

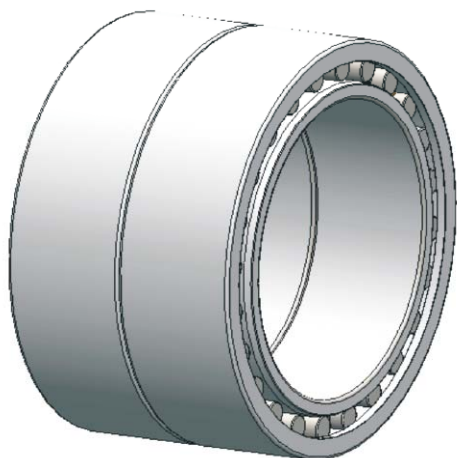
## Cylindrical and Tapered Roller Bearings for Rolling Mill

### 轧机用圆柱与圆锥滚子轴承

- 产品结构为双列或四列的圆柱滚子轴承和圆锥滚子轴承，精度等级均超过P6级，部分产品可提供P4级精度。此类轴承使用优化的滚道截面设计，具备较高的负荷容量。保持架为铜保或冲压铁保，圆柱滚子与圆锥滚子均使用G II级精度零件。

The products are double row or four-row cylindrical and tapered roller bearings with precision higher than P6 standard, and some products even can be P4 precision. An optimized design of raceway section is used to sustain a better loading capacity. The retainer is brass or punched steel cage, while the rollers used are G2 precision.





四列圆柱滚子轴承用于轧钢机架的轧辊颈、滚筒和轧压机。同其它滚子轴承相比，这些轴承的摩擦低。由于这些轴承通常以过盈配合安装在轧辊颈上，特别适合轧钢速度高的轧钢机应用。这些轴承的低横截面允许使用同轧辊直径相比相对较大的轧辊颈直径。由于可装入非常多滚子，其径向载荷能力非常高。

圆柱滚子轴承只能承受径向载荷。因此，这些轴承同深沟球轴承或角接触球轴承、或径向设计或止推设计的圆锥滚子轴承一起安装，由后者承受轴向载荷。

### 内部游隙

四列圆柱滚子轴承通常以轧钢机轴承要求的C3或C4径向内部游隙生产。以松配合安装在轧辊颈上的轴承一般带C2径向内部游隙。

标准化的游隙值符合1991年的ISO 5753标准，带圆柱孔的轴承游隙值和带圆锥孔的轴承游隙值见下表。这些数值适用于轴承安装前在无载荷时的游隙值。

### 带圆柱孔的圆柱滚子轴承的径向内部游隙

Bore diameter	Radial internal clearance															
	C1		SPC2		C2		Normal		C3		C4		C5			
d	over	incl.	min	max	min	max	min	max	min	max	min	max	min	max		
mm	μm															
–	24	–	–	–	–	–	0	25	20	45	35	60	50	75	65	90
24	30	5	15	10	25	0	25	20	45	35	60	50	75	70	95	
30	40	5	15	12	25	5	30	25	50	45	70	60	85	80	105	
40	50	5	18	15	30	5	35	30	60	50	80	70	100	95	125	
50	65	5	20	15	35	10	40	40	70	60	90	80	110	110	140	
65	80	10	25	20	40	10	45	40	75	65	100	90	125	130	165	
80	100	10	30	25	45	15	50	50	85	75	110	105	140	155	190	
100	120	10	30	25	50	15	55	50	90	85	125	125	165	180	220	
120	140	10	35	30	60	15	60	60	105	100	145	145	190	200	245	
140	160	10	35	35	65	20	70	70	120	115	165	165	215	225	275	
160	180	10	40	35	75	25	75	75	125	120	170	170	220	250	300	
180	200	15	45	40	80	35	90	90	145	140	195	195	250	275	330	
200	225	15	50	45	90	45	105	105	165	160	220	220	280	305	365	
225	250	15	50	50	100	45	110	110	175	170	235	235	300	330	395	
250	280	20	55	55	110	55	125	125	195	190	260	260	330	370	440	
280	315	20	60	60	120	55	130	130	205	200	275	275	350	410	485	
315	355	20	65	65	135	65	145	145	225	225	305	305	385	455	535	
355	400	25	75	75	150	100	190	190	280	280	370	370	460	510	600	
400	450	25	85	85	170	110	210	210	310	310	410	410	510	565	665	
450	500	25	95	95	190	110	220	220	330	330	440	440	550	625	735	
500	560	25	105	105	210	120	240	240	360	360	480	480	600	690	810	
560	630	25	115	115	230	140	260	260	380	380	500	500	620	780	900	
630	710	30	130	130	260	145	285	285	425	425	565	565	705	865	1005	
710	800	35	145	145	290	150	310	310	470	470	630	630	790	975	1135	
800	900	40	160	160	320	180	350	350	520	520	690	690	860	1095	1265	
900	1 000	–	–	–	–	200	390	390	580	580	770	770	960	1215	1405	
1000	1 120	–	–	–	–	220	430	430	640	640	850	850	1060	1355	1565	
1120	1250	–	–	–	–	230	470	470	710	710	950	950	1190	1510	1750	
1250	1400	–	–	–	–	270	530	530	790	790	1050	1050	1310	1680	1940	
1400	1600	–	–	–	–	330	610	610	890	890	1170	1170	1450	1920	2200	
1600	1800	–	–	–	–	380	700	700	1020	1020	1340	1340	1660	2160	2480	
1800	2000	–	–	–	–	400	760	760	1120	1120	1480	1480	1840	2390	2760	

带圆锥孔的圆柱滚子轴承的径向内部游隙

Bore diameter		Radial internal clearance													
d	incl.	C1		SPC2		C2		Normal		C3		C4		C5	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		μm													
-	24	-	-	-	-	15	40	30	55	40	65	50	75	70	95
24	30	15	25	25	35	20	45	35	60	45	70	55	80	75	100
30	40	15	25	25	40	20	45	40	65	55	80	70	95	90	115
40	50	17	30	30	45	25	55	45	75	60	90	75	105	105	135
50	65	20	35	35	50	30	60	50	80	70	100	90	120	125	155
65	80	25	40	40	60	35	70	60	95	85	120	110	145	145	180
80	100	35	55	45	70	40	75	70	105	95	130	120	155	175	210
100	120	40	60	50	80	50	90	90	130	115	155	140	180	200	240
120	140	45	70	60	90	55	100	100	145	130	175	160	205	225	270
140	160	50	75	65	100	60	110	110	160	145	195	180	230	255	305
160	180	55	85	75	110	75	125	125	175	160	210	195	245	280	330
180	200	60	90	80	120	85	140	140	195	180	235	220	275	305	360
200	225	60	95	90	135	95	155	155	215	200	260	245	305	340	400
225	250	65	100	100	150	105	170	170	235	220	285	270	335	375	440
250	280	75	110	110	165	115	185	185	255	240	310	295	365	415	485
280	315	80	120	120	180	130	205	205	280	265	340	325	400	465	540
315	355	90	135	135	200	145	225	225	305	290	370	355	435	515	595
355	400	100	150	150	225	165	255	255	345	330	420	405	495	580	670
400	450	110	170	170	255	185	285	285	385	370	470	455	555	650	750
450	500	120	190	190	285	205	315	315	425	410	520	505	615	720	830
500	560	130	210	210	315	230	350	350	470	455	575	560	680	800	920
560	630	140	230	230	345	260	380	380	500	500	620	620	740	900	1020
630	710	160	260	260	390	295	435	435	575	565	705	695	835	1005	1145
710	800	180	290	290	435	325	485	485	645	630	790	775	935	1125	1285
800	900	200	320	320	480	370	540	540	710	700	870	860	1030	1265	1435
900	1000	-	-	355	540	410	600	600	790	780	970	960	1150	-	-
1000	1120	-	-	395	600	455	665	665	875	865	1075	1065	1275	-	-
1120	1250	-	-	440	670	490	730	730	970	960	1200	1200	1440	-	-
1250	1400	-	-	490	740	550	810	810	1070	1070	1330	1330	1590	-	-
1400	1600	-	-	560	840	640	920	920	1200	1200	1480	1480	1760	-	-
1600	1800	-	-	630	950	700	1020	1020	1340	1340	1660	1660	1980	-	-
1800	2000	-	-	700	1060	760	1120	1120	1480	1480	1840	1840	2200	-	-

工作温度

多列圆柱滚子轴承在标准制造中要进行特殊热处理，以便能够在高达摄氏150度的温度下运行而不会发生不允许的尺寸变化。根据订单要求并有追加费用，轴承可进行尺寸稳定化处理，用于高达摄氏200度（型号后缀S1）或250度（型号后缀S2）的运行温度。这种特殊热处理的好处是轴承可用比标准轴承更大的过盈量安装。详细信息请与WD联系。

保持架

根据尺寸和应用，四列圆柱滚子轴承可提供以下保持架设计：

- 两个或三个双齿型机加工铜保持架；
- 两个双列窗型铜保持架；
- 四个齿型机加工铜保持架；

最小载荷

为了保证满意的运行，像所有球轴承和滚子轴承一样，多列圆柱滚子轴承必须始终承受一定的最小载荷，特别在高速运行或高加速运行或载荷方向快速变化的条件下。在上述情况下，滚子和保持架的惯性力以及润滑剂的摩擦可对轴承配置中的滚动条件产生有害影响，而且可能引起滚子和滚道之间产生破坏性的滑动。

可使用以下公式，估计要施加在多列圆柱滚子轴承上的必要的最小载荷：

$$F_{rm} = k_r \left( 6 + \frac{nd_m}{87500} \right) \left( \frac{d_m}{100} \right)^2$$

其中	
F <sub>rm</sub>	= 最低径向载荷, kN
k <sub>r</sub>	= 最小载荷系数 (见产品表)
n	= 运行速度, r/min
d <sub>m</sub>	= 轴承平均直径
	= 0,5 (d + D), mm

低速启动或润滑剂粘度非常高时，可能要求更高的载荷。轴承支撑的部件重量以及外力一般超过必要的最小载荷。如果不是这样，多列圆柱滚子轴承必须承受额外的径向载荷。

轴承当量动负荷

$$P = Fr$$

轴承当量静负荷

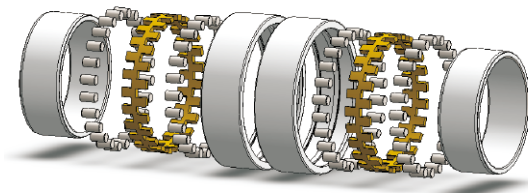
$$P_0 = Fr$$

安装说明

关于四列圆柱滚子轴承，知识和经验特别重要。各个部件必须按照正确顺序安装。成套部件以字母标记。此外，轴承的所有部件均标有相同编号，这样如果几个轴承同时安装，也没有部件混淆的危险。不过，内圈和内圈对可完全互换，不需要像外圈一样有相同编号。

在大部分应用中，载荷是定向的，因此只有外圈的大约四分之一承受载荷。所以，外圈的侧面分为四个区，以I至IV标记。载荷区I的标记还同一条通过外圈外表面的线相连。轴承第一次安装时，通常将I区放在载荷作用方向上。根据运行条件，外圈应在使用一段时间后转动90度，使新区承受载荷。建议的时间为大约800个运行小时，而且应检查轴承。转动应在适当的轧辊更换时进行。

详细安装说明还同所有轴承一起提供。



四列圆锥滚子轴承



WD四列圆锥滚子轴承成功地使用在轧钢速度为低速至中速的世界各地轧钢机的轴承配置中。由于其设计，这种轴承能够在径向载荷之外承受出现在这种应用场合中的轴向载荷，一般来说在轴承配置中不需要另外的推力轴承。这意味着轧辊轴颈可相对较短，而且轧辊两侧的轴承座可采用相同设计。

由于四列圆锥滚子轴承的设计，这种轴承必须作为完整轴承安装在轧辊轴承座上。为了能够快速更换轧辊，这种轴承在轧辊轴颈上必须松配合。松配合的缺点是内圈在主载荷条件下在其基座上蠕动，通常会引起硬度比轴承圈低的基座的磨损。为了在一定程度上减少松配合的影响，即降低磨损，轴承在内圈孔中有螺旋槽，而且或在内圈侧面有油槽。这些油槽把润滑剂送到内圈和基座的接触表面上。此外，填充油脂的槽可吸收磨损颗粒。

内部游隙

WD四列圆锥滚子轴承作为快装轴承装置供应，轴向内部游隙根据实际应用调节。轴承部件必须按照规定的顺序配置，不能同另一个轴承的部件互换。

游隙同基本设计游隙不同的四列圆锥滚子轴承以型号后缀C表示区分，后面接一个三位数或四位数，为轴向内部游隙的平均值，单位为 μm

工作温度

WD四列圆锥滚子轴承在标准制造中要进行特殊热处理，以便能够在高达摄氏150度的温度下运行而不会发生不允许的尺寸变化。

保持架

WD四列圆锥滚子轴承装有：  
四个窗型冲压钢保持架；  
四个销型钢保持架；



四个窗型冲压钢保持架      四个销型钢保持架

最小负荷

为了保证满意的运行，像所有球轴承和滚子轴承一样，WD四列圆锥滚子轴承必须始终承受一定的最小载荷，特别是当轴承高速运行或在所承受载荷的方向上处于高加速度或快速变化的条件下。滚子和保持架的惯性力以及润滑剂的摩擦会对轴承配置中的滚动状况产生不利影响，而且可能在滚子和滚道之间引起破坏性滑动。可使用以下公式来估算施加在四列圆锥滚子轴承上必须的最小径向载荷：

$$F_{rm} = 0.02 C$$

其中	
$F_{rm}$	= 最小径向载荷, kN
$C$	= 基本额定动载荷 (见产品表), kN

低温启动或润滑剂粘度非常高时，甚至要求更高的载荷。轴承支撑的部件自重加上外部作用力一般已超过必要的最小载荷。否则，必须给四列圆锥滚子轴承施加附加的径向载荷。

轴承当量动负荷

$P = Fr + Y1Fa$	当 $Fa/Fr \leq e$ 时,
$P = 0.67 Fr + Y2Fa$	当 $Fa/Fr > e$ 时,

计算系数e、Y1和Y2的数值见产品表。

轴承当量静负荷

$$P_0 = Fr + Y_0Fa$$

计算系数Y0的数值见产品表。

轴承配置的设计

轧辊轴颈要求

在大部分轧钢机应用中，WD四列圆锥滚子轴承以松配合安装在轧辊轴颈上。轧辊轴颈和内圈的轴肩必须有一定的最低硬度。建议硬度为：

-	轧辊轴颈表面为肖氏硬度45度 (洛氏硬度 ≈ 34度)
-	内圈的轴肩为肖氏硬度60度 (洛氏硬度 ≈ 45度)

内圈在轧辊轴颈上的轴向定位

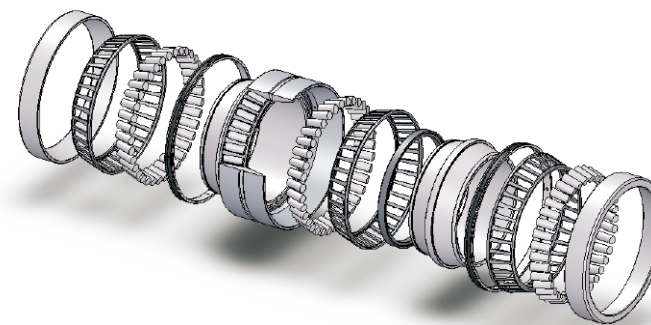
内圈绝不能轴向夹紧。在轴承圈及其轴肩之间必须保持0.2至1.3mm的总游隙。

安装说明

安装WD四列圆锥滚子轴承时，部件必须按照正确的顺序安装。为了方便按顺序安装，部件标有字母。同一轴承的所有部件均标有相同系列号，这样如果几个轴承同时安装，可避免部件混淆。

在大部分应用中，外圈上的载荷方向是恒定的，因此只有外圈滚道的大约四分之一承受载荷。所以，外圈的侧面分为四个区域，以I至IV标记。载荷区域I的标记还同一条通过外圈外径的线相连。第一次安装轴承时，通常使I区域位于载荷方向上。根据运行条件，外圈应在使用一段时间后更换轧辊时转动90度，使新区域承受载荷。

根据要求，可提供详细安装和维护说明。



# Rolling Mill Bearings

## Four-row cylindrical roller bearings



WD four-row cylindrical roller bearings are used almost exclusively for the roll necks of rolling mill stands, calenders and roller presses. Their friction is low compared with other roller bearings. As they are normally mounted with an interference fit on the roll neck, they are particularly suitable for rolling mill applications where the rolling speed is high.

