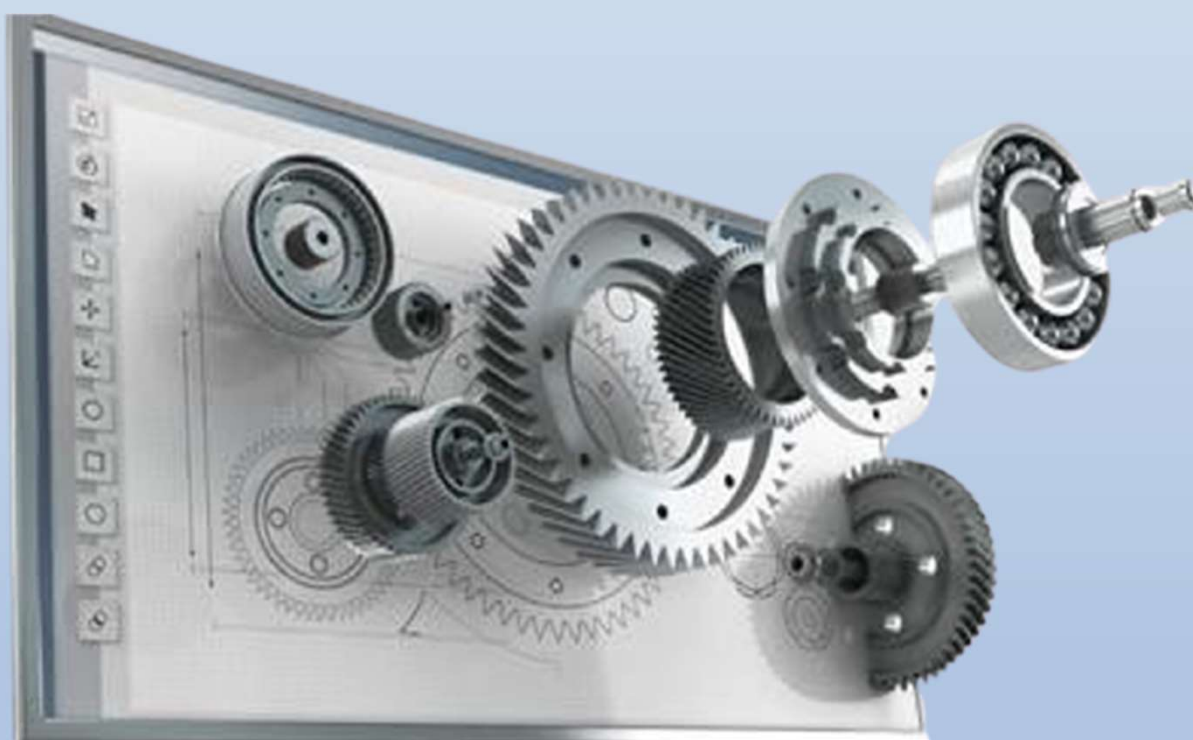


# PWR

Power & Technology

## PRECISION TECHNOLOGY

## BEARINGS



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## **PRECISION CROSS ROLLER BEARINGS**



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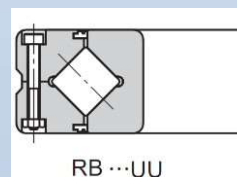
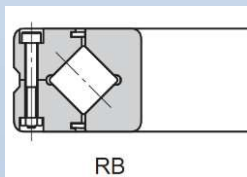
## **- Structure and characteristics of Crossed Roller Bearings**

PWR Precision Crossed Roller Bearing can be supplied with cage, with separator, and with full complement. Cage and separator types are suitable for low friction moment and high-speed rotation, while full complement is suitable for low-speed rotation and heavy load.

Following seven structure series are available: RB, RE, RU, RA, RA-C, CRB and CRBH.

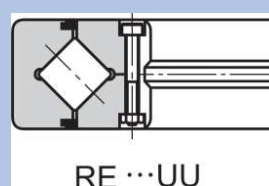
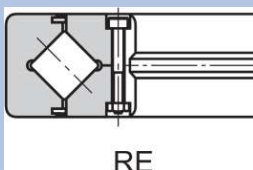
### **RB Series**

RB series are basic type of crossed roller bearing with the minimal dimensions of inner ring and outer ring. The split structure of outer ring together with integral inner ring makes it suitable to where high rotational accuracy of the inner ring is required. RB series include two types: RB (open type) and RB···UU (two sides sealed type).



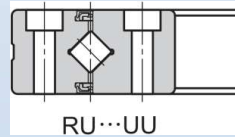
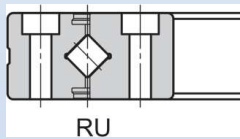
### **RE Series**

The main dimensions of RE series are the same as RB series with the structure of split inner ring and integral outer ring, which especially meets the requirement of high rotational accuracy of outer ring. RE series include two types: RE (open type) and RE···UU (two sides sealed type).



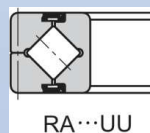
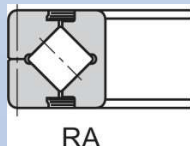
## **RU Series**

Because of the IR and OR mounting hole of RU series, fixing flange and housing are not required. In addition, because of the integrated structure of inner ring and outer ring with housing, there is no influence on performance while mounting, therefore, stable rotational accuracy and torque are acquired. These series are suitable to the rotation of outer ring and inner ring. RU series include two types: RU (open type) and RU...UU (two sides sealed type). PWR can also supply RU...U(one side sealed type) on customers' requirements.



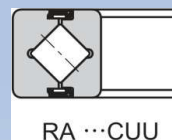
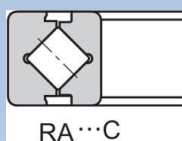
## **RA Series**

The structure of RA series is more compact through minimizing the width of inner ring and outer ring, which is suitable where small load and compact design are required, such as robot and rotating parts of manipulators. RA series include two types: RA (open type) and RA...UU (two sides sealed type).



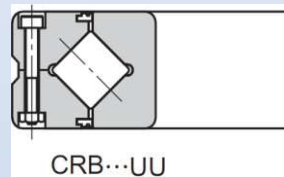
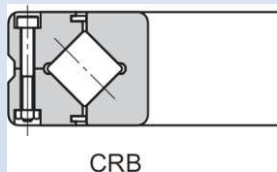
## **RA-C Series**

The main dimensions of RA-C series are the same as RA series. The gap design on outer ring and the high rigidity of outer ring make it suitable to outer ring rotation. RA-C series include two types: RA...C (open type) and RA...CUU (two sides sealed type).



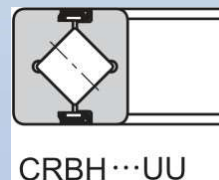
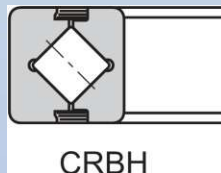
## **CRB Series**

CRB series are full complement type without cage, adopting separable outer ring and integrally designed inner ring, which is suitable to where high rotational accuracy of the inner ring and heavy load are required. CRB series include two types: CRB (open type) and CRB...UU (two sides sealed type).



## **CRBH Series**

CRBH series, the inner ring and outer ring of which both have integrated structure, are suitable to the rotation of outer ring and inner ring. CRBH series include two types: CRBH (open type) and CRBH...UU (two sides sealed type).



## **SX Series**

Similar to CRBH, but with thinner cross section.

## **- Accuracy of Crossed Roller Bearing**

Standard accuracy of PWR Precision Crossed Roller Bearing is ISO P5 (equivalent to ABEC 5); PWR also supplies P4 and P4A (equivalent to ABEC 7, rotational accuracy is equivalent to ABEC 9 in P4A class) and ISO P2 (equivalent to ABEC 9).

**INNER RING'S RADIAL AND AXIAL RUNOUT**

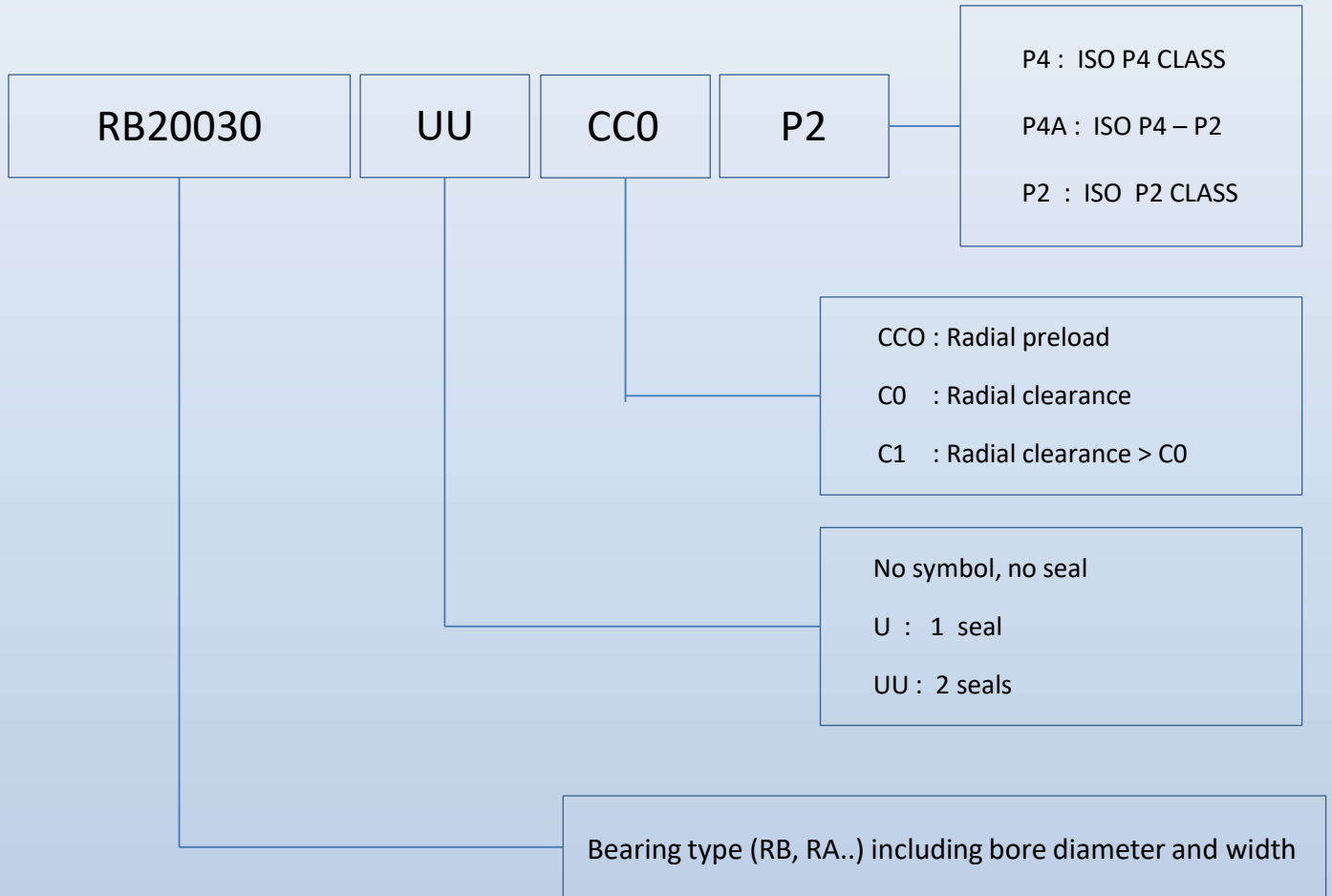
Nominal bore diameter D mm		P5 Class		P4 Class		P2 Class	
		K <sub>ia</sub>	S <sub>ia</sub>	K <sub>ia</sub>	S <sub>ia</sub>	K <sub>ia</sub>	S <sub>ia</sub>
		[μm]	[μm]	[μm]	[μm]	[μm]	[μm]
from	Up to	Max	Max	Max	Max	Max	Max
<b>18</b>	<b>30</b>	4	4	3	4	2.5	2.5
<b>30</b>	<b>50</b>	5	5	4	4	2.5	2.5
<b>50</b>	<b>80</b>	5	5	4	5	2.5	2.5
<b>80</b>	<b>120</b>	6	6	5	5	2.5	2.5
<b>120</b>	<b>150</b>	8	8	6	6	2.5	2.5
<b>150</b>	<b>180</b>	8	8	6	6	5	5
<b>180</b>	<b>250</b>	10	10	8	8	5	5
<b>250</b>	<b>315</b>	13	13	10	10	5	5
<b>315</b>	<b>400</b>	15	15	12	12	-	-
<b>400</b>	<b>500</b>	18	18	14	14	-	-
<b>500</b>	<b>630</b>	20	20	16	16	-	-

**OUTER RING'S RADIAL AND AXIAL RUNOUT**

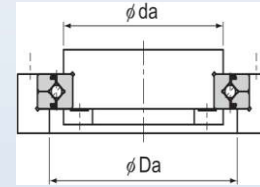
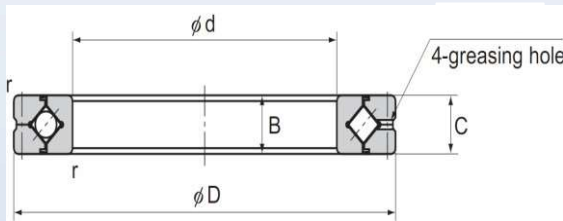
Nominal bore diameter D mm		P5 Class		P4 Class		P2 Class	
		K <sub>ea</sub>	S <sub>ea</sub>	K <sub>ea</sub>	S <sub>ea</sub>	K <sub>ea</sub>	S <sub>ea</sub>
		[μm]	[μm]	[μm]	[μm]	[μm]	[μm]
from	Up to	Max	Max	Max	Max	Max	Max
<b>30</b>	<b>50</b>	7	7	5	5	2.5	2.5
<b>50</b>	<b>80</b>	8	8	5	5	4	4
<b>80</b>	<b>120</b>	10	10	6	6	5	5
<b>120</b>	<b>150</b>	11	11	7	7	5	5
<b>150</b>	<b>180</b>	13	13	8	8	5	5
<b>180</b>	<b>250</b>	15	15	10	10	7	7
<b>250</b>	<b>315</b>	18	18	11	11	7	7
<b>315</b>	<b>400</b>	20	20	13	13	8	8
<b>400</b>	<b>500</b>	23	23	15	15	-	-
<b>500</b>	<b>630</b>	25	25	16	16	-	-
<b>630</b>	<b>800</b>	30	30	20	20	-	-



**RB, RE, RA e RA-C BEARING DESIGNATION**

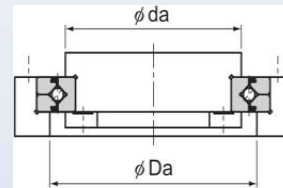
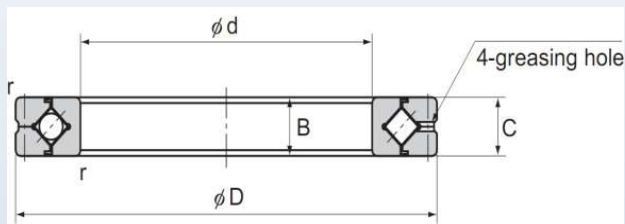


**RB SERIE**



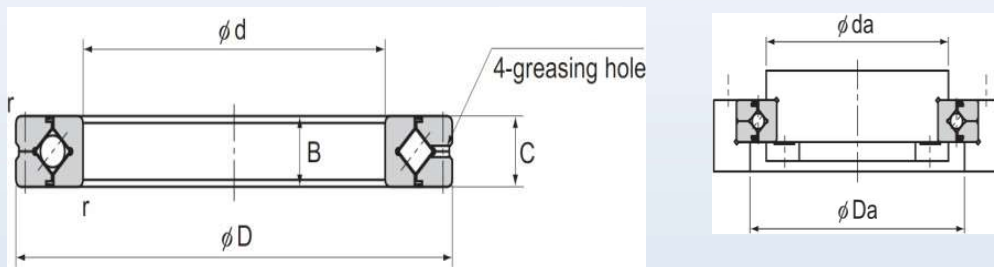
RB	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RB 2008</b>	20	36	8	0.5	23.5	30.5	3.23	3.1	0.04
<b>RB 2508</b>	25	41	8	0.5	28.5	35.5	3.63	3.83	0.05
<b>RB 3010</b>	30	55	10	0.6	37	47	7.35	8.36	0.12
<b>RB 3510</b>	35	60	10	0.6	41	51.5	7.64	9.12	0.13
<b>RB 4010</b>	40	65	10	0.6	47.5	57.5	8.33	10.6	0.16
<b>RB 4510</b>	45	70	10	0.6	51	61.5	8.62	11.3	0.17
<b>RB 5013</b>	50	80	13	0.6	57.4	72	16.7	20.9	0.27
<b>RB 6013</b>	60	90	13	0.6	68	82	18	24.3	0.3
<b>RB 7013</b>	70	100	13	0.6	78	92	19.4	27.7	0.35
<b>RB 8016</b>	80	120	16	0.6	91	111	30.1	42.1	0.7
<b>RB 9016</b>	90	130	16	1	98	118	31.4	45.3	0.75
<b>RB 10016</b>	100	140	16	1	109	129	31.7	48.6	0.83
<b>RB10020</b>	100	150	20	1	113	133	33.1	50.9	1.45
<b>RB11012</b>	100	135	12	0.6	117	127	12.5	24.1	0.4
<b>RB 11015</b>	110	145	15	0.6	122	136	23.7	41.5	0.75
<b>RB 11020</b>	110	160	20	1	120	143	34	54	1.56
<b>RB 12016</b>	120	150	16	0.6	127	141	24.2	43.2	0.72
<b>RB 12025</b>	120	180	25	1.5	133	164	66.9	100	2.62
<b>RB 13015</b>	130	160	15	0.6	137	152	25	46.7	0.72
<b>RB 13025</b>	130	190	25	1.5	143	174	69.5	107	2.82

