean Effective Bearing Speed (rpm)

In the special case where the speed is constant across all loading conditions, the above equation will reduce to the following equation:

$$P_a = \sqrt[q]{\sum \left(\frac{F_i^q \cdot t_i}{100} \right)} = \sqrt[q]{\left(\frac{F_1^q \cdot t_1}{100} \right) + \left(\frac{F_2^q \cdot t_2}{100} \right) + \dots}$$

Where:

- P_a = Equivalent Bearing Load (lb)
- q = Exponent (10/3 for roller bearings, 3 for ball bearings)
- F_1, F_2, \dots = Individual Bearing Load (lb)
- t_1, t_2, \dots = Percent of Time at Each Condition (%)

Engineering Data

Effect of Shock Loads:

If a bearing is subjected to repeated shock or impact loads, the equivalent load, P_e , or its component loads, should be multiplied by a suitable factor. The resulting product of P_e and the shock load factor should not exceed the static capacity of the bearing in order to prevent Brinelling of the raceways and rolling elements. Guidelines for the shock load factor are shown in Table 3.

Loading Condition	Shock Load Factor
Uniform and Constant	1.00
Variable and Light Shock	1.50
Vibrations and Moderate Shock	2.00
Heavy and Severe Shock	3.00

Table 3: Shock Load Modification Factors

Materials

The ability of any bearing to meet its design intent relies on a production process which delivers on three fronts:

- Material specification and acquisition
- Generation of material properties through thermal treatments and/or surface modifications
- Creation of the high precision dimensions, geometries and textures required by the bearing design

Material Specification and Acquisition:

Raceway and Rolling Element Components:

Material selection is generally dictated by the application. In industrial applications, not subjected to severe corrosion or high temperature challenges, two major classes of steel alloy are typical. These are known as “**Through Hardened**” and “**Case Hardened**” steels. Many years of alloy development and process innovation, have generated a myriad of grades enabling bearing engineers and metallurgists to work together to create the ideal combination of material and process for a customer’s needs.

Through hardened steels used by RBC are typically SAE 52100 based. The precise alloy composition selected depends upon components section thickness.

Case hardened steel grades used by RBC are generally of a chemistry endowing deep hardenability and enhanced impact properties to serve the large sections encountered in many bearing applications.

RBC acquires materials only from bearing steel producers. RBC metallurgists write material procurement specifications which encapsulate advances in steel production technology ensuring only the highest quality steel is delivered from statistically proven and stable steel making processes.

This approach has led to partnerships and the development of MAX3™ steel bearings which has made available air-melt steels which yield fatigue performance equivalent to a vacuum arc re-melted (VAR) steel. Such performance claims are supported by extensive testing. (For more information see the MAX3™ steel bearing section on page 60).

Technology and capability are both continuously reviewed and updated to ensure peak performance delivery by our material supply base. RBC Material Procurement specifications are used to control all aspects of the steel making process. Our specifications demand far greater quality levels than the industry's ASTM & AMS standard specifications.

Non Raceway / Rolling Element Components:

Material procurement specifications are generated for other bearing components. Some items are in a finished ready to use condition, (e.g. grease fittings, pressed steel cages, seals). For others items, in house manufacturing processes may be applied to the purchased components (e.g. Brass cages, pin type cage components).

Generation of Material Properties:

Material received from the steel maker is in a condition suitable for precision turning into bearing components. To generate the properties required of an industrial bearing component, heat treatment is applied. Operations are designed to provide optimum hardness, elasticity, wear resistance, ductility, shock resistance, and size stability in the finished product.

Control of distortion and producing components to a predicted size are key elements of the process design. Special presses with intricate dies are utilized for this purpose during the hardening stage.

Through hardened steels are heated in a controlled atmosphere to a selected temperature, followed by quenching in either oil or molten salt. The quench medium, time, and temperature are selected based on the desired final microstructure, Martensitic or Bainitic. In the case of a Martensitic structure parts are tempered post quench.

Case Hardened steel bearing components require a process design which delivers the correct strength versus depth profile to support the applied loads during service as determined during the design process. Case hardening imparts post treatment compressive residual stresses. These extend component life while simultaneously providing a tough core which aids impact resistance. The tough core also acts as a barrier to any surface cracks developed through fatigue or impact damage that could progress through the component causing a catastrophic failure event.

