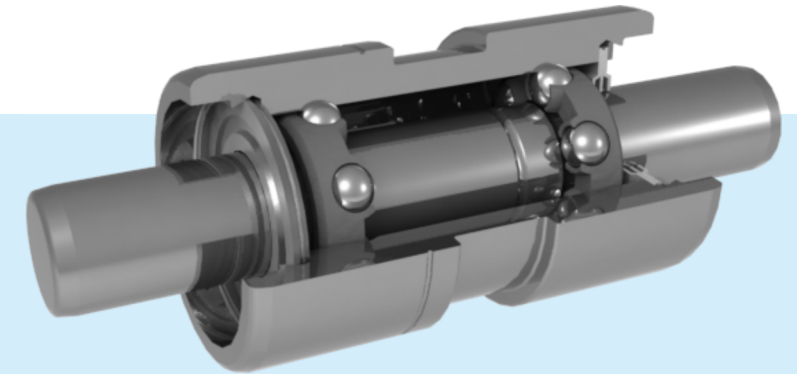


Water pump bearing



Water pump bearing

Water pump bearing

Water pump bearings are mainly used for various automotive cooling water pumps. Since engines as the cores of automobiles are developing toward larger power, higher reliability and lower consumption of energy, cooling water pumps are also required to have higher heat-resisting quality, larger loading capacity, excellent running accuracy as well as satisfactory sealing performance, etc. C&U water pump bearings are not only widely used for cooling water pumps for automobiles, similar products are also widely used in textile machinery, construction machine, etc.

1. Range of product

WB	Double row ball water pump bearing
WR	One row ball and one row roller water pump bearing
WB···C	Double row ball water pump bearing (internal angular contact design)
WR···C	One row ball and one row roller water pump bearing (internal four-point contact design)

Generally, WB and WR series water pump bearings can meet the functional requirements in most situations. Only when customer have higher requirements, WBC and WRC series with special internal design will be adopted.

2. Coding

Unit: mm

Basic code				Suffix code
Series	Shaft diameter	Housing diameter	Shaft length	
WB	12	26	91	1) Capital Latin letter represents different structures. 2) Numbers represent the sequence numbers of the same base dimension
WR	16	30	104	

3. Material and heat treatment

The steel balls and rollers of water pump bearings are generally made of high-carbon chromium bearing steel. The material of shaft and outer rings is carburizing or high-carbon chromium bearing steel. If the bearing is made of carburizing steel, the hardness of outer ring raceway is 60 - 64HRC while the shaft raceway shall not be lower than 60HRC and heat treatment quality shall be up to the specifications of ZB J36001. If the bearing is made of high-carbon chromium bearing steel, the hardness of outer ring raceway shall be 60 -64 HRC while the shaft raceway shall be 58-62HRC and the heat treatment quality shall be up to the specifications of JB/T1255. The hardness of steel balls and rollers shall be 61 -65 HRC.

4. Lubrication and seal

When assembling water pump bearings, the grease will not be replaced after filled. The grease quality affects the performance and bearing life directly. We commonly use high quality imported special lubricating grease, which has satisfactory resistance against water and applicable for large temperature range. If the working temperature is higher than 120°C, high temperature resistant lubricating grease shall be used. The grease fill amount shall be 30% - 50%. Since the water pump bearings working condition is moist, the invasion of water will affect the lubrication of bearing which prevent the oil film from forming fully, even rustiness will be generated. Fatigue flaking on the rolling surface will appear in advance and bearing life will reduce. C&U water pump bearings use seals with radial contact rubber design and seal structure has excellent resistance to water invading and grease leakage. Generally, we use NBR seals. FKM seals will be used if requirements are higher.