**RB SERIE**



RB	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RB 14016</b>	140	175	16	2.5	147	162	25.9	50.1	1
<b>RB 14025</b>	140	200	25	3.5	154	185	74.8	121	2.96
<b>RB 15013</b>	150	180	13	2.5	157	172	27	53.5	0.68
<b>RB 15025</b>	150	210	25	3.5	164	194	76.8	128	3.16
<b>RB 15030</b>	150	230	30	4.5	173	211	100	156	5.3
<b>RB 16025</b>	160	220	25	3.5	173	204	81.7	135	3.14
<b>RB 17020</b>	170	220	20	3.5	184	198	29	62.1	2.21
<b>RB 18025</b>	180	240	25	3.5	195	225	84	143	3.44
<b>RB 19025</b>	190	240	25	3.5	202	222	41.7	82.9	2.99
<b>RB 20025</b>	200	260	25	3.5	215	245	84.2	157	4
<b>RB 20030</b>	200	280	30	4.5	221	258	114	200	6.7
<b>RB 20035</b>	200	295	35	5	225	270	151	252	9.6
<b>RB 22025</b>	220	280	25	3.5	235	265	92.3	171	4.1
<b>RB 24025</b>	240	300	25	3.5	256	281	68.3	145	4.5
<b>RB 25025</b>	250	310	25	3.5	265	290	69.3	150	5
<b>RB 25030</b>	250	330	30	4.5	269	306	126	244	8.1
<b>RB 25040</b>	250	355	40	6	275	326	195	348	14.8
<b>RB 30025</b>	300	360	25	3.5	315	340	76.3	178	5.9
<b>RB 30035</b>	300	395	35	5	322	368	183	367	13.4
<b>RB 30040</b>	300	405	40	6	326	377	212	409	17.2

**RB SERIE**



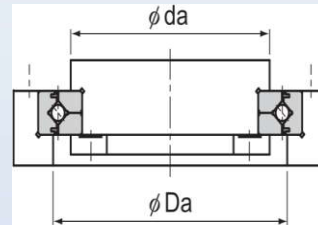
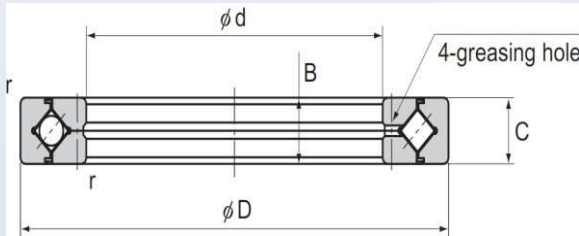
RB	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RB 40035</b>	400	480	35	2.5	422	459	156	370	14.5
<b>RB 40040</b>	400	510	40	2.5	428	479	241	531	23.5
<b>RB 45025</b>	150	500	25	1	464	484	61.7	182	6.6
<b>RB 50025</b>	500	550	25	1	514	534	65.5	201	7.3
<b>RB 50040</b>	500	600	40	2.5	526	572	239	607	26
<b>RB 50050</b>	500	625	50	2.5	536	587	267	653	41.7
<b>RB 60040</b>	600	700	40	3	627	673	264	721	29
<b>RB 70045</b>	700	815	45	3	731	777	281	836	46
<b>RB 80070</b>	800	950	70	4	836	900	468	1330	105
<b>RB 90070</b>	900	1050	70	4	937	1001	494	1490	120
<b>RB 1000110</b>	1000	1250	110	5	1057	1171	1220	3220	360
<b>RB 1250110</b>	1250	1500	110	5	1308	1423	1350	3970	440

## RB SERIE RADIAL PRELOAD

Bearing Pitch Diameter		CC0		C0		C1	
d [mm]		Class [μm]		Class [μm]		Class [μm]	
from	Up to	min	Max	min	Max	min	Max
<b>18</b>	<b>30</b>	-8	0	0	15	15	35
<b>30</b>	<b>50</b>	-8	0	0	25	25	50
<b>50</b>	<b>80</b>	-10	0	0	30	30	60
<b>80</b>	<b>120</b>	-10	0	0	40	40	70
<b>120</b>	<b>140</b>	-10	0	0	40	40	80
<b>140</b>	<b>160</b>	-10	0	0	40	40	90
<b>160</b>	<b>180</b>	-10	0	0	50	50	100
<b>180</b>	<b>200</b>	-15	0	0	50	50	110
<b>200</b>	<b>225</b>	-15	0	0	60	60	120
<b>225</b>	<b>250</b>	-15	0	0	60	60	130
<b>250</b>	<b>280</b>	-15	0	30	80	80	150
<b>280</b>	<b>315</b>	-15	0	30	100	100	170
<b>315</b>	<b>355</b>	-15	0	30	110	110	190
<b>355</b>	<b>400</b>	-15	0	30	120	120	210
<b>400</b>	<b>450</b>	-20	0	30	130	130	230
<b>450</b>	<b>500</b>	-20	0	30	130	130	250
<b>500</b>	<b>560</b>	-20	0	30	150	150	280
<b>560</b>	<b>630</b>	-20	0	40	170	170	310
<b>630</b>	<b>710</b>	-20	0	40	190	190	350
<b>710</b>	<b>800</b>	-30	0	40	210	210	390
<b>800</b>	<b>900</b>	-30	0	40	230	230	430
<b>900</b>	<b>1000</b>	-30	0	50	260	260	480
<b>1000</b>	<b>1120</b>	-30	0	60	290	290	530
<b>1120</b>	<b>1250</b>	-30	0	60	320	320	580
<b>1250</b>	<b>1400</b>	-30	0	70	350	350	630

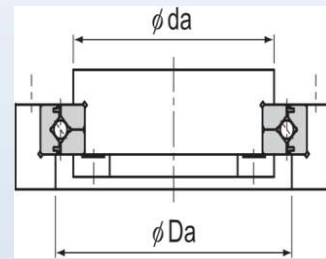
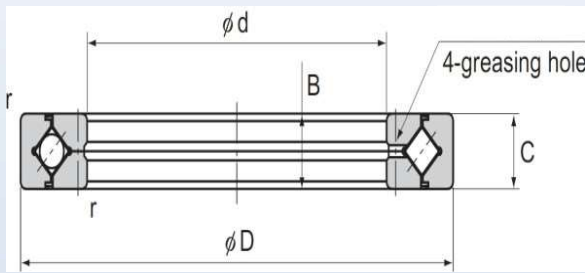
NOTE: Negative values refer to radial clearance.

**RE SERIE**



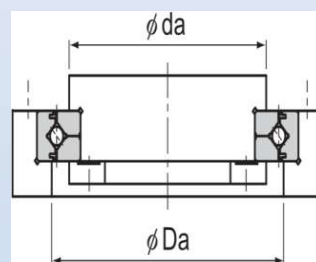
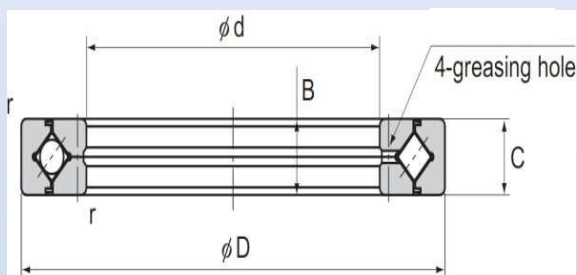
RE	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RE 2008</b>	20	36	8	0.5	23.5	30.5	3.23	3.1	0.04
<b>RE 2508</b>	25	41	8	0.5	28.5	35.5	3.63	3.83	0.05
<b>RE 3010</b>	30	55	10	0.6	37	47	7.35	8.36	0.12
<b>RE 3510</b>	35	60	10	0.6	41	51.5	7.64	9.12	0.13
<b>RE 4010</b>	40	65	10	0.6	47.5	58	8.33	10.6	0.16
<b>RE 4510</b>	45	70	10	0.6	51	61.5	8.62	11.3	0.17
<b>RE 5013</b>	50	80	13	0.6	57.5	72	16.7	20.9	0.27
<b>RE 6013</b>	60	90	13	0.6	68	82	18	24.3	0.3
<b>RE 7013</b>	70	100	13	0.6	78	92	19.4	27.7	0.35
<b>RE 8016</b>	80	120	16	0.6	91	111	30.1	42.1	0.7
<b>RE 9016</b>	90	130	16	1	98	118	31.4	45.3	0.75
<b>RE 10016</b>	100	140	16	1	109	129	31.7	48.6	0.83
<b>RE 10020</b>	100	150	20	1	113	133	33.1	50.9	1.45
<b>RE 11012</b>	110	135	12	0.6	117	127	12.5	24.1	0.4
<b>RE 11015</b>	110	145	15	0.6	122	136	23.7	41.5	0.75
<b>RE 11020</b>	120	160	20	1	120	140	34	54	1.56
<b>RE 12016</b>	120	150	16	0.6	127	141	24.2	43.2	0.72
<b>RE 12025</b>	120	180	25	1.5	133	164	66.9	100	2.62
<b>RE 13015</b>	130	160	15	0.6	137	152	25	46.7	0.72
<b>RE 13025</b>	130	190	25	1.5	143	174	69.5	107	2.82

**RE SERIE**



RE	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RE 14016</b>	140	175	16	1	147	162	25.9	50.1	1
<b>RE 14025</b>	140	200	25	1.5	154	185	74.8	121	2.96
<b>RE 15013</b>	150	180	13	0.6	158	172	27	53.5	0.68
<b>RE 15025</b>	150	210	25	1.5	164	194	76.8	128	3.16
<b>RE 15030</b>	150	230	30	1.5	173	210	100	156	5.3
<b>RE 16025</b>	160	220	25	1.5	173	204	81.7	135	3.14
<b>RE 17020</b>	170	220	20	1.5	184	198	29	62.1	2.21
<b>RE 18025</b>	180	240	25	1.5	195	225	84	143	3.44
<b>RE 19025</b>	190	240	25	1	202	222	41.7	82.9	2.99
<b>RE 20025</b>	200	260	25	2	215	245	84.2	157	4
<b>RE 20030</b>	200	280	30	2	221	258	114	200	6.7
<b>RE 20035</b>	200	295	35	2	225	270	151	252	9.6
<b>RE 22025</b>	220	280	25	2	235	265	92.3	171	4.1
<b>RE 24025</b>	240	300	25	2.5	256	281	68.3	145	4.5
<b>RE 25025</b>	250	310	25	2.5	268	293	69.3	150	5
<b>RE 25030</b>	250	330	30	2.5	269	306	126	244	8.1
<b>RE 25040</b>	250	355	40	2.5	275	326	195	348	14.8
<b>RE 30025</b>	300	360	25	2.5	319	344	75.5	178	5.9
<b>RE 30035</b>	300	395	35	2.5	322	368	183	367	13.4
<b>RE 30040</b>	300	405	40	2.5	326	377	212	409	17.2

**RE SERIE**



RE	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RE 40035</b>	400	480	35	2.5	422	459	156	370	14.5
<b>RE 40040</b>	400	510	40	2.5	428	479	241	531	23.5
<b>RE 45025</b>	450	500	25	1	464	484	61.7	182	6.6
<b>RE 50025</b>	500	550	25	1	514	534	65.5	201	7.3
<b>RE 50040</b>	500	600	40	2.5	526	572	239	607	26
<b>RE 50050</b>	500	625	50	2.5	536	587	267	653	41.7
<b>RE 60040</b>	600	700	40	3	627	673	264	721	29

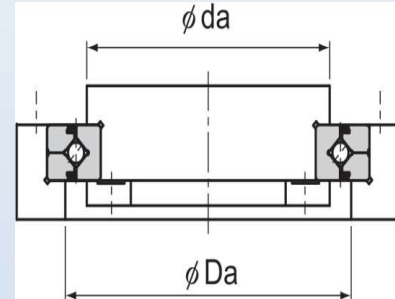
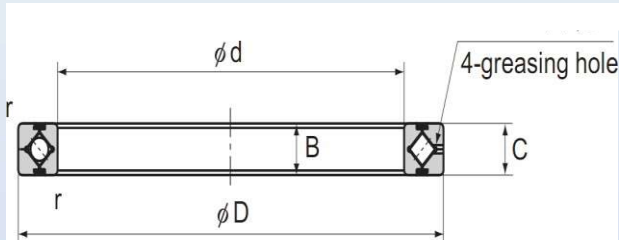


## RE SERIE RADIAL PRELOAD

Bearing Pitch diameter D [mm]		CC0 Class [μm]		C0 Class [μm]		C1 Class [μm]	
from	Up to	min	Max	min	Max	min	Max
<b>18</b>	<b>30</b>	-8	0	0	15	15	35
<b>30</b>	<b>50</b>	-8	0	0	25	25	50
<b>50</b>	<b>80</b>	-10	0	0	30	30	60
<b>80</b>	<b>120</b>	-10	0	0	40	40	70
<b>120</b>	<b>140</b>	-10	0	0	40	40	80
<b>140</b>	<b>160</b>	-10	0	0	40	40	90
<b>160</b>	<b>180</b>	-10	0	0	50	50	100
<b>180</b>	<b>200</b>	-15	0	0	50	50	110
<b>200</b>	<b>225</b>	-15	0	0	60	60	120
<b>225</b>	<b>250</b>	-15	0	0	60	60	130
<b>250</b>	<b>280</b>	-15	0	30	80	80	150
<b>280</b>	<b>315</b>	-15	0	30	100	100	170
<b>315</b>	<b>355</b>	-15	0	30	110	110	190
<b>355</b>	<b>400</b>	-15	0	30	120	120	210
<b>400</b>	<b>450</b>	-20	0	30	130	130	230
<b>450</b>	<b>500</b>	-20	0	30	130	130	250
<b>500</b>	<b>560</b>	-20	0	30	150	150	280
<b>560</b>	<b>630</b>	-20	0	40	170	170	310
<b>630</b>	<b>710</b>	-20	0	40	190	190	350
<b>710</b>	<b>800</b>	-30	0	40	210	210	390
<b>800</b>	<b>900</b>	-30	0	40	230	230	430
<b>900</b>	<b>1000</b>	-30	0	50	260	260	480
<b>1000</b>	<b>1120</b>	-30	0	60	290	290	530
<b>1120</b>	<b>1250</b>	-30	0	60	320	320	580
<b>1250</b>	<b>1400</b>	-30	0	70	350	350	630

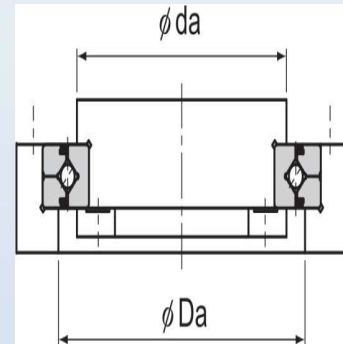
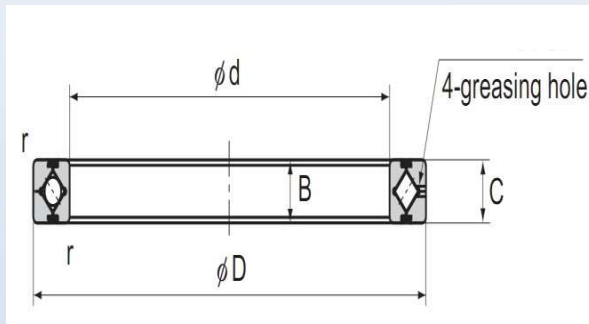
NOTE: Negative values refer to radial clearance.

## RA SERIE



RA	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RA 5008</b>	50	66	8	0.5	53.5	60.5	5.1	7.19	0.08
<b>RA 6008</b>	60	76	8	0.5	63.5	70.5	5.68	8.68	0.09
<b>RA 7008</b>	70	86	8	0.5	73.5	80.5	5.98	9.8	0.1
<b>RA 8008</b>	80	96	8	0.5	83.5	90.5	6.37	11.3	0.11
<b>RA 9008</b>	90	106	8	0.5	93.5	100.5	6.76	12.4	0.12
<b>RA 10008</b>	100	116	8	0.5	103.5	110.5	7.15	13.9	0.14
<b>RA 11008</b>	110	126	8	0.5	113.5	120.5	7.45	15	0.15
<b>RA 12008</b>	120	136	8	0.5	123.5	130.5	7.84	16.5	0.17
<b>RA 13008</b>	130	146	8	0.5	133.5	140.5	7.94	17.6	0.18
<b>RA 14008</b>	140	156	8	0.5	143.5	150.5	8.33	19.1	0.19
<b>RA 15008</b>	150	166	8	0.5	153.5	160.5	8.82	20.6	0.2
<b>RA 16013</b>	160	186	13	0.8	165	179	23.3	44.9	0.59
<b>RA 17013</b>	170	196	13	0.8	175	189	23.5	46.5	0.64
<b>RA 18013</b>	180	206	13	0.8	185	199	24.5	49.8	0.68
<b>RA 19013</b>	190	216	13	0.8	195	209	24.9	51.5	0.69
<b>RA 20013</b>	200	226	13	0.8	205	219	25.8	54.7	0.71