The hardened case may be generated by carburizing (gas, vacuum or plasma), carbo-nitriding, flame, or induction hardening. Distortion and geometry control during the hardening process ensures subsequent material removal does not compromise the strength versus depth requirement. Case and core refining treatments as well as deep freeze technologies and temper cycles are applied per specified process design.

Creation of High Precision Dimensions, Geometries and Textures:

Grinding and/or hard turning on high precision equipment and tooling, much of it designed by RBC, allows for creation of the dimensions and geometries required by the bearing design. RBC utilizes industry leading measuring and gaging technologies with NIST traceable mastering to ensure conformity to design. In process inspection equipment for the detection of a loss of integrity due to thermal damage or unwanted geometric patterns is extensively utilized.

RBC possesses a large range of surface texture creation methods such as honing and media finishing for super finished isotropic topographies. These technologies are supported by state-of-the-art measuring equipment.

Plating and coating technologies such as Diamond Like Carbon, Thin Dense Chrome, Hard Chrome, Molybdenum Disulfide, and Manganese Phosphate are just a few examples available to support bearings positioned in challenging environments.

Bearing Tolerances

RBC thrust bearings are designed to industry standards that provide the tolerance ranges for external mounting features (ie: inner diameter) as well as internal geometry. External tolerance guidelines for several types of RBC thrust bearings are shown in Tables 4 – 7.

Inner Diameter Size d		Inner Diameter (Δ_{dmp})		Width (Δ_{Ts})	
Over in mm	Including in mm	Max in mm	Min in mm	Max in mm	Min in mm
0.0000 0.000	12.0000 304.800	+ 0.0010 + 0.025			
12.0000 304.800	24.0000 609.600	+ 0.0020 + 0.051	- 0.0000 - 0.000	+ 0.0150 + 0.381	- 0.0150 - 0.381
24.0000 609.600	36.0000 914.400	+ 0.0030 + 0.076			
36.0000 914.800	48.0000 1219.200	+ 0.0040 + 0.102			

Table 4: Tapered Roller Thrust Bearing Inner Diameter and Width Tolerances

Outer Diameter Size D		Outer Diameter (Δ_{Dmp})	
Over in mm	Including in mm	Max in mm	Min in mm
0.0000 0.000	12.0000 304.800	+ 0.0010 + 0.025	
12.0000 304.800	24.0000 609.600	+ 0.0020 + 0.051	
24.0000 609.600	36.0000 914.400	+ 0.0030 + 0.076	- 0.0000 - 0.000
36.0000 914.800	48.0000 1219.200	+ 0.0040 + 0.102	
48.0000 1219.200	----	+ 0.0050 + 0.127	

Table 5: Tapered Roller Thrust Bearing Outer Diameter Tolerances

Tapered Roller Thrust Bearings:

Tolerance limits for tapered roller thrust bearings of the **TRTB** and **TRTB-VF** types are shown in Tables 4 and 5.

Tapered Thrust Bearings:

For information on the tolerance limits for tapered thrust bearings of the **T** type see the product tables located on pages 28-35.

NICE® 600 Series® Unground Thrust Bearings:

For information on the tolerance limit of NICE® products, see the **NICE® 600 Series®** products engineering section on page 59.

TP Style Cylindrical Roller Thrust Bearings:

Tolerance limits for cylindrical roller thrust bearings of the **TP** type are shown in Tables 6 and 7.

Engineering Data

Inner Diameter Size d		Inner Diameter (Δ_{dmp})		Inner Diameter Size d		Width (Δ_{Ts})	
Over	Including	Max	Min	Over	Including	Max	Min
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm
2.0000	3.0000		- 0.0010	0.0000	2.0000		- 0.0060
50.800	76.200		- 0.025	0.000	50.800		- 0.152
3.0000	3.5000		- 0.0012	2.0000	3.0000		- 0.0080
76.200	88.900		- 0.030	50.800	76.200		- 0.203
3.5000	9.0000		- 0.0015	3.0000	6.0000		- 0.0100
88.900	228.600		- 0.038	76.200	152.400	+ 0.0000	- 0.254
9.0000	12.0000	+ 0.0000	- 0.0018	6.0000	10.0000	+ 0.000	- 0.0150
228.600	304.800	+ 0.000	- 0.046	152.400	254.000		- 0.381
12.0000	18.0000		- 0.0020	10.0000	18.0000		- 0.0200
304.800	457.200		- 0.051	254.000	457.200		- 0.508
18.0000	22.0000		- 0.0025	18.0000	30.0000		- 0.0250
457.200	558.800		- 0.064	457.200	762.000		- 0.635
22.0000	30.0000		- 0.0030				
558.800	762.000		- 0.076				