5. Clearance

Since water pump bearing is required to withstand deflective and lopsided load, shaft will tilt and vibrates. The excessive internal radial clearance after installation will directly affect the performance and bearing life. Theoretically, the maximum service life of the bearing can be achieved when clearance in the radial direction is slightly negative. Nevertheless, it is very difficult to achieve such an ideal status, whereas an excessive negative clearance will shorten the bearing life greatly. Therefore, it should be zero clearance or small positive clearance after installation. When the original radial clearance of the water pump bearing is determined, the clearance decrease caused by the interference fit between outer ring and housing and the clearance decrease lead by the component heat expansion due to temperature rise shall also be taken into consideration. The water pump housings are usually aluminum or iron. The fit between the water pump bearing and the housing often adopts interference fit. Recommended bore tolerances of pump housings are listed in Table 1. The radial clearances of a completed C&U water pump bearing is 15~35 μm if there is no special requirement (no load).

Table 1

Outside diameter D(mm)	Deviation of bore diameter of pump housing(μm)	
	Iron housing (iron)	Aluminum housing (aluminum)
~24	-27~-48	-46~-67
24~30	-33~-53	-56~-77
30~52	-34~-59	-71~-96

6. Accuracy

The dimension tolerances of water pump bearings shall conform to Table 2 and Table 3. The surface roughness of bearing fit surface and end face is shown in Table 4. The running accuracy, i.e. the radial runout of the shaft of complete bearings shall not be greater than 0.025 mm.

Table 2 Dimensional tolerance of water pump bearing (μm)

Outer ring	D(mm)		Δ_{DMP}		V_{DP}	V_{DMP}	Δ_{CS}		V_{CS}
	From	Up to	Upper deviation	Lower deviation	Max	Max	Upper deviation	Lower deviation	max
	18	50	0	-13	16	10	0	-250	20

Table 3 Dimensional tolerance of water pump bearing (μm)

Shaft	D(mm)		Δ_{DMP}		V_{DP}	V_{DMP}	Δ_{BS}	
	From	to	Upper deviation	Lower deviation	Max	Max	Upper deviation	Lower deviation
	0	30	0	-13	9	9	+250	-250

Table 4 Roughness of fit surface and end face of water pump bearings (μm)

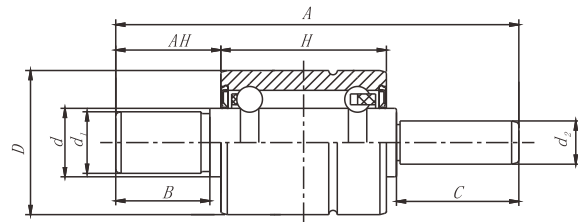
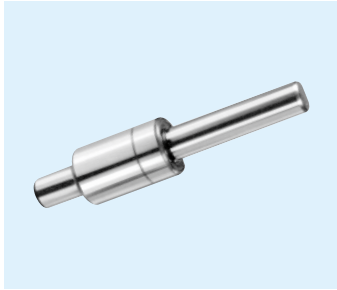
Position	Outer surface	End face	Chamfer
	R_a is not greater than		
Outer ring	0.63	1.25	5
Shaft	0.63	2.5	5

7. Assembly

The mounting of water pump bearings need to be done with care because the noise and vibration will increase once dust invaded into bearing raceway which will result into failure. Therefore please do not remove the dust proof and corrosion protection packaging before installation.

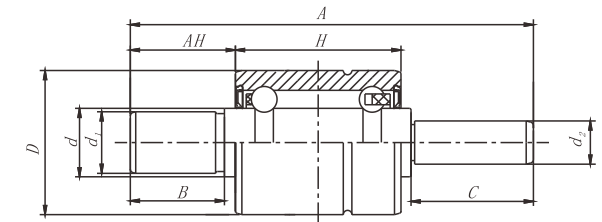
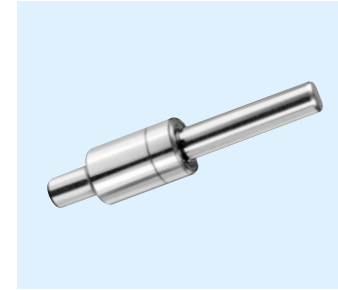
During installation, any eccentricity brought in by the mounted component or caused on fitting surface, unbalanced load will be generated. The eccentric component will generate swing during rotation, which will form rotating torque. All components with eccentricity and rotary load rotate with the shaft instead of being static in the direction of motion. If it is serious, the loading mode of the raceway will be changed, and become point loading on principal shaft raceway and 360° circumferential loading on outer ring raceway. While generally it should be point loading on the outer ring raceway and entire circumferential loading on the principal shaft raceway.