The low bearing cross section allows for relatively large roll neck diameters in comparison with the roll diameter. Since very many rollers can be incorporated, the radial load carrying capacity is exceptionally high.

WD four-row cylindrical roller bearings are only able to accommodate radial loads. They are therefore mounted together with deep groove or angular contact ball bearings, or with tapered roller bearings, either radial or thrust designs, which take up the axial loads.

### Internal clearance

WD four-row cylindrical roller bearings are normally produced with the C3 or C4 radial internal clearance required for rolling mill bearings. Bearings mounted with a loose fit on the roll necks generally have C2 radial internal clearance.

The clearance values, where standardized, conform to ISO 5753:1991 and are given in the following tables for bearings with cylindrical bore and bearings with tapered bore. They are valid for unmounted bearings under zero measuring load.

Radial internal clearance of WD cylindrical roller bearings with cylindrical bore

Bore diameter d	Radial internal clearance														
	C1		SPC2		C2		Normal		C3		C4		C5		
	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm	µm														
–	24	–	–	–	–	0	25	20	45	35	60	50	75	65	90
24	30	5	15	10	25	0	25	20	45	35	60	50	75	70	95
30	40	5	15	12	25	5	30	25	50	45	70	60	85	80	105
40	50	5	18	15	30	5	35	30	60	50	80	70	100	95	125
50	65	5	20	15	35	10	40	40	70	60	90	80	110	110	140
65	80	10	25	20	40	10	45	40	75	65	100	90	125	130	165
80	100	10	30	25	45	15	50	50	85	75	110	105	140	155	190
100	120	10	30	25	50	15	55	50	90	85	125	125	165	180	220
120	140	10	35	30	60	15	60	60	105	100	145	145	190	200	245
140	160	10	35	35	65	20	70	70	120	115	165	165	215	225	275
160	180	10	40	35	75	25	75	75	125	120	170	170	220	250	300
180	200	15	45	40	80	35	90	90	145	140	195	195	250	275	330
200	225	15	50	45	90	45	105	105	165	160	220	220	280	305	365
225	250	15	50	50	100	45	110	110	175	170	235	235	300	330	395
250	280	20	55	55	110	55	125	125	195	190	260	260	330	370	440
280	315	20	60	60	120	55	130	130	205	200	275	275	350	410	485
315	355	20	65	65	135	65	145	145	225	225	305	305	385	455	535
355	400	25	75	75	150	100	190	190	280	280	370	370	460	510	600
400	450	25	85	85	170	110	210	210	310	310	410	410	510	565	665
450	500	25	95	95	190	110	220	220	330	330	440	440	550	625	735
500	560	25	105	105	210	120	240	240	360	360	480	480	600	690	810
560	630	25	115	115	230	140	260	260	380	380	500	500	620	780	900
630	710	30	130	130	260	145	285	285	425	425	565	565	705	865	1005
710	800	35	145	145	290	150	310	310	470	470	630	630	790	975	1135
800	900	40	160	160	320	180	350	350	520	520	690	690	860	1095	1265
900	1 000	–	–	–	–	200	390	390	580	580	770	770	960	1215	1405
1000	1 120	–	–	–	–	220	430	430	640	640	850	850	1060	1355	1565
1120	1250	–	–	–	–	230	470	470	710	710	950	950	1190	1510	1750
1250	1400	–	–	–	–	270	530	530	790	790	1050	1050	1310	1680	1940
1400	1600	–	–	–	–	330	610	610	890	890	1170	1170	1450	1920	2200
1600	1800	–	–	–	–	380	700	700	1020	1020	1340	1340	1660	2160	2480
1800	2000	–	–	–	–	400	760	760	1120	1120	1480	1480	1840	2390	2760

Radial internal clearance of WD cylindrical roller bearings with tapered bore

Bore diameter		Radial internal clearance													
d		C1		SPC2		C2		Normal		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm													
-	24	-	-	-	-	15	40	30	55	40	65	50	75	70	95
24	30	15	25	25	35	20	45	35	60	45	70	55	80	75	100
30	40	15	25	25	40	20	45	40	65	55	80	70	95	90	115
40	50	17	30	30	45	25	55	45	75	60	90	75	105	105	135
50	65	20	35	35	50	30	60	50	80	70	100	90	120	125	155
65	80	25	40	40	60	35	70	60	95	85	120	110	145	145	180
80	100	35	55	45	70	40	75	70	105	95	130	120	155	175	210
100	120	40	60	50	80	50	90	90	130	115	155	140	180	200	240
120	140	45	70	60	90	55	100	100	145	130	175	160	205	225	270
140	160	50	75	65	100	60	110	110	160	145	195	180	230	255	305
160	180	55	85	75	110	75	125	125	175	160	210	195	245	280	330
180	200	60	90	80	120	85	140	140	195	180	235	220	275	305	360
200	225	60	95	90	135	95	155	155	215	200	260	245	305	340	400
225	250	65	100	100	150	105	170	170	235	220	285	270	335	375	440
250	280	75	110	110	165	115	185	185	255	240	310	295	365	415	485
280	315	80	120	120	180	130	205	205	280	265	340	325	400	465	540
315	355	90	135	135	200	145	225	225	305	290	370	355	435	515	595
355	400	100	150	150	225	165	255	255	345	330	420	405	495	580	670
400	450	110	170	170	255	185	285	285	385	370	470	455	555	650	750
450	500	120	190	190	285	205	315	315	425	410	520	505	615	720	830
500	560	130	210	210	315	230	350	350	470	455	575	560	680	800	920
560	630	140	230	230	345	260	380	380	500	500	620	620	740	900	1020
630	710	160	260	260	390	295	435	435	575	565	705	695	835	1005	1145
710	800	180	290	290	435	325	485	485	645	630	790	775	935	1125	1285
800	900	200	320	320	480	370	540	540	710	700	870	860	1030	1265	1435
900	1000	-	-	355	540	410	600	600	790	780	970	960	1150	-	-
1000	1120	-	-	395	600	455	665	665	875	865	1075	1065	1275	-	-
1120	1250	-	-	440	670	490	730	730	970	960	1200	1200	1440	-	-
1250	1400	-	-	490	740	550	810	810	1070	1070	1330	1330	1590	-	-
1400	1600	-	-	560	840	640	920	920	1200	1200	1480	1480	1760	-	-
1600	1800	-	-	630	950	700	1020	1020	1340	1340	1660	1660	1980	-	-
1800	2000	-	-	700	1060	760	1120	1120	1480	1480	1840	1840	2200	-	-

Working temperature

WD multi-row cylindrical roller bearings are subjected to a special heat treatment as standard so that they can be operated at temperatures up to +150 °C without any inadmissible dimensional changes occurring. To order, and against a surcharge, bearings can be dimensionally stabilised for operating temperatures up to +200 °C (designation suffix S1) or up to +250 °C (designation suffix S2). An advantage of this special heat treatment is that the bearings can be mounted with a greater degree of interference than is possible with standard bearings. For further information please contact the WD application engineering service.

Cages

WD four-row cylindrical roller bearings, depending on size and also application, are produced with the following cages:

-	Two or three double pronged machined brass cages
-	Two double row window-type brass cages
-	Four pronged machined brass cages

Minimum load

In order to guarantee satisfactory operation, WD multi-row cylindrical roller bearings, like all ball and roller bearings, must always be subjected to a given minimum load, particularly if they are to operate at high speeds or are subjected to high accelerations or rapid changes in the direction of load. Under such conditions the inertia forces of the rollers and cage, and the friction in the lubricant, can have a detrimental effect on the rolling conditions in the bearing arrangement and may cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum load to be applied to multi-row cylindrical roller bearings can be estimated using

$$F_{rm} = k_r \left( 6 + \frac{nd_m}{87500} \right) \left( \frac{d_m}{100} \right)^2$$

where
F <sub>rm</sub> = minimum radial load, kN
k <sub>r</sub> = minimum load factor (see product tables)
n = operating speed, r/min
d <sub>m</sub> = mean diameter of bearing
= 0,5 (d + D), mm

When starting up at low temperatures or when the lubricant is highly viscous, even greater loads may be required. The weights of the components supported by the bearing, together with the external forces, generally exceed the requisite minimum load. If this is not the case, the WD multi-row cylindrical roller bearing must be subjected to an additional radial load.

Equivalent dynamic bearing load

$$P = Fr$$

Equivalent static bearing load

$$P_0 = Fr$$

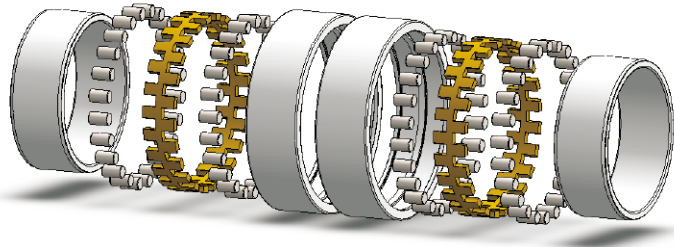
**Mounting instructions**

Knowledge and experience are of particular importance where WD four-row cylindrical roller bearings are concerned. The individual components must be mounted in the correct order. Parts which belong together are marked with letters. In addition, all components of the bearing are marked with the same serial number, so that there is no risk of mixing components if several bearings are to be mounted at the same time. However, the inner rings and inner ring pairs are fully interchangeable and need not to have the same serial number as the outer ring(s).

In the majority of applications the load is of constant direction, so that approximately only a quarter of the outer ring is under load. For this reason, the side faces of the outer rings are divided into four zones indicated by I to IV. The markings for load zone I are also joined by a line across the outside surface of the outer rings.

When the bearing is mounted for the first time it is usual to position zone I in the direction of action of the load. Depending on the operating conditions, the outer rings should be turned through 90° after a period of service so that a new zone comes under load.

Detailed mounting instructions are also supplied with all bearings.



**Four-row tapered roller bearings**



WD four-row tapered roller bearings (fig) are used successfully worldwide for rolling mill bearing arrangements where rolling speeds are slow to moderate. Because of their design they are able to take up those axial loads which occur in such applications in addition to radial loads and generally no separate thrust bearings are required in such arrangements. This means that the roll necks can be relatively short and the chocks at both sides of the roll can have the same design .

WD four-row tapered roller bearings, because of their design, must be installed as complete bearings in the chocks. To enable quick roll changes to be made they must therefore have a loose fit on the roll necks. Loose fits have the disadvantage that the inner rings wander on their seatings under the prevailing load conditions causing wear to the seatings which normally have a lower hardness than the rings. To alleviate the effects of a loose fit to some extent, i.e. to reduce wear, bearings have a helical groove in the bore and/or lubrication grooves in the side faces of the inner rings . These grooves enable lubricant to be supplied to the contact surfaces of the inner ring and seating. Additionally, the grease-filled grooves can absorb the wear particles.

WD four-row tapered roller bearings are produced with dimensional accuracy corresponding to

—	Normal tolerances for metric bearings
—	Normal tolerances for inch bearings.

The running accuracy of all bearings is to tolerance class P5 specifications

The Normal and tolerances class P5 for the metric bearings conform to ISO 492–2002. The values of the Normal tolerances for inch bearings follow tolerance class 4 according to ANSI/ABMA Standard 19.2–1994. The ISO Standard 578:1987, which also covered this tolerance class for inch bearings was withdrawn in 1997.

**Internal clearance**

WD four-row tapered roller bearings are delivered as ready-to-mount bearing units with an axial internal clearance adapted to the actual application. The bearing components must be arranged in the prescribed order and may not be interchanged with components of another bearing.

WD four-row tapered roller bearings having a clearance other than that of the basic design are identified by the designation suffix C followed by a three or four-figure number which is the mean value of the axial internal clearance expressed in  $\mu\text{m}$ .

**Working temperature**

WD four-row tapered roller bearings are subjected to a unique heat treatment process that enables the bearings to be operated up to +150 °C without any inadmissible dimensional changes occurring.

**Cages**

Four-row tapered roller bearings are fitted with either

- Four pressed steel window-type cages or
- Four steel pin-type cages



Pressed steel window-type cage



Steel pin-type cage

**Minimum load**

In order to provide satisfactory operation, WD four-row tapered roller bearings, like all ball and roller bearings, must always be subjected to a given minimum load. Otherwise the inertia forces of the rollers and cages, and the friction in the lubricant, can have a detrimental influence on the rolling conditions in the bearing arrangement and may cause damaging sliding movements to occur between the rollers and raceways.

The requisite minimum load to be applied can be obtained from  $F_{rm} = 0.02 C$

where		
$F_{rm}$	=	minimum radial load, kN
$C$	=	basic dynamic load rating (see product tables), kN

The weight of the components supported by the bearing, together with external forces, usually exceeds the requisite minimum load. If this is not the case, the four-row tapered roller bearing must be subjected to an additional radial load.

Equivalent dynamic bearing load

$P = Fr + Y1Fa$	$Fa/Fr = e,$
$P = 0,67 Fr + Y2Fa$	$Fa/Fr > e,$

The values for the calculation factors e, Y1 and Y2 can be found in the product tables.

Equivalent static bearing load

$P0 = Fr + Y0Fa$

Values for the calculation factor Y0 can be found in the product tables.

**Design of bearing arrangements**

Roll neck requirements

In most rolling mill applications WD four-row tapered roller bearings are mounted with a loose fit on the roll neck. The roll neck journal and the axial abutment for the inner rings must have a certain minimum hardness. The recommended hardness is

- 45 Shore ( $\approx$  34 HRC) for the roll neck surface and
- 60 Shore ( $\approx$  45 HRC) for the axial abutments for the inner rings.

**Axial location of inner rings on the roll neck**

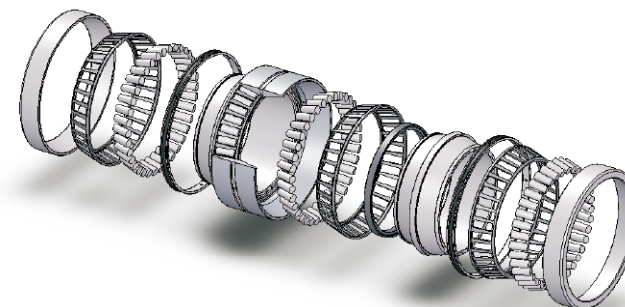
The inner rings must not be axially clamped. There must remain a total clearance between the bearing rings and their abutments of 0.2 to 1.3 mm.

**Mounting instructions**

When mounting WD four-row tapered roller bearings, the components must be assembled in the correct order. To facilitate this, they are marked with letters. All the components of one bearing are also marked with the same serial number so that mixing is avoided if several bearings are being mounted at the same time.

As in the majority of applications the direction of load is constant with respect to the outer ring only approximately one quarter of the outer ring raceway will be under load. For this reason the side faces of the outer rings are divided into four zones marked I to IV. The markings for zone I are also joined by a line across the outside diameter of the rings. When the bearings are first installed it is customary for zone I to lie in the direction of the load. Depending on the operating conditions, the outer rings should be turned through 90° after a given period of service when the rolls are changed so that a new zone comes under load.

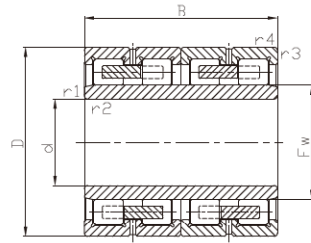
Detailed mounting and maintenance instructions will be supplied on request.



