WD
BALL & ROLLER
BEARINGS

Thin Section Bearings
薄壁轴承

薄壁轴承包括深沟球轴承、四点接触球轴承和角接触球轴承等。薄壁轴承精度高，承载能力强并且有小的横截面，它能在不改变轴直径的前提下选择有更大横截面型号的轴承，因而能提高承载能力。

The thin-section bearings consist of deep groove ball bearings, four-point contact ball bearings and angular contact ball bearings. With higher precision, greater load capacity and smaller cross section, a larger cross-section bearing can be used without changing the shaft diameter, resulting in an enhanced load rating, resulting in an enhanced load rating.

WD薄壁轴承有精度高、噪音低，承载能力强等特点。这些球轴承有三种设计，横截面大多为正方形，并且很小。在这些系列中，即使采用更大的轴径和轴承座孔，横截面也保持不变。这些轴承因此称为等截面轴承。正是这个特性将薄壁轴承与标准ISO系列中的普通轴承区别开来。

因此，这使选择更大的横截面并使用承载力更强的轴承而不必改变轴直径成为可能。WD薄壁轴承可以设计成极轻而只需很小空间的轴承。

深沟球轴承、四点接触球轴承、角接触球轴承

WD薄壁轴承可以是深沟球轴承(C)、四点接触球轴承(X) 、角接触球轴承 (E)。在不同的系列中都提供以上各种设计。系列则取决于横截面的大小。球与系列相匹配。

深沟球轴承可以承受双向的轴向负荷以及径向负荷。

四点接触球轴承可以承受双向的轴向负荷以及径向负荷；它们与双列角接触球轴承的运行方式相同。

角接触球轴承可以匹配最优数量的球并且其接触角度为30° 。它们支持的径向负荷比深沟球轴承或四点接触球轴承更高，并可以支持源于同一方向的轴向负荷。针对特殊需求，角接触球轴承也可以作为配对轴承提供。因此，这些组合的刚性和承载能力比单轴承产品高出很多。

负荷和寿命

轴承的寿命

轴承即使在正常的条件下使用，套圈和滚动体的滚动面因受到交变应力影响，亦会发生材料疲劳，以致造成剥离而无法使用。所谓轴承寿命，就是指在滚动面产生这种剥离之前的总转数。

此外，因轴承烧伤，磨损，裂纹缺口，卡死，生锈等都可能使轴承无法使用。但这应称为轴承故障，必须与轴承寿命区分开。轴承选用不当，安装欠妥，润滑不良及密封不好等都是发生故障的原因。排除这些原因便可避免轴承发生故障。

额定基本寿命和额定基本动负荷

即使一组相同的轴承在同一条件下运转，其寿命亦有很大的差异，这是因为材料疲劳本身就具有离散性。因此，对于轴承寿命的概念，从统计上考虑到这种离散性，采用下述定义的额定基本寿命。

所谓额定基本寿命，即是一组相同的轴承在同一条件下进行运转时， 90%(可靠性90%)不发生滚动疲劳性剥离的运转总转数。若以某固定转速运转时，则以总旋转时间表示。

所谓额定基本动负荷，即是指滚动轴承的负荷能力，也就是说在这种负荷条件下，可以使轴承达到100万转的额定基本寿命。对于向心轴承，采用纯径向负荷表示，对于推力轴承，采用纯轴向负荷表示。

额定基本静负荷

滚动轴承一旦承受负荷，其滚动体与套圈接触面就会发生局部永久性变形，该变形量随负荷增大而变大，若超过某种限度，则会影响正常旋转。

在承受最大应力的滚动体和套圈的接触部位中心永久性变形总量最大不超过滚动体直径的0.0001倍的情况下，就不会影响正常的运转。

所谓额定基本静负荷，即是轴承到达这种永久性变形量极限值时的某一静负荷量。向心轴承以纯径向负荷，推力轴承以纯轴向负荷表示。

当量负荷

当量动负荷

当轴承同时承受径向与轴向两种负荷时，作用于轴承中心的假定负荷(即,将轴承所同时承受的两种负荷看成一个)，即为当量动负荷。

对于向心轴承，以纯径向负荷表示；对于推力轴承，则以纯轴向负荷表示。分别称之为：径向当量动负荷和轴向当量动负荷。

径向当量动负荷

径向当量动负荷可通过下式计算

$$Pr=XFr+YFa$$

式中,

Pr: 径向当量动负荷 N
Fr: 径向负荷 N
Fa: 轴向负荷 N
X: 径向负荷系数
Y: 轴向负荷系数

X,Y的值在尺寸表中分别有所记载.

轴向当量动负荷

一般的推力轴承(接触角=90°)不能承受径向负荷，但推力自动调心滚子轴承多少能承受一些径向负荷。轴向当量动负荷可通过下式计算

$$Pa=Fa+1.2Fr$$

式中,

Pa: 轴向当量动负荷 N
Fr: 径向负荷 N
Fa: 轴向负荷 N

但必须使$Fr/Fa \leqslant 0.55$

当量静负荷

当轴承同时承受径向与轴向两种负荷时，使轴承产生的永久变形量与承受最大负荷的滚动体和滚道的接触部中心所产生的永久变形量相等的假定负荷，即为当量静负荷。

向心轴承以纯径向负荷表示，推力轴承以作用于中心部位上的轴向负荷表示，分别称之为径向当量静负荷及轴向当量静负荷。

径向当量静负荷

向心轴承的径向当量静负荷可有下式计算,取其较大值.

$$Por=X_oFr+Y_oFa$$

$$Por=Fr$$

式中,

Por: 径向当量静负荷 N
Fr: 径向负荷 N
Fa: 轴向负荷 N
Xo: 径向静负荷系数
Yo: 轴向静负荷系数

Xo,Yo的值在尺寸表中分别有所记载

轴向当量静负荷

推力自动调心滚子轴承的轴向当量静负荷可有下式计算

Poa=Fa+2.7Fr

式中,

Poa: 轴向当量静负荷 N

Fr: 轴向负荷 N

Fa: 径向负荷 N

但必须使Fr/Fa≤0.55

轴承的精度

轴承的精度，即尺寸精度和旋转精度，是由ISO规格规定的，尺寸精度是将轴承安装于轴或轴承箱时所要求的项目，它包括内径，外径，宽度，装配高，倒角尺寸及锥度公差或允许值。几何精度包括内径偏差，平均内径差，外径偏差，平均外径差，套圈端面平行差或厚度平行差(推力轴承)的允许值。旋转精度是规定旋转时振摆的，包括内圈及外圈径向摆动和轴向摆动，内圈侧摆及外径面垂直度公差范围。

精度等级比较

标准	采用标准	精度等级					正常类型
中国标准	GB 307.1	P0	P6	P5	P4	P2	全部
国际标准	ISO 492	Class 6x	Class 6	Class 5	Class 4	Class 2	向心轴承
	ISO 199	Normal class	Class 6	Class 5	Class 4		推力球轴承
	ISO 1224			Class 5A	Class 4A		精密仪表轴承
德国标准	DIN 620	P0	P6	P5	P4	P2	全部

轴承内部游隙

所谓轴承内部游隙，即指轴承在未安装于轴或轴承箱时，将其内圈或外圈的一方固定，然后使未被固定的一方做径向或轴向移动时的移动量。根据移动方向，可分为径向游隙和轴向游隙。

轴承内部游隙的选择标准

从理论上讲，轴承在正常运转时，稍带负的运转游隙，则轴承的寿命最大。但要保持这一最佳状态是非常困难的。因为随着使用条件的变化，轴承的负游隙也会相应增大，从而导致轴承寿命显著下降或产生发热。因此，一般将轴承的初期游隙定为稍稍大于零。