In such a situation, marginal stress of the roller and the misalignment of trace of single row ball will be formed, thereby lead to stress generation in the cage, intensified lubricating grease stirring, and temperature rise. Besides, the effect of equivalent load on each row of rolling elements will shorten the bearing's fatigue life. In addition, appropriate tools shall be used during installation to prevent damages, such as dents, fractures, etc. caused by intense impact borne by the bearing. When the bearing is mounted to the housing, attention shall be paid to prevent the installation force from applying to the rolling elements. In order to prevent this from happening, auxiliary tools contacting the surface of outer ring only must be used and mechanical pressed-in shall be employed. Please pay more attention to concentricity of the center of water pump shaft, impeller and mechanical seal and the spindle center when assembling. Mechanical pressure must be applied. Meanwhile, the other end face of the shaft must be supported to prevent the force transferring and applying to the balls. The interference fit between housing and outer ring of the bearing must be maintained in all applicable temperature range. Simultaneously sufficient supporting must be provided to prevent the deformation of the raceway. The bearing will fall off the housing if the interference fit is insufficient, while raceway deformation will generated if the interference fit is excessive.



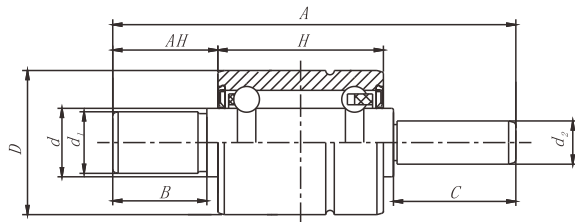
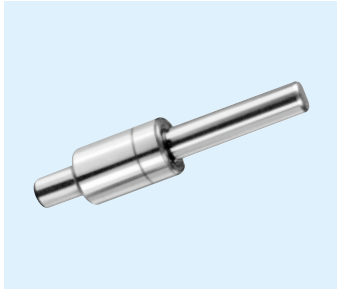
WB 1224, 1226, 1230 series

D	Boundary dimensions (mm)								Bearing numbers	
	H	A	AH	d	d ₁	d ₂	B	C		
24	33.38	65.41	16	12.038	—	—	—	—	WB1224065 WB1224079 WB1224080	
	33.38	78.83	17	12.038	—	—	—	—		
	33.38	80	14.2	12.738	—	—	—	—		
	33.38	83.57	16.39	12.738	—	—	—	—	WB1224081-1 WB1224083 WB1224083-1	
	25	83	21	12	—	—	—	—		
	33.38	82.73	16	12.038	—	—	—	—		
	33.38	83.9	22.2	12.038	—	—	—	—	WB1224084 WB1224085	
	27	85	21	12.038	—	—	—	—		
	26	39	86	12	12	—	—	—	—	WB1226086 WB1226090 WB1226090-1
		39	89.5	16.5	12	—	—	—	—	
39		90	14	12	—	—	—	—		
39		91	17	12	—	—	—	—	WB1226091 WB1226093 WB1226093-1	
39		93	16	12	—	—	—	—		
39		92.5	16.5	12	—	—	—	—		
39		94	21.5	12	—	—	—	—	WB1226094Y WB1226095 WB1226098	
39		94.5	21.5	12	—	—	—	—		
39		97.5	17.5	12	—	—	—	—		
39		99	25	12	—	—	—	—	WB1226099 WB1226102 WB1226103	
39		102.5	21.5	12	—	—	—	—		
39		103.5	17.5	12	—	—	—	—		
39		103.5	21.5	12	—	—	—	—	WB1226103-1 WB1226104 WB1226105	
39		103.8	17.5	12	—	—	—	—		
39		104.4	—	12	—	—	—	—		
39		105.5	16.5	12	—	—	—	—	WB1226106 WB1226114 WB1226117	
39		113.5	17.5	12	—	—	—	—		
39		117	26	12	—	—	—	—		
30		38.89	103.8	17.5	16	12	12	16	44.8	WB1230104-1 WB1230106D
		38.89	105.65	16.25	15.918	12	12	14.5	48	