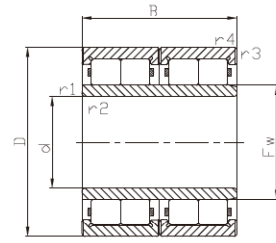


# Rolling Mill Bearings

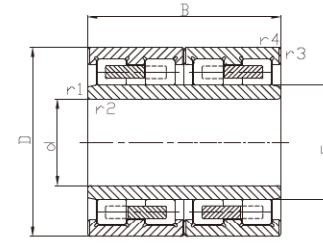
## Four-Row Cylindrical Roller Bearings



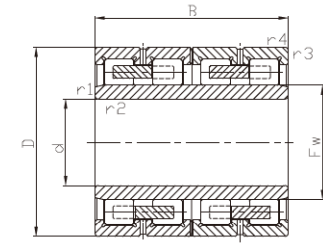
FC



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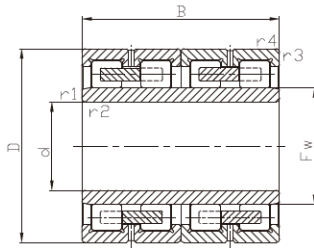


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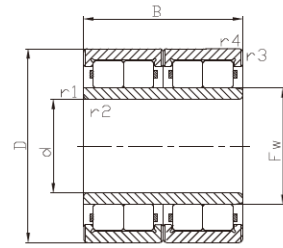
Basic Size(mm)		Bearing Code				Basic Load Rating		Mass	Reference Index					
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO	
150	210	120	166	2	2	FC3042120	587	1380	12.5					
150	220	120	167	2	2	FC3044120	702	1193	15.5					
150	220	150	168	2	2	FC3044150	701	1700	19.3		4R3031	150RV2201	30FCC22150A	
150	225	120	169	2	2	FC3045120	702	1408	16.2					
150	225	150	169	2	2	FC3045150	801	1670	20.9					
150	230	130	174	2	2	FC3046130	670	955	19.7		4R3029			
150	230	150	177	2	2	FC3046150	950	1790	22.8					
150	230	156	174	2	2	FC3046156	825	1810	24		508955	4R3040	150RV202	313891-1
160	220	180	177	2.1	2.1	FC3244180	940	2560	20.2		4R3224			
160	225	120	177	2.1	2.1	FC3245120	639	1340	14.9					
160	230	130	178	2.1	2.1	FC3246130	781	1320	17.7	313891A		160VR2301		
160	230	130	180	2.1	2.1	FC3246130E	781	1340	17		541515	4R3226		
160	230	168	177	2.1	2.1	FC3246168	895	2200	22.8					
160	230	168	179	2.1	2.1	FC3246168E	1050	2170	23.5		510150	4R3232		
160	230	168	180	2.1	2.1	FC3246168E1	895	2200	23.5				160RV2302	32FC23170A
160	230	180	178	2.1	2.1	FC3246180	838	2270	24.6	314190				32FC23180
160	240	120	183	2.1	2.1	FC3248120	635	1301	18.6					
160	240	124	183	2.1	2.1	FC3248124	635	1301	19.6	315189A				
160	240	168	183	2.1	2.1	FC3248168	1042	2310	26.7					
160	240	170	183	2.1	2.1	FC3248170	980	2290	27.8			4R3225		
170	230	120	187	2	2	FC3446120	819	1580	14.3		4R3426			
170	230	130	188.5	2	2	FC3446130	670	1400	15.6					
170	230	180	186	2.1	2.1	FC3446180	1034	2035	24.5					
170	240	130	190	2.1	2.1	FC3448130	913	1830	18.7					
170	240	156	189	2.1	2.1	FC3448156	905	2170	22.2		4R3429			
170	250	150	192	2.1	2.1	FC3450150	720	1716	25	313673				
170	250	168	192	2.1	2.1	FC3450168	1040	2320	28				170RV2502	34FC25168
170	250	170	192	2.1	2.1	FC3450170	1170	2428	28.6	BC4B635122				34FC25170
170	255	180	193	2.1	2.1	FC3451180	1380	2500	30.5		4R3425	170V2503		
170	260	120	195	2.1	2.1	FC3452120	860	1752	23					
170	260	150	195	2.1	2.1	FC3452150	883	1803	28.8					
170	260	170	195	2.1	2.1	FC3452170	1034	2096	32.7					
170	260	192	195	2.1	2.1	FC3452192	1087	2240	36.9					
170	260	225	196	2.1	2.1	FC3452225	1650	3310	43.3	313587B	505470	4R3431		
180	250	120	200	2.1	2.1	FC3650120	610	1578	18					

# Rolling Mill Bearings

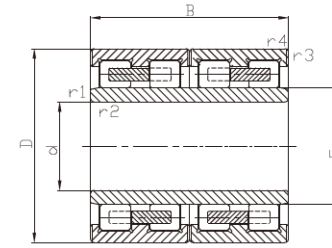
## Four-Row Cylindrical Roller Bearings



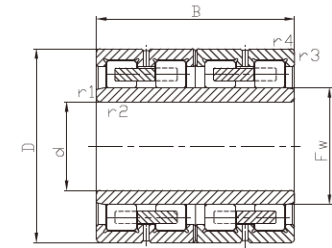
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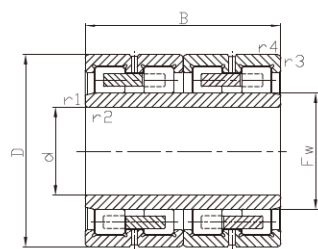


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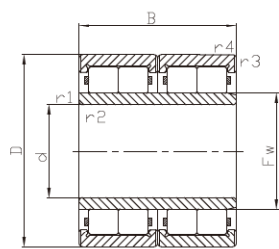
Basic Size (mm)		Bearing Code				Basic Load Rating		Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
180	250	130	200	2.1	2.1	716	1922	19.5					
180	250	156	198	2.1	2.1	880	2230	23.4					
180	250	156	200	2.1	2.1	880	2230	22.8			4R3625	180RV2501	36FC25156A
180	260	120	202	2.1	2.1	735	1577	21					
180	260	124	202	2.1	2.1	735	1577	21.7					
180	260	156	198	2.1	2.1	835	2200	27.3					
180	260	160	202	2.1	2.1	880	2230	28.4					
180	260	168	202	2.1	2.1	990	2300	29.5	313812	507536	4R3628	180RV2601	313812W
180	265	180	204	2.1	2.1	1040	2649	33.8					
180	280	180	206	2.1	2.1	1287	2995	41		524372			
180	280	180	207	2.1	2.1	1287	2995	41.4					
190	260	168	208	2.1	2.1	1140	2520	24.9					
190	260	168	212	2.1	2.1	1140	2600	27	313651	507735	4R3820	190RV2601	38FC26168-1
190	265	124	213	2.1	2.1	819	1921	21					
190	270	166	212	2.1	2.1	1034	2460	30.4					
190	270	168	212	2.1	2.1	1034	2460	30.8					
190	270	170	213	2.1	2.1	1240	2910	31.7			4R3818		
190	270	200	212	2.1	2.1	1510	3310	37.5	314199B	508657	4R3821	190RV2701	314199
190	280	200	214	2.1	2.1	1720	3370	42	314049B	510199	4R3823		
200	270	120	222	2.1	2.1	617	1630	19.6					
200	270	170	222	2.1	2.1	1170	2580	28.5	314553		4R4039		
200	280	170	222	2.1	2.1	1380	2870	32.5					
200	280	188	222	2.1	2.1	1210	2720	36					
200	280	200	222	2.1	2.1	1510	3310	39	313893	508726	4R4037		313893-1
200	280	200	224	2.1	2.1	1210	3200	39.4				200RV2801	
200	290	130	226	2.1	2.1	941	1916	38.5					
200	290	192	226	2.1	2.1	1540	3310	42.8	313811	512580	4R4041	200RV2901	313811
200	290	202	226	2.1	2.1	1540	3310	43.4					
200	310	130	229	2.1	2.1	1113	2254	36.3					
200	310	200	229	2.1	2.1	1573	3625	55.8		524373			
200	310	230	229	2.1	2.1	2010	3750	64	313639/VJ202		4R4028		
200	320	216	231	2.1	2.1	1794	3404	67					
210	290	192	234	2.1	2.1	1185	3245	38.2					
210	290	192	236	2.1	2.1	1450	3400	41	313646	507628	4R4206	210RV2901	

# Rolling Mill Bearings

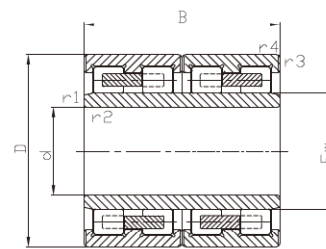
## Four-Row Cylindrical Roller Bearings



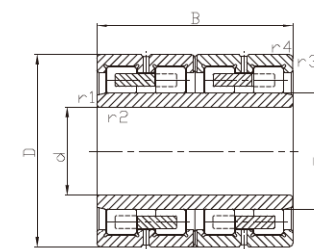
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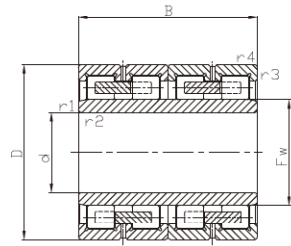


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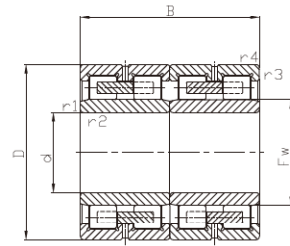
Basic Size (mm)		Bearing Code				Basic Load Rating			Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Mass Kg	SKF	FAG	NTN	NSK	KOYO
210	300	170	234	2.1	2.1	FC4260170	1215	2845	38.8				
210	300	210	234	2.1	2.1	FC4260210	1300	3209	47.9				
220	290	192	239	2.1	2.1	FC4458192	1190	3350	33.8		4R4413		
220	300	160	245	2.1	2.1	FC4460160	1000	2590	32.8		4R4419		
220	300	190	240	2.1	2.1	FC4460190	1219	3323	39.3				
220	300	192	242	2.1	2.1	FC4460192	1219	3323	39.7	BC2B322341/HB1VJ202			
220	300	200	240	2.1	2.1	FCD4460200	1790	3900	41				
220	310	190	246	2.1	2.1	FC4462190	1320	3450	45	313839			
220	310	192	246	2.1	2.1	FC4462192	1680	3650	46		507333	4R4426	220RV3101
220	310	192	247	2.1	2.1	FC4462192E	1320	3450	46				
220	310	204	247	2.1	2.1	FCD4462204	1420	3750	49.8			4R4425	
220	310	215	242	2.1	2.1	FCD4462215	1590	3950	51.5	313894B		4R4420	
220	310	225	244	2.1	2.1	FCD4462225E	1940	4300	54.5		514461		
220	310	225	245	2.1	2.1	FCD4462225	1480	3950	54.9			4R4416	220RV3102
220	310	265	245	2.1	2.1	FCD4462265	1690	4700	63.5			4R4430	44FC31225
220	320	160	245	2.1	2.1	FC4464160	1190	2550	46.5			4R4428	
220	320	192	246	2.1	2.1	FC4464192	1600	3440	51.5				

# Rolling Mill Bearings

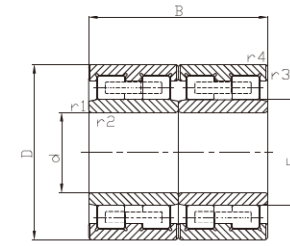
## Four-Row Cylindrical Roller Bearings



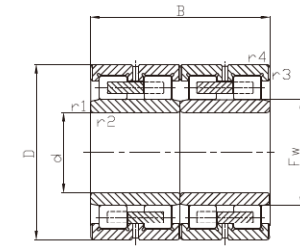
FC



FCD



FCD...A

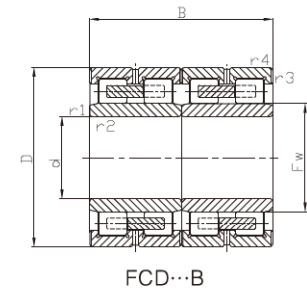
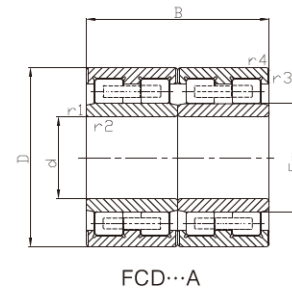
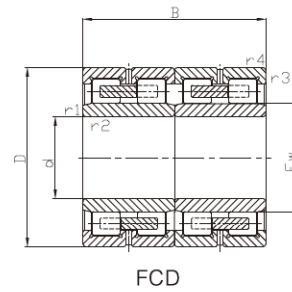
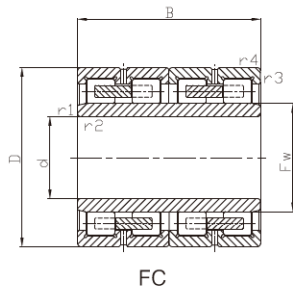


FCD...B

Basic Size (mm)	Bearing Code					Basic Load Rating			Mass					Reference Index		
	d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO		
220	320	210	246	2.1	2.1	FCD4464210	1820	3600	61		509216					
220	320	210	248	2.1	2.1	FCD4464210E	1550	3650	56			4R4429	220RV3201	44FC32210-1		
220	330	230	249	2.1	2.1	FCD4466230	2050	4000	68.5	314889/VJ202	541452					
220	340	192	246	2.1	2.1	FC4468192	1820	3600	64.2							
220	340	210	250	2.1	2.1	FCD4468210	1909	3846	70.2							
220	340	290	250	2.1	2.1	FCD4468290	2980	5010	96.3		525147					
220	345	210	250	2.1	2.1	FCD4469210	1909	3846	73.8							
230	330	170	260	2.1	2.1	FC4666170	1140	2970	47.4							
230	330	206	258	2.1	2.1	FC4666206E	1520	3800	58.6			4R4614				
230	330	206	260	2.1	2.1	FC4666206	1870	4000	58	313824	508727		230RV3301	313824		
230	340	260	261	2.1	2.1	FCD4668260	2050	5100	81			4R4611	230RV3401	46FC34260		
230	365	250	266	2.1	2.1	FCD4673250	2640	4900	100	313581A	529113					
240	330	180	265	2.1	2.1	FC4866180	1720	3800	49.5	635194	504547					
240	330	220	264	2.1	2.1	FCD4866220	1639	4340	56.4							
240	330	220	270	2.1	2.1	FCD4866220E	1720	4300	58	313921	508368	4R4811	240RV3301	312943/1YD		
240	340	192	268	2.1	2.1	FC4868192	1474	3582	55.4							
240	340	220	268	2.1	2.1	FCD4868220	1670	4200	71							
240	350	220	270	2.1	2.1	FCD4870220	1576	4073	71							
240	360	220	272	2.1	2.1	FCD4872220E	1912	4374	78.8							
240	360	220	274	2.1	2.1	FCD4872220	1760	4050	79.6			4R4807				
250	340	170	274	3	3	FC5068170	1392	3488	45							
250	340	220	274	3	3	FC5068220	1329	3123	52.8							
250	340	230	270	3	3	FCD5068230	1700	4350	65							
250	350	220	274	3	3	FCD5070220E	1700	4350	58							
250	350	220	278	3	3	FC5070220	1700	4350	65			4R5008	250RV3501	50FC35220		
250	350	230	278	3	3	FCD5070230	1700	4350	68.7							
250	360	220	282	3	3	FC5072220	1700	4240	73							
260	360	192	288	3	3	FC5272192	1609	3874	60							
260	360	204	287	3	3	FC5272204	1980	4400	64.5	314997/VJ202						
260	360	230	292	3	3	FC5272230	1980	4650	73.5	BC4B320956						
260	360	260	287	3	3	FCD5272260	2300	5320	80					52FC36260		
260	370	192	291	3	3	FC5274192	1670	4012	66							
260	370	200	292	3	3	FC5274200	1771	4120	68.9							
260	370	220	292	3	3	FC5274220	2160	4650	76.5	313823	507336	4R5217	260RV3701	313823		
260	370	230	292	3	3	FC5274230	1760	4450	79.3							

# Rolling Mill Bearings

## Four-Row Cylindrical Roller Bearings



Basic Size (mm)		Bearing Code				Basic Load Rating		Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
260	380	220	292	3	3	FC5276220	2104	4900	85				
260	380	280	294	3	3	FCD5276280E	2420	6250	108		4R5213	260RV38301	
260	380	280	295	3	3	FCD5276280	2720	6250	108				
260	400	290	296	3	3	FCD5280290	3520	7100	135	313427B	518214		
260	400	335	294	3	3	FCD5280335	3750	7340	149				52FC40335W
265	370	234	300	3	3	FCD5374234	2240	5400	80	313922	517423		
270	380	230	298	3	3	FC5476230	2000	5050	81.8				270RV3801
270	380	275	298	3	3	FCD5476275E	3080	6990	97.8				
270	380	275	300	3	3	FCD5476275	3080	6990	101.3				
270	390	220	306	3	3	FC5478220	1800	4803	86.7				
270	390	240	298	3	3	FCD5478240	2236	5330	94				
270	400	220	305	3	3	FC5480220	1822	4600	95.3				
280	375	200	307	3	3	FC5675200	1500	4310	63.5				
280	380	170	306	3	3	FC5676170	1710	3590	55				
280	380	192	310	3	3	FC5676192	1560	4580	64.6				56FC38170W
280	380	290	308.5	3	3	FCD5678290	2750	6950	75	BC4-0001			
280	390	220	312	3	3	FC5678220	2240	5000	81.5	313822	507339	4R5611	280RV3901
280	390	240	312	3	3	FC5678240	2008	5331	90				313822
280	390	275	308	3	3	FCD5678275	2424	6350	105	314719C	527104	4R5612	
280	390	275	312	3	3	FCD5678275Y	2010	5330	105		513729A		
280	400	285	316	3	3	FCD5680285	3140	7350	120	314070/VJ202			
280	410	300	313	3	3	FCD5682300	3520	7450	133.9	314897/VJ202			
280	420	280	318	3	3	FCD5684280	2945	7212	136.5				
280	420	300	319	3	3	FCD5684300	3410	7180	150	313487			280RV4201
290	390	190	316	4	4	FC5878190	2050	4550	67	635195			
290	390	234	320	4	4	FC5878234	1990	5400	79.6				
290	400	180	320	4	4	FC5880180	2189	5385	68				
290	410	240	320	4	4	FC5882240	2340	5600	102.3				
290	420	300	327	4	4	FCD5884300	2790	7369	141			4R5806	
290	440	310	328	4	4	FCD5888310	4300	9700	170		517796	4R5805	290RV4201
300	400	300	328	4	4	FCD6080300	2330	6900	104			E-4R6014	300RV4021
300	420	180	332	4	4	FCD6084180	2200	6780	92.4				
300	420	218	332	4	4	FC6084218	2014	4956	93.7				
300	420	240	332	4	4	FC6084240	2264	5644	103				300RV4201