在通常情况下，即采取一般负荷的配合，且转速和温度正常时，只要选择相应的普通游隙，便可得到适当的运转游隙。

深沟球轴承的径向游隙 单位 μm

公称轴承内径 d mm		C2		CN		C3		C4		C5	
超过	到	min	max	min	max	min	max	min	max	min	max
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120
100	120	2	20	15	41	36	68	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	2	35	25	85	75	140	125	195	175	265
225	250	2	40	30	95	85	160	145	225	205	300
250	280	2	45	35	105	90	170	155	245	225	340
280	315	2	55	40	115	100	190	175	270	245	370
315	355	3	60	45	125	110	210	195	300	275	410
355	400	3	70	55	145	130	240	225	340	315	460
400	450	3	80	60	170	150	270	250	380	350	510
450	500	3	90	70	190	170	300	280	420	390	570
500	560	10	100	80	210	190	330	310	470	440	630
560	630	10	110	90	230	210	360	340	520	490	690

双列,双联向心推力球轴承的径向游隙 单位 μm

公称轴承内径 d mm		C1		C2		CN		C3		C4	
超过	到	min	max	min	max	min	max	min	max	min	max
10	18	3	8	6	12	8	15	15	24	30	40
18	30	3	10	6	12	10	20	20	32	40	55
30	50	3	10	8	14	14	25	25	40	55	75
50	80	3	11	11	17	17	32	32	50	75	95
80	100	3	13	13	22	22	40	40	60	95	120
100	120	3	15	15	30	30	50	50	75	110	140
120	150	3	16	16	35	35	55	55	80	130	170
150	180	3	18	18	35	35	60	60	90	150	200
180	200	3	20	20	40	40	65	65	100	180	240

备注:上表须根据轴承接触角大小,按下表所示类别使用									
接触角		正常接触		适用游隙组别					
符号		角度							
C		15°		C1	C2				
A		30°			C2	CN	C3		
B		40°				CN	C3	C4	
四点接触式球轴承的轴向游隙						单位μm			
公称轴承内径		C2		CN		C3		C4	
d mm									
超过	到	min	max	min	max	min	max	min	max
17	40	26	66	56	106	96	146	136	186
40	60	36	86	76	126	116	166	156	206
60	80	46	96	86	136	126	176	166	226
80	100	56	106	96	156	136	196	186	246
100	140	66	126	116	176	156	216	206	266
140	180	76	156	136	196	176	236	226	296
180	220	96	176	156	216	196	256	246	316

润滑

轴承润滑的目的是使轴承滚动接触面形成一层薄薄的油膜，以防止金属与金属直接接触。润滑对滚动轴承的作用如下：

(1)减轻摩擦及磨损
(2)排出摩擦热
(3)延长轴承的寿命
(4)防止生锈
(5)防止异物侵入

为充分发挥以上作用，务须选用适宜于使用条件的润滑方法和优质润滑剂，设计出可清除润滑剂中尘埃及防止外部异物侵入和润滑剂漏泄的适宜密封装置。

密封装置

使用密封装置的目的在于：防止轴承内润滑剂外漏和外部尘埃，水分等侵入轴承内部。选择密封装置时，主要考虑下述因素，即：润滑剂种类(是脂还是油)，密封部位的线速度，轴的安装误差，允许空间，密封圈摩擦及由之产生的温升，乃至成本等等。

滚动轴承的密封装置大致可分为接触式与非接触式两类。

套圈及滚动体材料

滚动轴承需要在套圈与滚动体接触面上反复承受较大应力的同时，保持高精度旋转。为此，套圈及滚动体材料就要求具备硬度高，抗滚动疲劳性强，耐磨损，以及尺寸稳定性好等特点。低含氧量和低非金属夹杂物的清洁的材料被广泛应用。

WD thin section bearings have high precision, are very quiet and have high load carrying capacity. These ball bearings are available in three different designs and have an extremely small, predominantly square cross-section. Within each series, the cross-section remains constant even for larger shaft diameters and housing bores. The bearings are therefore also described as Constant Section. This special feature distinguishes thin section bearings from conventional bearings as standardised in ISO series.

It is therefore possible to select a larger cross-section and thus use a bearing with higher load carrying capacity without the need to change the shaft diameter as well. WD thin section bearings allow designs to be achieved that are extremely light and require little space.

Deep groove ball bearings, four point contact bearings, angular contact ball bearings

Thin section bearings are available as deep groove ball bearings (C), four point contact bearings (X) and angular contact ball bearings (E). Each of these designs is available in various series. The series correspond to the cross-section sizes. The balls are matched to the series.

Deep groove ball bearings can support axial loads from both directions as well as radial loads.

Four point contact bearings can support axial loads from both directions as well as radial loads; they thus act in the same way as double row angular contact ball bearings.

Angular contact ball bearings can be filled with an optimised number of balls and have a contact angle of 30° . They can support considerably higher radial loads than deep groove ball bearings or four point contact bearings are can support axial loads from one direction. For special requirements, angular contact ball bearings are also available as matched bearings. These combinations then have a significantly higher rigidity and load carrying capacity than single bearing solutions.

Load Rating and Life
Effective Life

Even bearings are operated under normal conditions, the surfaces of the raceway and rolling elements are constantly being subjected to repeated compressive stresses which causes flaking of these surfaces to occur.This flaking is due to material fatigue and will eventually cause the bearings to fall. The effective life of a bearing is usually defined in terms of the total number of revolutions a bearing can undergo before flaking of either the raceway surface or the rolling element surfaces occurs.

Other causes of bearing failure are often attributed to problems such as seizing, abrasions, cracking, chipping, scuffing, rust, ect.However, these so called “causes” of bearing failure are usually themselves caused by improper installation, in sufficient or improper lubrication, faulty sealing or inaccurate bearing selection. Since the above mentioned “causes” of bearing failure can be avoided by taking the proper precautions, and are not simply caused by material fatigue, they are considered separately from the flaking aspect.

Basic rating life and basic dynamic load rating

A group of seemingly identical bearings when subjected to identical load and operating conditions will exhibit a wide diversity in their durability. This “life” disparity can be accounted for by the difference in the fatigue of the bearing material itself. This disparity is considered statistically when calculating bearing life,and the basic rating life is defined as follows.

The basic rating life is based on a 90% statistical model which is expressed as the total number of revolutions of the bearings in an identical group of bearings subjected to identical operating conditions will attain or surpass operating due to material fatigue occurs. For bearings operating at fixed constant

speeds,the basic rating life(90% reliability) is expressed in the total number of hours of operation.
Basic dynamic load rating expresses a rolling bearing's capacity to support a dynamic load.The basic dynamic load rating is the load under which the basic rating life of the bearing is 1 million revolutions.This is expressed as pure radial load for radial bearings and pure axial load for thrust bearings.

Basic static load rating

When stationary rolling bearings are subjected to static loads,they suffer from partial permanent deformation of the contact surfaces at the contact point between the rolling elements and the raceway.The amount of deformity increases as the load increases,and if this increase in load exceeds certain limits,the subsequent smooth operation of the bearings is impaired.
It has been found thruogh experience that a permanent deformity of 0.0001 times the diameter of the rolling element,occurring at the most heavity stressed contact point between the raceway and the rolling elements,can be tolerated without any impairment in running effciency.
The basic static load rating refers to a fixed static load limit at which a specified amount of permanent deformation occurs.It applies to pure radial loads for radial bearings and to pure axial loads for thrust bearings.