Table 6: TP Style Cylindrical Roller Thrust Bearing Inner Diameter and Width Tolerances

Outer Diameter Size D		Outer Diameter (Δ_{Dmp})	
Over	Including	Max	Min
in mm	in mm	in mm	in mm
5.0000	10.0000	+ 0.0015	
127.000	254.000	+ 0.038	
10.0000	18.0000	+ 0.0020	
254.000	457.200	+ 0.051	
18.0000	26.0000	+ 0.0025	- 0.0000
457.200	660.400	+ 0.064	- 0.000
26.0000	34.0000	+ 0.0030	
660.400	863.600	+ 0.076	
34.0000	44.0000	+ 0.0040	
863.600	1117.600	+ 0.102	

Table 7: TP Style Cylindrical Roller Thrust Bearings Outer Diameter Tolerances

Limiting Speed

Many factors in an application can affect the maximum speed a bearing can operate. Because of this, precise limiting speeds can be difficult to determine. A summary of the factors that can affect bearing life are:

- Applied bearing load
- Bearing speed
- Type of bearing
- Type of lubricant
- Operating temperature
- Bearing orientation (e.g. horizontal or vertical)

For bearings in the tables that do not have a reference limiting speed, please consult with RBC Engineering.

Bearing Fits

The use of a proper fit between bearing components and the mating hardware is needed to ensure proper performance of the bearing. While individual application requirements may vary, general guidelines for the mounting of RBC thrust bearings is detailed below. For special mounting considerations, contact RBC Engineering.

Tapered Roller Thrust Bearings (TRTB and TRTB-VF):

Thrust bearings have guidelines for mounting the bearing on a shaft and in a housing. Guidelines are shown in Table 8 for the TRTB rotating washer.

For the stationary washer, the application must provide clearance on the bore and a 0.010" to 0.015" clearance on the outer diameter. For assistance with V-flat (VF) tapered roller thrust bearings (with one flat washer) please contact RBC Engineering.

TP Style Cylindrical Roller Thrust Bearings:

Mounting dimensions for the shaft washer and the housing washer for TP style cylindrical roller thrust bearings are shown in the Table 9.

Inner Diameter Size d		Shaft Diameter Deviation From d		Outer Diameter D		Housing Diameter Deviation From D	
Over	Including	Max	Min	Over	Including	Max	Min
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm
0.0000	12.0000	+0.0030	+0.0020	All Sizes		Provide Clearance	
0.000	304.800	+ 0.076	+ 0.051				
12.0000	24.0000	+0.0050	+0.0030				
304.800	609.600	+ 0.127	+ 0.076				
24.0000	36.0000	+0.0070	+0.0040				
609.600	914.400	+ 0.178	+ 0.102				
36.0000	48.0000	+0.0090	+0.0050				
914.400	1219.200	+ 0.229	+ 0.127				

Table 8: Mounting Dimensions for Tapered Roller Thrust Bearings (Rotating Washer)

Inner Diameter Size d		Shaft Diameter Deviation From d		Outer Diameter D		Housing Diameter Deviation From D	
Over	Including	Max	Min	Over	Including	Max	Min
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm
3.0000	3.5000	-0.0013	-0.0023	4.5312	10.0000	+0.0030	+0.0015
76.200	88.900	- 0.033	- 0.058	115.092	254.000	+ 0.076	+ 0.038
3.5000	7.0000	-0.0015	-0.0025	10.0000	18.0000	+0.0040	+0.0020
88.900	177.800	- 0.038	- 0.064	254.000	457.200	+ 0.102	+ 0.051
7.0000	9.0000	-0.0015	-0.0030	18.0000	22.0000	+0.0050	+0.0025
177.800	228.600	- 0.038	- 0.076	457.200	558.800	+ 0.127	+ 0.064
9.0000	12.0000	-0.0018	-0.0033	22.0000	26.0000	+0.0055	+0.0025
228.600	304.800	- 0.046	- 0.084	558.800	660.400	+ 0.140	+ 0.064
12.0000	15.0000	-0.0020	-0.0035	26.0000	28.0000	+0.0060	+0.0030
304.800	381.000	- 0.051	- 0.089	660.400	711.200	+ 0.152	+ 0.076
15.0000	19.0000	-0.0020	-0.0040	28.0000	34.0000	+0.0070	+0.0030
381.000	482.600	- 0.051	- 0.102	711.200	863.600	+ 0.178	+ 0.076
19.0000	23.0000	-0.0025	-0.0045	34.0000	38.0000	+0.0080	+0.0035
482.600	584.200	- 0.064	- 0.114	863.600	965.200	+ 0.203	+ 0.089
23.0000	30.0000	-0.0030	-0.0055	38.0000	44.0000	+0.0090	+0.0040
584.200	762.000	- 0.076	- 0.140	965.200	1117.600	+ 0.229	+ 0.102