# Rolling Mill Bearings

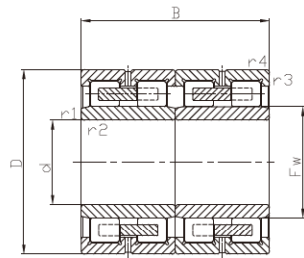
## Four-Row Cylindrical Roller Bearings



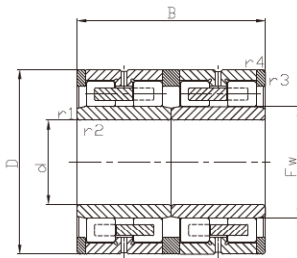
Basic Size (mm)		Bearing Code				Basic Load Rating			Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Mass Kg	SKF	FAG	NTN	NSK	KOYO
300	420	240	334	4	4	FC6084240E	2020	5450	106		E-4R6017		
300	420	300	332	4	4	FCD6084300	3250	7270	130	314484D	560840	E-4R6020	
300	460	270	344	4	4	FCD6092270	2670	5800	162		E-4R6019		
300	460	350	341	4	4	FCD6092350	5500	9700	250		517795		
310	430	240	344.5	4	4	FC6286240	2244	5950	107		E-4R6203	310RV4301	60FC42300W
320	440	240	351	4	4	FC6488240	2169	5051	112.9				
320	440	286	350	4	4	FCD6488286	6900	8564	142		537046		
320	440	300	351	4	4	FCD6488300	2193	5364	142				
320	450	180	355	4	4	FC6490180	2193	5364	90.1				
320	450	240	354	4	4	FC6490240	2320	5750	125				
320	450	240	355	4	4	FC6490240E	2320	5750	116			320RV4502	
320	460	300	357	4	4	FCD6492300	2567	6087	163				
320	460	240	364	4	4	FCD6492240	2920	7200	140	BC4B322216/VJ202			

# Rolling Mill Bearings

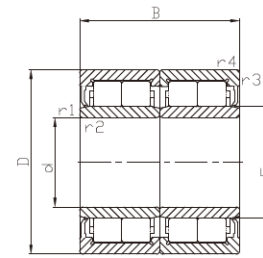
## Four-Row Cylindrical Roller Bearings



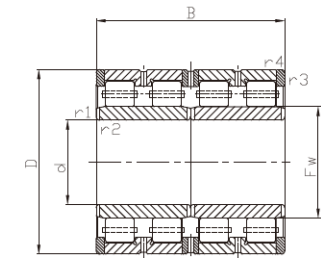
FCD



FCDP



FCD...2LS

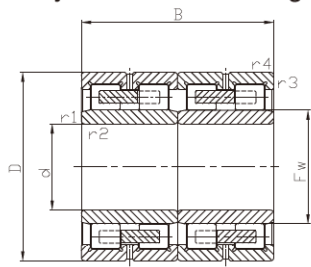


FCDP...E

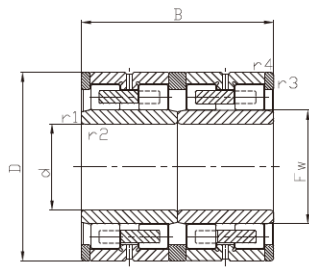
Basic Size(mm)		Bearing Code				Basic Load Rating		Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
320	460	340	360	4	4	3400	9450	178			E-4R6412		
320	470	350	357	4	4	5200	9780	225		532592			
320	480	350	364	4	4	4950	10800	235	314274B	541851			
330	430	230	358	4	4	1986	5644	87.4					
330	440	200	360	4	4	1820	4850	83.6			E-4R6603		
330	460	340	365	4	4	3650	8950	175	313445C	543447	E-4R6605	330RV4601	
330	460	340	364	4	4	3860	9150	174					
340	450	250	364	4	4	2400	6530	108.1					
340	450	250	371	4	4	2307	6585	124.4					
340	450	250	368	4	4	2750	6480	106					
340	460	260	370	4	4	3120	8120	124.8					66FC46340
340	480	280	374	4	4	3120	8120	159.9					
340	480	350	378	4	4	3575	10510	200.9	314485A	527634			
340	490	300	377	4	4	3350	8300	187			E-4R6804		68FC45250BW
340	500	370	385	4	4	5230	11800	260	BC4B322261/HB1	517749			
340	560	380	396	4	4	6820	12900	350	313404A	545171			
350	500	380	389	4	4	3880	10800	242.3	314563/VJ202				
350	500	410	388	4	4	5830	13700	285	BC4B322777/HB1	532001			
350	520	300	401	4	4	4290	9000	220	BC2B319878/VJ202				
360	480	290	392	4	4	3470	8510	145					
360	480	290	394	4	4	2773	8075	146.2					
360	500	250	394	4	4	3580	7350	145	BC2B320075/VJ202				
360	510	400	397	4	4	4250	11500	262			E-4R7203		
360	520	380	405	4	4	3350	8300	266.2		562913			72FC48290
370	480	230	400	4	4	2100	6250	106			E-4R7405		
370	480	250	401	4	4	2650	7422	116.3					
370	520	380	409	4	4	3100	7850	255	314486A	543975		370RV4801	
370	520	400	413	4	4	4740	11900	268					
370	540	400	415	4	4	4400	12400	311				370RV5401	
380	500	290	414	4	4	2862	8545	152.4					
380	520	280	417	4	4	3400	9150	174			E-4R7605		
380	520	280	426	4	4	2860	7200	185	NNU4976B/DRW33				
380	520	290	418	4	4	3069	8286	181.8					

# Rolling Mill Bearings

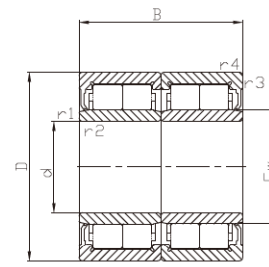
## Four-Row Cylindrical Roller Bearings



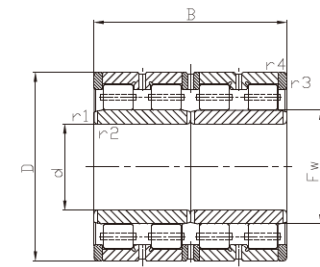
FCD



FCDP



FCD...2LS



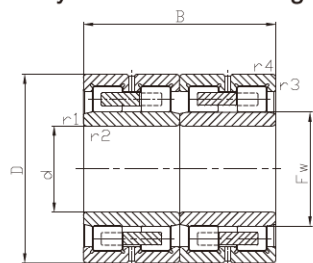
FCDP...E

Basic Size (mm)		Bearing Code				Basic Load Rating		Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
380	520	300	416	4	4	FCD76104300	3550	9600	210				74FC52400W
380	540	300	421	4	4	FCD76108300	5010	11000	220	313030A	541982		
380	540	340	424	4	4	FCD76108340	3952	10660	249				
380	540	400	422	4	4	FCDP76108400E	830	14000	295	BC4B313511B	544794	E-4R7604	
380	540	400	424	4	4	FCDP76108400	4300	12000	280				380RV5401
380	560	300	424	4	4	FCDP76112300	4950	9650	260	BC4B322189			
380	560	325	428	4	4	FCDP76112325	5230	10600	265	BC4B322264/HB1			
390	510	290	424	4	4	FCD78102290	2905	7448	155.8				
390	540	320	431	4	4	FCD78108320	5280	12200	230	BC4B322498			
390	550	310	430	4	4	FCD78110310	5120	11200	240	313190A			
390	550	400	434	4	4	FCDP78110400	5130	12400	303				390RV5521 76FC54400CW
400	520	250	432	5	5	FCD80104250	2552	4748	137.3				
400	540	380	436	5	5	FCDP80108380	4550	9780	273		533426		
400	550	300	438	5	5	FCDP80110300E	4460	10400	214				
400	550	300	441	5	5	FCDP80110300	3525	9486	212.7				
400	560	400	446	5	5	FCDP80112400	4250	11800	303			E-4R8007	78FC55400AW
400	560	410	445	5	5	FCDP80112410	5600	16500	313.3	313015DC	545614	E-4R8010	400RV5611
400	590	440	450	5	5	FCDP80108440	7370	16600	415	315802/VJ202			80FC55300
410	560	400	450	5	5	FCDP82112400	6700	16600	300	316689	543736		
410	600	440	450	5	5	FCDP82120440	7650	17300	425	313877B	545588		80FC56410
420	560	260	468	5	5	FCD84112260	3740	9650	210	BC2B320074/VAJ202			
420	560	280	457	5	5	FCD84112280	3930	9140	191.1				
420	580	320	463	5	5	FCD84116320	4680	10800	250	313555C/VJ202			
420	600	440	470	5	5	FCDP84120440	5768	17100	400	313513	545467		
420	620	300	473	5	5	FCD84124300	5200	15800	416				
420	620	400	473	5	5	FCDP84124400E	6930	15600	430	314391/VJ202			
420	620	400	478	5	5	FCDP84124400	5000	13400	410			E-4R8401	
430	570	340	465	5	5	FCD86114340	6000	16800	260		562415		
430	591	420	476	5	5	FCDP86118420	4450	13400	347				430RV5921 84FC56280
440	620	450	487	5	5	FCDP8812450E	7810	19600	427.2	314554B	545628	E-4R8801	
440	620	450	490	5	5	FCDP88124450	6350	19000	430				440RV6221
440	650	355	494	5	5	FCD88130355	6700	14000	420	316899A			
440	660	340	492	5	5	FCDP88132340	6710	13700	430	635043			

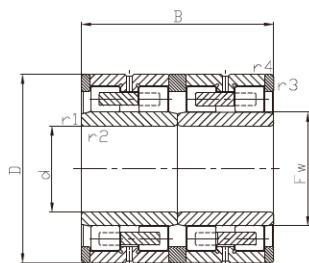


# Rolling Mill Bearings

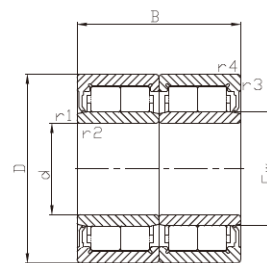
## Four-Row Cylindrical Roller Bearings



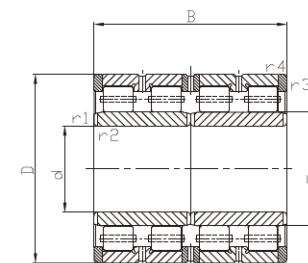
FCD



FCDP



FCD...2LS

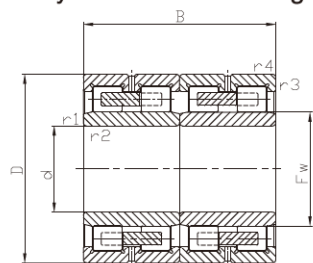


FCDP...E

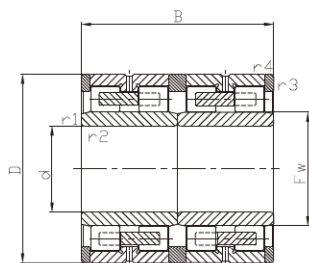
Basic Size (mm)		Bearing Code				Basic Load Rating			Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO	
450	590	300	490	5	5	FCD90108300	3910	12000	245	315811E				
450	590	435	486	5	5	FCDP90108435	5150	14800	345		542648			
450	630	450	500	5	5	FCDP90126450	6820	16600	433				88FC62450AW	
460	610	322	499	5	5	FCD92122322	4100	14600	290		526420			
460	620	320	500	5	5	FCD92124320	4800	16200	290		526026			
460	620	400	502	5	5	FCD92124400	6500	17000	343.9			E-4R9209		
460	650	355	509.5	5	5	FCD92130355	6270	14600	380	313031A				
460	650	424	510	5	5	FCDP92130424	7810	18300	450	315196A	513584A		90FC63450A	
460	650	470	509	5	5	FCDP92130470	8800	22400	510	314560	518846	E-4R9216		
460	660	475	508	5	5	FCDP92132475	11000	35000	585		517693			
460	670	500	522	5	5	FCDP92134500	7650	22700	596				460RV6721	
460	700	540	519	5	5	FCDP92140540	12000	37500	785		529368			
480	650	340	522	5	5	FCD96130340	6550	18400	320		525884			
480	650	420	522	5	5	FCD96130420	8120	23700	440		525912			
480	650	450	525	5	5	FCDP96130450	6560	21000	401.4	316690B	547660	E-4R9609		
480	680	420	528	5	5	FCD96136420	6720	19100	515	319320	533522		92FC65470W	
480	680	500	528	5	5	FCDP96136500	7480	23000	605	316624				
480	680	500	532	5	5	FCDP96136500E	7616	23700	585	313516D	514445B	E-4R9604		
480	680	500	534	5	5	FCDP96136500E1	7700	23100	630				480RV6811	
480	700	500	534	5	5	FCDP96140500	9200	34200	675		546125			
480	700	530	536	5	5	FCDP96140530	8300	31500	720		523399			
500	650	260	542	6	6	FC100130260	4020	10200	225	319254/VJ202				
500	670	450	540	6	6	FCDP100134450E	5775	21300	463	316083A				
500	670	450	556	6	6	FCDP100134450	4500	11400	458		533023			
500	680	450	550	6	6	FCDP100136450	5775	21300	500	BC4B316515	546335			
500	690	470	547	6	6	FCDP100138470	7650	22500	590			E-4R10016	96FC68500	
500	690	510	552	6	6	FCDP100138510	9010	24600	590			E-4R10006		
500	700	500	554	6	6	FCDP100140500	11600	38000	615		517692			
500	700	515	554	6	6	FCDP100140515	8150	25200	680			E-4R10011	500RV7021	
500	710	480	558	6	6	FCDP100142480	8800	21600	610	316968A	530488			
500	720	400	558	6	6	FCDP100144400	7920	17600	530	BC4B322066				
500	720	530	560	6	6	FCDP100144530	8550	25300	782				500RV7211	
500	720	530	568	6	6	FCDP100144530E	10800	28500	780	314441B	513378A	E-4R10015		
510	670	320	554	6	6	FCD102134320	4550	13500	335			E-4R10201	100FC69510	
510	680	500	560	6	6	FCDP102136500	8970	26000	522	BC4B319411				