## RA-C SERIE



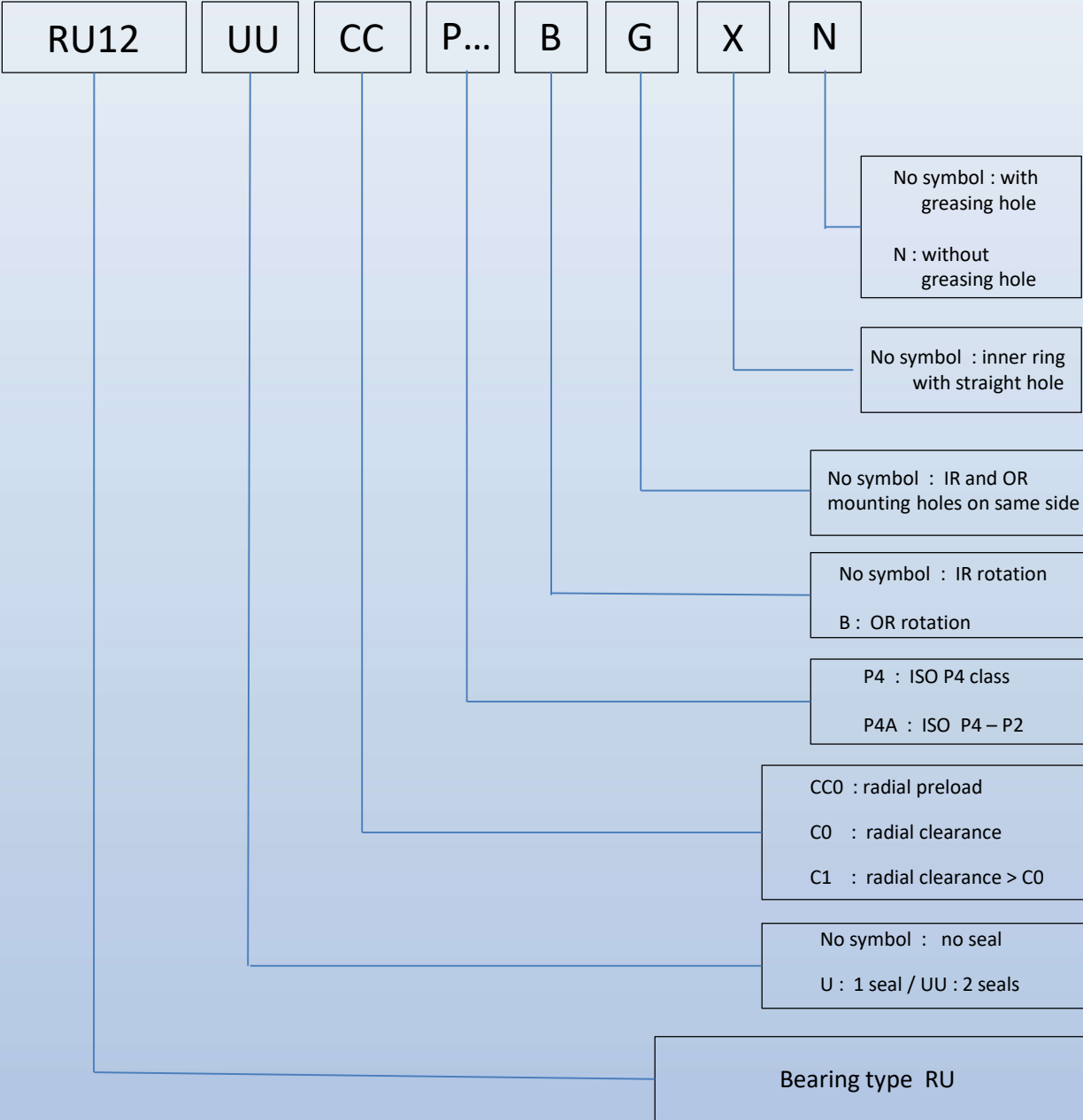
RA-C	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RA 5008C</b>	50	66	8	0.5	53.5	60.5	5.1	7.19	0.08
<b>RA 6008C</b>	60	76	8	0.5	63.5	70.5	5.68	8.68	0.09
<b>RA 7008C</b>	70	86	8	0.5	73.5	80.5	5.98	9.8	0.1
<b>RA 8008C</b>	80	96	8	0.5	83.5	90.5	6.37	11.3	0.11
<b>RA 9008C</b>	90	106	8	0.5	93.5	100.5	6.76	12.4	0.12
<b>RA 10008C</b>	100	116	8	0.5	103.5	110.5	7.15	13.9	0.14
<b>RA 11008C</b>	110	126	8	0.5	113.5	120.5	7.45	15	0.15
<b>RA 12008C</b>	120	136	8	0.5	123.5	130.5	7.84	16.5	0.17
<b>RA 13008C</b>	130	146	8	0.5	133.5	140.5	7.94	17.6	0.18
<b>RA 14008C</b>	140	156	8	0.5	143.5	150.5	8.33	19.1	0.19
<b>RA 15008C</b>	150	166	8	0.5	153.5	160.5	8.82	20.6	0.2
<b>RA 16013C</b>	160	186	13	0.8	165	179	23.3	44.9	0.59
<b>RA 17013C</b>	170	196	13	0.8	175	189	23.5	46.5	0.64
<b>RA 18013C</b>	180	206	13	0.8	185	199	24.5	49.8	0.68
<b>RA 19013C</b>	190	216	13	0.8	195	209	24.9	51.5	0.69
<b>RA 20013C</b>	200	226	13	0.8	205	219	25.8	54.7	0.71

## RA / RA-C SERIE RADIAL PRELOAD

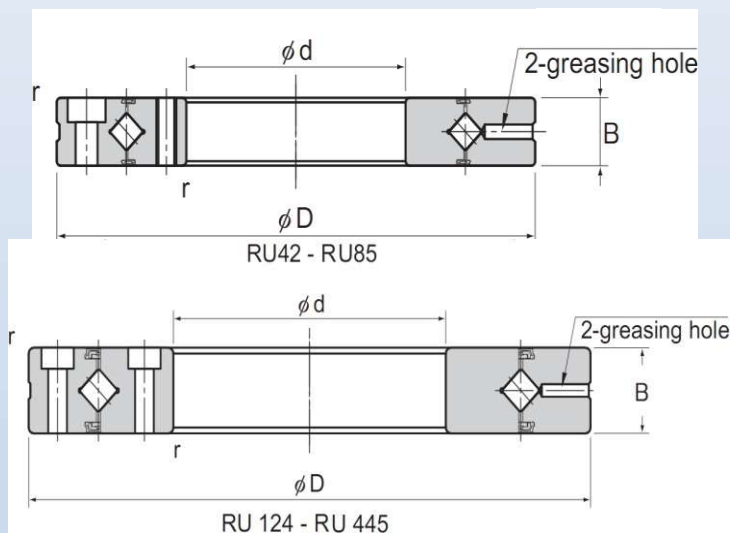
Bearing Pitch diameter d[mm]		CC0 Class [μm]		C0 Class [μm]	
from	Up to	min	Max	minx	Max
<b>50</b>	<b>80</b>	-8	0	0	15
<b>80</b>	<b>120</b>	-8	0	0	15
<b>120</b>	<b>140</b>	-8	0	0	15
<b>140</b>	<b>160</b>	-8	0	0	15
<b>160</b>	<b>180</b>	-10	0	0	20
<b>180</b>	<b>200</b>	-10	0	0	20
<b>200</b>	<b>225</b>	-10	0	0	20

NOTE: Negative values refer to radial clearance.

**RU BEARING DESIGNATION**

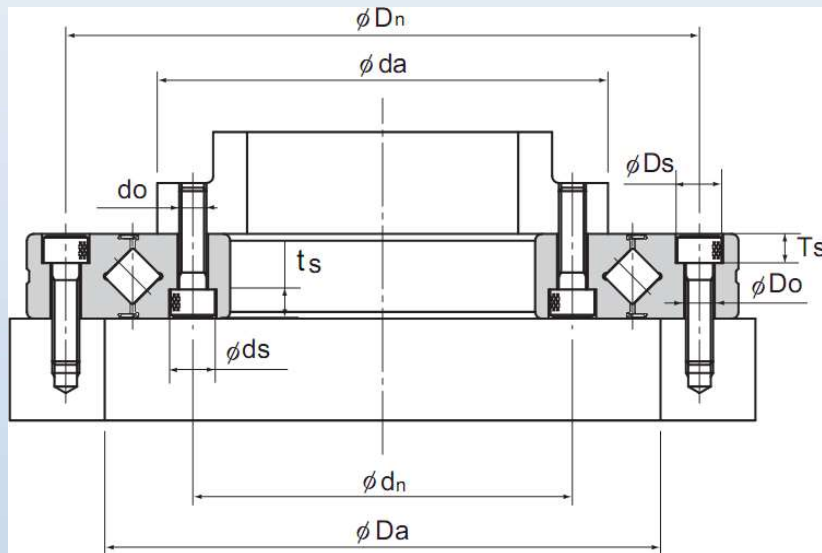


## RU SERIE



RU	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>RU42</b>	20	70	12	0.6	37	47	7.35	8.35	0.29
<b>RU66</b>	35	95	15	0.6	59	74	17.5	22.3	0.62
<b>RU85</b>	55	120	15	0.6	79	93	20.3	29.5	1
<b>RU124(G) X</b>	80	165	22	1	114	134	33.1	50.9	2.6
<b>RU148(G) X</b>	90	210	25	1.5	133	162	49.1	76.8	4.9
<b>RU178(G) X</b>	115	240	28	1.5	161	195	80.3	135	6.8
<b>RU228(G) X</b>	160	295	35	2	208	246	104	172	11.4
<b>RU297(G) X</b>	210	380	40	2.5	272	320	156	281	21.3
<b>RU445(G) X</b>	350	540	45	2.5	417	473	222	473	35.4

## RU SERIE



Mounting holes										
Inner ring [mm]					Outer ring [mm]					RU
$d_n$	$d_o$	$d_s$	$t_s$	$n$	$D_n$	$D_o$	$D_s$	$T_s$	$N$	
28	M3			6	57	3.4	6.5	3.3	6	<b>RU42</b>
45	M4			8	83	4.5	8	4.4	8	<b>RU66</b>
65	M5			8	105	5.5	9.5	5.4	8	<b>RU85</b>
97	$\phi 5.5$ M5	9.5	5.4	10	148	5.5	9.5	5.4	10	<b>RU124(G) X</b>
112	$\phi 9$ M8	14	8.6	12	187	9	15	8.6	12	<b>RU148(G) X</b>
139	$\phi 9$ M8	14	8.6	12	217	19	14	8.6	12	<b>RU178(G) X</b>
184	$\phi 11$ M10	17.5	10.8	12	270	11	17.5	10.8	12	<b>RU228(G) X</b>
240	$\phi 14$ M12	20	13	16	350	14	20	13	16	<b>RU297(G) X</b>
385	$\phi 14$ M12	20	13	24	505	14	20	13	24	<b>RU445(G) X</b>

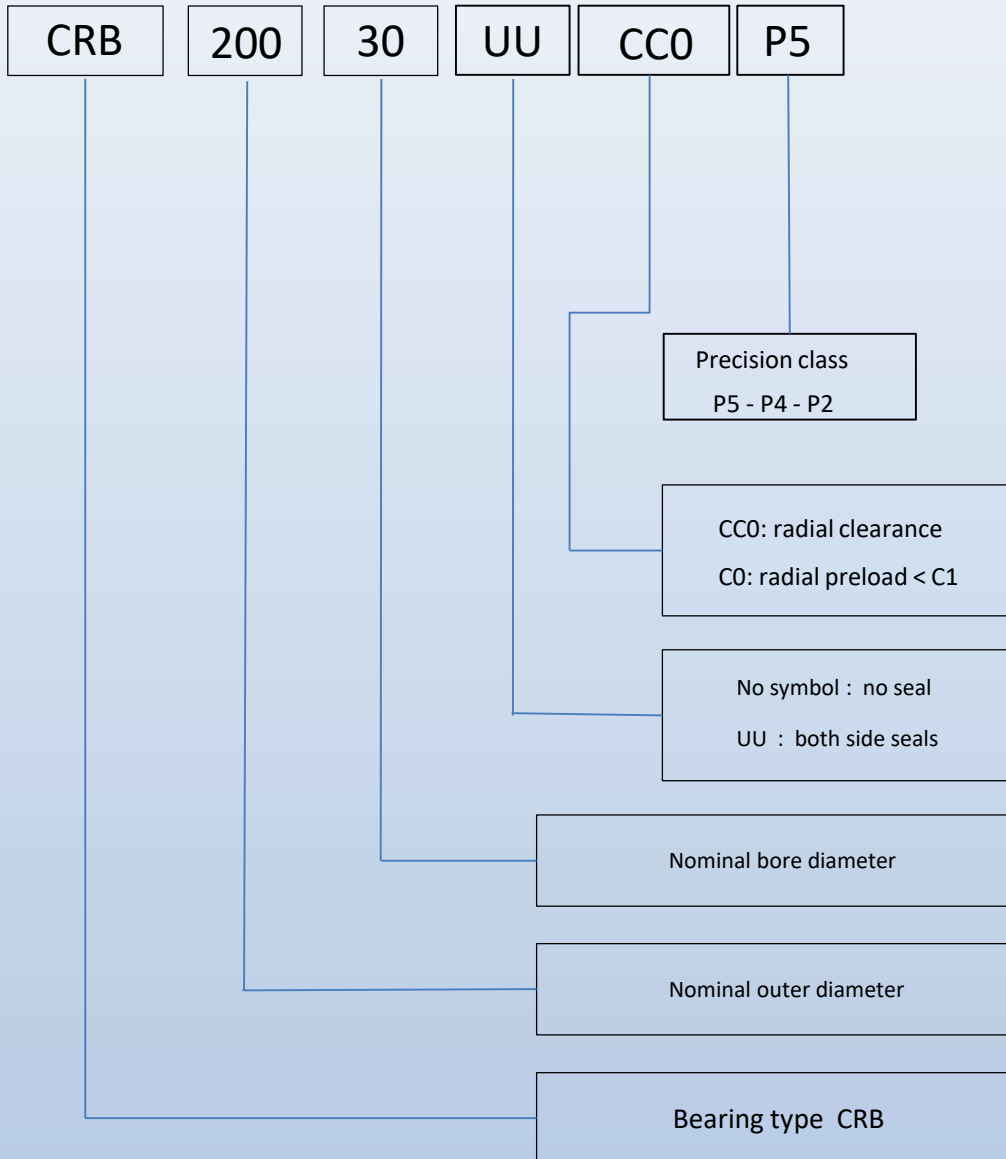
## RU SERIE RADIAL PRELOAD

Bearing type	CC0 Class		C0 Class	
	Starting torque [Nm]		Radial clearance [µm]	
	min	Max	min	Max
<b>RU42</b>	0.1	0.5	0	25
<b>RU66</b>	0.3	2.2	0	30
<b>RU85</b>	0.4	3	0	40
<b>RU124(G) X</b>	1	6	0	40
<b>RU148(G) X</b>	1	10	0	40
<b>RU178(G) X</b>	3	15	0	50
<b>RU228(G) X</b>	5	20	0	60
<b>RU297(G) X</b>	10	35	0	70
<b>RU445(G) X</b>	20	55	0	100

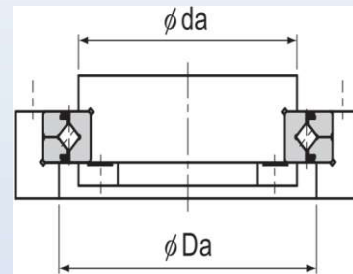
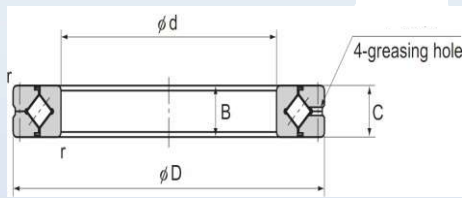
NOTE: Starting torque does not include seals friction.



**CRB BEARING DESIGNATION**

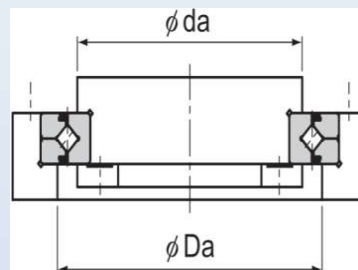
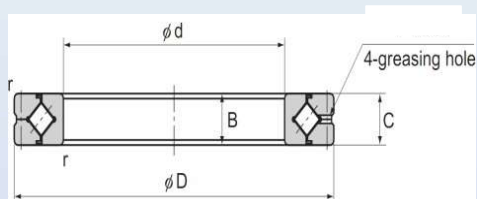


## CRB SERIE



CRB	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>CRB 3010</b>	30	55	10	0.3	34	44	5.29	6.35	0.12
<b>CRB 4010</b>	40	65	10	0.3	44	54	5.98	8.04	0.15
<b>CRB 5013</b>	50	80	13	0.6	55	71	14.2	18.4	0.29
<b>CRB 6013</b>	60	90	13	0.6	64	81	15.4	21.5	0.33
<b>CRB 7013</b>	70	100	13	0.6	75	91	17	25.5	0.38
<b>CRB 8016</b>	80	120	16	0.6	86	107	24.3	37.5	0.74
<b>CRB 9016</b>	90	130	16	1	98	118	25.9	42.1	0.81
<b>CRB 10020</b>	100	150	20	1	108	134	39.4	61.1	1.45
<b>CRB 11020</b>	110	160	20	1	118	144	41.2	66	1.56
<b>CRB 12025</b>	120	180	25	1.5	132	164	59.9	95.4	2.62
<b>CRB 13025</b>	130	190	25	1.5	140	172	61	99.8	2.82
<b>CRB 14025</b>	140	200	25	1.5	151	183	64.1	108	2.96
<b>CRB 15025</b>	150	210	25	1.5	160	192	65	113	3.16
<b>CRB 15030</b>	150	230	30	1.5	166	202	85.9	144	5.3
<b>CRB 20025</b>	200	260	25	2	208	239	75.3	148	4.0
<b>CRB 20030</b>	200	280	30	2	218	262	133	234	6.7
<b>CRB 20035</b>	200	295	35	2	221	274	168	282	9.58
<b>CRB 25025</b>	250	310	25	2.5	259	290	83.9	183	4.97
<b>CRB 25030</b>	250	330	30	2.5	265	310	146	283	8.1
<b>CRB 25040</b>	250	355	40	2.5	271	330	215	382	14.8