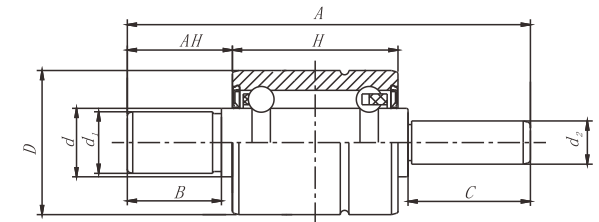
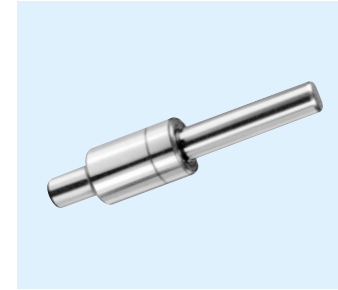
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	68.4	25	15.918	—	—	—	—	WB1630068 WB1630069 WB1630073
	38.89	68.66	27.8	15.918	—	—	—	—	
	38.89	73	17	16	—	—	—	—	
	38.89	73.91	11.4	15.918	—	—	—	—	WB1630074 WB1630076 WB1730078
	38.89	75.6	27.01	15.918	—	—	—	—	
	23	77.8	15.5	15.918	—	12	—	37.3	
	30	79.6	—	15.918	—	12	—	33	WB1630080-1 WB1630080-4 WB1630080-3
	27	80	15.9	15.918	—	—	—	—	
	23	80.3	17.2	15.918	—	12	—	38.5	
	30	80	18	16	12	12	17	31	WB1630080D WB1630081 WB1630083
38.89	80.95	22.48	15.918	—	—	—	—		
27	82.5	16.5	16	—	12	—	37		
30	83	18	16	—	12	—	33.8	WB1630083D WB1630083C WB1630084	
25	83.1	16	15.918	—	—	—	—		
30	84	17	15.918	—	12	—	33		
38.89	84.4	13	15.918	—	12	—	30	WB1630084-1 WB1630085-2 WB1630085D	
27	84.4	17	15.918	—	—	—	—		
38.89	84.99	15.07	15.918	—	12.037	—	28		
38.89	85.22	15.21	15.918	—	12.042	—	29.21	WB1630085-1 WB1630086 WB1630086D	
30	86	16.5	15.918	—	12	—	37		
38.89	86	17	16	12	12	16	33		
38.89	86.5	13.5	15.918	—	12.038	—	32.7	WB1630087C WB1630087-1 WB1630087-4	
38.89	87.4	—	15.918	—	—	—	—		
38.89	86.5	—	15.918	—	12	—	32		
38.89	88	12.4	15.918	—	12	—	35.3	WB1630088-1 WB1630088-2 WB1630091C	
30	87.5	13.5	15.918	—	12	—	37.5		
38.89	91	13.5	15.918	—	12	—	36		
38.89	91.5	17.56	15.918	12	12	14.5	33	WB1630091D WB1630092-1	
38.89	91.85	20.45	15.918	—	12.675	—	29.34		