Equivalent load

Dynamic equivalent load

When both dynamic radial loads and dynamic axial loads act on a bearing at the same time, the hypothetical load acting on the center of the bearing which gives the bearings the same life as if they had only a radial load or only an axial load is called the dynamic equivalent load.
For radial bearings,the load is expressed as pure radial load and is called the dynamic radial load. For thrust bearings,it is expressed as pure axial load,and is called the dynamic eduivalent axial load.

Dynamic equivalent radial load

The dynamic equivalent radial load is expressed by formula

$$Pr=XFr+Yfa$$

Where,

Pr: Dynamic equivalent radial load N
Fr: Actual radial load N
Fa: Actual axial load N
X: Radial load factor
Y: Axial load factor

The values for X and Y are listed in the bearing tables.

Dynamic equivalent axial load

As a rule,standard thrust bearings with a contact angle of 90° cannot carry radail loads. However,self–aligning thrust roller bearing can accept some radial load.The dynamic equivalent axial load for these bearings is given in formula.

$$Pa=Fa+1.2Fr$$

Where,

Pa: Dynamic equivalent axial load N
Fr: Actual radial load N
Fa: Actual axial load N

Provided that $Fr/Fa \leq 0.55$ only

Static equivalent load

The static equirvalent load is a hypothetical load which would cause the same total permanent deformation at the most heavity stressed contact point between the rolling elements and the raceway as under actual load conditions;that is when both static radial loads and static axial loads are simultaneously applied to the bearing
For radial bearings this hypothetical load refers to pure radial loads,and for thrust bearings it refers to pure centric axial loads.These loads are designated static equivalent radial loads and static equivalent axial loads respectively.

Static equivalent radial load

For radial bearings the static equirvalent radial load can be found. The greater of the two resultant values is always taken for Por

$$Por=XoFr+Yofa$$

$$Por=Fr$$

Where,

Por: Static equivalent radial load N
Fr: Actual radial load N
Fa: Actual axial load N
Xo: Static radial load factor
Yo: Static axial load factor

The values for Xo and Yo are given in the respective bearing tables.

Static equivalent axial load

For spherical thrust roller bearings the static equivalent axial load is expressed by formula

$$Poa=Fa+2.7Fr$$

Where,

Poa: Static equivalent axial load N
Fr: Actual radial load N
Fa: Actual axial load N

Provided that $Fr/Fa \div 0.55$ only

Bearing Tolerances

Bearing "tolerances" or dimensional accuracy and running accuracy, are regulated by ISO and JIS standards.For dimensional accuracy,these standards prescribe the tolerances necessary when installing bearings on shafts or in housings.Running accuracy is defined as the allowable limits for bearing runout

during operation.

Dimensionsal accuracy constitutes the acceptable values for bore diameter,outer diameter,assembled bearing width,and bore diameter uniformity as seen in chamfer dimensions,allowable inner ring tapered bore deviation and shape error. The geometry accuracy are average bore diameter variation,outer diameter variation,average outer diameter unevenness,as well as raceway width and height variation(for thrust bearings).

Running accuracy constitutes the acceptable values for inner and outer ring radial runout axial runout,inner ring side runout.and perpendicularity of outside diameter surface.

Comparison of tolerance classifications of national standards

Standard	Applicable standard	Tolerance Class					Bearing Types
Chinese industrial Standard(GB)	GB 307.1	P0	P6	P5	P4	P2	All type
International	ISO 492	Class 6x	Class 6	Class 5	Class 4	Class 2	Radial bearings
Organization	ISO 199	Normal class	Class 6	Class 5	Class 4		Thrust ball bearings
for Standardization (ISO)	ISO 1224			Class 5A	Class 4A		Precision instrument bearings
Deutsches institut for Normung (DIN)	DIN 620	P0	P6	P5	P4	P2	All type

Bearing internal clearance

Bearing internal clearance is the amount of internal free movement before mounting,when either the inner ring or the outer ring is fixed and the other ring is free to move.displacement can take place in either an axial or radial direction. This amount of displacement (radially or axially) is termed the internal clearance and, depending on the direction, is called the radial internal clearance or the axial internal clearance.

Criteria for selecting bearing internal clearance

A bearing's life is theoretically maximum when operating clearance is slightly negative at steady operation. In reality it is however difficult to constantly maintain this optimal condition.If the negative clearance becomes enlarged by fluctuating operating conditions,heat will be produced and life will decrease dramatically. Under ordinary circumstances you should therefore select an initial internal clearance where the operating clearance is slightly larger than zero.

For ordinary operating conditions,use fitting for ordinary loads.If rotational speed and operating temperature are ordinary,selecting normal clearance enables you to obtain the proper operating clearance.

Radial internal clearance of deep groove ball bearings Unit μm

Nominal bore diameter d mm		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120
100	120	2	20	15	41	36	68	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	2	35	25	85	75	140	125	195	175	265
225	250	2	40	30	95	85	160	145	225	205	300
250	280	2	45	35	105	90	170	155	245	225	340
280	315	2	55	40	115	100	190	175	270	245	370
315	355	3	60	45	125	110	210	195	300	275	410
355	400	3	70	55	145	130	240	225	340	315	460
400	450	3	80	60	170	150	270	250	380	350	510
450	500	3	90	70	190	170	300	280	420	390	570
500	560	10	100	80	210	190	330	310	470	440	630
560	630	10	110	90	230	210	360	340	520	490	690

Radial internal clearance for duplex angular contact ball bearings Unit μm

Nominal bore Diameter d mm		C1		C2		CN		C3		C4	
over	incl.	min	max	min	max	min	max	min	max	min	max
10	18	3	8	6	12	8	15	15	24	30	40
18	30	3	10	6	12	10	20	20	32	40	55
30	50	3	10	8	14	14	25	25	40	55	75
50	80	3	11	11	17	17	32	32	50	75	95
80	100	3	13	13	22	22	40	40	60	95	120
100	120	3	15	15	30	30	50	50	75	110	140
120	150	3	16	16	35	35	55	55	80	130	170
150	180	3	18	18	35	35	60	60	90	150	200

Note: The clearance group in the table is applied only to contact angles in the table below										
Contact angle		Nomial Contact	Applicable clearance group							
symbol		angle								
C		15°	C1	C2						
A		30°		C2	CN		C3			
B		40°			CN		C3	C4		

Axial internal clearance of four points contact ball bearings Unit μm

Nominal bore Diameter		C2		CN		C3		C4	
d mm									
over	incl.	min	max	min	max	min	max	min	max
17	40	26	66	56	106	96	146	136	186
40	60	36	86	76	126	116	166	156	206
60	80	46	96	86	136	126	176	166	226
80	100	56	106	96	156	136	196	186	246
100	140	66	126	116	176	156	216	206	266
140	180	76	156	136	196	176	236	226	296
180	220	96	176	156	216	196	256	246	316

Lubrication

The purpose of bearing lubrication is to prevent direct metallic contact between the various rolling and sliding elements. This is accomplished through the formation of a thin oil (or grease) film on the contact surfaces. However,for rolling bearings,lubrication has the following:

(1)Reduction of friction and wear
(2)Dissipation of friction heat
(3)Prolonged bearing life
(4)Prevention of rust
(5)Protection against harmful elements

In order to exhibit these effects,a lubrication method that matches service conditions. In addition to this,a quality lubricant must be selected,the proper amount of lubricant must be used and the bearing must be designed to prevent foreign matter from getting in or lubricant from leaking out.