## CRB SERIE



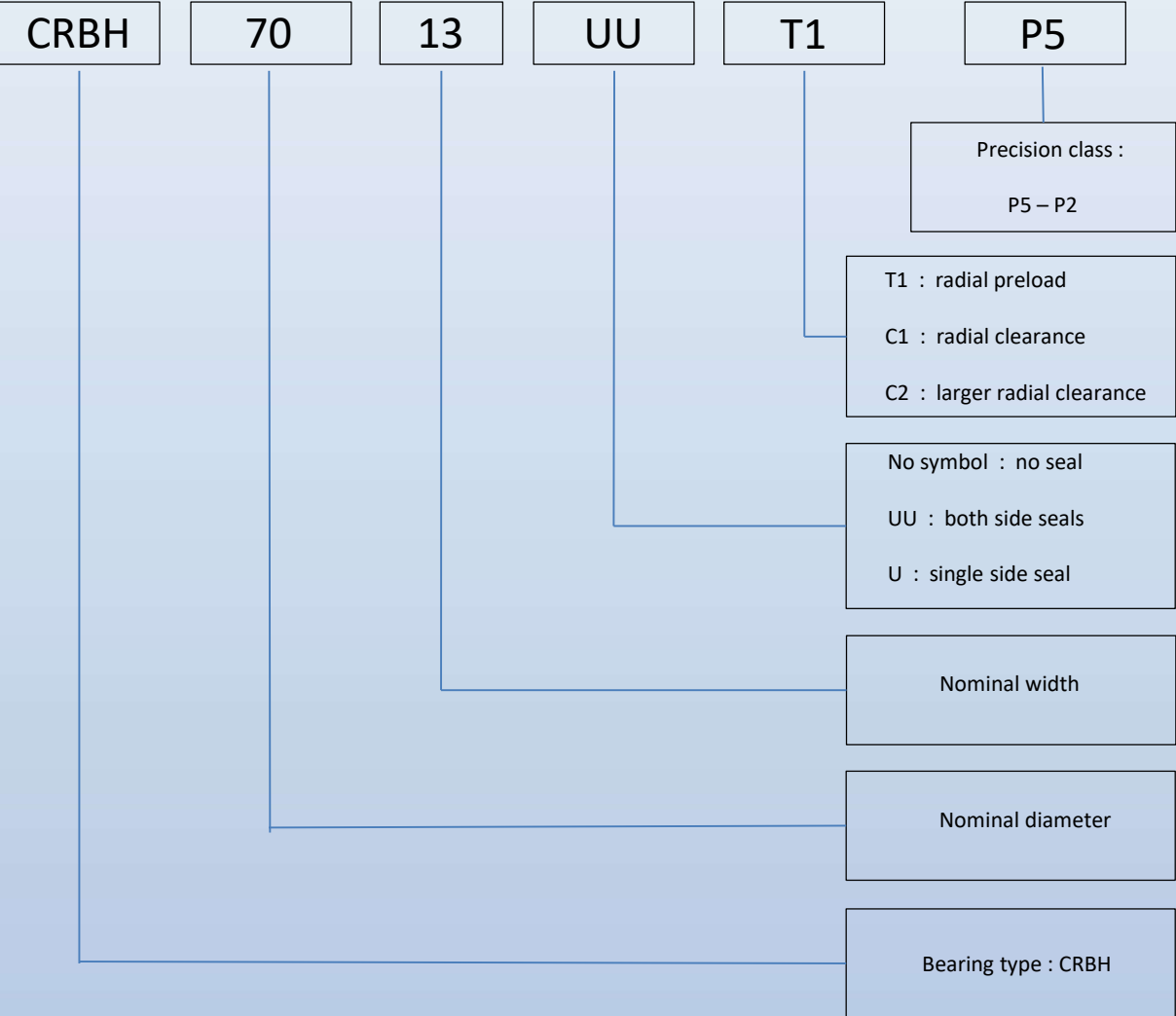
CRB	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
<b>CRB 30025</b>	300	360	25	2.5	310	341	91.9	217	5.88
<b>CRB 30035</b>	300	395	35	2.5	318	372	205	408	13.4
<b>CRB 30040</b>	300	405	40	2.5	321	381	235	451	17.2
<b>CRB 40035</b>	400	480	35	2.5	414	457	165	400	14.5
<b>CRB 40040</b>	400	510	40	2.5	423	483	270	590	23.5
<b>CRB 40070</b>	400	580	70	2.5	430	532	576	1060	72.4
<b>CRB 50040</b>	500	600	40	2.5	517	573	259	648	26.0
<b>CRB 50050</b>	500	625	50	2.5	531	592	306	747	41.7
<b>CRB 50070</b>	500	680	70	2.5	530	633	653	1330	86.1
<b>CRB 60040</b>	600	700	40	3	621	676	287	774	30.6
<b>CRB 60070</b>	600	780	70	3	630	734	700	1540	102
<b>CRB 600120</b>	600	870	120	3	643	817	1490	2800	274
<b>CRB 70045</b>	700	815	45	3	730	785	313	917	46.5
<b>CRB 70070</b>	700	880	70	3	731	834	766	1810	115
<b>CRB 700150</b>	700	1020	150	3	751	953	1980	3820	478
<b>CRB 80070</b>	800	950	70	4	831	907	513	1440	109
<b>CRB 800100</b>	800	1030	100	4	840	972	1140	1640	247

## CRB SERIE RADIAL PRELOAD

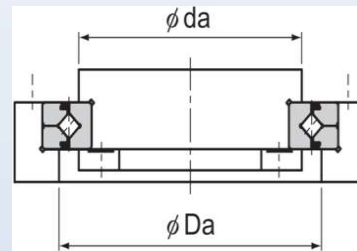
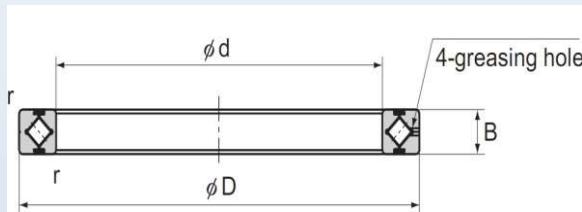
Bearing Pitch diameter		CC0 Class		C0 Class		C1 Class	
d[mm]		[μm]		[μm]		[μm]	
from	Up to	min	Max	minx	Max	min	Max
<b>18</b>	<b>30</b>	-8	0	0	15	15	35
<b>30</b>	<b>50</b>	-8	0	0	25	25	50
<b>50</b>	<b>80</b>	-10	0	0	30	30	60
<b>80</b>	<b>120</b>	-10	0	0	40	40	70
<b>120</b>	<b>140</b>	-10	0	0	40	40	80
<b>140</b>	<b>160</b>	-10	0	0	40	40	90
<b>160</b>	<b>180</b>	-10	0	0	50	50	100
<b>180</b>	<b>200</b>	-15	0	0	50	50	110
<b>200</b>	<b>225</b>	-15	0	0	60	60	120
<b>225</b>	<b>250</b>	-15	0	0	60	60	130
<b>250</b>	<b>280</b>	-15	0	30	80	80	150
<b>280</b>	<b>315</b>	-15	0	30	100	100	170
<b>315</b>	<b>355</b>	-15	0	30	110	110	190
<b>355</b>	<b>400</b>	-15	0	30	120	120	210
<b>400</b>	<b>450</b>	-20	0	30	130	130	230
<b>450</b>	<b>500</b>	-20	0	30	130	130	250
<b>500</b>	<b>560</b>	-20	0	30	150	150	280
<b>560</b>	<b>630</b>	-20	0	40	170	170	310
<b>630</b>	<b>710</b>	-20	0	40	190	190	350
<b>710</b>	<b>800</b>	-30	0	40	210	210	390
<b>800</b>	<b>900</b>	-30	0	40	230	230	430
<b>900</b>	<b>1000</b>	-30	0	50	260	260	480
<b>1000</b>	<b>1120</b>	-30	0	60	290	290	530
<b>1120</b>	<b>1250</b>	-30	0	60	320	320	580
<b>1250</b>	<b>1400</b>	-30	0	70	350	350	630

NOTE: Negative values refer to radial clearance.

**CRBH BEARING DESIGNATION**



## CRBH SERIE



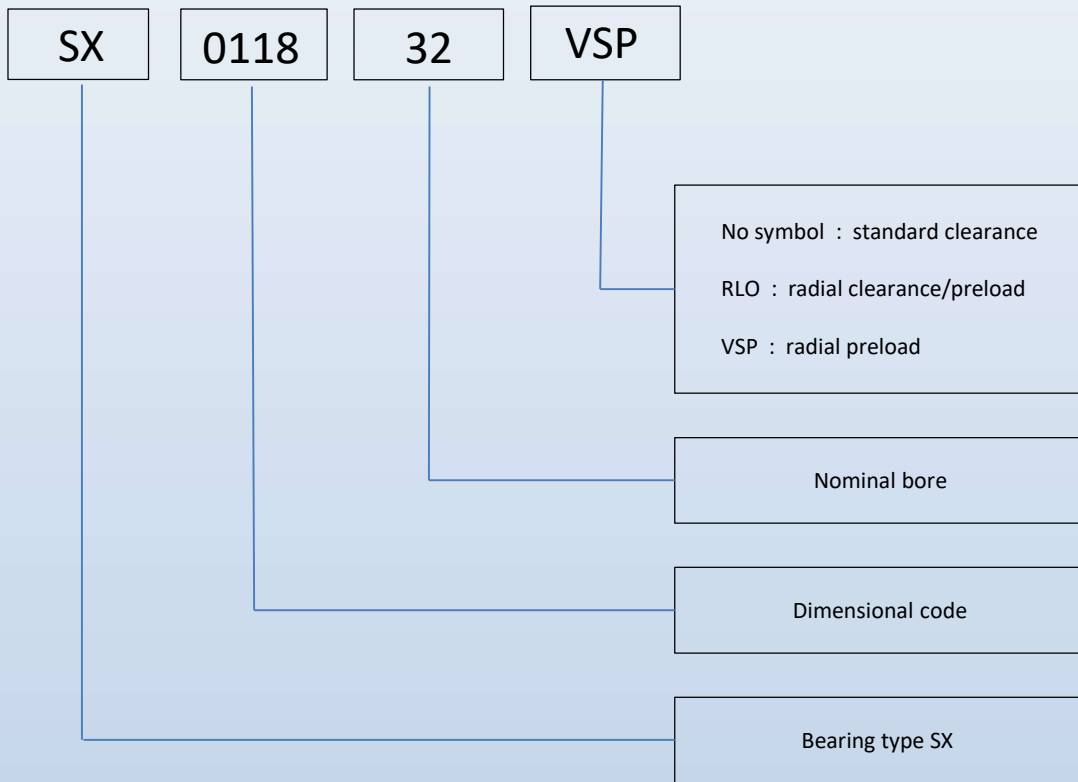
CRBH	Boundary dimensions [mm]				Shoulder height [mm]		Basic load rating [kN]		Weight [Kg]
	d	D	B, C	Rmin	da	Da	C	Co	
CRBH 208A	20	36	8	0.3	24	31	2.91	2.43	0.04
CRBH 258A	25	41	8	0.3	29	36	3.12	2.81	0.05
CRBH 3010A	30	55	10	0.3	36.5	48.5	7.6	8.37	0.12
CRBH 3510A	35	60	10	0.3	41.5	53.5	7.9	9.13	0.13
CRBH 4010A	40	65	10	0.3	46.5	58.5	8.61	10.6	0.15
CRBH 4510A	45	70	10	0.3	51.5	63.5	8.86	11.3	0.16
CRBH 5013A	50	80	13	0.6	56	74	17.3	20.9	0.29
CRBH 6013A	60	90	13	0.6	66	84	18.8	24.3	0.33
CRBH 7013A	70	100	13	0.6	76	94	20.1	27.7	0.38
CRBH 8016A	80	120	16	0.6	88	112	32.1	43.4	0.74
CRBH 9016A	90	130	16	0.6	98	122	33.1	46.8	0.81
CRBH 10020A	100	150	20	0.6	110	140	50.9	72.2	1.45
CRBH 11020A	110	160	20	0.6	120	150	52.4	77.4	1.56
CRBH 12025A	120	180	25	1	132	168	73.4	108	2.62
CRBH 13025A	130	190	25	1	142	178	75.9	115	2.82
CRBH 14025A	140	200	25	1	152	188	81.9	130	2.96
CRBH 15025A	150	210	25	1	162	198	84.3	138	3.16
CRBH 20025A	200	260	25	1	212	248	92.3	169	4.0
CRBH 25025A	250	310	25	1.5	262	298	102	207	4.97

## CRBH SERIE RADIAL PRELOAD

Bearing Pitch diameter		T1 Class		C1 Class		C2 Class	
d[mm]		[μm]		[μm]		[μm]	
from	Up to	min	Max	minx	Max	min	Max
<b>18</b>	<b>30</b>	-10	0	0	10	10	20
<b>30</b>	<b>40</b>	-10	0	0	10	10	20
<b>40</b>	<b>50</b>	-10	0	0	10	10	25
<b>50</b>	<b>65</b>	-10	0	0	10	10	25
<b>65</b>	<b>80</b>	-10	0	0	15	15	30
<b>80</b>	<b>100</b>	-10	0	0	15	15	35
<b>100</b>	<b>120</b>	-15	0	0	15	15	35
<b>120</b>	<b>140</b>	-15	0	0	20	20	45
<b>140</b>	<b>160</b>	-15	0	0	20	20	50
<b>160</b>	<b>200</b>	-15	0	0	20	20	50
<b>200</b>	<b>250</b>	-20	0	30	25	25	60
<b>250</b>	<b>315</b>	-20	0	30	25	25	60

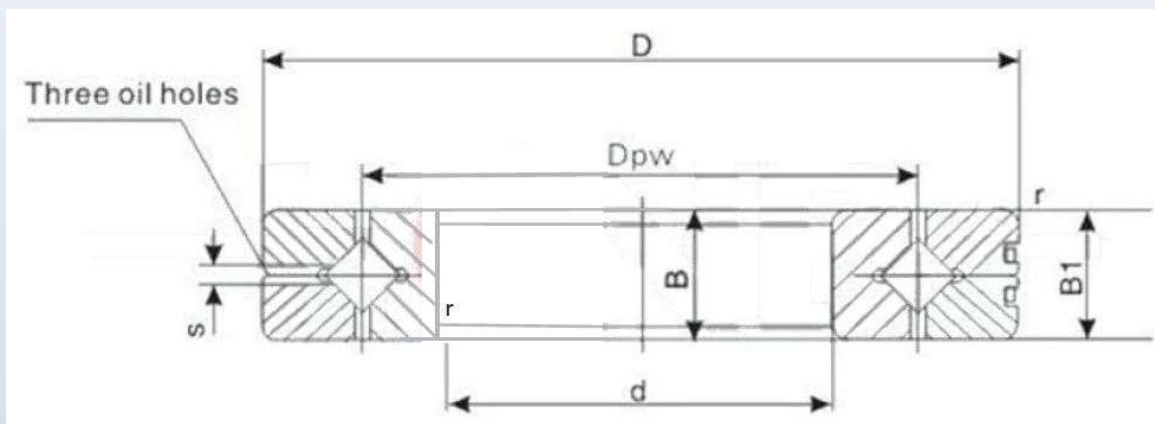
NOTE: Negative values refer to radial clearance.

**SX BEARING DESIGNATION**



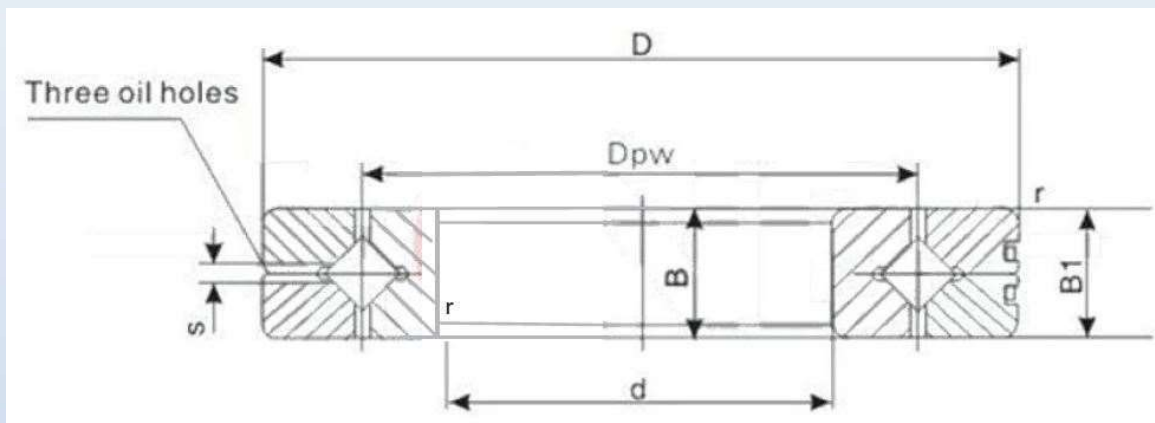


**SX SERIE**



SX	Boundary dimensions [mm]				Oil holes	Pitch diameter
	d	D	B, B1	r min	s	Dw
<b>SX011814</b>	70	90	10	0,6	1.2	80
<b>SX011818</b>	90	115	13	1	1.2	102
<b>SX011820</b>	100	125	13	1	1.2	112
<b>SX011824</b>	120	150	16	1	1.5	135
<b>SX011828</b>	140	175	18	1.1	1.5	157
<b>SX011832</b>	160	200	20	1.1	1.5	180
<b>SX011836</b>	180	225	22	1.1	2	202
<b>SX011840</b>	200	250	24	1.5	2	225
<b>SX011848</b>	240	300	28	2	2	250
<b>SX011860</b>	300	380	38	2.1	2.5	300
<b>SX011868</b>	340	420	38	2.1	2.5	380
<b>SX011880</b>	400	500	46	2.1	2.5	450
<b>SX0118/500</b>	500	620	56	3	2.5	560

## SX SERIE



SX	Basic Axial load rating		Basic Radial load rating		Weight [kg]
	Ca [kN]	Coa [kN]	Cr [kN]	Cor [kN]	
<b>SX011814</b>	18	60	12	30	0.3
<b>SX011818</b>	26	96	17	47	0.4
<b>SX011820</b>	28	106	18	52	0.5
<b>SX011824</b>	41	153	26	75	0.8
<b>SX011828</b>	64	237	41	116	1.1
<b>SX011832</b>	69	272	44	133	1.7
<b>SX011836</b>	98	381	63	187	2.3
<b>SX011840</b>	106	425	68	209	3.1
<b>SX011848</b>	149	612	95	300	5.3
<b>SX011860</b>	245	1027	156	504	12
<b>SX011868</b>	265	1148	167	563	13.5
<b>SX011880</b>	385	1699	244	833	24
<b>SX0118/500</b>	560	2538	355	1244	44

## SX SERIE RADIAL CLEARANCE [ $\mu\text{m}$ ]

Bearing type	Basic clearance				RLO		VSP	
	Radial		Axial		min	Max	min	Max
	min	Max	minx	Max				
<b>SX011814</b>	3	15	6	30	-6	3	-15	-3
<b>SX011818</b>	3	15	6	30	-6	3	-15	-3
<b>SX011820</b>	5	20	10	40	-8	4	-20	-5
<b>SX011824</b>	5	20	10	40	-8	4	-20	-5
<b>SX011828</b>	5	20	10	40	-8	4	-20	-5
<b>SX011832</b>	5	20	10	40	-10	4	-20	-5
<b>SX011836</b>	5	25	10	50	-10	5	-25	-5
<b>SX011840</b>	5	25	10	50	-10	5	-25	-5
<b>SX011848</b>	10	30	20	60	-10	5	-25	-5
<b>SX011860</b>	10	40	20	80	-10	5	-25	-5
<b>SX011868</b>	10	40	20	80	-10	5	-25	-5
<b>SX011880</b>	10	50	20	100	-10	5	-25	-5
<b>SX0118/500</b>	15	60	30	120	-12	6	-30	-5

NOTE: Negative values refer to radial clearance.