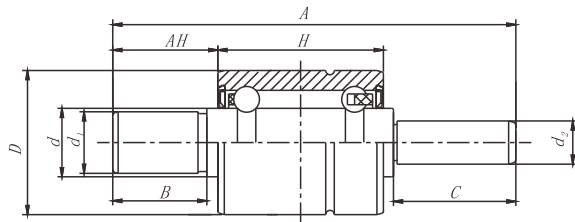
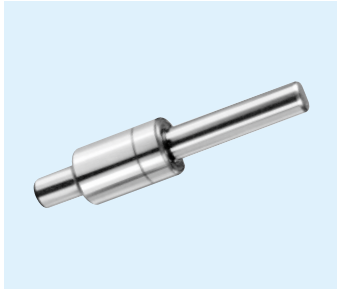
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	92	16.5	15.918	12	12	14.5	34.5	WB1630092D
	38.89	92	—	16	—	—	—	—	WB1630092-2
	38.89	92.48	25.12	15.918	—	12.037	—	26.06	WB1630092
	38.89	92.5	16.5	15.918	—	12	—	34.5	WB1630093D
	38.89	93	18.5	15.918	—	12	—	32.6	WB1630093-1
	38.89	93	18.5	15.918	—	—	—	—	WB1630093
	38.89	93.25	16.25	16	12	12	14.5	35.75	WB1630093
	38.89	94.5	35.11	15.918	—	—	—	—	WB1630094
	38.89	94.6	19.2	15.918	—	12	—	33.5	WB1630095
	38.89	96.5	17.87	15.918	—	12.052	—	35.45	WB1530096
	30	97	—	15.918	—	—	—	—	WB1630097
	38.89	97.51	23.49	15.918	—	—	—	—	WB1630098-1
	38.89	97.65	19.05	15.918	—	12.675	—	36.53	WB1630098-2
	38.89	97.82	17.88	15.918	—	—	—	—	WB1630098-3
	38.89	97.65	—	15.918	—	—	—	—	WB1630098-6
	38.89	98	17	15.918	—	—	—	—	WB1630098A
	38.89	98	20	15.918	—	—	—	—	WB1630098-4
	38.89	98	16.5	15.918	—	—	—	—	WB1630098W
	38.89	98	16	15.918	—	12	—	40.6	WB1630098C
	38.89	98	17.06	15.918	—	—	—	—	WB1630098CA
	38.89	98.04	18.51	15.918	—	12.235	—	38	WB1630098-5
	38.89	98.5	22.55	15.918	—	12	—	33.76	WB1630099
	38.89	98.5	16.5	15.918	12	12	—	40.5	WB1630099-1
	38.89	98.88	23.62	15.918	15	15	21.13	32.51	WB1630099-2
	38.89	98.5	16.25	16	12	12	14.5	50.25	WB1630099-3
	36.5	100	23.5	15.918	—	—	—	—	WB1530100
	38.89	100	24	15.918	—	12	—	35	WB1630100
	39	100	21	15.918	—	12	—	37.5	WB1630100-1
	38.89	101	24	15.918	14	12	20.5	35.1	WB1630101D