# Rolling Mill Bearings

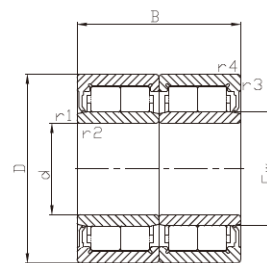
## Four-Row Cylindrical Roller Bearings



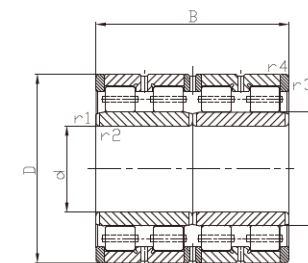
FCD



FCDP



FCD...2LS

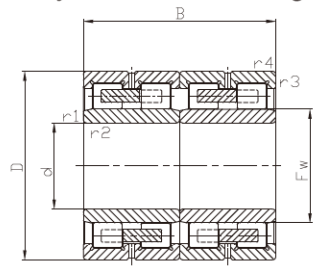


FCDP...E

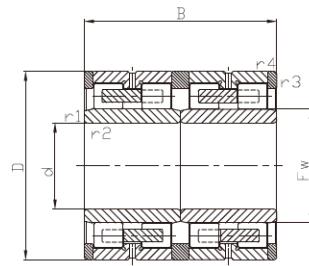
Basic Size(mm)		Bearing Code				Basic Load Rating		Mass	Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
510	700	540	558	6	6	FCDP102140540	8300	25000	689				E-4R10202
510	730	520	565	6	6	FCDP102146520E	13400	42000	745	514646			
510	730	520	569	6	6	FCDP102146520	9520	22000	750	BC4-8009/HB1			
510	760	550	570	6	6	FCDP102152550	12100	26500	950	BC4-8007/HB1	517690		
520	700	540	564	6	6	FCDP104140540	8200	25500	658				E-4R10403
520	735	535	574.5	6	6	FCDP104147353	9000	26600	740				E-4R10402 520RV7331
520	750	530	576	6	6	FCDP104150530	13700	45000	810		541647		
530	700	540	574	6	6	FCDP106140540	8150	26500	626				E-4R10603
530	760	520	587	6	6	FCDP106152520E	11700	28500	775	314886A	537383		
530	760	520	590	6	6	FCDP106152520	9150	26700	800				E-4R10601
530	780	500	591	6	6	FCDP106156500	9350	20400	805	315040/VJ202			
530	780	570	595	6	6	FCDP106156570	12500	30600	952				
530	780	570	601	6	6	FCDP106156570E	12800	32500	960	314517A	517689A	E-4R10602	104FC74535
530	870	670	615	6	6	FCDP106174670	21200	67000	1680		543481		
550	740	540	600	6	6	FCDP110148510	10100	27000	621.8	316691B	532843		
550	800	520	612	6	6	FCDP110160520	11700	26500	895	316115/VJ202			
550	800	560	610	6	6	FCDP110160560	12100	28000	930	BC4B322719/HB1		517688	
560	680	360	590	6	6	FCDP112136360	4650	16500	265				E-4R11202 106FC78570
560	800	600	620	6	6	FCDP112160600	13000	33400	1010				
560	820	600	625	6	6	FCDP112164600	14200	34000	1080	BC4B322930/HA1		517687A	
560	820	630	625	6	6	FCDP112164630	14000	45200	1240		526708		
570	815	594	628	6	6	FCDP114163594	11800	34500	1010				E-4R11402 570RV8111
570	830	600	635	6	6	FCDP114166600	17600	67800	1200		517686		
580	850	640	648	6	6	FCDP116170640	18000	63400	1275		517685		
600	820	550	660	6	6	FCD120164550	9400	30400	900		518780		112FC80600
600	820	575	660	6	6	FCDP120164575	13000	36000	910	315175A			
600	870	540	672	6	6	FCDP120174540	12080	38300	1150	315068A	533259	E-4R12002	
600	870	640	672	6	6	FCDP120174640E	15700	40000	1340	315513	517684A	E-4R12001	114FC81594
600	870	640	682	6	6	FCDP120174640	15100	40000	1300	314317A			
600	920	680	674	6	6	FCDP120184680	22800	67100	1800		526235		
610	820	430	665	6	6	FCD122164430	9350	23600	652.4	315257A			

# Rolling Mill Bearings

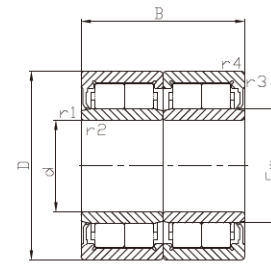
## Four-Row Cylindrical Roller Bearings



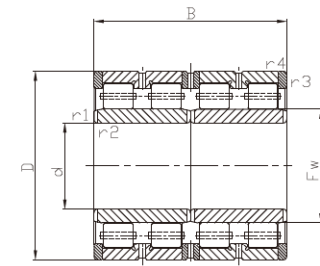
FCD



FCDP



FCD...2LS

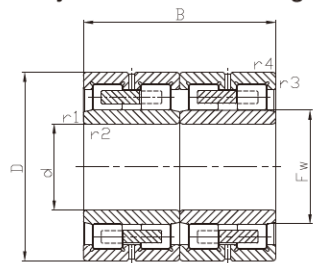


FCDP...E

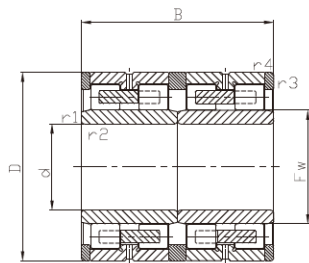
Basic Size (mm)		Bearing Code				Basic Load Rating		Mass		Reference Index				
d	D	B	Fw	r1.2min	r3.4min	Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO	
610	870	660	680	6	6									
						FCDP122174660	15200	40300	1400		E-4R12202	610RV8711		
630	850	436	690	6	6	FCD126170436	7480	23600	720	BC2-8012/HB1VJ202				
630	900	670	698	6	6	FCDP126180670	20800	63500	1525	517683				
650	900	650	704	7.5	7.5	FCDP130180650	17200	41500	1260	BC4-8002/HA6				
650	920	670	723	7.5	7.5	FCDP130184670	13700	46500	1460	313007C	515194A	E-4R13005	650RV9211	
650	920	690	723	7.5	7.5	FCDP130184690	14300	46500	1550	E-4R13003				
650	920	690	724	7.5	7.5	FCDP130184690E	16700	45500	1490					
660	820	440	702	7.5	7.5	FCD132164440	7480	22800	530	239509FA				
660	880	450	727	7.5	7.5	FCD132176450	7210	23600	785	313477/VJ202				
680	940	600	743	7.5	7.5	FCD136188600	13800	53400	1260		533683		122FC87660	
680	980	640	760	7.5	7.5	FCDP136196640	17200	44000	1590	313154C	524229			
690	980	715	767.5	7.5	7.5	FCDP138196715	15840	51300	1780	313008A	517681	E-4R13802	690RV9831	
690	980	750	766	7.5	7.5	FCDP138196750	18900	50800	1850					
700	930	620	763	7.5	7.5	FCD140186620	12900	43000	1197	316967	530487	E-4R14003	700RV9311	
700	980	700	774	7.5	7.5	FCD140196600	17800	48200	1680					
													130FC92690	
710	1000	715	787.5	7.5	7.5	FCDP142200715	16800	54500	1860	313403C	517680A	E-4R14205		
730	940	500	780	7.5	7.5	FCD146188500	12300	42500	872		526447			
730	960	620	790	7.5	7.5	FCD146192620	15400	45000	1220	315982	525438			
730	1030	750	809	7.5	7.5	FCDP146206750	20900	58500	2040	314518B	517679			
750	1000	670	813	7.5	7.5	FCDP150200670	17600	50000	1480	315973	524881A			
780	1070	780	853	7.5	7.5	FCDP156214780	22400	61000	2300	BC4-8015/HB1	540088		138FCC98750	
800	1080	700	870	7.5	7.5	FCD160216700	16500	55000	1950	E-4R16004				
800	1080	700	878	7.5	7.5	FCD160216700E	19800	58500	1950	315599A	526169		140FC98700	
800	1080	750	880	7.5	7.5	FCDP160216750	18400	55000	2050	E-4R16005				
												800RV1032		
820	1130	800	903	7.5	7.5	FCDP164226800	24200	68000	2540	BC4B320455				
820	1160	840	910	7.5	7.5	FCDP164232840	21600	71000	2930	E-4R16403				
820	1160	840	911	7.5	7.5	FCDP164232840E	21900	71500	2900					
													800RV1121	

# Rolling Mill Bearings

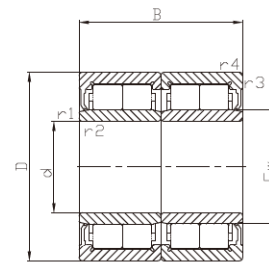
## Four-Row Cylindrical Roller Bearings



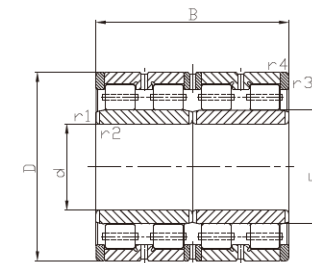
FCD



FCDP



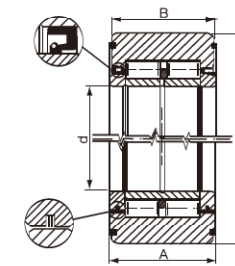
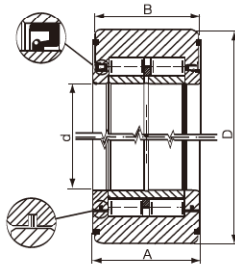
FCD...2LS



FCDP...E

Basic Size (mm)			Bearing Code				Basic Load Rating			Mass	Reference Index			
d	D	B	Fw	r1.2min	r3.4min		Cr	Cor	Kg	SKF	FAG	NTN	NSK	KOYO
850	1150	650	941	7.5	7.5	FCD170230650	15700	51000	1980			E-4R17001		
850	1150	800	930	7.5	7.5	FCDP170230800	19700	71000	2430			E-4R17003		
850	1150	840	928	7.5	7.5	FCDP170230840	25500	75000	2570	315826A	545636			
850	1180	650	945	7.5	7.5	FCD170236650	17100	54500	2270			E-4R17004		
850	1180	850	928	7.5	7.5	FCDP170236850E	24100	78500	2970			E-4R17002		
850	1180	850	940	7.5	7.5	FCDP170236850	21100	72000	2850				850RV1111	
850	1220	900	940	7.5	7.5	FCDP170244900	28000	82400	3720		523397			
900	1220	840	989	7.5	7.5	FCDP180244840	26400	80000	3060	316043	527048			
900	1280	930	1000	7.5	7.5	FCDP180256930	33000	93000	4080	313528C	541812			

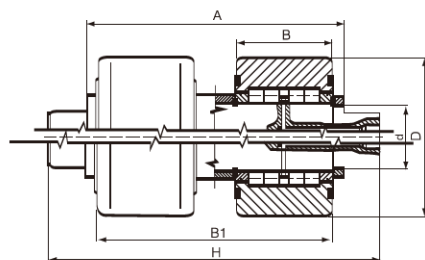
Remarks: If the specifications are not listed above, please contact WD bearings.  
 Email:sales@wd-bearing.com



Two Row Cylindrical Roller Bearings

Bearing Code		d	D	A	B	C	Co		
		mm	mm	mm	mm	KN	KN	Italy A	Italy B
NNUP2048-2Z	NNUP2048-2RS	20	48	36	27	36	53	9.1907	
NNUP2052-2Z	NNUP2052-2RS	20	52	32		58	41	2.0982	
NNUP2552-2Z	NNUP2552-2RS	25	52	44	40	38	60	2.1867	
NNUP2552K-2Z	NNUP2552K-2RS	25	52	44	40	38.6	60	9.2161	
NNUP2565-2Z	NNUP2565-2RS	25	65	45	41	68	95	9.1857	
NNUP2565K-2Z	NNUP2565K-2RS	25	65	45	41	78	111	9.2161	R.0132
NNUP3072-2Z	NNUP3072-2RS	30	72	41	38	77	84	2.0279	
NNUP3072K-2Z	NNUP3072K-2RS	30	72	42	40	70	100	9.2323	
NNUP2574-2Z	NNUP2574-2RS	25	74	50	47	99	139	2.1741	
NNUP4080-2Z	NNUP4080-2RS	40	80	33	31	39.5	32	2.1031	
NNUP3580-2Z	NNUP3580-2RS	35	80	54	50	103	163	2.1721	R.0168
NNUP3580K-2Z	NNUP3580K-2RS	35	80	48	44	100	161	2.1197	
NNUP3080-2Z	NNUP3080-2RS	30	80	48	44	85	141	9.2169	
NNUP4090-2Z	NNUP4090-2RS	40	90	35	32	57	62	2.0059	
NNUP4090-2Z	NNUP4090-2RS	40	95	55	51	124	192	9.203	
NNUP45100-2Z	NNUP45100-2RS	45	100	40	37	85.5	76	2.1193	R.0182
NNUP50105-2Z	NNUP50105-2RS	50	105	60	56	189	314	2.1198	
NNUP40105-2Z	NNUP40105-2RS	40	105	50	46	138	210	9.2296	
NNUP45110-2Z	NNUP45110-2RS	45	110	60	56	200	340	2.1352	
NNUP45110A-2Z	NNUP45110A-2RS	45	110	60	56	155	232	2.1537	
NNUP35114-2Z	NNUP35114-2RS	35	114	54	52	132.5	196	9.2204	
NNUP50118-2Z	NNUP50118-2RS	50	118	50	47	138	153	9.2168	
NNUP50120-2Z	NNUP50120-2RS	50	120	58	55	161	245	2.1249	R.0225
NNUP50120A-2Z	NNUP50120A-2RS	50	120	65	60	147	230	2.1711	
NNUP50120B-2Z	NNUP50120B-2RS	50	120	70	66	231	390	9.2012	
NNUP50120C-2Z	NNUP50120C-2RS	50	120	50	47	156	270	2.0699	R.0135
NNUP55122-2Z	NNUP55122-2RS	55	122	56	53	168	261	2.1384	
NNUP55122A-2Z	NNUP55122A-2RS	55	122	56	52	152	240	9.2018	
NNUP70122.5-2Z	NNUP70122.5-2RS	70	122.5	32	30	128	200	2.0837	
NNUP50127-2Z	NNUP50127-2RS	50	127	50	46	156	248	2.0434	R.0115
NNUP65130-2Z	NNUP65130-2RS	65	130	44	42	150	143	2.0978	
NNUP50130-2Z	NNUP50130-2RS	50	130	70	66	255	451	9.2011	R.0204
NNUP50130A-2Z	NNUP50130A-2RS	50	130	67	63	200	207	2.0054	R.0213
NNUP50130B-2Z	NNUP50130B-2RS	50	130	48	47	202	316	2.0531	

Bearing Code		d	D	A	B	C	Co		
		mm	mm	mm	mm	KN	KN	Italy A	Italy B
NNUP60135-2Z	NNUP60135-2RS	60	135	44	42	155	150	2.0984	
NNUP55140-2Z	NNUP55140-2RS	55	140	60	56	183	294	2.0055	
NNUP55140A-2Z	NNUP55140A-2RS	55	140	60	56	180.5	209	2.0695	
NNUP65140-2Z	NNUP65140-2RS	65	140	60	56	206.5	211	2.0971	
NNUP55145-2Z	NNUP55145-2RS	55	145	76	72	251	393	9.21	
NNUP65150-2Z	NNUP65150-2RS	65	150	55	51	220	324	2.1022	
NNUP70150-2Z	NNUP65150-2RS	70	150	63	61	223.5	259	2.0696	
NNUP65152-2Z	NNUP65152-2RS	65	152	65	61	320	583	9.2125	
NNUP65160-2Z	NNUP65160-2RS	65	160	78	75	330	531	2.122	R.0210
NNUP50160-2Z	NNUP50160-2RS	50	160	86	84	352	613	2.1567	
NNUP60160-2Z	NNUP60160-2RS	60	160	104	100	476	806	2.0294	R.0211
NNUP65160-2Z	NNUP60160-2RS	65	160	71	67	286	452	2.0697	R.0104
NNUP60160A-2Z	NNUP60160A-2RS	60	160	73	68	269	434	9.2322	
NNUP65180-2Z	NNUP65180-2RS	65	180	75	68	365	615	2.1383	
NNUP60180-2Z	NNUP60180-2RS	60	180	110	98	443	681	2.1787	
NNUP90180-2Z	NNUP90180-2RS	90	180	102	98	493	1107	9.1966	
NNUP65180A-2Z	NNUP65180A-2RS	65	180	66	63	308	528	9.2239	
NNUP90180A-2Z	NNUP90180A-2RS	90	180	102	98	495	996	9.2283	
NNUP90200-2Z	NNUP90200-2RS	90	200	92	88	525	890	9.2008	
NNUP120200-2Z	NNUP120200-2RS	120	200	57	55	311	632	2.0575	
NNUP80200-2Z	NNUP80200-2RS	80	200	72	68	332	321	2.0888	
NNUP80200A-2Z	NNUP80200A-2RS	80	200	92	68	482	870	9.2268	
NNUP85205-2Z	NNUP85205-2RS	85	205	112	110	595	1000	2.0646	
NNUP70210-2Z	NNUP70210-2RS	70	210	110	105	486	532	2.1455	
NNUP100210-2Z	NNUP100210-2RS	100	210	101	100	560	978	2.0677	
NNUP75210-2Z	NNUP75210-2RS	75	210	148	146	765	1433	9.2158	
NNUP80220-2Z	NNUP80220-2RS	80	220	127	125	638	1143	9.2216	
NNUP90220-2Z	NNUP90220-2RS	90	220	120	117	655	1182	9.227	
NNUP110234-2Z	NNUP110234-2RS	110	234	104	100	480	590	2.1029	
NNUP120250-2Z	NNUP120250-2RS	120	250	94	90	611	1112	9.2311	
NNUP120250A-2Z	NNUP120250A-2RS	120	250	124	121	878	1687	9.2312	R.0201
NNUP120260-2Z	NNUP120260-2RS	120	260	132	129	871	1677	2.1558	
NNUP120260A-2Z	NNUP120260A-2RS	120	260	184	180	1161	2537	9.219	
NNUP120280-2Z	NNUP120280-2RS	120	280	124	121	892	1665	9.1967	