Table 9: Mounting Dimensions for TP Style Cylindrical Roller Thrust Bearings

Engineering Data

Lubrication

Lubricants have several important functions in thrust bearings:

- Protect bearing surfaces from rust and corrosion
- Reduce rolling and sliding friction
- Prevent metal on metal contact between rolling elements and raceways
- Remove heat from the bearing contact areas
- Form a barrier against external contamination (grease only)
- Remove wear particles from the bearing (circulating oil)

The majority of all bearings do not reach the end of their calculated fatigue life due to lubricant related issues.

Oil Lubrication:

Demanding applications that typically involve high speeds, high temperatures or heat generation usually require oil lubrication. Oil is commonly provided to bearings in the following ways:

- Circulating Oil
- Oil Bath / Oil Splash
- Oil Spray / Mist

Many oils are mineral oils, which are fluids produced from a petroleum base. Synthetic oils with unique properties

can also be manufactured, typically from a non-petroleum base. Additive packages are included with many lubricants to increase performance.

Expected operating temperature is one of the primary concerns when selecting an oil. If the viscosity of the oil is too low at the operating temperature, the oil may be too thin to prevent metal on metal contact, which may reduce the performance of the bearing. The selection of an oil that will keep the metal components separated may increase the calculated L_{10} life.

Grease Lubrication:

Grease is a base oil that is retained in a thickener. The base oil can be either a mineral or synthetic oil and there are many types of thickeners used in grease. Thickeners are available in a number of different types, including lithium soap, calcium soap, sodium soap and aluminum complex greases. Non-soap and inorganic thickeners are also available.

In general, bearing speed is reduced when lubricated with grease instead of oil. Oil lubricated bearings generally can remove heat more efficiently.

Bearings with grease can be either lubricated for life or require a re-lubrication interval. The frequency of re-lubrication depends on the specific application. Contact RBC Engineering for aid in selecting the proper grease for an application.

**To contact RBC Engineering
please call – 800.390.3300**

NICE®

600 Series®



The **NICE® 600 Series®** thrust bearings are unground low precision bearings made from low carbon stamping steels. They do not conform to industry established load capacity and life standards detailed above.

For load capacity information consult the load capacity section presented in **NICE® 600 Series®** product tables on page (40-43). The table provides the load that the bearing can carry at various speeds to yield an average service life of 2500 hours based on years of collected field data.

Dimensional Data	Tolerances	
	Max in mm	Min in mm
Bore A	+0.10 +.25	-.000 -.00
Bore A1	+0.10 +.25	-.010 -.25
O.D., B	+0.10 +.25	-.010 -.25
Height C	+0.10 +.25	-.010 -.25

**Table 10: NICE® 600 Series® T
Dimensional Tolerances**

RBC MAX3™ Steel Bearings

MAX3™ steel products represents the outcome of a decade long partnership between RBC and the world’s premiere steel producers. By working together, technological advances in steel production, casting, and inclusion engineering have been translated to industrial bearings. **MAX3™** steel bearings exhibit an improved fatigue life equivalent to super clean steel produced by the cost prohibitive vacuum arc re-melt (VAR) method.

MAX3™ steel bearings use a conventional air-melted steel subjected to enhanced technologies which reduce the presence of impurities to levels previously associated with VAR processed steels. These technologies impact those elements active in forming harmful inclusions (oxygen, sulfur and titanium – among others) in the steel. Inclusion Engineering is then employed to minimize the size, shape, and distribution of residual inclusions thus reducing their influence on bearing life.