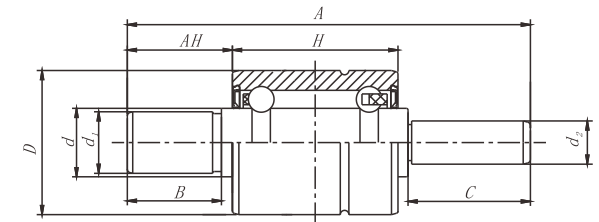
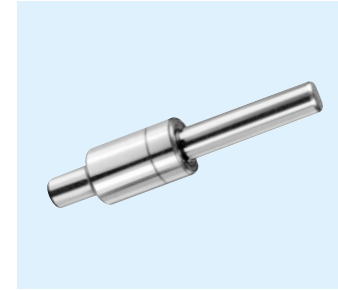
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	101	25	16	—	12	—	35	WB1630101
	38.89	101.24	29	15.918	12.007	12.687	25.4	31.01	WB1630101-1
	38.89	101.2	21.8	15.918	—	—	—	—	WB1630101-2
	38.89	101.5	17.5	15.938	—	—	—	—	WB1630102
	38.89	101.5	17.5	15.918	—	—	—	—	WB1630102-1
	38.89	102.01	16.92	15.918	—	—	—	—	WB1630102-3
	38.89	102.26	35	15.918	15	15	32.92	26.04	WB1630102-4
	38.89	102.5	22	15.918	—	12.675	—	38.5	WB1630102A
	38.89	102.62	24.45	15.918	—	12.674	—	38.1	WB1630102-5
	38.89	102.74	35.02	15.918	12.7	12.014	30.5	23.75	WB1630103-1
	38.89	102.74	28.77	15.918	12.014	12.7	25.5	32	WB1630103-2
	38.89	102.87	22.7	15.918	—	12.675	—	38.1	WB1630103-3
	38.89	102.87	23.11	15.918	—	—	—	—	WB1630103-4
	38.89	103	16.51	15.918	—	12	—	43	WB1630103D
	38.89	103.2	23.42	15.918	—	—	—	—	885140
	38.89	104	16.25	16	12	12	14.5	46.5	WB1630104
	38.89	103.5	21.56	15.918	—	12	—	39.75	WB1630104-2
	38.89	103.51	19.56	15.918	—	12	—	42	WB1630104-3
	39	103.65	21.5	15.92	—	12	—	36	WB1630104D
	38.89	103.84	22.33	15.918	—	—	—	—	WB1630104-4
	38.89	104	—	15.918	—	12	—	35.1	WB1630104-5
	38.89	103.5	21.58	15.918	12	12	18.26	39.75	WB1630104-6
	38.89	105.3	16.2	16	12	12	15	48	WB1630105
	38.89	104.65	20.3	15.918	—	—	—	—	WB1630105-1
	38.89	104.68	27.05	15.918	—	—	—	—	WB1630105-2
	38.89	105	47.16	15.918	—	—	—	—	WB1630105-3
	38.89	105.16	23.95	15.918	—	—	—	—	WB1630105-4
	38.89	105.46	20.63	15.918	—	—	—	—	WB1630105-5
	38.89	105	—	15.918	—	12	—	33.3	WB1630105-6



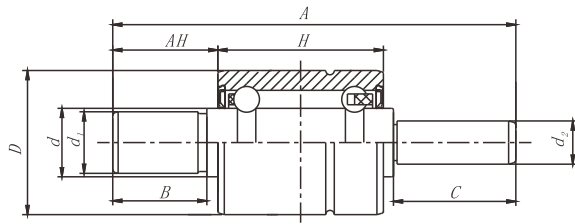
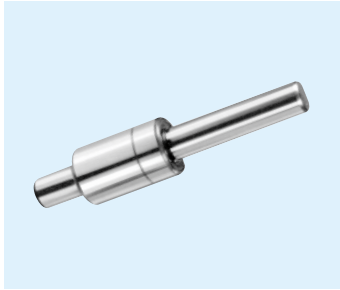
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	105.4	24.21	15.918	—	—	—	—	885159
	38.89	106.17	—	16	—	—	—	—	WB1630106
	38.89	106	26.11	16	—	—	—	—	WB1630106
38.89	105.5	24.05	15.918	—	12	—	40	WB1630106-1	
38.89	105.5	16.5	15.918	12	12	13.1	46	WB1630106-2	
38.89	106	20.65	15.918	—	—	—	—	WB1630106-3	
38.89	106.17	25.15	15.918	—	—	—	—	WB1630106-4	
38.89	106.17	25.12	15.918	—	12.738	—	38.86	WB1630106-5	
38.89	106.12	18.5	15.918	—	12	—	41	WB1630106-6	
38.89	106.17	20.8	15.918	—	—	—	—	WB1630106-7	
38.9	105.5	23.5	15.918	—	12	—	40.5	WB1630106-8	
38.89	105.7	17.5	16	12	12	16	46.7	WB1630106D-9	
38.89	106	25	16	—	12	—	40	WB1630106D	
38.89	106	30	15.918	—	12	—	34	WB1630106W	
38.9	106	—	16	—	—	—	—	WB1630106G	
38.89	106.5	27.8	15.918	15.01	12.052	26.1	35	WB1630107	
38.89	108	21.5	15.918	—	12	—	44.5	WB1630108	
38.89	109	27.31	16	—	12	—	33.5	WB1630109	
38.89	108.74	27.38	15.918	—	—	—	—	WB1630109-1	
38.89	109.5	25.1	15.918	—	12.04	—	38.8	WB1630110	
38.89	109.52	14.67	15.918	—	—	—	—	WB1630110-1	
38.89	110	23.52	15.918	—	—	—	—	WB1630110-2	
38.89	110	24	15.918	—	12	—	46	8855245	
38.89	113.6	28.96	15.918	—	—	—	—	WB1630111	
38.89	111.51	23.8	15.918	—	—	—	—	WB1630112	
38.89	111.65	21.5	15.918	—	12	—	44	WB1630112D	
38.89	111.75	29.21	15.918	—	—	—	—	WB1630112-1	
38.89	111.91	26.7	15.918	—	—	—	—	WB1630112-2	
38.89	112	25.15	15.918	—	—	—	—	WB1630112-3	