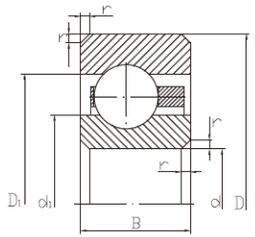
External bearing sealing devices

External seals have two main functions:to prevent lubricating oil from leaking out,and,to prevent dust,water,and other contaminants from entering the bearing.When selecting a seal,the following factors need to be taken into consideration:the type of lubricant (oil or grease),seal peripheral speed,shaft fitting errors,space limitations,seal friction and resultant heat increase, and cost.

Sealing devices for rolling bearings fall into two main classifications:non–contact seals and contact seals.

Raceway and rolling materials

While the contact surfaces of a bearing's raceways and rolling elements are subjected to repeated heavy stress,they still must maintain high precision and rotational accuracy. To accomplish this. the raceways and rolling elements must be made of a material that has high hardness, is resistant to rolling fatigue, is wear resistant, and has good dimensional stability. The most common cause of fatigue in bearings is the inclusion includeing hard oxides that can cause fatigue crack.Clean steel with minimal non–metallic inclusion must therefore be used.



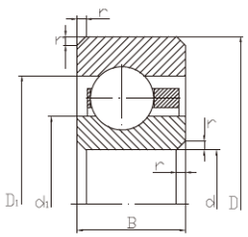
WDTSCA

Single Row Deep Groove Ball Bearing

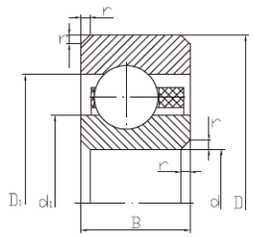
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCA020	50.8	63.5	6.35	0.6	58.8	55.5	0.05	3.3	2.65	9500
WDTSCA025	63.5	76.2	6.35	0.6	71.5	68.2	0.06	3.55	3.25	7600
WDTSCA030	76.2	88.9	6.35	0.6	84.2	80.9	0.07	3.8	3.9	6500
WDTSCA035	88.9	101.6	6.35	0.6	96.9	93.6	0.08	4	4.55	5500
WDTSCA040	101.6	114.3	6.35	0.6	109.6	106.3	0.09	4.2	5.2	4800
WDTSCA042	107.95	120.65	6.35	0.6	115.9	112.6	0.09	4.25	5.5	4500
WDTSCA045	114.3	127	6.35	0.6	122.3	119	0.1	4.35	5.8	4200
WDTSCA047	120.65	133.35	6.35	0.6	128.6	125.3	0.1	4.45	6.1	4000
WDTSCA050	127	139.7	6.35	0.6	135	131.7	0.11	4.5	6.4	3800
WDTSCA055	139.7	152.4	6.35	0.6	147.7	144.4	0.11	4.7	7.1	3500
WDTSCA060	152.4	165.1	6.35	0.6	160.4	157.1	0.13	4.8	7.7	3200
WDTSCA065	165.1	177.8	6.35	0.6	173.1	169.8	0.14	4.95	8.3	2900
WDTSCA070	177.8	190.5	6.35	0.6	185.8	182.5	0.14	5.1	9	2700
WDTSCA075	190.5	203.2	6.35	0.6	198.5	195.2	0.15	5.2	9.6	2500
WDTSCA080	203.2	215.9	6.35	0.6	211.2	207.9	0.17	5.3	10.2	2400
WDTSCA090	228.6	241.3	6.35	0.6	236.6	233.3	0.2	5.6	11.5	2100
WDTSCA100	254	266.7	6.35	0.6	262	258.7	0.23	5.8	12.8	1900
WDTSCA120	304.8	317.5	6.35	0.6	312.8	309.5	0.25	6.2	15.3	1600

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

WDTSCA



WDTSCB



WDTSCAA−TN

Single Row Deep Groove Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCB020	50.8	66.675	7.938	1	60.8	56.7	0.07	4.7	3.55	9500
WDTSCB025	63.5	79.375	7.938	1	73.5	69.4	0.09	5.1	4.4	7600
WDTSCB030	76.2	92.075	7.938	1	86.2	82.1	0.11	5.4	5.2	6500
WDTSCB035	88.9	104.775	7.938	1	98.9	94.8	0.12	5.7	6.1	5500
WDTSCB040	101.6	117.475	7.938	1	111.6	107.5	0.13	6	6.9	4800
WDTSCB042	107.95	123.825	7.938	1	117.9	113.8	0.14	6.1	7.3	4500
WDTSCB045	114.3	130.175	7.938	1	124.3	120.2	0.15	6.3	7.8	4200
WDTSCB050	127	142.875	7.938	1	137	132.9	0.17	6.5	8.6	3800
WDTSCB060	152.4	168.275	7.938	1	162.4	158.3	0.2	6.9	10.3	3200
WDTSCB065	165.1	180.975	7.938	1	175.1	171	0.21	7.1	11.1	2900
WDTSCB070	177.8	193.675	7.938	1	187.8	183.7	0.23	7.3	12	2700
WDTSCB080	203.2	219.075	7.938	1	213.2	209.1	0.26	7.7	13.7	2400

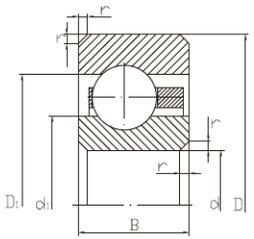
WDTSCB

Single Row Deep Groove Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCAA010−TN	25.4	34.925	4.763	0.38	31.4	29	0.01	1.77	1.08	19000
WDTSCAA015−TN	38.1	47.625	4.763	0.38	44.1	41.7	0.02	2.01	1.54	13000
WDTSCAA017−TN	44.45	53.975	4.763	0.38	50.4	48	0.02	2.11	1.77	11000

With snap cage made from plastic(polyamide), for operating temperatures from −30° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

WDTSCAA−TN



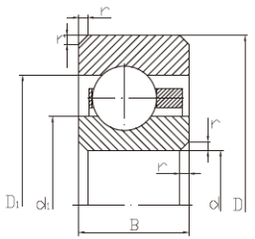
WDTSCC

Single Row Deep Groove Ball Bearing

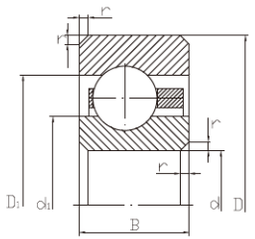
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	Kg	KN	KN	1/min
WDTSCC040	101.6	120.65	9.525	1	113.6	108.6	0.2	7.8	8.2	4800
WDTSCC042	107.95	127	9.525	1	120	115	0.21	7.9	8.7	4500
WDTSCC045	114.3	133.35	9.525	1	126.3	121.3	0.22	8.1	9.2	4200
WDTSCC047	120.65	139.7	9.525	1	132.7	127.7	0.23	8.2	9.7	4000
WDTSCC050	127	146.05	9.525	1	139	134	0.26	8.4	10.2	3800
WDTSCC055	139.7	158.75	9.525	1	151.7	146.7	0.27	8.7	11.2	3500
WDTSCC060	152.4	171.45	9.525	1	164.4	159.4	0.29	8.9	12.2	3200
WDTSCC065	165.1	184.15	9.525	1	177.1	172.1	0.31	9.2	13.2	2900
WDTSCC070	177.8	196.85	9.525	1	189.8	184.8	0.33	9.4	14.2	2700
WDTSCC075	190.5	209.55	9.525	1	202.5	197.5	0.35	9.7	15.2	2500
WDTSCC080	203.2	222.25	9.525	1	215.2	210.2	0.38	9.9	16.2	2400
WDTSCC100	254	273.05	9.525	1	266	261	0.48	10.7	20.2	1900
WDTSCC110	279.4	298.45	9.525	1	291.4	286.4	0.53	11.1	22.2	1800
WDTSCC120	304.8	323.85	9.525	1	316.8	311.8	0.57	11.4	24.2	1600