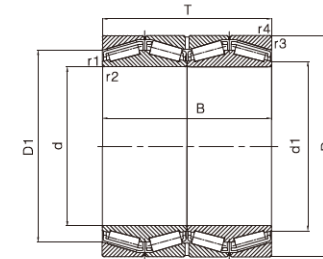
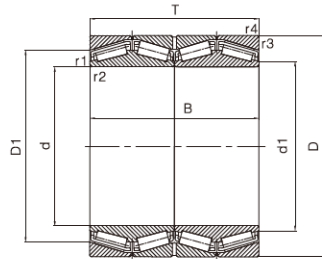
### Double Counter Roller Bearings

Bearing Code	d	D	H	A	B1	B	C	Co	
	mm	mm	mm	mm	mm	mm	KN	KN	Italy
NNQUP3582/D-2Z NNQUP3582/D-2RS	35	82	225	176	162	63	230	298	2.0311
NNQUP3587/D-2Z NNQUP3587/D-2RS	35	87	225	176	162	63	230	298	9.2155
NNQUP3588/D-2Z NNQUP3588/D-2RS	35	88	232	183	169	69	361	545	9.2217
NNQUP3596/D-2Z NNQUP3596/D-2RS	35	96	266	216	200	90	380	627	9.2269
NNQUP3596A/D-2Z NNQUP3596A/D-2RS	35	96	266	176	160	70	378	594	9.2315
NNQUP50100/D-2Z NNQUP50100/D-2RS	50	100	225	176	162	63	336	466	9.2104
NNQUP36110/D-2Z NNQUP36110/D-2RS	36	110	294	244	234	105	606	1014	9.222
NNQUP36110A/D-2Z NNQUP36110A/D-2RS	36	110	324	176	252	115	650	1098	9.2247
NNQUP35110/D-2Z NNQUP35110/D-2RS	35	110	225	176	162	63	286	429	9.2291
NNQUP55124/D-2Z NNQUP55124/D-2RS	55	124	266	216	204	90	655	1067	9.2133
NNQUP2458/D-2Z NNQUP2458/D-2RS	24	58	206	176	168	74	232	374	9.2431
NNQUP3596/D-2Z NNQUP3596/D-2RS	35	96	306	256	240	110	547	981	9.2466

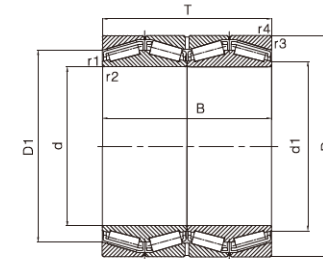
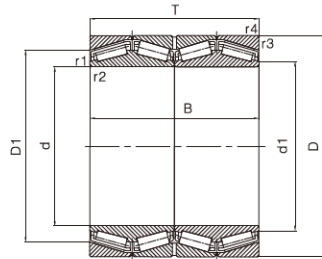
Remarks: If the specifications are not listed above, please contact WD bearings.  
 Email: sales@wd-bearing.com

# Rolling Mill Bearings

## Four-Row Tapered Roller Bearings

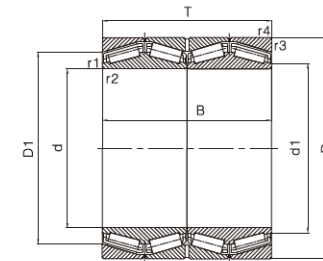
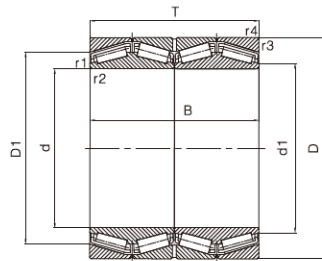


Basic Size(mm)		T	B	d1	D1	r1.2min	r3.4min	Mass Kg	Basic Load Rating		Calculation Coefficient			Bearing Code	
d	D								Cr	Cor	e	Y1	Y2		Y0
489.026	634.876	320.675	320.675	522	584	3.3	3.3	265	5500	14600	0.35	1.9	2.9	1.8	31090BG
	634.873	320.675	320.675	516	588	2.5	3.3	240	5230	12500	0.37	1.8	2.7	1.8	BT4B334014AAG/HA1C300VA901
501.65	711.2	520.7	520.7	550	655	3.3	6.4	610	8090	19600	0.33	2	3	2	BT4-8059G/HA1VA901
510	655	379	377	539	602	1.5	6.4	325	6820	19000	0.33	2	3	2	BT4B331747AG/HA1
514.35	673.1	422.275	422.275	537	606	3.3	6.4	395	6820	19000	0.33	2.2	3	2	BT4-8045G/HA1VA901
	673.1	422.275	422.275	545	614	3.3	6.4	405	7810	21600	0.31	2	3.3	2.2	331157BG
530	680	440	440	558	624	1.5	3	405	8250	23600	0.33	2	3	2	BT4-8043G/HA1
540	690	400	400	568	635	2	5	370	7480	21200	0.33	2	3	2	331978BG
	690	400	440	565	636	2	5	395	7480	21200	0.33	2	3	2	BT4-8038G/HA1VA901
558.8	736.6	409.575	409.575	594	672	3.3	6.4	480	8250	22000	0.35	1.9	2.9	1.8	BT4B330993AG/HA1
	736.6	457.2	457.2	596	666	3.3	6.4	515	8580	23200	0.35	1.9	2.9	1.8	BT4-8022G/HA1VA919
585.788	711.525	479.425	479.425	622	704	3.3	6.4	620	10600	30000	0.33	2	3	2	BT4B331096BG/HA1
595.312	844.55	615.95	615.95	642	754	3.3	6.4	1180	15100	39000	0.33	2	3	2	BT4B331300CG/HA1
609.6	787.4	361.95	361.95	645	735	3.3	6.4	425	7370	18600	0.37	1.8	2.7	1.8	BT4-8054G/HA1VA902
620	800	363.5	363.5	655	740	2	6	440	7040	18000	0.37	1.8	2.7	1.8	BT4-8055G/HA1VA902
625	815	480	480	656	746	3.2	6.5	660	11700	31000	0.33	2	3	2	BT4-8031/HA1
650	1040	610	610	740	905	15	10	1970	17600	36500	0.31	2.2	3.3	2.2	BT4-8036G/HA1
	1040	610	610	730	905	15	10	1970	17600	36500	0.31	2.2	3.3	2.2	BT4-8037G/HA1VA901
260.35	422.275	317.5	314.325	298	372	6.4	3.3	165	4460	8000	0.33	2	3	3.2	BT4B661487BG/HA1
292.1	422.275	269.875	269.875	324	379	6.4	3.3	125	3800	8000	0.31	2.2	3.3	2.2	BT4B3319638BG/HA1
304.8	419.1	269.875	269.875	328	378	1	6.4	105	2920	6700	0.31	2.2	3.3	2.2	BT4-8057G/HA1C300VA901
	495.3	342.9	342.9	350	440	2	6.4	245	5120	9300	0.4	1.7	2.5	1.6	BT4-8061G/HA1C400VA901

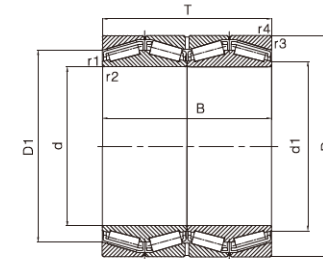
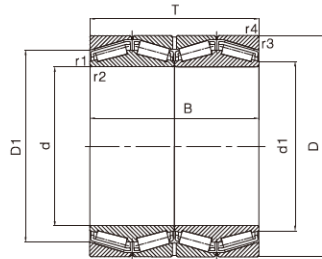


Basic Size(mm)						Mass Kg	Basic Load Rating		Calculation Coefficient			Bearing Code			
d	D	T	B	d1	D1		Cr	Cor	e	Y1	Y2		Y0		
304.902	412.648	266.7	266.7	325	374	3.3	3.3	100	3190	7500	0.31	2.2	3.3	2.2	BT-0004G/HA1
317.5	422.275	269.875	269.875	342	384	1.5	3.3	105	3360	8150	0.34	2.2	3.3	2.2	330870BG
	422.275	269.875	269.875	338	394	1.5	3.3	94.5	2640	6550	0.33	2	3	2	BT4B334023BG/HAVA901
	447.675	327.025	327.025	340	398	3.3	3.3	165	4730	10800	0.33	2	3	2	BT4B331161BG/HA1
330.302	438.023	254	247.65	354	394	1.5	3.3	105	2800	7350	0.46	1.5	2.2	1.4	BT4B331644AG/HA1
333.375	469.9	342.9	342.9	362	420	3.3	3.3	185	4130	10200	0.33	2	3	2	BT4-8017/HA1C600VA941
340	520	323.5	323.5	378	490	6	6	240	5610	10400	0.3	2.3	3.4	2.2	BT4B332963B/HA1
342.9	533.4	301.625	307.975	390	475	3.3	3.3	240	4730	8800	0.33	2	3	2	BT4-8034G/HA1
343.052	457.098	254	254	366	413	1.5	3.3	110	3030	6800	0.48	1.4	2.1	1.4	330661BG
	457.098	254	254	362	420	1	3.3	110	2750	6400	0.48	1.4	2.1	1.4	BT4B328817BG/HA1VA901
	457.098	254	254	362	420	1	3.3	105	2550	6000	0.68	1	1.5	1	BT4B334106BG/HA1C300VA901
347.662	469.9	260.35	360.35	372	430	1.5	3.3	125	3910	8500	0.33	2	3	2	BT4B331077BG/HA1
355	469.9	316	316	382	446	1.5	3.3	170	4460	10000	0.33	2	3	2	BT4-8020G/HA1VA901
355.6	482.6	265.875	265.113	382	432	1.5	3.3	140	3520	8000	0.48	1.4	2.1	1.4	330662BG
	482.6	265.875	265.113	380	436	1.5	3.3	134	3360	7500	0.46	1.5	2.2	1.4	BT4B328870BG/HA1VA901
	488.95	317.5	317.5	392	448	1.5	3.3	480	4460	11000	0.33	2	3	2	331271BG
	488.95	317.5	317.5	382	446	1	3.3	170	4460	10000	0.33	2	3	2	BT4B328912BG/HA1C300VA903
360	540	325	325	398	485	1.5	3	250	5720	10800	0.3	2.3	3.4	2.2	BT4-8015G/HA1
380	560	360	360	417	500	3.3	5	300	61710	13700	0.4	1.7	2.5	1.6	TB4-8033G/HA1
384.175	546.1	400.05	400.05	416	496	3.3	6.4	300	6160	15000	0.35	1.9	2.9	1.8	BT4-8025G/HA1C300VA903
385.762	514.35	317.5	317.5	411	471	1	3.3	175	4180	10000	0.4	1.7	2.5	1.6	BT4B334042BG/HA1VA901
406.4	546.1	288.925	288.925	434	494	1.5	6.4	185	4400	10200	0.48	1.4	2.1	1.4	BT4B330650ABG/HA1
	546.1	288.925	288.925	434	498	1.5	6.4	180	4180	9500	0.48	1.4	2.1	1.4	BT4B328838BG/HA1VA901
	546.1	288.925	288.925	434	498	1.5	6.4	180	4180	9500	0.48	1.4	2.1	1.4	BT4B328838BG/HA1VA902





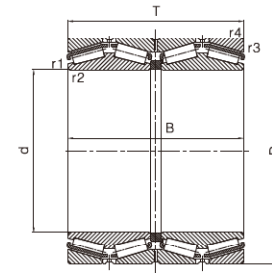
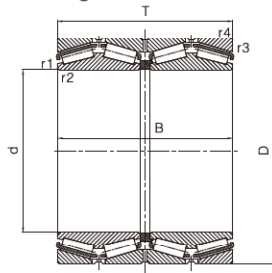
Basic Size(mm)		T	B	d1	D1	r1.2min	r3.4min	Mass Kg	Basic Load Rating		Calculation Coefficient			Bearing Code	
d	D								Cr	Cor	e	Y1	Y2		Y0
	546.1	288.925	288.925	434	498	1.5	6.4	185	3300	7800	0.68	1	1.4	1	BT4-8014G/HA1VA901
	546.1	288.925	288.925	434	494	1.5	6.4	180	4180	9500	0.48	1.4	2.1	1.4	331465BG
	546.1	330	330	434	498	1.5	6.4	200	4400	10200	0.48	1.4	2.1	1.4	BT4NB334093BG/HA1VA902
406.4	546.1	330	330	438	498	1.5	6.4	225	5010	13200	0.43	1.6	2.3	1.6	BT4B334092AB/HA1
	565.15	440	440	436	508	1.5	6.4	340	7650	18600	0.33	2	2	2	BT4-8002G/HA1.409.575
409.575	546.1	334.962	334.962	434	498	1	6.4	205	4840	12000	0.4	1.7	2.5	1.6	BT4-8021G/HA1VA919
	546.1	334.962	334.962	434	498	1	6.4	205	4840	12000	0.4	1.7	2.5	1.6	BT4B329004BG/HA1VA901
	546.1	334.962	334.962	438	490	1.5	6.4	220	5010	13200	0.43	1.6	2.3	1.6	BT4331333BG/HA1
420	574	480	480	450	530	2.5	5	345	7210	18600	1.31	2.2	3.3	2.2	BT4-8018G/H1VA901
430	570	380	380	458	510	2	5	260	5280	14000	0.44	1.5	2.3	1.4	BT4-8049G/HA1
	575	380	380	458	518	1.5	5	280	6440	16500	0.4	1.7	2.5	1.6	BT4-8006BG/HA1
	640	465	465	486	578	2.5	4	530	9520	21200	0.26	2.6	3.9	2.5	BT4-8040G/HA4
431.8	571.5	279.4	279.4	458	530	1.5	3.3	185	3740	9000	0.54	1.25	1.8	1.3	BT4-8019G/HA1VA901
	571.5	336.55	336.55	458	516	1.5	3.3	240	5280	14000	0.44	1.5	2.3	1.4	BT4B331226BG/HA1
	517.5	336.55	336.55	458	530	1.5	3.3	215	4840	12700	0.44	1.5	2.3	1.4	BT4-8003G/HA1VA902
440	590	480	480	468	539	1	5	365	7650	20000	0.28	2.4	3.6	2.5	BT4B334055ABG/HA1VA902
447.6	635	463.5	463.5	488	588	3.3	6.4	470	7650	20000	0.33	2	3	2	BT4-8039G/HA1VA901
450	595	368	368	484	550	3	6	265	5280	13700	0.31	2.2	3.3	2.2	BT4-8023G/HA1VA919
	595	368	368	486	542	3	6	285	5940	16300	0.33	2	3	2	BT4B3327773AG/HA1
	595	404	404	480	545	2	6	305	5940	16300	0.33	2	3	2	BT4-8044G/HA1VA902
	595	415	415	478	544	1.5	6	320	7040	19000	0.31	2.2	3.3	2.2	BT7-8024G/HA1
457.2	596.9	279.4	276.225	484	550	1.5	3.3	190	4290	10000	0.48	1.4	2.1	1.4	BT4B328827ABG/HA1VA902
	596.9	279.4	276.225	484	550	1.5	3.3	190	4290	10000	0.48	1.4	2.1	1.4	BT4B328827BG/HA1VA902
475	600	368	368	500	554	2	6	250	5720	16600	0.3	2.3	3.4	2.2	BT4B328913BG/HA1C555
	640	360	360	512	568	2	6	335	5500	15300	0.33	2	3	2	BT4-80358G/HA1
479.425	679.45	495.3	495.3	520	610	3.3	6.4	585	10100	25500	0.33	2	3	2	BT4B330866CG/HA1
	679.45	495.3	495.3	520	610	3.3	6.4	565	9350	22400	0.33	2	3	2	BT4B334116BG/HA1VA901