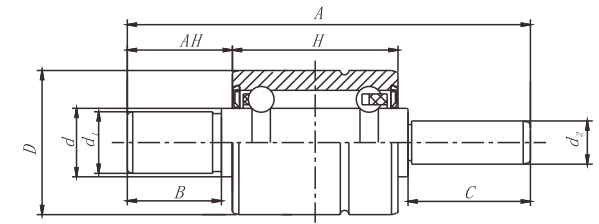
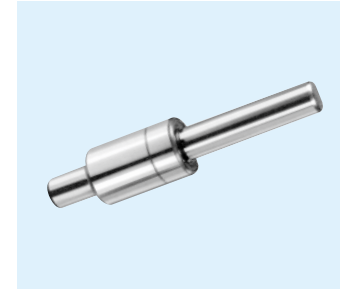
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	112	30	15.918	—	12	—	40.49	WB1630112-4
	38.9	112	27	15.918	—	—	—	—	WB1630112-5
	38.89	112.4	23.37	15.918	—	—	—	—	WB1630112-6
38.89	112.52	31.26	15.918	—	—	—	—	WB1630113-1	
38.89	112.67	25.52	15.918	—	—	—	—	WB1630113-2	
38.89	112.78	30	15.918	—	—	—	—	WB1630113-3	
38.89	113.11	31.75	15.918	—	—	—	—	WB1630113-4	
38.89	113.21	32	15.918	—	—	—	—	WB1630113-5	
38.9	113.49	27.38	15.918	—	—	—	—	WB1630113-6	
38.89	113	18.5	15.918	—	12	—	53.6	WB1630113-7	
38.89	114	24	15.918	—	—	—	—	WB1630114	
38.89	113.67	31.6	15.918	—	—	—	—	WB1630114-1	
38.89	114.3	32	15.918	—	—	—	—	WB1630114-2	
38.89	113.6	17	15.918	12	12	15	55.6	WB1630114-3	
38.89	114	—	15.918	—	12	—	47.8	WB1630114-4	
38.89	114.54	29.4	15.918	—	12	—	42.5	WB1630115-1	
38.89	114.81	32	15.918	—	—	—	—	WB1630115-2	
38.89	115	26.11	16	—	—	—	—	WB1630115-4	
38.89	115	16.5	15.918	—	12	—	36	WB1630115-5	
38.89	115.51	27.8	15.918	—	—	—	—	885167	
38.89	116	26	15.918	—	12	—	46	WB1630116	
38.89	115.75	26.85	15.918	—	—	—	—	WB1630116-1	
38.89	116	30.06	15.918	—	12	—	43	WB1630116-2	
38.89	116	27.11	15.918	—	—	—	—	WB1630116C	
38.89	116.5	27.5	16	—	13	—	47	WB1630117	
38.89	117.35	33.96	15.918	—	—	—	—	WB1630117-1	
38.9	118.26	14.68	15.918	—	—	—	—	WB1630118	
38.89	119.46	32.54	15.918	—	—	—	—	WB1630119-1	
38.89	119.46	40.82	15.918	—	—	—	—	WB1630119-2	