For operating temperatures from –54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

WDTSCC



WDTSCD



WDTSCG

Single Row Deep Groove Ball Bearing

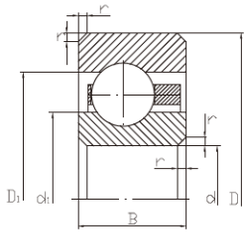
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	D1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCD040	101.6	127	12.7	1.5	117.6	111	0.35	12.3	11.9	4800
WDTSCD045	114.3	139.7	12.7	1.5	130.3	123.7	0.4	12.8	13.3	4200
WDTSCD050	127	152.4	12.7	1.5	143	136.4	0.45	13.3	14.7	3800
WDTSCD055	139.7	165.1	12.7	1.5	155.7	149.1	0.48	13.7	16.2	3500
WDTSCD060	152.4	177.8	12.7	1.5	168.4	161.8	0.53	14.1	17.6	3200
WDTSCD065	165.1	190.5	12.7	1.5	181.1	174.5	0.55	14.5	19	2900
WDTSCD070	177.8	203.2	12.7	1.5	193.8	187.2	0.59	14.9	20.4	2700
WDTSCD080	203.2	228.6	12.7	1.5	219.2	212.6	0.69	15.6	23.3	2400
WDTSCD090	228.6	254	12.7	1.5	244.6	238	0.78	16.3	26	2100
WDTSCD100	254	279.4	12.7	1.5	270	263.4	0.85	16.9	29	1900
WDTSCD110	279.4	304.8	12.7	1.5	295.4	288.8	0.93	17.5	32	1800
WDTSCD120	304.8	330.2	12.7	1.5	320.8	314.2	1.03	18	34.5	1600
WDTSCD140	355.6	381	12.7	1.5	371.6	365	1.24	19.1	40.5	1400
WDTSCD160	406.4	431.8	12.7	1.5	422.4	415.8	1.4	20	46	1200

WDTSCD

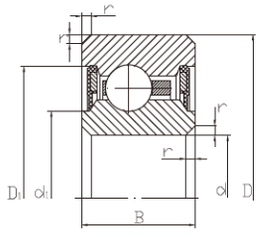
Single Row Deep Groove Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCG055	139.7	190.5	25.4	2	171.7	158.6	2.13	41	39	3500
WDTSCG065	165.1	215.9	25.4	2	197.1	183.9	2.45	44	46	2900
WDTSCG070	177.8	228.6	25.4	2	209.8	196.7	2.63	45.5	50	2700
WDTSCG075	190.5	241.3	25.4	2	222.5	209.4	2.77	46	53	2500
WDTSCG080	203.2	254	25.4	2	235.2	222.1	2.95	48	57	2400
WDTSCG090	228.6	279.4	25.4	2	260.6	247.5	3.27	50	64	2100
WDTSCG100	254	304.8	25.4	2	286	272.9	3.58	52	71	1900
WDTSCG120	304.8	355.6	25.4	2	336.8	323.7	4.22	55	84	1600
WDTSCG140	355.6	406.4	25.4	2	387.6	374.5	4.9	58	98	1400
WDTSCG160	406.4	457.2	25.4	2	438.4	425.3	5.58	61	112	1200
WDTSCG180	457.2	508	25.4	2	489.2	476.1	6.21	64	126	1100
WDTSCG200	508	558.8	25.4	2	540	526.9	7.16	66	139	950
WDTSCG250	635	685.8	25.4	2	667	653.9	8.85	71	174	750

WDTSCG



WDTSCF



WDTSCU

Single Row Deep Groove Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCF050	127	165.1	19.05	2	151	141.1	1.04	25.5	24.7	3800
WDTSCF055	139.7	177.8	19.05	2	163.7	153.8	1.13	26	27	3500
WDTSCF060	152.4	190.5	19.05	2	176.4	166.5	1.22	27	29.5	3200
WDTSCF065	165.1	203.2	19.05	2	189.1	179.2	1.32	27.5	31.5	2900
WDTSCF070	177.8	215.9	19.05	2	201.8	191.9	1.45	28.5	34	2700
WDTSCF075	190.5	228.6	19.05	2	214.5	204.6	1.54	29	36.5	2500
WDTSCF080	203.2	241.3	19.05	2	227.2	217.3	1.59	30	38.5	2400
WDTSCF090	228.6	266.7	19.05	2	252.6	242.7	1.77	31	43.5	2100
WDTSCF100	254	292.1	19.05	2	278	268.1	1.95	32	48	1900
WDTSCF110	279.4	317.5	19.05	2	303.4	293.5	2.18	33.5	53	1800
WDTSCF120	304.8	342.9	19.05	2	328.8	318.9	2.36	34.5	58	1600
WDTSCF140	355.6	393.7	19.05	2	379.6	369.7	2.72	36.5	67	1400
WDTSCF160	406.4	444.5	19.05	2	430.4	420.5	3.22	38	76	1200

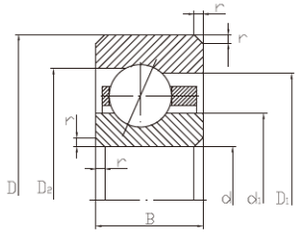
WDTSCF

Single Row Deep Groove Ball Bearing

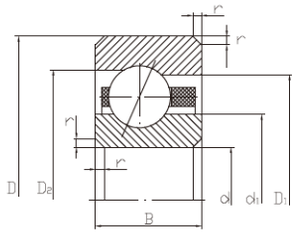
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSCU040-2RS	101.6	120.65	12.7	0.38	115.5	105.4	0.25	7.8	8.2	2300
WDTSCU045-2RS	114.3	133.35	12.7	0.38	128.2	118.1	0.28	8.1	9.2	2000
WDTSCU050-2RS	127	146.05	12.7	0.38	140.8	130.8	0.31	8.4	10.2	1800
WDTSCU055-2RS	139.7	158.75	12.7	0.38	153	143.5	0.34	8.7	11.2	1600
WDTSCU060-2RS	152.4	171.45	12.7	0.38	166.2	156.2	0.37	8.9	12.2	1500
WDTSCU065-2RS	165.1	184.15	12.7	0.38	178.7	168.9	0.39	9.2	13.2	1400
WDTSCU070-2RS	177.8	196.85	12.7	0.38	191.4	181.6	0.42	9.4	14.2	1300
WDTSCU075-2RS	190.5	209.55	12.7	0.38	204.1	194.3	0.45	9.7	15.2	1200
WDTSCU080-2RS	203.2	222.25	12.7	0.38	216.8	207	0.48	9.9	16.2	1100
WDTSCU090-2RS	228.6	247.65	12.7	0.38	242.2	232.4	0.53	10.3	18.2	1000
WDTSCU100-2RS	254	273.05	12.7	0.38	267.6	257.8	0.59	10.7	20.2	900
WDTSCU110-2RS	279.4	298.45	12.7	0.38	293	283.2	0.65	11.1	22.2	800