## **AXIAL AND RADIAL COMBINED SUPER PRECISION BEARINGS**



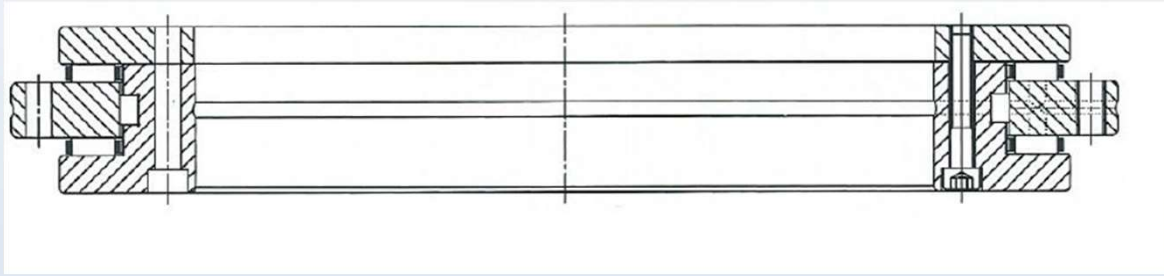
**SUMMARY**

*YRT Bearings* .....pag. 40

*YRTS Bearings* .....pag. 44

*ZKLDF Bearings* .....pag. 48

## **YRT Bearings**



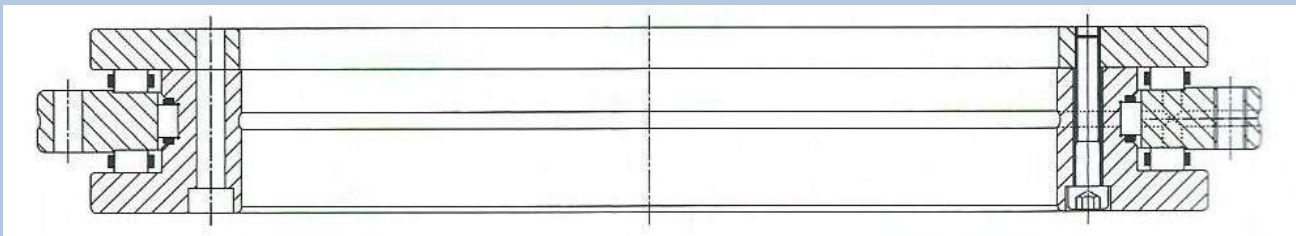
**YRT**

PWR YRT bearings (rotary table bearings) are axial and radial combined cylindrical roller bearings, including two thrust needle roller bearings and a radial cylindrical roller bearing with the combination of axial and radial pre-load. For the convenience of transportation and fixing, two or three symmetrical screws are fastened to the two rings in order to prevent rollers and rings generating collisions which influence bearing accuracy.

PWR YRT bearings have such advantages as high axial and radial load capacity, high tilted rigidity and high precision. The rotary table bearings are especially suitable for precision machine tools or the rotary worktable or indexing plate of other precision machines, and can also be used to chuck, measuring instruments, test equipment and rotary table configuration.

## **YRTS Bearings**

PWR YRTS bearings have same dimensions as YRT with reduced tolerances and different inner ring structure. This structure is designed to minimize friction and can reach higher rotational speed for high speed applications.



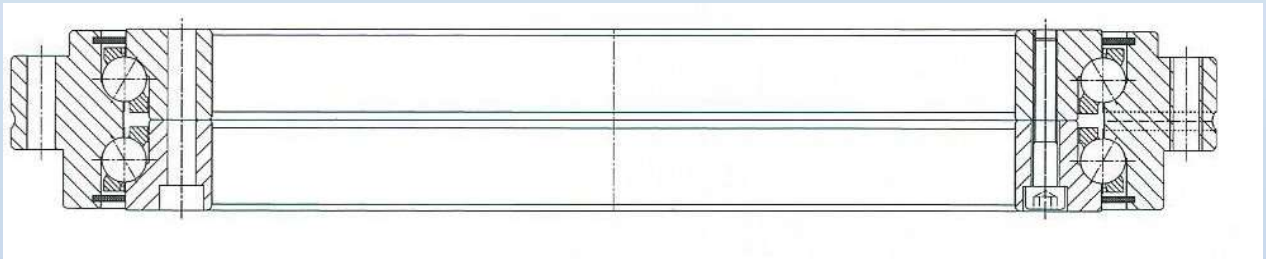
**YRTS**

## **YRTM Bearings**

PWR YRTM bearings are equipped with an angle measurement system which can give accurate measurement for angle adjusting.

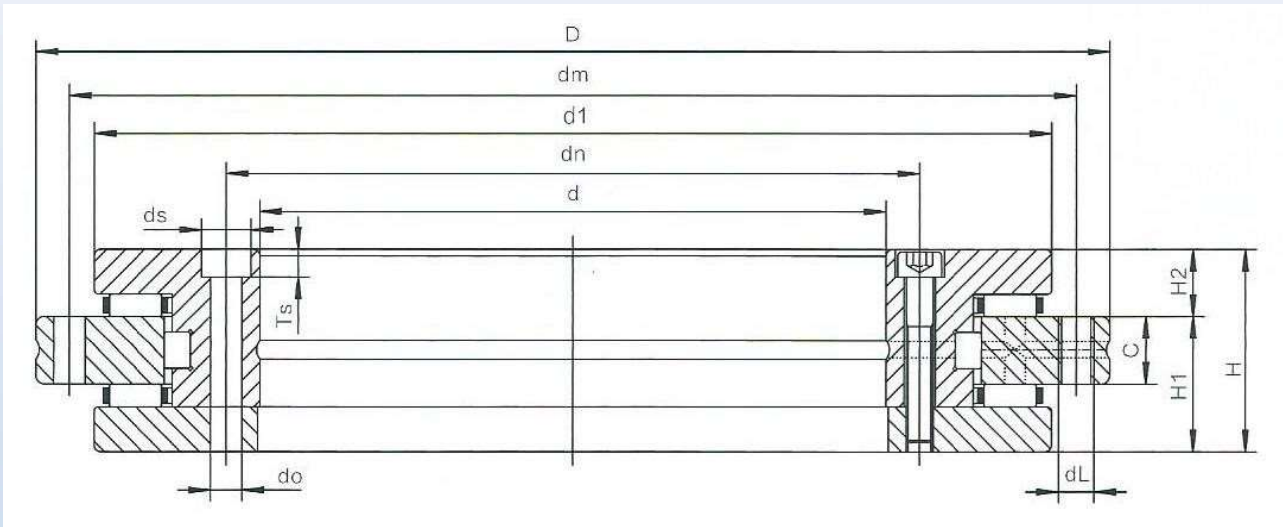
The measurement system is based on inductive sensor, with very accurate signal which can give angle measurement with high accuracy. Because of the sensor principle, its signal is not affected by dust, smoke or dirty in general and this results in very high reliability.

## **ZKLDF Bearings**



PWR ZKLDF bearings are axial angular ball bearings can bear combined axial-radial load. Balls contact has lower friction, so rotational speed can be higher

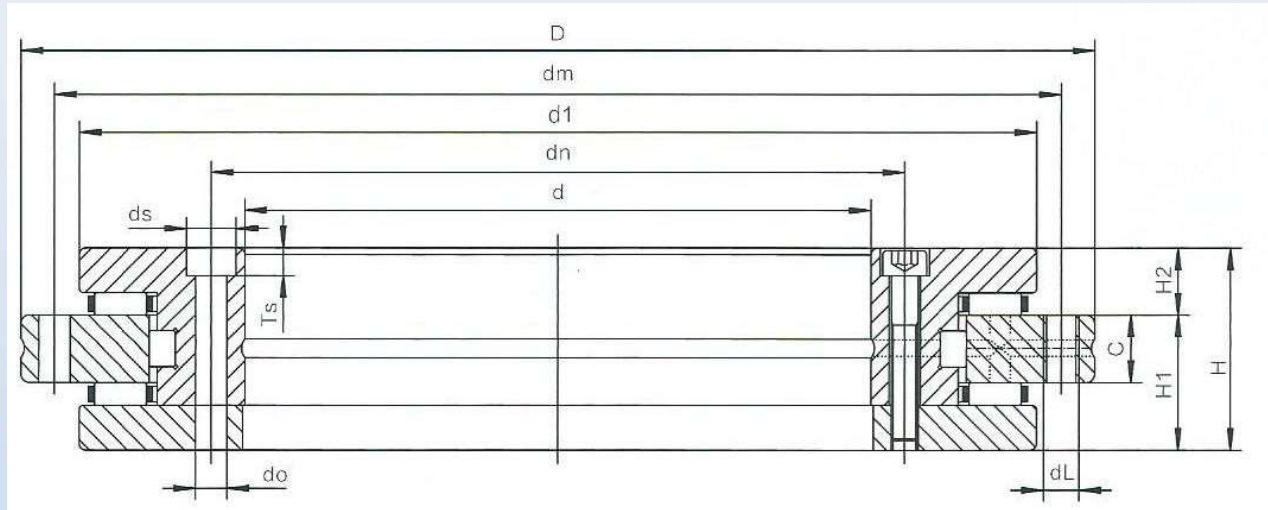
## YRT SERIE



YRT	d	D	H	H <sub>1</sub>	H <sub>2</sub>	C	d <sub>1</sub>	d <sub>n</sub>	d <sub>m</sub>
YRT50	50	126	30	20	10	10	105	63	116
YRT80	80	146	35	23.35	11.65	12	130	92	138
YRT100	100	185	38	25	13	12	160	112	170
YRT120	120	210	40	26	14	12	184	135	195
YRT150	150	240	40	26	14	12	214	165	225
YRT180	180	280	43	29	14	15	244	194	260
YRT200	200	300	45	30	15	15	274	215	285
YRT260	260	385	55	36.5	18.5	18	345	280	365
YRT325	325	450	60	40	20	20	415	342	430
YRT395	395	525	65	42.5	22.5	20	486	415	505
YRT460	460	600	70	46	24	22	560	482	580
YRT580	580	750	90	60	30	30	700	610	720
YRT650	650	870	122	78	44	34	800	680	830
YRT850	850	1095	124	80.5	43.5	37	1018	890	1055
YRT950	950	1200	132	86	46	40	1130	990	1160
YRT1030	1030	1300	145	92.5	52.5	40	1215	1075	1255

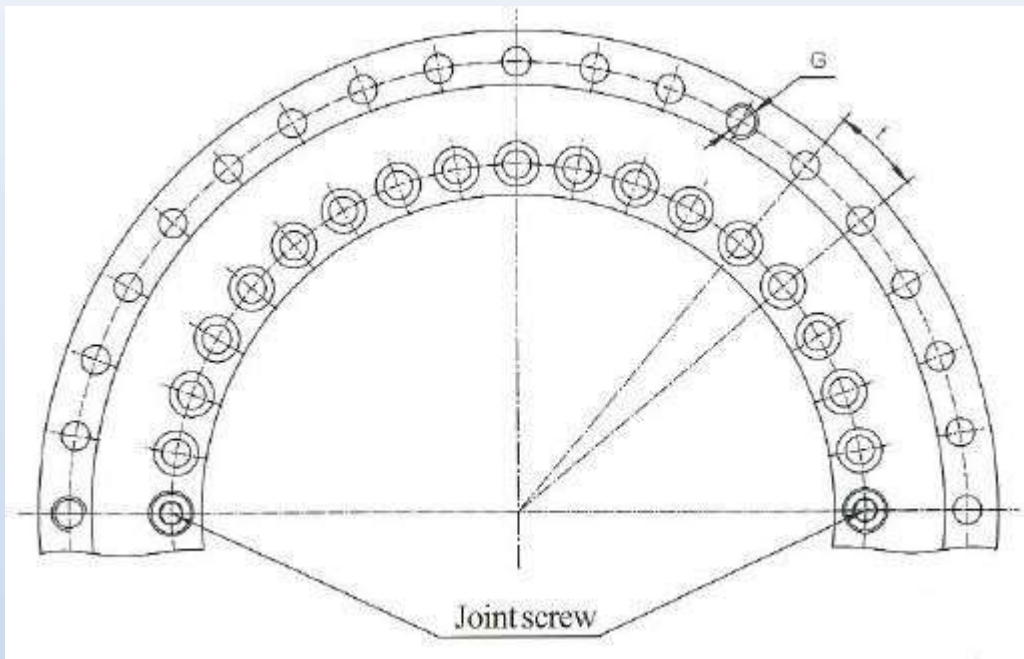


## YRT SERIE



YRT	Inner ring			Outer ring		
	d <sub>o</sub>	d <sub>s</sub>	T <sub>s</sub>	Qty	d <sub>L</sub>	Qty
<b>YRT50</b>	5.6	9	4.2	10	5.6	12
<b>YRT80</b>	5.6	10	4.2	10	4.6	12
<b>YRT100</b>	5.6	10	5.4	16	5.6	15
<b>YRT120</b>	7	11	6.2	22	7	21
<b>YRT150</b>	7	11	6.2	34	7	33
<b>YRT180</b>	7	11	6.2	46	7	45
<b>YRT200</b>	7	11	6.2	46	7	45
<b>YRT260</b>	9.3	15	8.2	34	9.3	33
<b>YRT325</b>	9.3	15	8.2	34	9.3	33
<b>YRT395</b>	9.3	15	8.2	46	9.3	45
<b>YRT460</b>	10	15	11	46	10	42
<b>YRT580</b>	11.4	18	13	46	11.4	42
<b>YRT650</b>	14	20	17	45	14	42
<b>YRT850</b>	18.5	26	17	57	18.5	54
<b>YRT950</b>	18.5	26	17	57	18.5	54
<b>YRT1030</b>	18.5	26	17	66	18.5	66

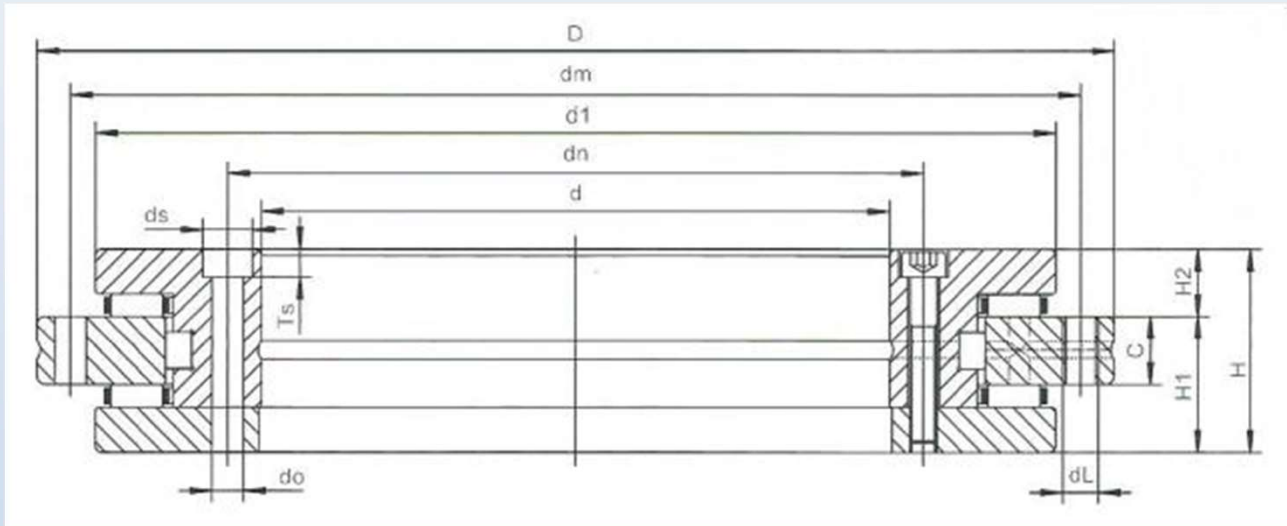
## YRT SERIE



YRT	Lifting hole		t	Screw tightening torque* [Nm]	Basic load rating [KN]				Speed [rpm]	Mass [Kg]
	G	Qty			C <sub>a</sub>	C <sub>0a</sub>	C <sub>r</sub>	C <sub>0r</sub>		
<b>YRT50</b>	-	-	12x30°	8.5	38	158	28.5	49.5	600	1.6
<b>YRT80</b>	-	-	12x30°	8.5	56	255	42.5	100	530	2.4
<b>YRT100</b>	M5	3	18x20°	8.5	76.5	415	47.5	120	430	4.1
<b>YRT120</b>	M8	3	24x15°	14	102	540	52	143	340	5.3
<b>YRT150</b>	M8	3	36x10°	14	112	630	56	170	320	6.2
<b>YRT180</b>	M8	3	48x7.5°	14	118	710	69.5	200	280	7.7
<b>YRT200</b>	M8	3	48x7.5°	14	120	765	81.5	220	260	9.7
<b>YRT260</b>	M12	3	36x10°	34	160	1060	93	290	200	18.3
<b>YRT325</b>	M12	3	36x10°	34	275	1930	120	345	170	25
<b>YRT395</b>	M12	3	48x7.5°	34	300	2280	186	655	140	33
<b>YRT460</b>	M12	3	48x7.5°	34	355	2800	200	765	120	45
<b>YRT580</b>	M12	6	48x7.5°	68	490	4250	228	965	80	89
<b>YRT650</b>	M12	6	48x7.5°	116	870	7400	430	1700	65	170
<b>YRT850</b>	M16	6	60x6°	284	1000	10010	455	1800	50	253
<b>YRT950</b>	M16	6	60x6°	284	1290	11400	530	2040	40	312
<b>YRT1030</b>	M15	6	72x5°	284	1380	12000	620	2650	35	375

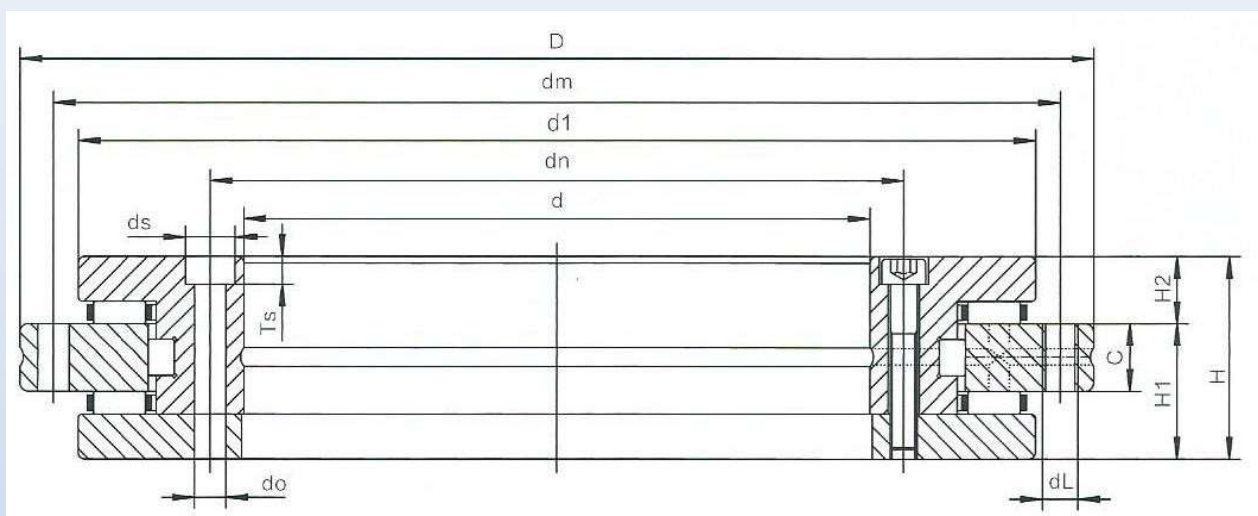
\*10.9 grade screws.

