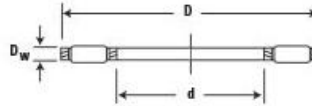


**Thrust Bearings & Washers**



*For high axial loads when envelop space is minimal.*

When high axial load capacities are needed and envelope space is minimal, **needle thrust bearings** are an option. These bearings consist of a stamped or machined cage and rollers. The cage retaining the rollers is paired with thrust washers that act as raceways. Thrust bearings can be used without thrust washers when the faces of adjacent machine components can serve as raceways, allowing the machine to be even more compact. These bearings provide a high degree of stiffness and are most suitable where high accuracy is required at high speeds and under fluctuating heavy loads, such as machine tools and high-pressure pumps.

THRUST NEEDLE ROLLER BEARINGS											
DIMENSIONS						INTERCHANGE					
d		D		D <sub>w</sub>		INA AXK	SKF AXK	FAG AXK	IKO NTB	Torrington FNT(A)	Torrington NTA
inch	mm	inch	mm	inch	mm						
0.250	6.350	0.687	17.450	0.0781	1.984						<a href="#">NTA-411</a>
0.312	7.925	0.750	19.050	0.0781	1.984						<a href="#">NTA-512</a>
0.375	9.525	0.812	20.625	0.0781	1.984						<a href="#">NTA-613</a>
0.394	10.000	0.945	24.000	0.0787	2.000	<a href="#">AXK 1024</a>	<a href="#">AXK 1024</a>	<a href="#">AXK 1024</a>	<a href="#">NTB 1024</a>	<a href="#">FNT-1024</a>	
0.472	12.000	1.024	26.000	0.0787	2.000	<a href="#">AXK 1226</a>	<a href="#">AXK 1226</a>	<a href="#">FNT-1226</a>	<a href="#">NTB 1226</a>	<a href="#">FNT-1226</a>	
0.500	12.700	0.937	23.800	0.0781	1.984						<a href="#">NTA-815</a>
0.562	14.275	1.000	25.400	0.0782	1.986						<a href="#">NTA-916</a>
0.591	15.000	1.102	28.000	0.0787	2.000	<a href="#">AXK 1528</a>	<a href="#">AXK 1528</a>	<a href="#">AXK 1528</a>	<a href="#">NTB 1528</a>	<a href="#">FNTA-1528</a>	
0.625	15.875	1.125	28.575	0.0781	1.984						<a href="#">NTA-1018</a>
0.630	16.000	1.142	29.000	0.0787	2.000				<a href="#">NTB 1629</a>		
0.669	17.000	1.181	30.000	0.0787	2.000	<a href="#">AXK 1730</a>	<a href="#">AXK 1730</a>	<a href="#">AXK 1730</a>	<a href="#">NTB 1730</a>	<a href="#">FNT-1730</a>	
0.709	18.000	1.220	31.000	0.0787	2.000				<a href="#">NTB 1831</a>		
0.750	19.050	1.250	31.750	0.0781	1.984						<a href="#">NTA-1220</a>
0.787	20.000	1.378	35.000	0.0787	2.000	<a href="#">AXK 2035</a>	<a href="#">AXK 2035</a>	<a href="#">AXK 2035</a>	<a href="#">NTB 2035</a>	<a href="#">FNTA-2035</a>	
0.875	22.225	1.437	36.500	0.0781	1.984						<a href="#">NTA-1423</a>
0.984	25.000	1.654	42.000	0.0787	2.000	<a href="#">AXK 2542</a>	<a href="#">AXK 2542</a>	<a href="#">AXK 2542</a>	<a href="#">NTB 2542</a>	<a href="#">FNTA-2542</a>	
1.000	25.400	1.562	39.675	0.0781	1.984						<a href="#">NTA-1625</a>
1.125	28.575	1.750	44.450	0.0781	1.984						<a href="#">NTA-1828</a>
1.181	30.000	1.850	47.000	0.0787	2.000	<a href="#">AXK 3047</a>	<a href="#">AXK 3047</a>	<a href="#">AXK 3047</a>	<a href="#">NTB 3047</a>	<a href="#">FNTA-3047</a>	
1.250	31.750	1.937	49.200	0.0781	1.984						<a href="#">NTA-2031</a>
1.375	34.925	2.062	52.375	0.0781	1.984						<a href="#">NTA-2233</a>

THRUST WASHERS											
DIMENSIONS						INTERCHANGE					
d		D		S		INA AS	SKF AS	FAG AS	IKO AS	Torrington FTRA	Torrington TRA
inch	mm	inch	mm	inch	mm						
0.250	6.350	0.687	17.450	.030-.032	.76-.81						<a href="#">TRA-411</a>
0.312	7.925	0.750	19.050	.030-.032	.76-.81						<a href="#">TRA-512</a>
0.375	9.525	0.812	20.625	.030-.032	.76-.81						<a href="#">TRA-613</a>
0.394	10.000	0.945	24.000	0.0394	1	<a href="#">AS 1024</a>	<a href="#">AS 1024</a>	<a href="#">AS 1024</a>	<a href="#">AS 1024</a>	<a href="#">FTRA-1024</a>	
0.472	12.000	1.024	26.000	0.0394	1	<a href="#">AS 1226</a>	<a href="#">AS 1226</a>	<a href="#">AS 1226</a>	<a href="#">AS 1226</a>	<a href="#">FTRA-1226</a>	
0.500	12.700	0.937	23.800	.030-.032	.76-.81						<a href="#">TRA-815</a>
0.562	14.275	1.000	25.400	.030-.032	.76-.81						<a href="#">TRA-916</a>
0.591	15.000	1.102	28.000	0.0394	1	<a href="#">AS 1528</a>	<a href="#">AS 1528</a>	<a href="#">AS 1528</a>	<a href="#">AS 1528</a>	<a href="#">FTRA-1528</a>	
0.625	15.875	1.125	28.575	.030-.032	.76-.81						<a href="#">TRA-1018</a>
0.630	16.000	1.142	29.000	0.0394	1				<a href="#">AS 1629</a>		
0.669	17.000	1.181	30.000	0.0394	1	<a href="#">AS 1730</a>	<a href="#">AS 1730</a>	<a href="#">AS 1730</a>	<a href="#">AS 1730</a>	<a href="#">FTRA-1730</a>	
0.709	18.000	1.220	31.000	0.0394	1				<a href="#">AS 1831</a>		
0.750	19.050	1.250	31.750	.030-.032	.76-.81						<a href="#">TRA-1220</a>
0.787	20.000	1.378	35.000	0.0394	1	<a href="#">AS 2035</a>	<a href="#">AS 2035</a>	<a href="#">AS 2035</a>	<a href="#">AS 2035</a>	<a href="#">FTRA-2035</a>	
0.875	22.225	1.437	36.500	.030-.032	.76-.81						<a href="#">TRA-1423</a>
0.984	25.000	1.654	42.000	0.0394	1	<a href="#">AS 2542</a>	<a href="#">AS 2542</a>	<a href="#">AS 2542</a>	<a href="#">AS 2542</a>	<a href="#">FTRA-2542</a>	
1.000	25.400	1.562	39.675	.030-.032	.76-.81						<a href="#">TRA-1625</a>