Sealed on both sides,for operating temperatures from −25° C to +120° C

WDTSCU



WDTSEA



WDTSEAA-TN

Angular Contact Ball Bearing

Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	D_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEA020	50.8	63.5	6.35	0.6	58.8	60.2	55.5	0.05	3.45	3.1	9500
WDTSEA025	63.5	76.2	6.35	0.6	71.5	72.9	68.2	0.06	3.75	3.8	7600
WDTSEA030	76.2	88.9	6.35	0.6	84.2	85.6	80.9	0.07	3.95	4.55	6500
WDTSEA035	88.9	101.6	6.35	0.6	96.9	98.2	93.6	0.08	4.2	5.3	5500
WDTSEA040	101.6	114.3	6.35	0.6	109.6	111	106.3	0.09	4.4	6	4800
WDTSEA045	114.3	127	6.35	0.6	122.3	123.7	119	0.1	4.55	6.7	4200
WDTSEA047	120.65	133.35	6.35	0.6	128.6	130	125.3	0.1	4.65	7.1	4000
WDTSEA050	127	139.7	6.35	0.6	135	136.4	131.7	0.11	4.75	7.5	3800
WDTSEA055	139.7	152.4	6.35	0.6	147.7	149.1	144.4	0.11	4.9	8.2	3500
WDTSEA060	152.4	165.1	6.35	0.6	160.4	161.7	157.1	0.13	5.1	8.9	3200
WDTSEA065	165.1	177.8	6.35	0.6	173.1	174.4	169.8	0.14	5.2	9.6	2900
WDTSEA070	177.8	190.5	6.35	0.6	185.8	187.1	182.5	0.15	5.3	10.4	2700
WDTSEA075	190.5	203.2	6.35	0.6	198.5	199.8	195.2	0.16	5.5	11.1	2500

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

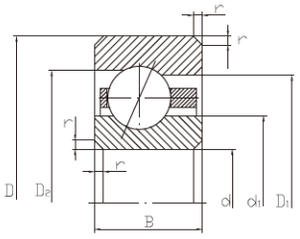
WDTSEA

Angular Contact Ball Bearing

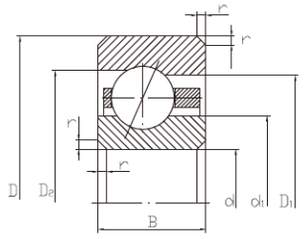
Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEAA010-TN	25.4	34.925	4.763	0.38	31.4	32.5	29	0.01	1.87	1.26	19000
WDTSEAA015-TN	38.1	47.625	4.763	0.38	44.1	45.2	41.7	0.02	2.16	1.86	13000
WDTSEAA017-TN	44.45	53.975	4.763	0.38	50.4	51.4	48	0.02	2.22	2.06	11000

With snap cage made from plastic(polyamide), for operating temperatures from −30° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

WDTSEAA-TN



WDTSEB



WDTSEC

Angular Contact Ball Bearing

Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEB020	50.8	66.675	7.938	1	60.8	62.6	56.7	0.07	5	4.2	9500
WDTSEB025	63.5	79.375	7.938	1	73.5	75.3	69.4	0.09	5.4	5.2	7600
WDTSEB030	76.2	92.075	7.938	1	86.2	88	82.1	0.11	5.7	6.1	6500
WDTSEB035	88.9	104.775	7.938	1	98.9	100.7	94.8	0.12	6.1	7.1	5500
WDTSEB040	101.6	117.475	7.938	1	111.6	113.4	107.5	0.13	6.4	8.1	4800
WDTSEB042	107.95	123.825	7.938	1	117.9	119.7	113.8	0.14	6.5	8.6	4500
WDTSEB045	114.3	130.175	7.938	1	124.3	126.1	120.2	0.15	6.6	9	4200
WDTSEB055	139.7	155.575	7.938	1	149.7	151.4	145.6	0.19	7.1	11.1	3500
WDTSEB060	152.4	168.275	7.938	1	162.3	164	158.3	0.2	7.3	12.1	3200
WDTSEB065	165.1	180.975	7.938	1	175.1	176.8	171	0.21	7.5	13	2900

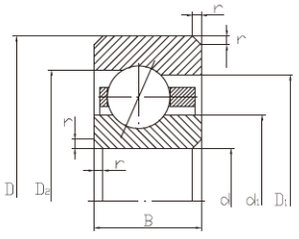
WDTSEB

Angular Contact Ball Bearing

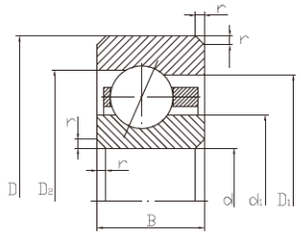
Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEC040	101.6	120.65	9.525	1	113.6	115.7	108.6	0.2	8.4	10.1	4800
WDTSEC045	114.3	133.35	9.525	1	126.3	128.3	121.3	0.22	8.8	11.4	4200
WDTSEC047	120.65	139.7	9.525	1	132.7	134.7	127.7	0.23	9	12	4000
WDTSEC050	127	146.05	9.525	1	139	141.1	134	0.26	9.2	12.6	3800
WDTSEC055	139.7	158.75	9.525	1	151.2	153.7	146.7	0.27	9.4	13.7	3500
WDTSEC060	152.4	171.45	9.525	1	164.4	166.4	159.4	0.29	9.8	15	3200
WDTSEC070	177.8	196.85	9.525	1	189.8	191.8	184.8	0.34	10.3	17.4	2700

For operating temperatures from –54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

WDTSEC



WDTSED



WDTSEF

Angular Contact Ball Bearing

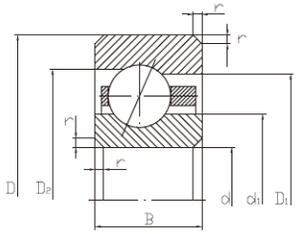
Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSED040	101.6	127	12.7	1.5	117.6	120.5	111	0.35	12.9	13.9	4800
WDTSED045	114.3	139.7	12.7	1.5	130.3	133.2	123.7	0.4	13.4	15.5	4200
WDTSED050	127	152.4	12.7	1.5	143	145.9	136.4	0.45	13.9	17.2	3800
WDTSED055	139.7	165.1	12.7	1.5	155.7	158.5	149.1	0.48	14.4	18.8	3500
WDTSED060	152.4	177.8	12.7	1.5	168.4	171.2	161.8	0.53	14.9	20.4	3200
WDTSED065	165.1	190.5	12.7	1.5	181.1	183.9	174.5	0.55	15.3	22.1	2900
WDTSED070	177.8	203.2	12.7	1.5	193.8	196.6	187.2	0.59	15.7	23.7	2700
WDTSED080	203.2	228.6	12.7	1.5	219.2	222	212.6	0.69	16.4	27	2400
WDTSED090	228.6	254	12.7	1.5	244.6	247.2	238	0.77	17.1	30.5	2100
WDTSED100	254	279.4	12.7	1.5	270	272.6	263.4	0.85	17.7	33.5	1900
WDTSED110	279.4	304.8	12.7	1.5	295.4	298	288.8	0.93	18.4	37	1800
WDTSED120	304.8	330.2	12.7	1.5	320.8	323.3	314.2	1.02	18.9	40	1600
WDTSED140	355.6	381	12.7	1.5	371.6	374	365	1.24	20	47	1400
WDTSED160	406.4	431.8	12.7	1.5	422.4	424.6	415.8	1.33	21	53	1200
WDTSED180	457.2	482.6	12.7	1.5	473.2	475.3	466.6	1.5	21.9	60	1100