Basic Size(mm)								Mass	Basic Load Rating		Calculation Coefficient			Bearing Code	
d	D	T	B	d1	D1	r1.2min	r3.4min	Kg	Cr	Cor	e	Y1	Y2	Y0	
482.6	615.95	330.2	330.2	512	570	3.3	6.4	240	5500	15300	0.33	2	3	2	330641BG
	615.95	330.2	330.2	512	570	3.3	6.4	240	5500	15300	0.33	2	3	2	330641BG/HE1
	615.95	330.2	330.2	512	570	3.3	6.4	240	5500	15300	0.33	2	3	2	330641ABG/HE1
	615.95	330.2	330.2	505	777	1	6.4	230	5280	13700	0.33	2	3	2	BT4B328842BG/HAVA901
	615.95	330.2	330.2	505	777	1	6.4	230	5280	13700	0.33	2	3	2	BT4B328842BG/HAVA902
	615.95	330.2	330.2	505	777	1	6.4	230	5280	13700	0.33	2	3	2	BT4B328842ABG/HA1VA902
	615.95	330.2	330.2	512	570	6.4	6.4	240	5500	15300	0.33	2	3	2	332096BG3
	615.95	330.2	419.1	512	570	3.5	6.4	250	5500	15300	0.33	2	3	2	BT4B331626BG/HA1
	615.95	420	420	505	577	2.8	4.4	280	5500	15300	0.33	2	3	2	BT4-8062G/HA1VA901
635	421	421	512	578	3	6.4	365	7370	20400	0.33	2	3	2	BT4B334105BG/AH1	
660	1070	648	648	760	960	6	10	2260	19000	38000	0.31	2.2	3.3	2.2	BT4-8060G/HA4C300VA901
660.4	812.8	365.125	365.125	698	756	3.3	6.4	415	7210	22400	0.33	2	3	2	BT4B331190BG/HA1
	812.8	365.125	365.125	692	784	2	6.4	395	7210	20400	0.33	2	3	2	BT4B328977BG/HA1VA901
679.45	901.7	552.45	552.45	722	824	3.3	6.4	970	13200	36000	0.33	2	3	2	BT4B334015BG/HA1VA901
685.8	876	355.6	355.6	730	805	3.3	6.4	525	7810	22000	0.43	1.6	2.3	1.6	BT4B331089CG/HA1
	876.3	355.6	355.6	730	818	3.3	6.4	505	7650	20000	0.37	1.8	2.7	1.8	BT4B328955ABG/HA1VA902
	876.3	355.6	355.6	730	818	3.3	6.4	505	7650	20000	0.37	1.8	2.7	1.8	BT4B328955BG/HA1VA902
710	900	410	410	750	835	3	6	620	9680	27000	0.35	1.9	2.9	1.8	BT4B331351BG/HA1
750	950	410	410	800	878	3	6	705	9350	26500	0.37	1.8	2.7	1.8	BT4-8048G/HA4
762	1066.8	736.6	723.9	825	952	8.9	12.7	2090	22000	58500	0.33	2	3	2	BT4B331907BG/HA4

# Rolling Mill Bearings

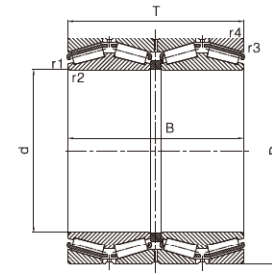
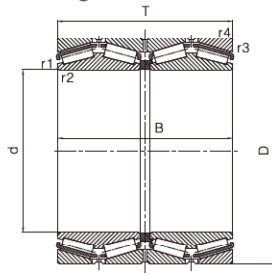
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating		e	Calculation Coefficient		Bearing Code		Reference Index TORRINGTON
d	D						Cr	Cor		Y1	Y2	Y0		
152.4	222.25	174.625	174.625	1.5	1.5	22.5	1120	2500	0.33	2	3	2	331329	
165.1	225.425	168.275	165.1	0.8	3.3	20.5	858	2200	0.37	1.8	2.7	1.8	330835C	
177.8	247.65	192.088	192.088	1.5	3.3	29	1230	3000	0.44	1.5	2.3	1.4	331480	
187.325	269.875	211.138	211.138	1.5	3.3	41	1650	3800	0.33	2	3	2	331382	
190.5	266.7	188.912	187.325	1.5	3.3	33.5	1340	3250	0.48	1.4	2.1	1.4	331249	75TQ0351AA229
198.438	284.162	225.425	225.425	1.5	3.3	47.5	1790	4150	0.33	2	3	2	330899A	
205	320	203.5	203.5	4	3	54.5	1900	3650	0.46	1.5	2.2	1.4	BT4B328065/HA1	
206.375	282.575	190.5	190.5	0.8	3.3	36.5	1300	3350	0.5	1.35	2	1.3	331486	81TQ09419AA1650
220	320	200	200	4	3	54	1760	4050	0.33	2	3	2	BT4B328348/HA1	
	340	303.5	303.5	1	3	100	3080	6700	0.43	1.6	2.3	1.6	BT4B328003/HA1	
220.662	314.325	239.712	239.712	1.5	3.3	61.5	2200	5200	0.33	2	3	2	331156	86TQ0411AA1525
228.6	311.15	200.025	200.025	1.5	3.3	43.5	1760	4050	0.33	2	3	2	BT4B332637/HA1	90TQ0396BA1254
234.95	327.025	196.85	196.85	1.5	3.3	54	1540	4250	0.4	1.7	2.5	1.6	331399	927909448BC1788
240	338	248	248	4	3	70	2380	5500	0.4	1.7	2.5	1.6	BT4B328015/HA1	
	360	308.5	308.5	4	3	110	3300	7350	0.33	2	3	2	BT4B328508	
241.224	355.498	228.6	228.6	1.5	3.3	81.5	2160	5000	0.35	1.9	2.9	1.8	331787	95TQ0451BA1599
241.478	349.148	228.6	228.6	1.5	3.3	74.5	2160	5000	0.35	1.9	2.9	1.8	330782A	95TQ09451AC1607
244.475	327.025	193.675	193.675	1.5	3.3	46	1830	4300	0.33	2	3	2	330862B	96YQ09450AA1254
244.475	381	304.8	304.8	3.3	4.8	130	2970	6700	0.52	1.3	1.9	1.3	BT4B328690/HA1	
245	380	254	255.5	1.5	4	105	2640	5600	0.44	1.5	2.3	1.4	331398	

# Rolling Mill Bearings

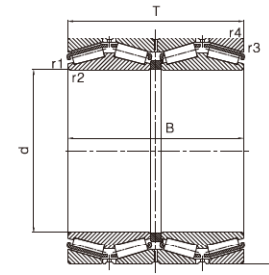
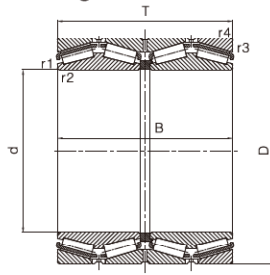
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating			Calculation Coefficient			Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor	e	Y1	Y2	Y0		
247.65	400.05	253.995	249.235	1.5	6.4	120	2920	6300	0.4	1.7	2.5	1.6	614096B	
254	358.775	269.875	269.875	1.5	3.3	88	2860	7100	0.33	2	3	2	331275A	100TQ0459CD1598
260	440	298.5	298.5	2.5	5	190	3910	7350	0.54	1.25	1.8	1.3	BT4B328551/HA1	
260.35	422.275	317.5	314.325	6.4	3.3	180	4130	8000	0.33	2	3	2	BT4B331487G/HA1	102TQ0479BD266
266.7	355.6	228.6	230.188	1.5	3.3	63.5	2050	5600	0.37	1.8	2.7	1.8	330822B	105TQ0488BA1526
269.875	381	282.575	282.575	3.3	3.3	105	3080	7500	0.33	2	3	2	BT4B331168B	
276.225	393.7	269.875	269.878	1.5	6.4	100	2970	6400	0.4	1.7	2.5	1.6	331288	
279.4	381	269.875	269.875	1.5	3.3	91	2920	7500	0.35	1.9	2.9	1.8	BT4B328293/HA1	
	393.7	269.875	269.875	1.5	6.4	102	3030	7100	0.37	1.8	2.7	1.8	BT4B332390/HA1	
279.578	380.898	244.475	244.475	1.5	3.3	86	2290	6400	0.43	1.6	2.3	1.6	330540A	
280	380	290	290	1	2.5	95	3030	8000	0.28	2.4	3.6	2.5	BT4B328613G/HA1	
	395	288	288	2.5	4	110	3470	8300	0.28	2.4	3.6	2.5	BT4B328807/HA1	
	420	250	250	2	5	115	3190	6550	0.35	1.9	2.9	1.8	BT4B328664/HA1	
	460	324	324	6	6	215	4680	9300	0.35	1.9	2.9	1.8	BT4B332441G/HA1	
285.75	380.898	244.475	244.475	1.5	3.3	81	2290	6400	0.43	1.6	2.3	1.6	330337A	112TQ09546AA1254
292.1	422.275	269.875	269.875	6.4	3.3	125	3520	8000	0.31	2.2	3.3	2.2	331968	115TQ0514BB351
300	440	249.4	280.988	3.3	3.3	145	3190	7800	0.43	1.6	2.3	1.6	BT4B328725G/HA1	
	460	388.5	388.5	5	5	240	5390	12500	0.33	2	3	2	BT4B332472	
300.038	422.275	311.15	311.15	3.3	3.3	140	3800	9500	0.33	2	3	2	331287	118TQ0518AA1159
304.648	438.048	279.4	280.99	3.3	4.8	135	3470	8000	0.48	1.4	2.1	1.4	331492	120TQ09532AB1293
304.8	419.1	269.875	269.875	1.5	6.4	110	3360	8150	0.33	2	3	2	BT4B331687/HA1	120TQ0530HD1503
	482.6	377.825	365.125	3.3	3.3	265	5010	10400	0.35	1.9	2.9	1.8	330693C	

# Rolling Mill Bearings

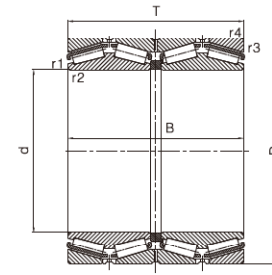
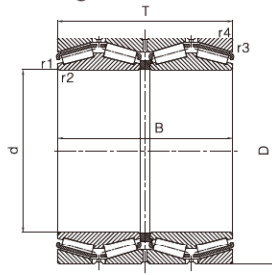
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating		e	Calculation Coefficient			Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor		Y1	Y2	Y0		
304.902	412.648	266.7	266.7	3.3	3.3	105	3080	8000	0.31	2.2	3.3	2.2	330758A	120TQ0530GB1506
317.5	422.275	269.875	269.875	1.5	3.3	105	3080	8150	0.31	2.2	3.3	2.2	330870A	125TQ09555AA1254
	438.15	276.225	276.225	1.5	3.3	125	3520	8300	0.43	1.6	2.3	1.6	BT4B334020G/HA4	125TQ09506AA1254
	447.675	327.025	327.025	3.3	3.3	165	4400	10800	0.33	2	3	2	BT4B331161AG/HA1	125TQ0556AA957
330.2	444.5	301.625	301.625	3.3	3.3	135	3690	9650	0.33	2	3	2	BT4B332647G/HA1	
330.302	438.023	342.9	342.9	3.3	3.3	110	2600	7350	0.46	1.5	2.2	1.4	331664	130TQ0562BA1250
333.375	469.9	342.9	342.9	3.3	3.3	190	4570	11400	0.33	2	3	2	331381	131TQ0582AA712
340	520	323.5	323.5	1.5	5	245	5230	10400	0.3	2.3	3.4	2.2	BT4B332963/HA1	
342.9	571.5	342.9	342.54	3.3	6.4	365	6270	11600	0.33	2	3	2	BT4B331553/HA1	
343.052	457.098	254	254	1.5	3.3	110	2810	6800	0.48	1.4	2.1	1.4	330661C	135TQ0595AA1287
346.075	488.95	358.775	358.775	3.3	3.3	220	4950	12500	0.33	2	3	2	331228	136TQ0587AA1288
347.662	469.9	260.35	260.35	1.5	3.3	130	3800	10200	0.33	2	3	2	BT4B331077AG/HA1	U-2517-B
	469.9	292.1	292.1	3.3	3.3	150	3800	10200	0.33	2	3	2	331092A	136TQ09593AA1601
355	490	316	316	1.5	3.3	185	4130	11000	0.33	2	3	2	331508	
355.6	482.6	269.875	265.112	1.5	3.3	140	3190	8000	0.48	1.4	2.1	1.4	330662AC	140TQ0594CB957
	488.95	317.5	317.5	1.5	3.3	195	4130	11000	0.33	2	3	2	331271	140TQ09597AA1647
360	510	380	380	2	6	255	5610	14300	0.33	2	3	2	332059	
	540	280	280	5	5	230	4400	9000	0.44	1.5	2.3	1.4	BT4B328159/HA1	
368.3	523.875	382.588	382.588	3.3	6.4	275	5380	15000	0.33	2	3	2	331159A	145TQ0611AA957
380	560	325	325	2	5	265	5500	11800	0.31	2.2	3.3	2.2	BT4B328294/HA1	
	560	360	360	2	6	295	6160	13700	0.4	1.7	2.5	1.6		
	620	368	368	6	6	438	7040	13700	0.43	1.6	2.3	1.6		
384.175	546.1	400.05	400.05	3.3	6.4	310	6440	16600	0.33	2	3	2	331149A	151TQ0641AA1525

# Rolling Mill Bearings

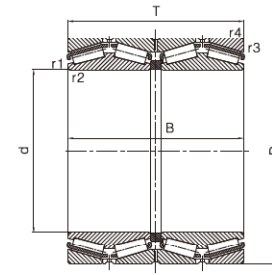
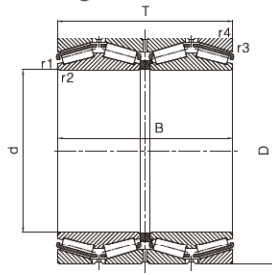
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating			Calculation Coefficient			Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor	e	Y1	Y2	Y0		
385.762	514.35	317.5	317.5	3.3	3.3	190	4290	12000	0.43	1.6	2.3	1.6	331202	151TQ0639AA1264
395	545	288.9	268	5	10	195	2910	9500	0.48	1.4	2.1	1.4	BT4B332824/HA1	
406.4	546.1	288.925	268.288	1.5	6.4	185	3910	9500	0.48	1.4	2.1	1.4	331465	160TQ09649BD1774
	546.1	288.925	288.925	1.5	6.4	185	4020	10200	0.48	1.4	2.1	1.4	BT4B330650CG	160TQ0673BA1726
	565.15	381	381	3.3	6.4	300	6050	15600	0.33	2	3	2	BT4B331347AG/HA1	B-8081-C
	590.55	400.05	400.05	3.3	6.4	370	6930	16600	0.33	2	3	2	331133A	160TQ0650AA957
409.575	546.1	334.962	334.962	1.5	6.4	220	4680	13200	0.43	1.6	2.3	1.6	BT4B331333/HA1	161TQ09660BA1776
415.925	590.55	434.975	434.975	3.3	6.4	395	7210	19300	0.33	2	3	2	331160A	163TQ0663AA957
420	560	437	437	4	6	285	5830	16300	0.31	2.2	3.3	2.2	BT4B328826G/HA1	
	620	355	355	2	5	375	6440	14600	0.31	2.2	3.3	2.2	BT4B328374/HA1	
430	570	336.55	336.55	1.5	3.3	240	4950	14000	0.44	1.5	2.3	1.4	331192A	
431.8	571.5	279.4	279.4	1.5	3.3	200	3690	9650	0.54	1.25	1.85	1.3	33125A	170TQ0688DB1528
	571.5	336.55	336.55	1.5	3.3	240	4950	14000	0.54	1.25	1.85	1.3	BT4B331226/HA1	170TQ09679AA1254
	635	355.6	355.6	6.4	6.4	385	6600	15000	0.33	2	3	2	332060	
440	580	420	420	4.5	6.7	300	6050	17600	0.26	2.6	3.9	2.5	BT4B328829/HA1	
	650	353.5	353.5	6.4	6.4	410	6600	15000	0.33	2	3	2	332313	
444.5	571.5	336.55	336.55	1.5	3.3	215	4950	14300	0.31	2.2	3.3	2.2	BT4B328670	
447.675	635	463.55	463.55	3.3	6.4	485	8250	22000	0.33	2	3	2	330608C	
450	580	450	450	3	6	280	6160	19600	0.24	2.8	4.2	2.8	BT4B328161/HA1	
	595	368	368	3	6	285	5500	16300	0.33	2	3	2	BT4B332773/HA1	N-3347-A
	595	404	404	3	6	305	5500	16300	0.33	2	3	2	BT4B328365/HA1	
457.073	730.148	419.1	412.75	1.5	6.4	630	8970	19600	0.4	1.7	2.5	1.6	BT4B328287G/HA1	
457.2	596.9	279.4	276.225	1.5	3.3	200	4180	10800	0.48	1.4	2.1	1.4	331169A	180TQ0691AA1288
	596.9	320	320	3.3	3.3	235	4840	13700	0.44	1.5	2.3	1.4	BT4B334006	
460	610	360	360	3	6	295	6050	16300	0.33	2	3	2	331977	