## YRT SERIE TOLERANCES



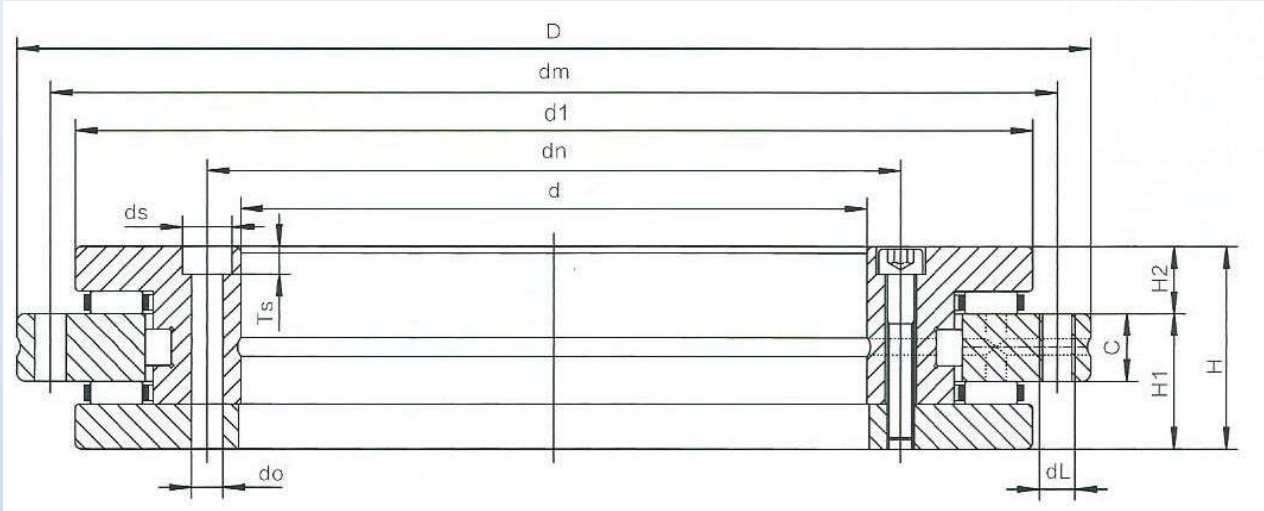
YRT	d			D			H		Runout
	Nominal [mm]	Max [μm]	Min [μm]	Nominal [mm]	Max [μm]	Min [μm]	Nominal [mm]	Max/min [mm]	Axial/radial [μm]
YRT50	50	0	-8	126	0	-11	30	±0.125	2
YRT80	80	0	-9	146	0	-11	35	±0.15	3
YRT100	100	0	-10	185	0	-15	38	±0.175	3
YRT120	120	0	-10	210	0	-15	40	±0.175	3
YRT150	150	0	-13	240	0	-15	40	±0.175	3
YRT180	180	0	-13	280	0	-18	43	±0.175	4
YRT200	200	0	-15	300	0	-18	45	±0.175	4
YRT260	260	0	-18	385	0	-20	55	±0.2	6
YRT325	325	0	-23	450	0	-23	60	±0.2	6
YRT395	395	0	-23	525	0	-28	65	±0.2	6
YRT460	460	0	-23	600	0	-28	70	±0.225	6
YRT580	580	0	-25	750	0	-35	90	±0.25	10
YRT650	650	0	-38	870	0	-50	122	±0.25	10
YRT850	850	0	-50	1095	0	-63	124	±0.3	12
YRT950	950	0	-50	1200	0	-63	132	±0.3	12
YRT1030	1030	0	-70	1300	0	-75	145	±0.5	15

## YRTS SERIE



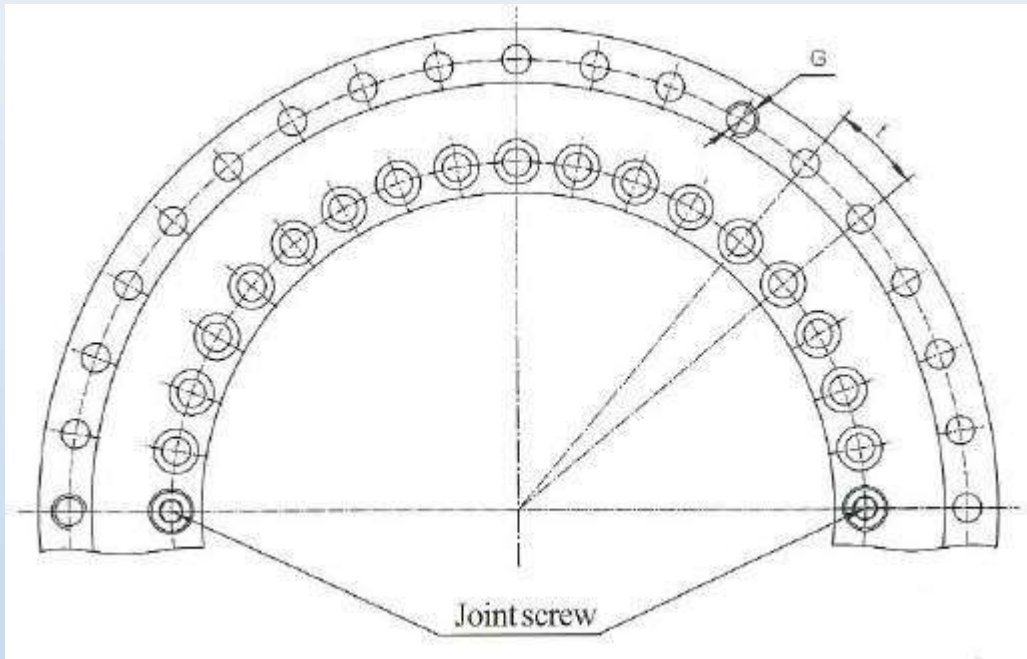
YRTS	d	D	H	H <sub>1</sub>	H <sub>2</sub>	C	d <sub>1</sub>	d <sub>n</sub>	d <sub>m</sub>
<b>YRTS200</b>	200	300	45	30	15	15	274	215	285
<b>YRTS260</b>	260	385	55	36.5	18.5	18	345	280	365
<b>YRTS325</b>	325	450	60	40	20	20	415	342	430
<b>YRTS395</b>	395	525	65	42,5	22.5	20	486	415	505
<b>YRTS460</b>	460	600	70	46	24	22	560	482	580

**YRTS SERIE**



YRTS	Inner ring				Outer ring	
	$d_o$	$d_s$	$T_s$	Qty	$d_L$	Qty
<b>YRTS200</b>	7	11	6.2	46	7	45
<b>YRTS260</b>	9.3	15	8.2	34	9.3	33
<b>YRTS325</b>	9.3	15	8.2	34	9.3	33
<b>YRTS395</b>	9.3	15	8.2	46	9.3	45
<b>YRTS460</b>	10	15	11	46	10	42

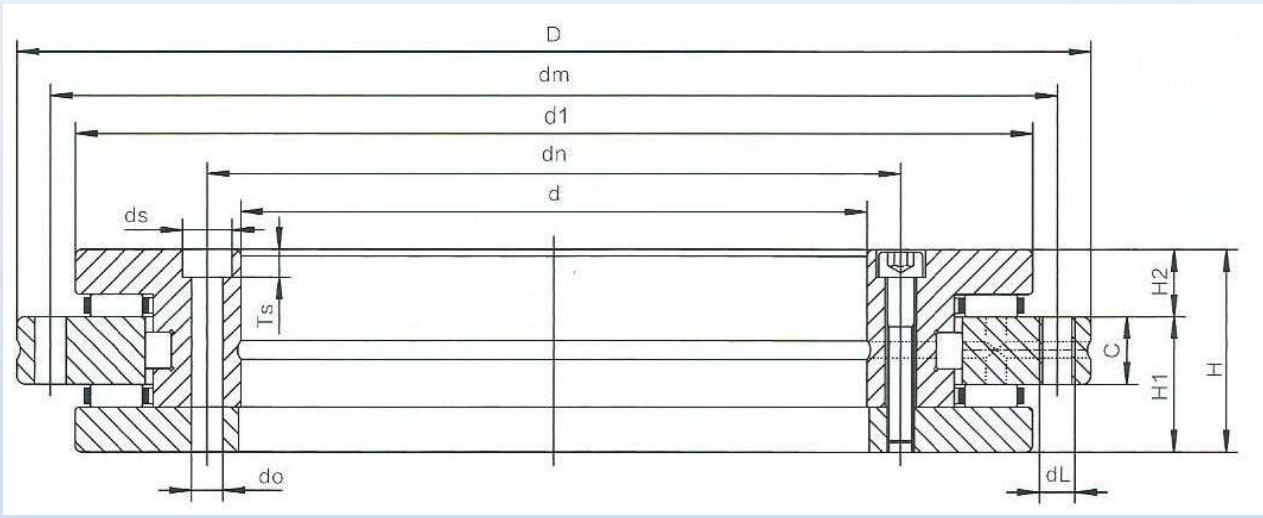
## YRTS SERIE



YRT	Lifting hole		t	Screw tightening torque* [Nm]	Basic load rating [KN]				Speed [rpm]	Mass [Kg]
	G	Qty			C <sub>a</sub>	C <sub>0a</sub>	C <sub>r</sub>	C <sub>0r</sub>		
<b>YRTS200</b>	M8	3	48x7.5°	14	105	635	78	202	950	9.7
<b>YRTS260</b>	M12	3	36x10°	34	131	840	85	275	800	18.3
<b>YRTS325</b>	M12	3	36x10°	34	191	1260	109	300	680	25
<b>YRTS395</b>	M12	3	48x7.5°	34	214	1540	121	390	600	33
<b>YRTS460</b>	M12	3	48x7.5°	34	221	1690	168	570	500	45

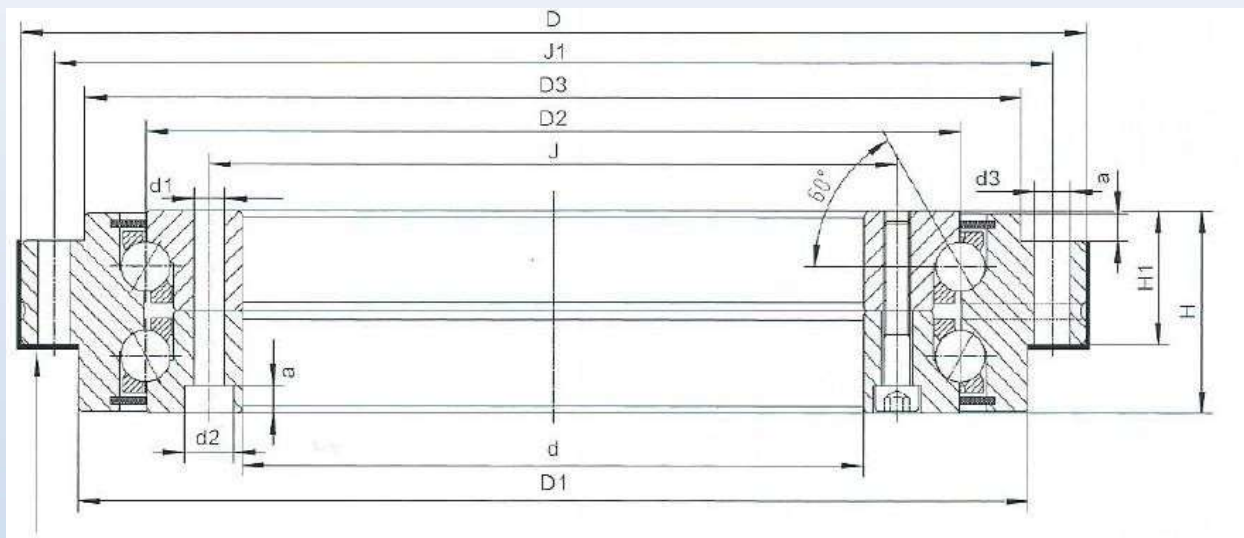
\*10.9 grade screws.

**YRTS SERIE TOLERANCES**



YRTS	Nominal [mm]	d		Nominal [mm]	D		Nominal [mm]	H <sub>1</sub>		Runout Axial/radial [µm]
		Max [µm]	Min [µm]		Max [µm]	Min [µm]		Max/min [mm]		
<b>YRTS200</b>	200	0	-15	300	0	-18	30	+0.04 -0.06	4	
<b>YRTS260</b>	260	0	-18	385	0	-20	36.5	+0.05 -0.07	6	
<b>YRTS325</b>	325	0	-23	450	0	-23	40	+0.06 -0.07	6	
<b>YRTS395</b>	395	0	-23	525	0	-28	42.5	+0.06 -0.07	6	
<b>YRTS460</b>	460	0	-23	600	0	-28	46	+0.07 -0.08	6	

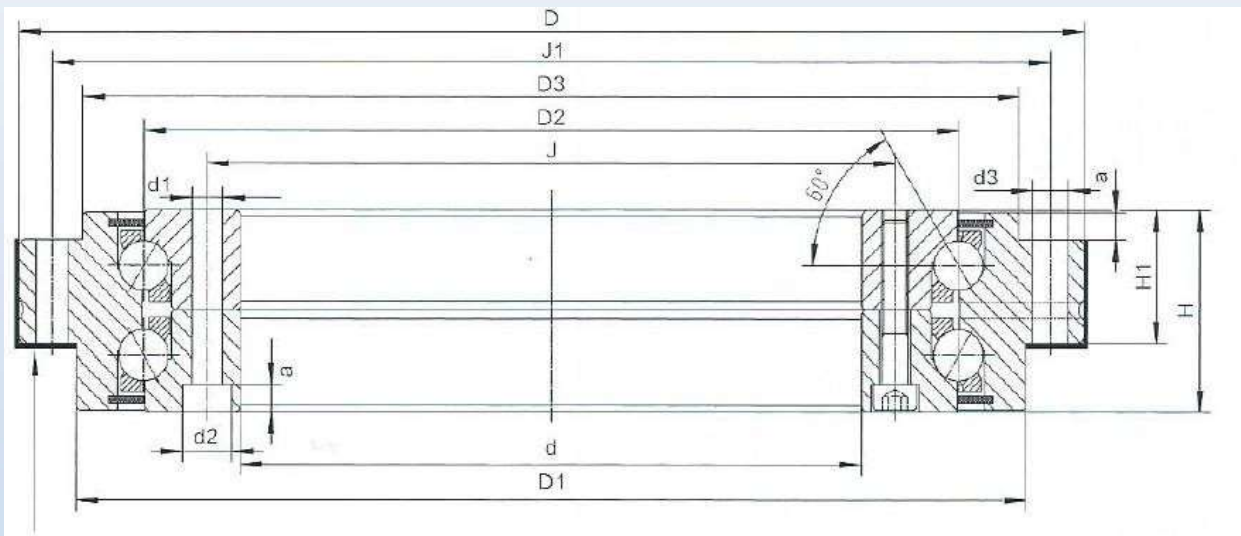
## ZKLDF SERIE



ZKLDF	d	D	H	H1	D1	D2	D3	J	J1	a
<b>ZKLDF100</b>	100	185	38	25	160	136	158	112	170	5.4
<b>ZKLDF120</b>	120	210	40	26	184	159	181	135	195	6.2
<b>ZKLDF150</b>	150	240	40	26	214	188	211	165	225	6.2
<b>ZKLDF180</b>	180	280	43	29	244	221	241	194	260	6.2
<b>ZKLDF200</b>	200	300	45	30	274	243	271	215	285	6.2
<b>ZKLDF260</b>	260	385	55	36.5	345	313	348	280	365	8.2
<b>ZKLDF325</b>	325	450	60	40	415	380	413	343	430	8.2
<b>ZKLDF395</b>	395	525	65	42,5	486	450	488	415	505	8.2
<b>ZKLDF460</b>	460	600	70	46	560	520	563	482	580	8.2
<b>ZKLDF580</b>	580	750	90	60	702	656	700	610	720	11
<b>ZKLDF650</b>	650	870	122	78	800	739	802	680	830	13