WDTSED

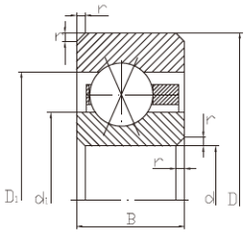
Angular Contact Ball Bearing

Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEF055	139.7	177.8	19.05	2	163.7	168	153.8	1.13	28	32	3500
WDTSEF060	152.4	190.5	19.05	2	176.4	180.7	166.5	1.22	29	35	3200
WDTSEF065	165.1	203.2	19.05	2	189.1	193.4	179.2	1.32	30	38	2900
WDTSEF070	177.8	215.9	19.05	2	201.8	206.7	191.9	1.45	30.5	41.5	2700
WDTSEF075	190.5	228.6	19.05	2	214.5	218.7	204.6	1.54	31	43.5	2500
WDTSEF080	203.2	241.3	19.05	2	227.2	231.4	217.3	1.59	32	46.5	2400
WDTSEF090	228.6	266.7	19.05	2	252.6	256.7	242.7	1.77	33.5	52	2100
WDTSEF100	254	292.1	19.05	2	278	282.1	268.1	1.95	34.5	58	1900
WDTSEF110	279.4	317.5	19.05	2	303.4	307.5	293.5	2.18	36	64	1800
WDTSEF120	304.8	342.9	19.05	2	328.8	332.8	318.9	2.36	37	69	1600

WDTSEF



WDTSEG



WDTSXA

Angular Contact Ball Bearing

Bearing Code	Dimensions							Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	D_2	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSEG060	152.4	203.2	25.4	2	184.4	190.3	171.3	2.31	45.5	51	3200
WDTSEG070	177.8	228.6	25.4	2	209.8	215.6	196.7	2.63	48	59	2700
WDTSEG075	190.5	241.3	25.4	2	222.5	228.3	209.4	2.77	49	63	2500
WDTSEG080	203.2	254	25.4	2	235.2	240.9	222.1	2.95	50	67	2400
WDTSEG090	228.6	279.4	25.4	2	260.6	266.4	247.5	3.27	52	75	2100
WDTSEG100	254	304.8	25.4	2	286	291.7	272.9	3.58	54	82	1900
WDTSEG120	304.8	355.6	25.4	2	336.8	342.4	323.6	4.3	58	98	1600

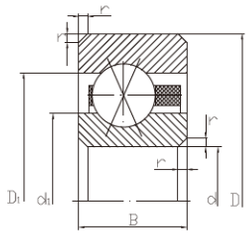
WDTSEG

Four Point Contact Ball Bearing

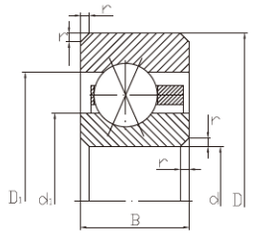
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXA020	50.8	63.5	6.35	0.6	58.8	55.5	0.05	4.65	4.6	6600
WDTSXA025	63.5	76.2	6.35	0.6	71.5	68.2	0.06	5	5.7	5100
WDTSXA030	76.2	88.9	6.35	0.6	84.2	80.9	0.07	5.3	6.8	4100
WDTSXA035	88.9	101.6	6.35	0.6	96.9	93.6	0.08	5.6	7.9	3500
WDTSXA040	101.6	114.3	6.35	0.6	109.6	106.3	0.09	5.9	9	3000
WDTSXA045	114.3	127	6.35	0.6	122.3	119	0.1	6.1	10.1	2600
WDTSXA047	120.65	133.35	6.35	0.6	128.6	125.3	0.1	6.3	10.6	2500
WDTSXA050	127	139.7	6.35	0.6	135	131.7	0.11	6.4	11.2	2300
WDTSXA055	139.7	152.4	6.35	0.6	147.7	144.4	0.11	6.6	12.3	2000
WDTSXA060	152.4	165.1	6.35	0.6	160.4	157.1	0.13	6.8	13.4	1800
WDTSXA065	165.1	177.8	6.35	0.6	173.1	169.8	0.14	7	14.5	1700
WDTSXA070	177.8	190.5	6.35	0.6	185.8	182.5	0.15	7.2	15.6	1500
WDTSXA075	190.5	203.2	6.35	0.6	198.5	195.2	0.16	7.3	16.7	1400

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.
Values are valid for a combination of axial and radial loads in a ratio Fa/Fr >= 0.8.

WDTSXA



WDTSXAA-TN



WDTSXB

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXAA010-TN	25.4	34.925	4.763	0.38	31.4	29	0.01	2.5	1.9	12000
WDTSXAA015-TN	38.1	47.625	4.763	0.38	44.1	41.7	0.02	2.85	2.7	8000
WDTSXAA017-TN	44.45	53.975	4.763	0.38	50.4	48	0.02	2.95	3.1	6900

With snap cage made from plastic(polyamide), for operating temperatures from −30° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.

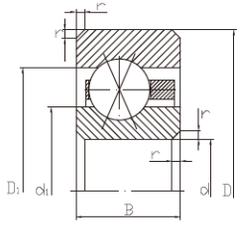
WDTSXAA-TN

Four Point Contact Ball Bearing

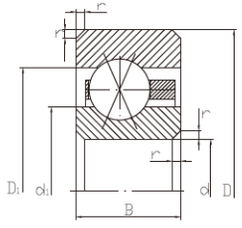
Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXB020	50.8	66.675	7.938	1	60.8	56.7	0.07	6.7	6.2	6600
WDTSXB025	63.5	79.375	7.938	1	73.5	69.4	0.09	7.2	7.7	5100
WDTSXB030	76.2	92.075	7.938	1	86.2	82.1	0.11	7.7	9.1	4100
WDTSXB035	88.9	104.775	7.938	1	98.9	94.8	0.12	8.1	10.6	3500
WDTSXB040	101.6	117.475	7.938	1	111.6	107.5	0.13	8.5	12.1	3000
WDTSXB042	107.95	123.825	7.938	1	117.9	113.8	0.14	8.6	12.6	2800
WDTSXB045	114.3	130.175	7.938	1	124.3	120.2	0.15	8.8	13.5	2600
WDTSXB055	139.7	155.575	7.938	1	149.7	145.6	0.19	9.5	16.4	2000
WDTSXB060	152.4	168.275	7.938	1	162.4	158.3	0.2	9.8	17.9	1800
WDTSXB065	165.1	180.975	7.938	1	175.1	171	0.21	10	19.4	1700
WDTSXB080	203.2	219.075	7.938	1	213.2	209.1	0.26	10.8	23.7	1300

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.
Values are valid for a combination of axial and radial loads in a ratio Fa/Fr >= 0.8.

