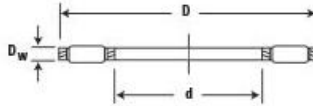


Thrust Bearings & Washers



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 _w | | 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 | | | | | | NTA-411 |
| 0.312 | 7.925 | 0.750 | 19.050 | 0.0781 | 1.984 | | | | | | NTA-512 |
| 0.375 | 9.525 | 0.812 | 20.625 | 0.0781 | 1.984 | | | | | | NTA-613 |
| 0.394 | 10.000 | 0.945 | 24.000 | 0.0787 | 2.000 | AXK 1024 | AXK 1024 | AXK 1024 | NTB 1024 | FNT-1024 | |
| 0.472 | 12.000 | 1.024 | 26.000 | 0.0787 | 2.000 | AXK 1226 | AXK 1226 | FNT-1226 | NTB 1226 | FNT-1226 | |
| 0.500 | 12.700 | 0.937 | 23.800 | 0.0781 | 1.984 | | | | | | NTA-815 |
| 0.562 | 14.275 | 1.000 | 25.400 | 0.0782 | 1.986 | | | | | | NTA-916 |
| 0.591 | 15.000 | 1.102 | 28.000 | 0.0787 | 2.000 | AXK 1528 | AXK 1528 | AXK 1528 | NTB 1528 | FNTA-1528 | |
| 0.625 | 15.875 | 1.125 | 28.575 | 0.0781 | 1.984 | | | | | | NTA-1018 |
| 0.630 | 16.000 | 1.142 | 29.000 | 0.0787 | 2.000 | | | | NTB 1629 | | |
| 0.669 | 17.000 | 1.181 | 30.000 | 0.0787 | 2.000 | AXK 1730 | AXK 1730 | AXK 1730 | NTB 1730 | FNT-1730 | |
| 0.709 | 18.000 | 1.220 | 31.000 | 0.0787 | 2.000 | | | | NTB 1831 | | |
| 0.750 | 19.050 | 1.250 | 31.750 | 0.0781 | 1.984 | | | | | | NTA-1220 |
| 0.787 | 20.000 | 1.378 | 35.000 | 0.0787 | 2.000 | AXK 2035 | AXK 2035 | AXK 2035 | NTB 2035 | FNTA-2035 | |
| 0.875 | 22.225 | 1.437 | 36.500 | 0.0781 | 1.984 | | | | | | NTA-1423 |
| 0.984 | 25.000 | 1.654 | 42.000 | 0.0787 | 2.000 | AXK 2542 | AXK 2542 | AXK 2542 | NTB 2542 | FNTA-2542 | |
| 1.000 | 25.400 | 1.562 | 39.675 | 0.0781 | 1.984 | | | | | | NTA-1625 |
| 1.125 | 28.575 | 1.750 | 44.450 | 0.0781 | 1.984 | | | | | | NTA-1828 |
| 1.181 | 30.000 | 1.850 | 47.000 | 0.0787 | 2.000 | AXK 3047 | AXK 3047 | AXK 3047 | NTB 3047 | FNTA-3047 | |
| 1.250 | 31.750 | 1.937 | 49.200 | 0.0781 | 1.984 | | | | | | NTA-2031 |
| 1.375 | 34.925 | 2.062 | 52.375 | 0.0781 | 1.984 | | | | | | NTA-2233 |

| 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 | | | | | | TRA-411 |
| 0.312 | 7.925 | 0.750 | 19.050 | .030-.032 | .76-.81 | | | | | | TRA-512 |
| 0.375 | 9.525 | 0.812 | 20.625 | .030-.032 | .76-.81 | | | | | | TRA-613 |
| 0.394 | 10.000 | 0.945 | 24.000 | 0.0394 | 1 | AS 1024 | AS 1024 | AS 1024 | AS 1024 | FTRA-1024 | |
| 0.472 | 12.000 | 1.024 | 26.000 | 0.0394 | 1 | AS 1226 | AS 1226 | AS 1226 | AS 1226 | FTRA-1226 | |
| 0.500 | 12.700 | 0.937 | 23.800 | .030-.032 | .76-.81 | | | | | | TRA-815 |
| 0.562 | 14.275 | 1.000 | 25.400 | .030-.032 | .76-.81 | | | | | | TRA-916 |
| 0.591 | 15.000 | 1.102 | 28.000 | 0.0394 | 1 | AS 1528 | AS 1528 | AS 1528 | AS 1528 | FTRA-1528 | |
| 0.625 | 15.875 | 1.125 | 28.575 | .030-.032 | .76-.81 | | | | | | TRA-1018 |
| 0.630 | 16.000 | 1.142 | 29.000 | 0.0394 | 1 | | | | AS 1629 | | |
| 0.669 | 17.000 | 1.181 | 30.000 | 0.0394 | 1 | AS 1730 | AS 1730 | AS 1730 | AS 1730 | FTRA-1730 | |
| 0.709 | 18.000 | 1.220 | 31.000 | 0.0394 | 1 | | | | AS 1831 | | |
| 0.750 | 19.050 | 1.250 | 31.750 | .030-.032 | .76-.81 | | | | | | TRA-1220 |
| 0.787 | 20.000 | 1.378 | 35.000 | 0.0394 | 1 | AS 2035 | AS 2035 | AS 2035 | AS 2035 | FTRA-2035 | |
| 0.875 | 22.225 | 1.437 | 36.500 | .030-.032 | .76-.81 | | | | | | TRA-1423 |
| 0.984 | 25.000 | 1.654 | 42.000 | 0.0394 | 1 | AS 2542 | AS 2542 | AS 2542 | AS 2542 | FTRA-2542 | |
| 1.000 | 25.400 | 1.562 | 39.675 | .030-.032 | .76-.81 | | | | | | TRA-1625 |