The Society of Tribologists and Lubrication Engineers (STLE) publishes a list of life adjustment factors for bearing fatigue life based on the melting practice of steel, a sample of which is shown in Table 11:

Steel Melting Practice	Life Factor, a_2
Air Melting (AM)	1.0
Vacuum Arc Re-melting (VAR)	3.0

Table 11: Selections of STLE Life Adjustment Factors

The end result of the **MAX3™** bearings processing is an air-melted steel with a micro inclusion cleanliness level, and hence fatigue performance, of a VAR steel.

RBC MAX3™ steel is widely used in bearings in the Oil & Gas Industry. While MAX3™ steel bearings can be applied to the almost any bearing type, typical bearing types include :

- ✓ Tapered Roller Thrust Bearings
- ✓ V-Flat Tapered Roller Thrust Bearings
- ✓ Cylindrical Roller Thrust Bearings
- ✓ Radial Tapered Roller Bearings
- ✓ Cylindrical Roller Bearings



RBC Bearings® Specialized Shipping Process

RBC ships our large bearings individually in specialized packaging that includes a vacuum sealed metalized bag with desiccant inside to reduce humidity and wooden crates that ensure no damage occurs during shipping.

Also upon request, RBC includes lifting holes and four lifting eye bolts in each shipping crate for some large thrust bearing configurations. This system allows ease of bearing removal and reduces the chance of damage occurring upon unpacking. Our specialized packaging process allows us to stack each individually packed bearing component in the order needed for assembly providing ease of set up on delivery.

Large Bearings with optional lifting holes:

- ✓ Tapered Roller Thrust Bearings
- ✓ V-Flat Tapered Roller Thrust Bearings
- ✓ Cylindrical Tapered Roller Thrust Bearings



Tapered Roller Thrust Bearing Interchange Table

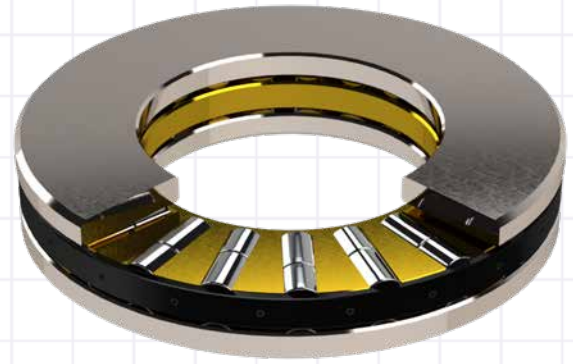


RBC Part Number	Industry Part Number	RBC Part Number	Industry Part Number
TRTB311	T311	TRTB76612VFMAX	N-3586-A
TRTB411	T411	TRTB76561VF	N-3559-A
TRTB441	T441	TRTB10100VF	T10100V
TRTB451	T451	TRTB76912VF	T11000
TRTB511	T511	TRTB76573VFMAX3	T11001V
TRTB511A	T511A	TRTB11500MAX3	T11500
TRTB511E	T511E	TRTB76780VFMAX3	E-1994-C
TRTB520	T520	TRTB76781VFMAX3	B-8350-C
TRTB611	T611	TRTB76779VFMAX3	F-3163-C
TRTB651	T651	TRTB76693VF	F-3131-G
TRTB661	T661		
TRTB691	T691		
TRTB709	T709		
TRTB711	T711		
TRTB711V	T711F		
TRTB7519	T7519		
TRTB811	T811		
TRTB911	T911		
TRTB911A	T911A		
TRTB921	T921		
TRTB76723	N-3235-A		
TRTB1011	T1011		
TRTB76717	N-3243-A		
TRTB1115	T1115		
TRTB1120	T1120		
TRTB1421	T1421		
TRTB16021	T16021		
TRTB16050	T16050		
TRTB1750	T1750		

Tapered Thrust Bearing Interchange Table



Cylindrical Thrust Bearing Interchange Table



RBC Part Number	Industry Part Number
T88	T88
T101	T101
T101W	T101W
T110	T110
T126	T126
T1260S	T1260
T127	T127
T1370C	T1370
T139S	T139
T149	T149
T151	T151
T151W	T151W
T163	T163
T1760C	T1760
T176	T176
T176W	T176W
T182	T182
T188S	T188
T189S	T189
T1910	T1910
T1920	T1920
T193	T193
T194	T194
T195S	T195
T199	T199
T201	T201
T201W	T201W
T202	T202
T208	T208
T209	T209
T251	T251
T251W	T251W
T252	T252
T252W	T252W
T301	T301
T301W	T301W
T302	T302
T302W	T302W