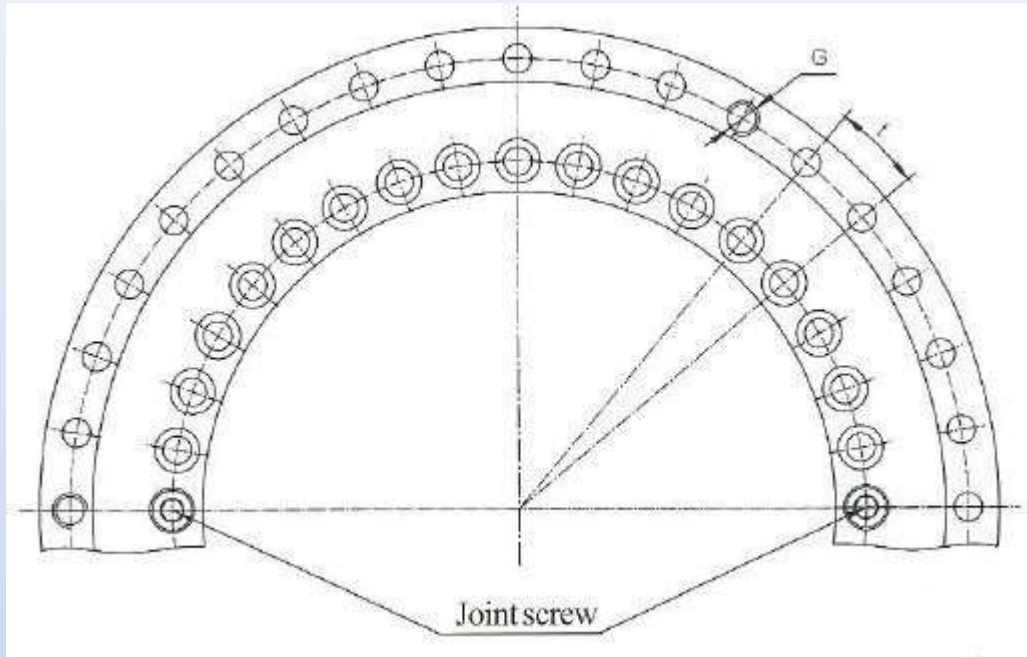


## ZKLDF SERIE



ZKLDF	Inner ring				Outer ring	
	$d_0$	$d_s$	$T_s$	Qty	$d_L$	Qty
<b>ZKLDF100</b>	5.6	10	5.4	16	5.6	15
<b>ZKLDF120</b>	7	11	6.2	22	7	21
<b>ZKLDF150</b>	7	11	6.2	34	7	33
<b>ZKLDF180</b>	7	11	6.2	46	7	45
<b>ZKLDF200</b>	7	11	6.2	46	7	45
<b>ZKLDF260</b>	9.3	15	8.2	34	9.3	33
<b>ZKLDF325</b>	9.3	15	8.2	34	9.3	33
<b>ZKLDF395</b>	9.3	15	8.2	46	9.3	45
<b>ZKLDF460</b>	10	15	11	46	10	42
<b>ZKLDF580</b>	11.4	18	13	46	11.4	42
<b>ZKLDF650</b>	14	20	17	45	14	42

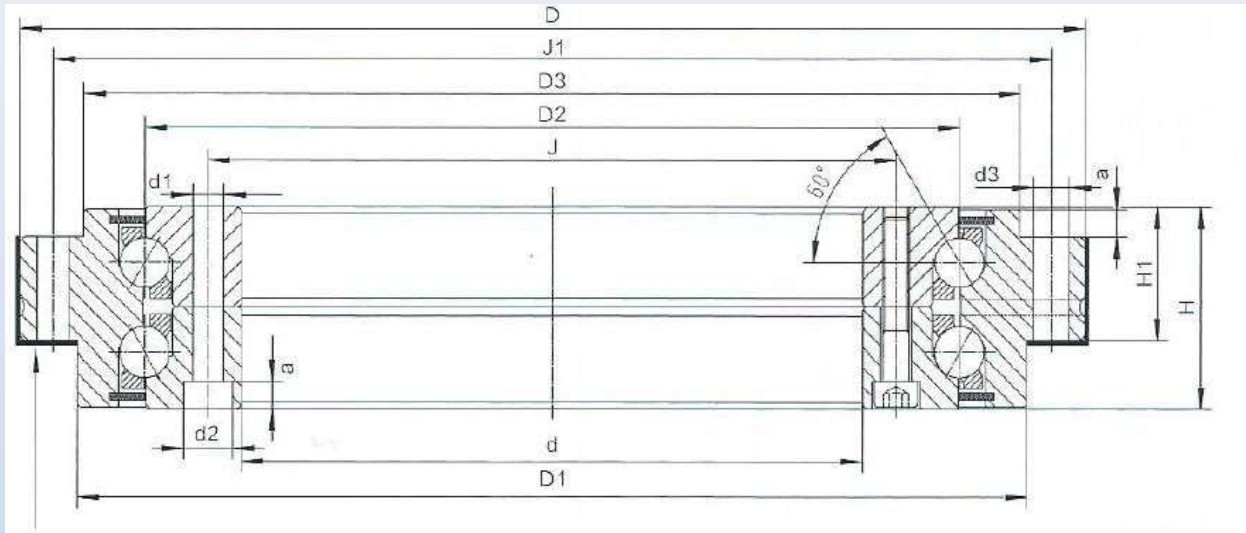
## ZKLDF SERIE



ZKLDF	Lifting hole		t	Screw tightening torque* [Nm]	Basic load rating [kN]		Speed [rpm]	Mass [Kg]
	G	Qty			C <sub>a</sub>	C <sub>0a</sub>		
<b>ZKLDF100</b>	M5	3	18x20°	8.5	67	252	2800	4.5
<b>ZKLDF120</b>	M8	3	24x15°	14	72	315	2400	6
<b>ZKLDF150</b>	M8	3	36x10°	14	76	365	2000	7.5
<b>ZKLDF180</b>	M8	3	48x7.5°	14	85	440	1700	8
<b>ZKLDF200</b>	M8	3	48x7.5°	14	112	550	1600	11
<b>ZKLDF260</b>	M12	3	36x10°	34	155	920	1200	22
<b>ZKLDF325</b>	M12	3	36x10°	34	165	1110	1000	28
<b>ZKLDF395</b>	M12	3	48x7.5°	34	214	1470	800	39
<b>ZKLDF460</b>	M12	3	48x7.5°	34	255	1860	700	50
<b>ZKLDF580</b>	M12	6	48x7.5°	68	282	2150	500	82
<b>ZKLDF650</b>	M12	6	48x7.5°	116	388	2350	440	168

\*10.9 grade screws.

## ZKLDF SERIE TOLERANCES



ZKLDF	d			D			H		Runout Axial/radial [ $\mu\text{m}$ ]
	Nominal [mm]	Max [ $\mu\text{m}$ ]	Min [ $\mu\text{m}$ ]	Nominal [mm]	Max [ $\mu\text{m}$ ]	Min [ $\mu\text{m}$ ]	Nominal [mm]	Max/min [mm]	
<b>ZKLDF100</b>	100	0	-10	185	0	-15	38	$\pm 0.175$	3
<b>ZKLDF120</b>	120	0	-10	210	0	-15	40	$\pm 0.175$	3
<b>ZKLDF150</b>	150	0	-13	240	0	-15	40	$\pm 0.175$	3
<b>ZKLDF180</b>	180	0	-13	280	0	-18	43	$\pm 0.175$	4
<b>ZKLDF200</b>	200	0	-15	300	0	-18	45	$\pm 0.175$	4
<b>ZKLDF260</b>	260	0	-18	385	0	-20	55	$\pm 0.2$	6
<b>ZKLDF325</b>	325	0	-23	450	0	-23	60	$\pm 0.2$	6
<b>ZKLDF395</b>	395	0	-23	525	0	-28	65	$\pm 0.2$	6
<b>ZKLDF460</b>	460	0	-23	600	0	-28	70	$\pm 0.225$	6
<b>ZKLDF580</b>	580	0	-25	750	0	-35	90	$\pm 0.25$	10
<b>ZKLDF650</b>	650	0	-38	870	0	-50	122	$\pm 0.25$	10

## **BALL SCREW SUPPORT**

### **SUPER PRECISION BEARINGS**



**SUMMARY**

*Structure and characteristics of ball screw support bearings* ..... 4

*Accuracy of ball screw support Bearings* ..... 6

*76 and BS bearings designation* ..... 7

*76 serie* ..... 8

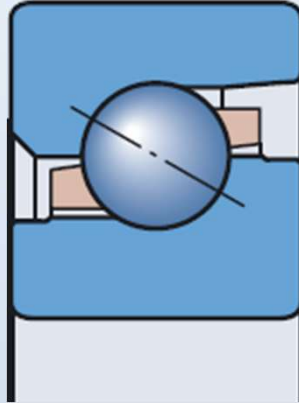
*BS serie* ..... 9

*BS Unit designation* ..... 12

*BSDU* ..... 15

*BSQU* ..... 17

## **Ball screw support bearings performance**



PWR Ball screw support bearing is a kind of one-direction angular contact thrust ball bearing (contact angle  $60^\circ$ ) with high precision, high speed, high axial stiffness, low friction, long life and transient high/low speed conversion. The bearing is particularly suitable for the supporting of ball screw and similar transmitting components in high-speed precision CNC machine tools.

PWR precision ball screw support bearings include four kinds of products: 7602, 7603, BS, BSS. The 7602 and 7603 series are standard metric, with the inner diameters from 12mm to 130mm; BS series are non-standard metric and BSS series are inch series.

### **Accuracy of Ball screw support Bearings**

Standard accuracy of PWR Precision Ball screw support Bearings is ISO P4A (equivalent to ABEC 7 for dimensional accuracy, rotational accuracy is according to ABEC 9).

P4A precision ISO class

*Inner ring*

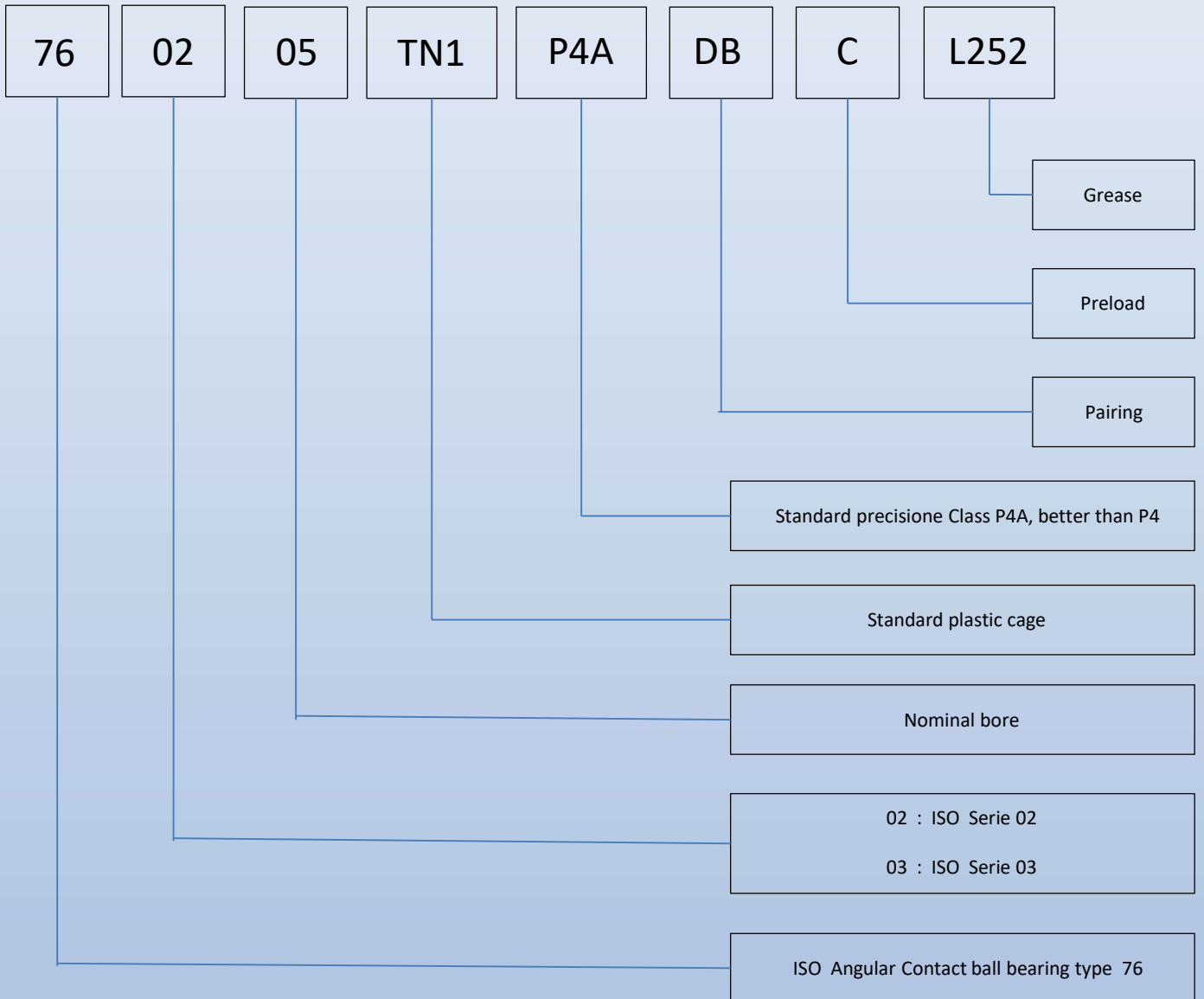
nominal bore diameter d mm		$\Delta_{dmp}$ $\mu\text{m}$		$\Delta d_s$ $\mu\text{m}$		$\Delta_{BS}$ $\mu\text{m}$		$\Delta_{BIS}$ $\mu\text{m}$		$V_{Bs}$ $\mu\text{m}$	$K_{ia}$ $\mu\text{m}$	$S_d$ $\mu\text{m}$	$S_{ia}$ $\mu\text{m}$
From	up to	High	Low	High	Low	High	Low	High	Low	Max	Max	Max	Max
<b>0</b>	<b>10</b>	0	-4	0	-4	0	-40	0	-250	1.3	1.3	1.3	1.3
<b>10</b>	<b>18</b>	0	-4	0	-4	0	-80	0	-250	1.3	1.3	1.3	1.3
<b>18</b>	<b>30</b>	0	-5	0	-5	0	-120	0	-250	1.3	2.5	1.3	2.5
<b>30</b>	<b>50</b>	0	-6	0	-6	0	-120	0	-250	1.3	2.5	1.3	2.5
<b>50</b>	<b>80</b>	0	-7	0	-7	0	-150	0	-250	1.3	2.5	1.3	2.5
<b>80</b>	<b>120</b>	0	-8	0	-8	0	-200	0	-250	2.5	2.5	2.5	2.5
<b>120</b>	<b>150</b>	0	-10	0	-10	0	-250	0	-380	4	4	4	4
<b>150</b>	<b>180</b>	0	-10	0	-10	0	-250	0	-380	4	6	5	6
<b>180</b>	<b>250</b>	0	-12	0	-12	0	-300	0	-500	5	7	6	7

*Outer ring*

nominal outer diameter D mm		$\Delta_{Dmp}$ [ $\mu\text{m}$ ]		$\Delta D_s$ [ $\mu\text{m}$ ]		$\Delta_{cs}, \Delta_{cis}$ [ $\mu\text{m}$ ]	$V_{cs}$ [ $\mu\text{m}$ ]	$K_{ea}$ [ $\mu\text{m}$ ]	$S_D$ [ $\mu\text{m}$ ]	$S_{ea}$ [ $\mu\text{m}$ ]
From	up to	High	Low	High	Low	Values are identical to inner ring	Max	Max	Max	Max
<b>18</b>	<b>30</b>	0	-5	0	-5		1.3	2.5	1.3	2.5
<b>30</b>	<b>50</b>	0	-6	0	-6		1.3	2.5	1.3	2.5
<b>50</b>	<b>80</b>	0	-7	0	-7		1.3	3.8	1.3	3.8
<b>80</b>	<b>120</b>	0	-8	0	-8		2.5	5	2.5	5
<b>120</b>	<b>150</b>	0	-9	0	-9		2.5	5	2.5	5
<b>150</b>	<b>180</b>	0	-10	0	-10		4	6	4	6
<b>180</b>	<b>250</b>	0	-11	0	-11		5	8	5	8
<b>250</b>	<b>315</b>	0	-13	0	-13		5	9	6	8