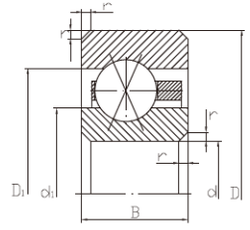
WDTSXB



WDTSXC



WDTSXF



WDTSXD

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXC040	101.6	120.65	9.525	1	113.6	108.6	0.2	10.9	14.4	3000
WDTSXC045	114.3	133.35	9.525	1	126.3	121.3	0.22	11.4	16.1	2600
WDTSXC050	127	146.05	9.525	1	139	134	0.26	11.8	17.8	2300
WDTSXC055	139.7	158.75	9.525	1	151.7	146.7	0.27	12.2	19.6	2000
WDTSXC060	152.4	171.45	9.525	1	164.4	159.4	0.29	12.6	21.3	1800
WDTSXC065	165.1	184.15	9.525	1	177.1	172.1	0.31	13	23	1600
WDTSXC070	177.8	196.85	9.525	1	189.8	184.8	0.33	13.3	24.7	1500
WDTSXC080	203.2	222.25	9.525	1	215.2	210.2	0.38	13.9	28	1300
WDTSXC090	228.6	247.65	9.525	1	240.6	235.6	0.43	14.5	31.5	1100
WDTSXC100	254	273.05	9.525	1	266	261	0.48	15.1	35	1000
WDTSXC110	279.4	298.45	9.525	1	291.4	286.4	0.53	15.6	38.5	900
WDTSXC120	304.8	323.85	9.525	1	316.8	311.8	0.57	16.2	42	800

WDTSXC

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXF040	101.6	139.7	19.05	2	125.6	115.7	0.86	33	35	2800
WDTSXF050	127	165.1	19.05	2	151	141.1	1.04	35.5	43.5	2200
WDTSXF055	139.7	177.8	19.05	2	163.7	153.8	1.13	37	47.5	2000
WDTSXF060	152.4	190.5	19.05	2	176.4	166.5	1.22	38	51	1800
WDTSXF070	177.8	215.9	19.05	2	201.8	191.9	1.45	40	60	1500
WDTSXF075	190.5	228.6	19.05	2	214.5	204.6	1.54	41	64	1400
WDTSXF080	203.2	241.3	19.05	2	227.2	217.3	1.59	42	68	1300
WDTSXF090	228.6	266.7	19.05	2	252.6	242.7	1.77	43.5	76	1100
WDTSXF100	254	292.1	19.05	2	278	268.1	1.95	45.5	84	1000
WDTSXF110	279.4	317.5	19.05	2	303.4	293.5	2.18	47	92	900
WDTSXF120	304.8	342.9	19.05	2	328.8	318.9	2.36	48.5	100	800
WDTSXF140	355.6	393.7	19.05	2	379.6	369.7	2.72	51	116	650

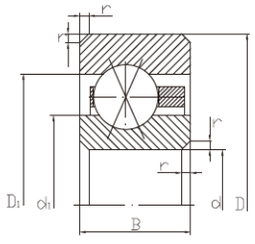
WDTSXF

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	r_{min}	D_1	d_1	≈	C_r	C_{0r}	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXD040	101.6	127	12.7	1.5	117.6	111	0.35	17.3	20.8	2900
WDTSXD045	114.3	139.7	12.7	1.5	130.3	123.7	0.4	18	23.3	2500
WDTSXD050	127	152.4	12.7	1.5	143	136.4	0.45	18.7	25.5	2200
WDTSXD055	139.7	165.1	12.7	1.5	155.7	149.1	0.48	19.3	28	2000
WDTSXD060	152.4	177.8	12.7	1.5	168.4	161.8	0.53	19.9	30.5	1800
WDTSXD065	165.1	190.5	12.7	1.5	181.1	174.5	0.55	20.5	33	1600
WDTSXD070	177.8	203.2	12.7	1.5	193.8	187.2	0.59	21	35.5	1500
WDTSXD080	203.2	228.6	12.7	1.5	219.2	212.6	0.69	22	40.5	1300
WDTSXD090	228.6	254	12.7	1.5	244.6	238	0.78	22.9	45.5	1100
WDTSXD100	254	279.4	12.7	1.5	270	263.4	0.85	23.8	50	1000
WDTSXD110	279.4	304.8	12.7	1.5	295.4	288.8	0.93	24.6	55	900
WDTSXD120	304.8	330.2	12.7	1.5	320.8	314.2	1.02	25.5	60	800
WDTSXD140	355.6	381	12.7	1.5	371.6	365	1.24	27	70	650
WDTSXD160	406.4	431.8	12.7	1.5	422.4	415.8	1.4	28	80	550
WDTSXD180	457.2	482.6	12.7	1.5	473.2	466.6	1.58	29.5	90	490

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.
Values are valid for a combination of axial and radial loads in a ratio Fa/Fr >= 0.8.

WDTSXD



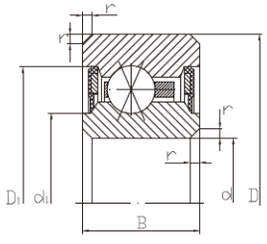
WDTSXG

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXG055	139.7	190.5	25.4	2	171.7	158.6	2.13	58	69	2000
WDTSXG060	152.4	203.2	25.4	2	184.4	171.3	2.31	61	76	1800
WDTSXG070	177.8	228.6	25.4	2	209.8	196.7	2.63	64	88	1500
WDTSXG075	190.5	241.3	25.4	2	222.5	209.4	2.77	65	92	1400
WDTSXG080	203.2	254	25.4	2	235.2	222.1	2.95	68	100	1300
WDTSXG090	228.6	279.4	25.4	2	260.6	247.5	3.27	70	112	1100
WDTSXG100	254	304.8	25.4	2	286	272.8	3.58	73	124	1000
WDTSXG120	304.8	355.6	25.4	2	336.8	323.7	4.22	78	147	800
WDTSXG140	355.6	406.4	25.4	2	387.6	374.5	4.9	82	171	650
WDTSXG160	406.4	457.2	25.4	2	438.4	425.3	5.58	86	195	550
WDTSXG180	457.2	508	25.4	2	489.2	476.1	6.21	89	219	490
WDTSXG200	508	558.8	25.4	2	540	526.9	7.16	93	242	440
WDTSXG250	635	685.8	25.4	2	667	653.9	8.85	100	300	340
WDTSXG300	762	812.8	25.4	2	794	780.8	10.57	107	360	270
WDTSXG350	889	939.8	25.4	2	921	907.8	12.3	113	420	230

For operating temperatures from −54° C to +120° C
With grease lubrication, the permissible value is taken as 70% of the value given in the table.
Values are valid for a combination of axial and radial loads in a ratio Fa/Fr >= 0.8.

WDTSXG



WDTSXU

Four Point Contact Ball Bearing

Bearing Code	Dimensions						Mass	Load rating		Limiting Speed
	d	D	B	rmin	D1	d1	≈	Cr	C0r	
	mm	mm	mm	mm	mm	mm	kg	KN	KN	1/min
WDTSXU040-2RS	101.6	120.65	12.7	0.38	115.5	105.4	0.25	10.9	14.4	1300
WDTSXU045-2RS	114.3	133.35	12.7	0.38	128.2	118.1	0.28	11.4	16.1	1200
WDTSXU050-2RS	127	146.05	12.7	0.38	140.8	130.8	0.31	11.8	17.8	1000
WDTSXU055-2RS	139.7	158.75	12.7	0.38	153.8	143.5	0.34	12.2	19.6	900
WDTSXU060-2RS	152.4	171.45	12.7	0.38	166.2	156.2	0.37	12.6	21.3	800
WDTSXU065-2RS	165.1	184.15	12.7	0.38	178.7	168.9	0.39	12.9	23	750
WDTSXU070-2RS	177.8	196.85	12.7	0.38	191.4	181.6	0.42	13.3	24.7	700
WDTSXU075-2RS	190.5	209.55	12.7	0.38	204.1	194.3	0.45	13.6	26.5	650
WDTSXU080-2RS	203.2	222.25	12.7	0.38	216.8	207	0.48	13.9	28	600
WDTSXU090-2RS	228.6	247.65	12.7	0.38	242.2	232.4	0.53	14.5	31.5	500
WDTSXU100-2RS	254	273.05	12.7	0.38	267.6	257.8	0.59	15.1	35	450
WDTSXU110-2RS	279.4	298.45	12.7	0.38	293	283.2	0.65	15.6	38.5	410

Sealed on both sides,for operating temperatures from −25° C to +120° C

WDTSXU