RBC Part Number	Industry Part Number
TP514	T514
TP626	T626
TP734	T734
TP735	T735
TP738	T738
TP739	T739
TP743	T743
TP753	T753
TP754	T754
TP756	T756
TP757	T757
TP767	T767
TP77050	T755-203
TP77051	T756-202
TP771	T771
TP774	T774
TP785	T785

RBC Bearings® has been producing bearings in the USA since 1919. In addition to unique custom bearings, RBC Bearings® offers a full line of standard industrial and aerospace bearings, including:



Tapered Roller Thrust Bearings

Case-hardened tapered roller thrust bearings for oilfield top drives and swivels. Available in full complement, maximum capacity versions.



Thin Section Ball Bearings

Standard cross sections to one inch. Bore sizes to 40 inches. Stainless steel and other materials are available. Seals are available on all sizes and standard cross sections. Super duplex configurations.



Cam Followers

Standard stud, heavy stud, yoke type, caged roller followers. Patented RBC Roller® cylindrical roller cam followers, HexLube® universal cam followers, airframe track rollers.



Cylindrical Roller Bearings

Cylindrical roller bearings designed for mud pump pinion and eccentric positions. Fully interchangeable to industry standards.



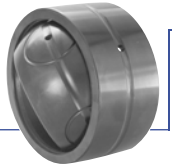
Needle Roller Bearings

Pitchline® caged heavy duty needle roller bearings ideal for cross head bearings applications. These double row bearings are available in single row and TandemRoller® versions.



Commercial Rod Ends

Commercial and industrial, precision, Mil-Spec series, self-lubricating, and aircraft. Sold under the Heim®, Unibal®, and Spherco® names. Available in inch and metric sizes.



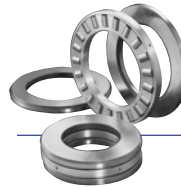
Spherical Plain Bearings

Radial, angular contact, extended inner ring, high misalignment. QuadLube®, ImpactTuff®, SpreadLock® Seal, CrossLube®, DuraLube™, and self-lubricating bearings. Available in inch and metric sizes.



Tapered Roller Bearings

Single, double, & multi row versions available for main bearing positions in mud pumps, gear boxes, etc. Bearings are constructed of case hardened steel washers and rollers with bore size of 11" or greater.



TP Series Bearings

RBC Bearings® TP Series cylindrical roller thrust bearings ideal for crane hooks, oil well swivels, winch systems, and gear boxes. Fully interchangeable with industry standard offering.



Keyless Locking Devices

Mechanical bushings used to connect power transmission components onto rotating shafts. Without the use of keyways, KLDs eliminate the problems associated with backlash including fretting, corroding, and wallowing.



Lubron® Bearings

Lubron™ self-lubricating bearings designed and custom manufactured in most any size, material and bearing configuration. Applications include hydro power and water control, nuclear power generation, infrastructure, architecture, offshore marine, industrial, machinery and heavy equipment.



Shaft Collars

Used to position or locate a component on a shaft. Made from mild steel, type 303 or 316 stainless steel, aluminum, or acetal. Available in inch and metric sizes.



Self-Lubricating Bearings

Radial, thrust, rod ends, spherical bearings, high temperature, high loads. Available in inch and metric sizes. Fiberglide® self-lubricating bearings.



Rigid Couplings

Shaft couplings serve as components to time, join, or align shafts at lower speeds and torque, especially when zero backlash is desired. Made from mild steel with a black oxide finish type 303 stainless steel, or aluminum. Available in inch and metric sizes.



Specials

RBC Bearings® manufactures many specialty bearings for the aerospace, oil and energy, semiconductor equipment, packaging, transportation, and other industries.



Ball Bearings

Precision ground, semiground, unground. High loads, long life, smooth operation. Nice® branded products are offered in caged and full complement configurations.



PIC Design

Complete line of precision gears, precision hardware, timing belts, pulleys, and linear motion systems. Industries served include industrial, aerospace, defense, medical, robotics and automation, material handling, and assembly. Custom design support for unique applications.