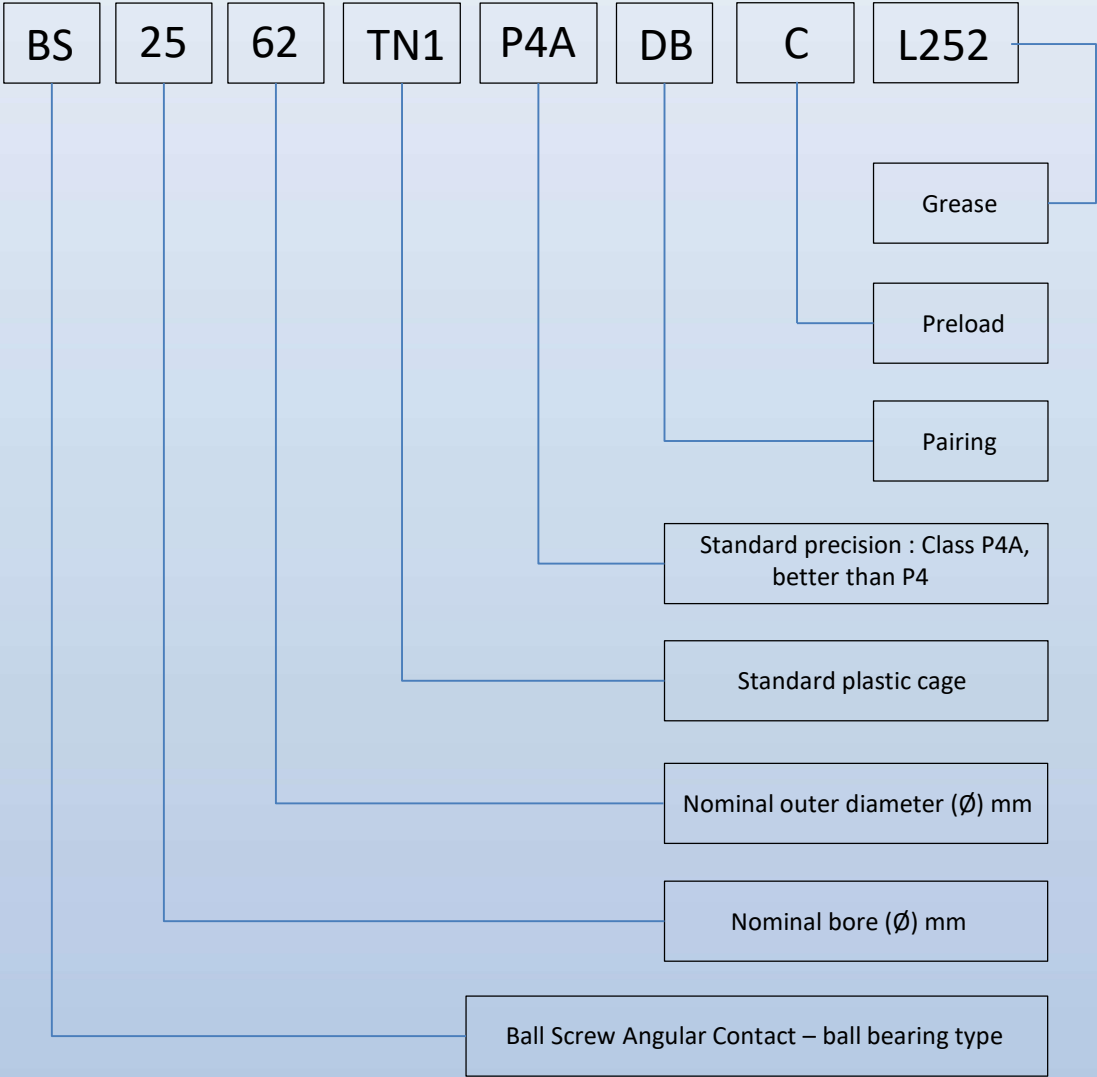
## BALL SCREW SUPPORT BEARING

*ISO Metric unit*

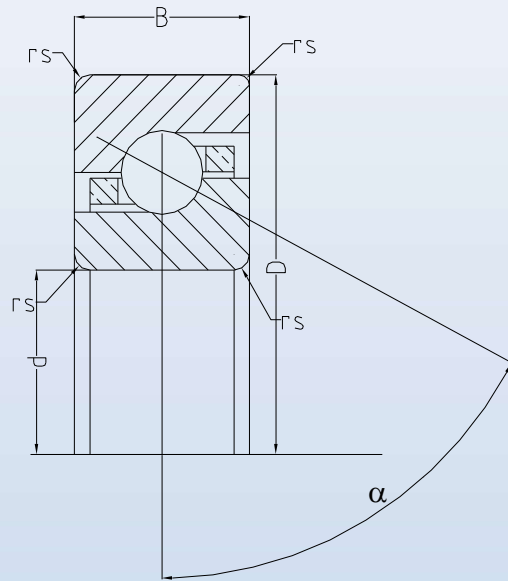




Non - ISO Metric unit

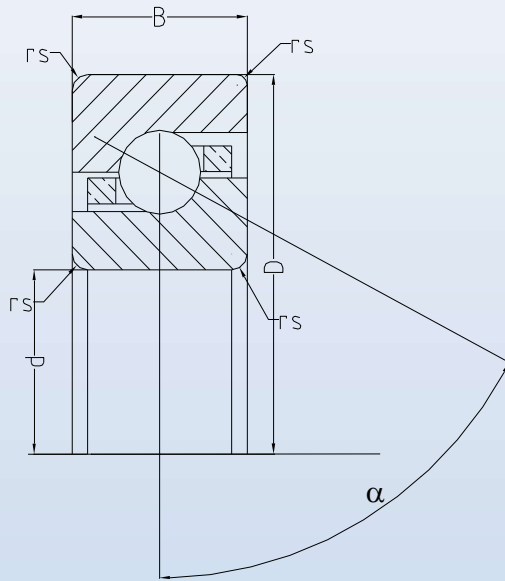


SERIE 76



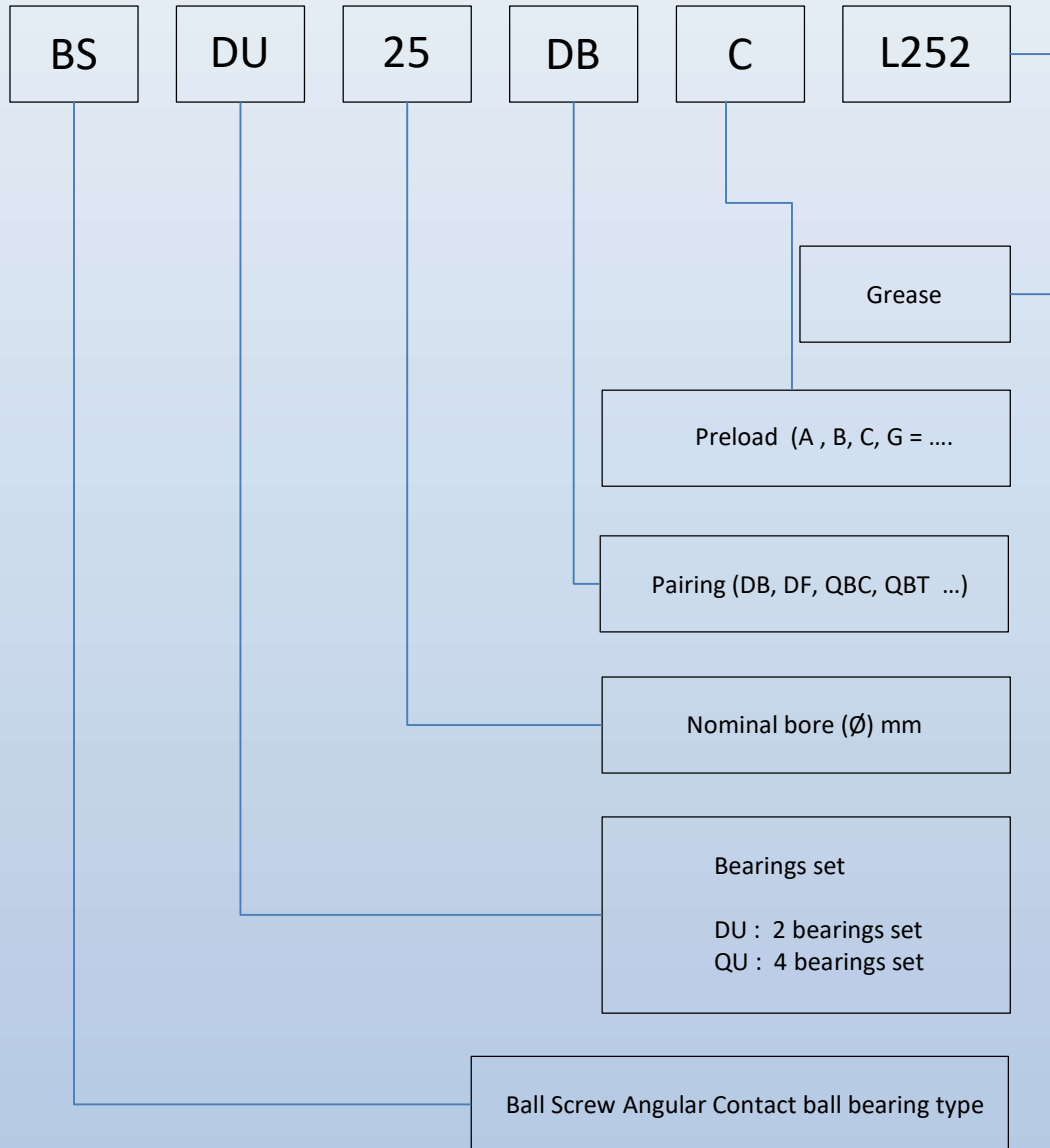
d	D	B	Designation	$\alpha = 60^\circ$		Limiting speed [rpm] oil	$r_{s\min}$ [mm]	$F_{a\max}$ [N]	Preload [N]	Frictional torque [N mm]	Mass [Kg]
				C [N]	$C_0$ [N]						
			<b>760201</b>	15.600	17.000	26.500	0,60	5.200	1.400	15	0,040
<b>15</b>	35	11	<b>760202</b>	17.000	20.200	23.500	0,60	6.300	1.400	20	0,050
<b>17</b>	40	12	<b>760203</b>	22.400	27.000	20.000	0,60	8.500	1.700	30	0,070
<b>20</b>	47	14	<b>760204</b>	26.000	33.750	18.500	1,00	10.600	2.300	50	0,130
	52	15	<b>760304</b>	33.000	43.200	17.000	1,10	14.000	2.900	60	0,170
<b>25</b>	52	15	<b>760205</b>	29.700	41.000	17.000	1,00	13.200	2.500	65	0,160
	62	17	<b>760305</b>	38.500	56.000	14.000	1,10	18.000	3.300	85	0,280
<b>30</b>	62	16	<b>760206</b>	35.100	52.600	14.000	1,00	17.000	2.900	85	0,240
	72	19	<b>760306</b>	46.500	74.200	12.500	1,10	23.600	4.300	130	0,410
<b>35</b>	72	17	<b>760207</b>	40.500	67.500	12.300	1,10	21.200	3.300	115	0,340
	80	21	<b>760307</b>	49.000	82.000	11.000	1,50	26.500	4.800	170	0,550
<b>40</b>	80	18	<b>760208</b>	50.600	86.000	11.000	1,10	28.000	4.300	170	0,440
	90	23	<b>760308</b>	67.500	112.000	9.800	1,50	35.500	5.600	225	0,760
<b>45</b>	85	19	<b>760209</b>	51.300	92.000	10.500	1,10	28.000	4.500	190	0,500
	100	25	<b>760309</b>	79.000	140.000	8.300	1,50	45.000	7.000	300	0,043
<b>50</b>	90	20	<b>760210</b>	52.600	101.000	9.800	1,10	31.500	4.600	230	0,570
	110	27	<b>760310</b>	93.500	171.000	7.800	2,00	53.000	7.600	360	1,330
<b>55</b>	100	21	<b>760211</b>	54.500	110.000	9.200	1,50	33.500	4.900	250	0,750
<b>60</b>	110	22	<b>760212</b>	75.600	151.000	7.800	1,50	47.500	6.500	350	0,960

**SERIE BS**

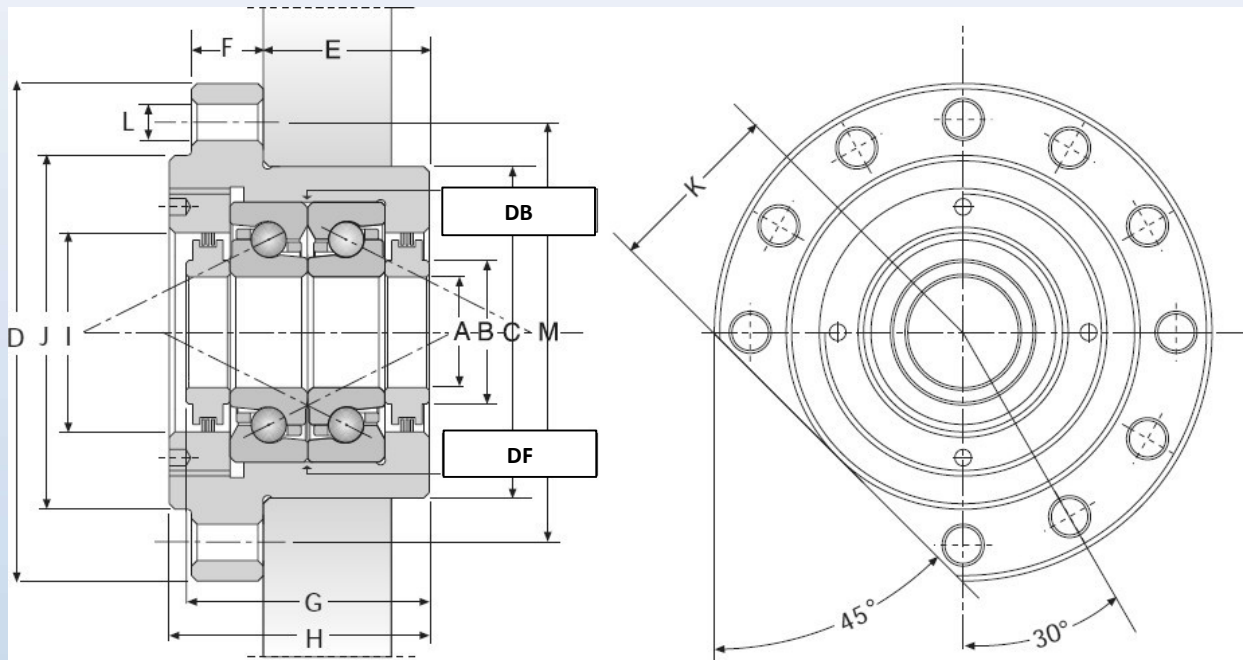


d	D	B	Designation	$\alpha = 60^\circ$		Limiting speed [rpm] olio - oil	r <sub>s</sub> min [mm]	F <sub>aMax</sub> [N]	Preload [N]	Frictional torque [N mm]	Mass [Kg]
				C [N]	C <sub>0</sub> [N]						
17	47	15	<b>BS1747</b>	25.000	36.000	18.500	1,00	11.500	2.600	50	0,140
20	47	15	<b>BS2047</b>	25.000	36.000	18.500	1,00	10.600	2.300	50	0,130
25	52	15	<b>BS2552</b>	29.000	40.000	17.000	1,00	13.000	2.500	60	0,150
	62	15	<b>BS2562</b>	38.500	41.500	14.000	1,00	18.000	3.300	85	0,240
30	62	15	<b>BS3062</b>	32.000	52.600	14.000	1,00	17.000	2.900	85	0,230
	72	15	<b>BS3072</b>	41.000	70.000	12.000	1,00	22.000	3.400	115	0,350
35	72	15	<b>BS3572</b>	40.000	67.000	12.000	1,00	21.200	3.300	115	0,300
40	72	15	<b>BS4072</b>	38.000	66.000	12.000	1,00	21.200	2.900	115	0,260
	90	20	<b>BS4090</b>	67.000	112.000	10.000	1,50	35.500	5.600	225	0,650
45	75	15	<b>BS4575</b>	38.500	72.000	11.500	1,00	22.400	3.100	130	0,260
	100	20	<b>BS45100</b>	78.000	140.000	9.000	1,50	45.000	6.900	300	0,810
50	100	20	<b>BS50100</b>	78.000	140.000	9.000	1,50	45.000	7.000	330	0,750

## BALL SCREW SUPPORT BEARING UNIT



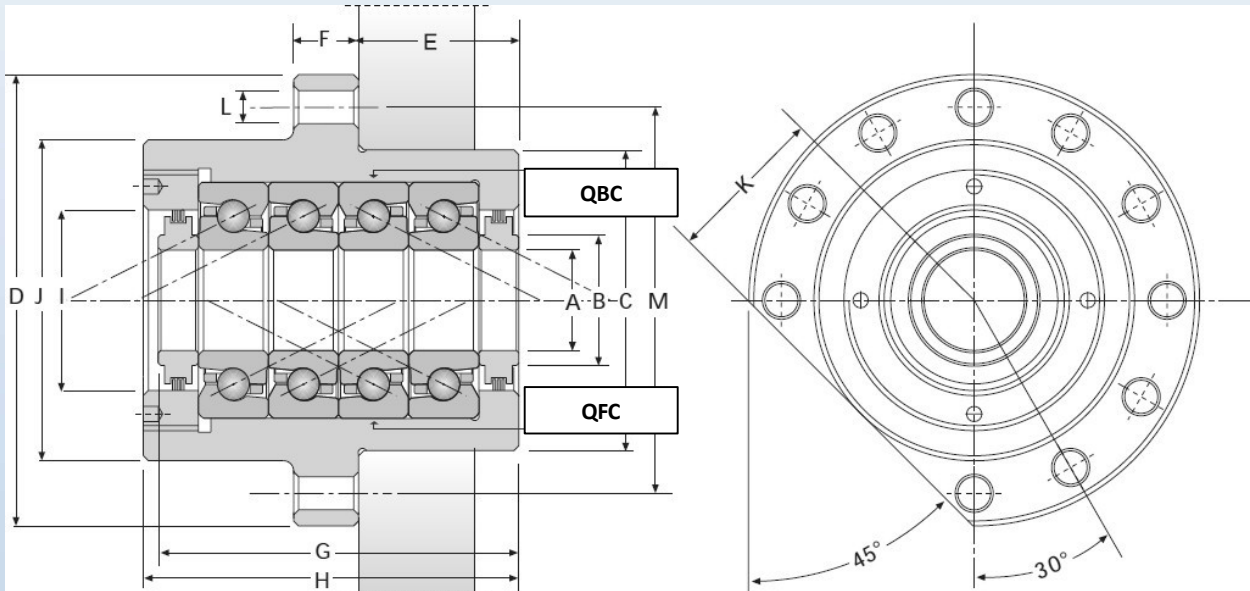
**BSDU SERIE**



							G							
	A*	B	C*	D	E	F	DB	DF	H	I	J	K	L	M
<b>BSDU17</b>	17	26	60	90	32	13	44.260	43.240	47	36	64	32	6.6	76
<b>BSDU20</b>	20	26	60	90	32	13	44.260	43.240	47	36	64	32	6.6	76
<b>BSDU25</b>	25	34	80	120	32	15	50.260	49.240	52	36	88	44	9.2	102
<b>BSDU30</b>	30	41	80	120	32	15	50.260	49.240	52	50	88	44	9.2	102
<b>BSDU35</b>	35	46	90	130	32	15	50.260	49.240	52	60	98	49	9.2	113
<b>BSDU40</b>	40	55	124	165	43.5	17	64.260	63.240	66	66	128	64	11.4	146
<b>BSDU45</b>	45	66	124	165	43.5	17	64.260	63.240	66	75	128	64	11.4	146
<b>BSDU50</b>	50	66	124	165*	43.5	27	64.260	63.240	66	76	128	64	11.4	146

\* nominal dimension, real dimensions change according DB or DF pairing.

**BSQU SERIE**



	G													
	A*	B	C*	D	E	F	DB	DF	H	I	J	K	L	M
<b>BSQU20</b>	20	26	60	90	32	13	74.260	72.240	77	36	64	32	6.6	76
<b>BSQU25</b>	25	34	80	120	32	15	80.260	78.740	82	36	88	44	9.2	102
<b>BSQU30</b>	30	41	80	120	32	15	82.260	80.740	84	50	88	44	9.2	102
<b>BSQU35</b>	35	46	90	130	32	15	84.260	82.240	86	60	98	49	9.2	113
<b>BSQU40</b>	40	55	124	165	43.5	17	104.260	102.740	106	66	128	64	11.4	146
<b>BSQU45</b>	45	66	124	165	43.5	17	104.260	102.740	106	75	128	64	11.4	146
<b>BSQU50</b>	50	66	124	165*	43.5	27	104.260	102.740	106	76	128	64	11.4	146

\* nominal dimension, real dimensions change according QBC or QFC pairing.

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