# Rolling Mill Bearings

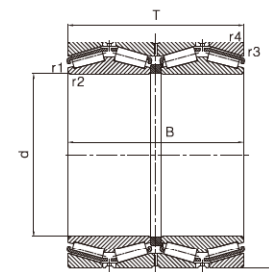
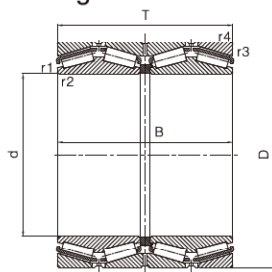
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating		e	Calculation Coefficient			Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor		Y1	Y2	Y0		
	610	400	400	2.5	4	315	6270	17300	0.28	2.4	3.6	2.5	BT4B328285	
	625	421	421	3	9	382	7210	20000	0.33	2	3	2	BT4B332502/HA1	
462	615.95	330.2	330.2	3.3	6.4	275	5500	15000	0.4	1.7	2.5	1.6	BT4B328692	
475	600	368	368	2	6	250	5280	16600	0.3	2.3	3.4	2.2	BT4B328913G/HA1	
	660	450	450	4	6	460	8580	22400	0.3	2.3	3.4	2.2	BT4B329007/HA1	
479.425	679.45	495.3	495.3	3.3	6.4	605	9350	22500	0.33	2	3	2	330886B	
482.6	615.95	330.2	330.2	6.4	6.4	245	5120	15300	0.33	2	3	2	332096	190TQ09697AA1896
	615.95	330.2	419.1	3.5	6.4	265	5120	15300	0.33	2	3	2	BT4B331626A/HA1	
	630	420	420	3.3	6.4	345	6600	19300	0.33	2	3	2	BT4B328773G/HA1	
	647.7	417.512	417.512	3.3	6.4	400	7210	20000	0.33	2	3	2	331259	
488.95	622.3	365.125	365.125	3	3	265	5610	17300	0.35	1.9	2.9	1.8	BT4B328391G/HA1	
489.026	634.873	320.675	320.675	3.3	3.3	270	5120	14600	0.35	1.9	2.9	1.8	331090A	192TQ0707AA1250
500	720	400	400	3	6	550	8250	20400	0.35	1.9	2.9	1.8	BT4B328524/HA1	
501.65	673.1	387.35	400.05	3.3	6.4	395	7210	19300	0.31	2.2	3.3	2.2	BT4B331499G/HA1	197TQ0714AA1245
	711.2	520.7	520.7	3.3	6.4	755	10200	27500	0.33	2	3	2	331081A	197TQ0713AA1416
508	762	463.55	463.55	6.4	6.4	730	10100	23200	0.37	1.8	2.7	1.8	332131	200TQ0715AA957
510	655	379	377	1.5	6.4	330	6270	19000	0.33	2	3	2	BT4B331747A	
514.35	673.1	422.275	422.275	3.3	6.4	410	7210	21600	0.31	2.2	3.3	2.2	331157A	202TQ0730AA1254
519.112	736.6	536.575	536.575	3.3	6.4	755	11400	31000	0.33	2	3	2	331078A	
520.7	711.2	400.05	400.05	3.3	6.4	460	7480	19600	0.33	2	3	2	BT4B331243A/HA1	
536.575	761.873	558.8	558.8	3.3	6.4	835	11700	32000	0.33	2	3	2	BT4B331174/HA1	
540	690	400	400	3	6	375	5720	16300	0.33	2	3	2	331978	
	690	400	434	1	5	400	5720	16300	0.33	2	3	2	BT4B334038G/HA3	

# Rolling Mill Bearings

## Four-Row Tapered Roller Bearings

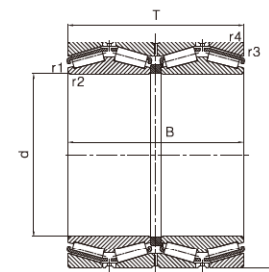
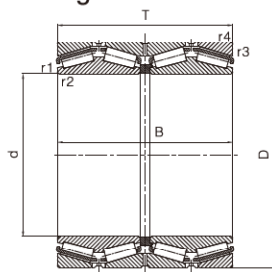


Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating			Calculation Coefficient			Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor	e	Y1	Y2	Y0		
558.8	736.6	322.268	322.268	3.3	6.4	375	6270	16600	0.35	1.9	2.9	1.8	31165A	
	736.6	409.575	409.575	3.3	6.4	475	7650	22000	0.35	1.9	2.9	1.8	330993BG	220TQ0745AA957
	736.6	457.2	455.612	3.3	6.4	545	8420	26000	0.33	2	3	2	BT4B331346A/HA1	W-3381-G
560	920	618	618	7.5	7.5	7100	16500	34000	0.4	1.7	2.5	1.6	BT4B328509/HA4	
571.5	812.8	593.725	593.725	3.3	6.4	1000	12100	32000	0.33	2	3	2	330529B	225TQ0756AA957
584.2	730.25	349.25	342.9	1.5	3.3	330	5500	17000	0.43	1.6	2.3	1.6	331189	
	762	401.638	396.875	3.3	6.4	485	7650	22400	0.48	1.4	2.1	1.4	331148A	
	901.7	539.747	523.08	3.3	9.7	1250	13400	28000	0.33	2	3	2	BT4B328314G/HA1	230TQ0758AA779
585.788	771.525	479.425	479.425	3.3	6.4	625	9900	30000	0.33	2	3	2	331093A	230TQ0771AA099
595.312	844.55	615.95	615.95	3.3	6.4	1115	13400	36500	0.33	2	3	2	331300	234TQ0770EC1799
596.9	980	609.6	604.838	6.4	12.7	1920	16800	36500	0.4	1.7	2.5	1.6	331566	
600	870	488	488	3	6	940	12500	29000	0.33	2	3	2	BT4B328350G/HA1	
603.25	857.25	622.3	622.3	3.3	6.4	1235	14700	40500	0.33	2	3	2	331625	T-4064-G
609.6	787.4	361.95	361.95	3.3	6.4	455	7370	21200	0.37	1.8	2.7	1.8	331175A	240TQ09776AA1653
	813.562	479.425	479.425	3.3	6.4	715	10600	30500	0.33	2	3	2	331925	H-1752-G
	863.6	660.4	660.4	3.3	6.4	1240	15100	41500	0.31	2.2	3.3	2.2	332391	M-4203-C
620	800	363.5	363.5	3	6	465	7480	21600	0.37	1.8	2.7	1.8	BT4B328510/HA1	
635	901.7	654.05	654.05	3.3	6.4	1420	15700	45000	0.33	2	3	2	330990A	250TQ0788BB1608
646.112	857.25	542.925	542.925	3.3	6.4	875	12100	36500	0.33	2	3	2	BT4B332671/HA1	250TQ0799AA957
650	915	674	674	3.3	6.4	1430	16100	45000	0.33	2	3	2	332307	
	1030	560	560	1.5	10	1830	16500	36500	0.31	2.2	3.3	2.2	BT4B332827AG/HA1	
657.225	933.45	676.275	676.275	3.3	6.4	1575	17200	49000	0.33	2	3	2	330824A	258TQ0804AA957
660	855	318.48	319.192	4.8	9.7	490	6160	17000	0.35	1.9	2.9	1.8	BT4B331065AG/HA4	



# Rolling Mill Bearings

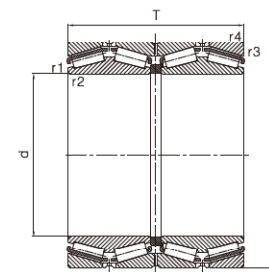
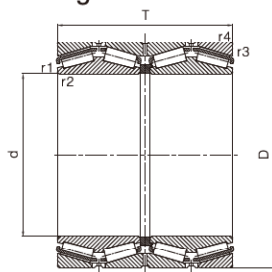
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	B	r1.2min	r3.4min	Mass Kg	Basic Load Rating		e	Calculation Coefficient		Y0	Bearing Code	Reference Index TORRINGTON
d	D						Cr	Cor		Y1	Y2			
	855	318.5	318.5	5	7.5	490	7040	18600	0.35	1.9	2.9	1.8	BT4B328511/HA1	
660.4	812.8	365.125	365.125	3.3	6.4	420	6710	22400	0.33	2	3	2	331190	260TQ0854AA957
676	910	620	620	4	8	1150	14200	41500	0.33	2	3	2	BT4B332906/HA4	
679.45	901.7	552.45	552.45	3.3	6.4	975	12300	36500	0.33	2	3	2	331700	267TQ0798BB957
682.625	965.2	701.675	701.675	3.3	6.4	1750	17600	50000	0.33	2	3	2	331503G/HA1	268TQ09811AA957
685.8	876.3	355.6	352.425	3.3	6.4	530	7210	22000	0.43	1.6	2.3	1.6	331089	270TQ09812AA1254
	876.3	355.6	434.975	3.3	6.4	580	7210	22000	0.43	1.6	2.3	1.6	BT4B328704G/HA1	
708.025	930.275	565.15	565.15	3.3	6.4	1030	13000	39000	0.33	2	3	2	BT4B332098A/HA1	1-1754-G
710	900	410	410	3	6	660	8800	26500	0.35	1.9	2.9	1.8	331351	280TQ0796CA1778
711.2	914.4	371.5	317.5	3.3	6.4	525	7040	19300	0.37	1.8	2.7	1.8	330882C	280TQ0815AA957
714.375	1016	704.85	704.85	3.3	6.4	1950	18700	53000	0.35	1.9	2.9	1.8	BT4B331358/HA4	281TQ0814AA957
717.55	946.15	565.15	565.15	3.3	6.4	1900	13400	40500	0.33	2	3	2	332244	282TQ0847AA957
730	940	500	500	3.5	8	925	12100	36000	0.35	1.9	2.9	1.8	331752	
730.25	1035.05	755.65	755.65	3.3	6.4	2170	20500	58500	0.33	2	3	2	330803A	287TQ0816AA1309
749.3	990.6	605	605	3.3	6.4	1250	15000	45500	0.33	2	3	2	331616	295TQ0821CA957
	1066.8	736.6	723.9	25.4	12.7	2250	20500	58500	0.33	2	3	2	331094A	295TQ0820AA957
750	1130	690	690	4	7.5	2430	20100	46500	0.48	1.4	2.1	1.4	BT4B328376/HA4	
762	1066.8	736.6	723.9	8	12.7	2145	20500	58500	0.33	2	3	2	331907	300TQ0825AA1245
	1079.5	787.4	787.4	4.8	12.7	2480	22400	65500	0.33	2	3	2	330676B	300TQ0824AA1282
812.8	1143	768.35	768.35	6.4	12.7	2590	22000	63000	0.33	2	3	2	331248	
825.5	1168.4	844.55	844.55	4.8	12.7	3050	26000	76500	0.33	2	3	2	BT4B331066A/HA4	325TQ0832BA1028

# Rolling Mill Bearings

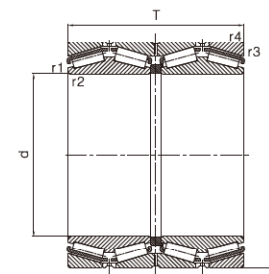
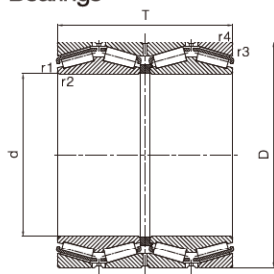
## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	r1.2min	r3.4min	Mass Kg	Bearing Code	Basic Load Rating		Limit Speed		Calculation Coefficient			
d	D						Cr	Cor	Grease	Oil	e	Y1	Y2	Y0
150	210	165	2.5	2	21.2	382930	440	845	800	1000	0.27	2.5	3.7	2.4
170	260	230	3	2.5	39.5	382034	908	1720	670	850	0.44	1.5	2.3	1.5
220	340	305	4	3	98	382044	1500	3020	500	630	0.35	1.9	2.8	1.9
240	360	310	4	3	91	382048	1530	3120	450	560	0.31	2.2	3.2	2.1
250	385	255	5	4	108	381050	1390	2570	430	530	0.38	1.8	2.6	1.7
260	360	265	3	2.5	76.3	382952	1270	2710	450	560	0.37	1.8	2.7	1.8
	400	345	5	4	153	382052	1970	3970	430	530	0.29	2.3	3.4	2.3
280	460	324	5	4	200	381156	2190	4050	360	450	0.33	2.1	3.1	2
300	420	300	4	3	130	382960	1690	3730	380	480	0.29	2.3	3.4	2.3
	460	390	5	4	219	382060	2310	4880	360	450	0.31	2.2	3.2	2.1
	500	370	5	4	285	381160	2610	4840	340	430	0.32	2.1	2.3	2.1
320	480	380	5	4	234	382064	2310	4880	340	430	0.42	1.6	2.4	1.6
340	460	310	4	4	145	382968	1770	4130	340	430	0.31	2.2	3.2	2.1
	520	325	5	4	234	381068	2310	4340	320	400	0.29	2.3	3.4	2.3
	580	425	5	4	441	381168	3530	6500	280	360	0.42	1.6	3.4	1.6
360	540	325	5	4	248	381072	2430	4670	300	380	0.3	2.3	2.3	2.2
380	620	420	5	4	487	381176	3630	6860	240	320	0.46	1.5	2.2	1.4
400	600	356	5	4	317	381080	3000	6080	240	320	0.4	1.7	2.5	1.7
420	700	480	6	5	760	381184	5220	10300	190	260	0.32	2.1	3.2	2.1
440	650	376	6	5	401	381088	3090	6480	200	280	0.43	1.6	2.3	1.5
460	620	310	4	3	173	381992	2430	5250	200	280	0.4	1.7	2.5	1.7
	680	410	6	5	476	381092	3710	7490	180	240	0.31	2.2	3.2	2.1
480	650	338	5	4	301	381996	2450	5400	190	260	0.42	1.6	2.4	1.6

# Rolling Mill Bearings

## Four-Row Tapered Roller Bearings



Basic Size (mm)		T	r1.2min	r3.4min	Mass Kg	Bearing Code	Basic Load Rating		Limit Speed		Calculation Coefficient			
d	D						Cr	Cor	Grease	Oil	e	Y1	Y2	Y0
	700	420	6	5	547	381096	4230	9000	170	220	0.32	2.1	3.1	2.1
500	720	420	6	5	565	3810/500	4250	9120	160	200	0.33	2.1	3.1	2
530	780	450	6	5	744	3810/530	5430	11400	140	180	0.38	1.8	2.6	1.7
	870	590	7.5	6	1422	3811/530	7170	14500	120	160	0.46	1.5	2.2	1.4
560	750	368	5	4	456	3819/560	3170	7410	140	180	0.43	1.6	2.3	1.5
	920	620	7.5	6	1635	3811/560	8670	14500	100	140	0.39	1.7	2.6	1.7
600	800	380	5	4	536	3819/600	3950	9710	120	160	0.33	2.1	3.1	2
	870	480	6	5	995	3810/600	6000	13300	100	140	0.41	1.7	2.5	1.6
	980	650	7.5	6	1970	3811/600	9840	20400	90	120	0.32	2.1	3.2	2.1
630	850	426	6	5	720	3819/630	4670	11000	100	140	0.4	1.7	2.5	1.7
	920	515	7.5	6	1158	3810/630	6650	14900	95	130	0.42	1.6	2.4	1.6
	1030	670	7.5	6	2201	3811/630	11100	22200	85	110	0.3	2.2	3.3	2.2
670	900	412	6	5	959	3819/670	5030	12400	95	130	0.44	1.5	2.3	1.5
	1090	710	7.5	6	2665	3811/670	12100	22200	75	95	0.32	2.1	3.2	2.1
710	1030	555	7.5	6	1568	3810/710	8190	18800	75	95	0.43	1.6	2.3	1.5
	1150	750	9.5	8	3227	3811/710	13200	28300	67	85	0.32	2.1	3.2	2.1
750	1090	605	7.5	6	1874	3810/750	9650	22300	70	90	0.43	1.6	2.4	1.6
	1220	840	9.5	8	3994	3811/750	16900	37800	48	80	0.32	2.1	3.2	2.1