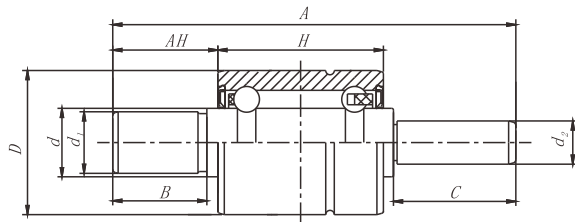
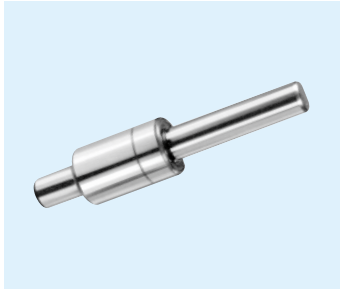
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	119	22.5	15.918	—	12	—	55	WB1630119-3 885118 WB1630119C
	38.89	119.07	37.31	15.918	—	—	—	—	
	38.89	119.3	37.6	15.918	—	—	—	—	
38.89	120	31	15.918	—	—	—	—	—	WB1630120 WB1630120-1 WB1630121
	119.84	36.5	15.918	—	—	—	—	—	
	120.9	29.46	15.918	—	—	—	—	—	
	120.65	38.12	15.918	—	—	—	—	—	
39	121	24	15.918	—	12	—	53.6	WB1630121-1 WB1630121-2 WB1630122D	
38.89	121.5	25	16	—	12	—	47.5		
38.89	121.87	37.26	15.918	—	—	—	—		
38.89	121.62	31.42	15.918	—	—	—	—	—	WB1630122 WB1630122-1 WB1630122-2
	121.92	41.37	15.918	—	12.675	—	38.1	—	
	122	26.5	15.918	—	—	—	—	—	
38.89	122.12	32.96	15.918	—	12.703	—	44.7	—	WB1630122X WB1630122-3 WB1630122-4
	122.17	33.88	15.918	—	—	—	—	—	
	122.22	28.67	15.918	—	—	—	—	—	
38.89	122.22	28.58	15.918	—	—	—	—	—	WB1630122-5 WB1630122-6 885168
	122.22	40.18	15.918	—	—	—	—	—	
	122.4	33.5	15.918	—	—	—	—	—	
38.9	123.04	36.86	15.918	—	—	—	—	—	WB1630122-7 WB1630123 WB1630123-1
	123	—	15.918	—	—	—	—	—	
	123	—	15.918	—	—	—	—	—	
38.9	123	—	15.976	—	—	—	—	—	W6484-1 WB1630124 WB1630124-1
	38.89	124	21	15.918	—	—	—	—	
	57.15	123.2	25.5	15.918	—	—	—	—	
38.89	124	42.61	15.918	—	12	—	40	—	WB1630124-2 WB1630124-3 WB1630124-4
	38.89	124	41.78	15.918	—	12	—	40.49	
	38.89	124.4	40	15.918	—	—	—	—	
39	124	23	15.918	—	12	—	60.5	—	WB1630124-5 WB1630124-6
	38.89	123.67	31.75	15.918	—	—	—	—	



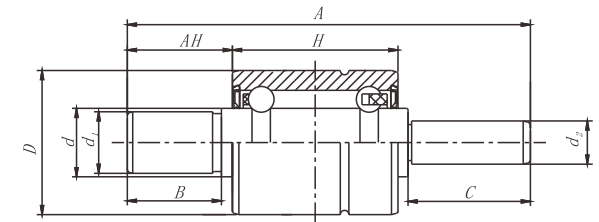
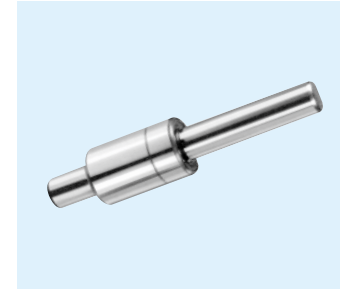
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.9	124.5	30.14	15.918	—	15.817	—	40.64	WB1630125 WB1630125-1 WB1630125-2
	38.89	124.97	39.12	15.918	—	—	—	—	
	38.89	124.5	40	15.918	—	—	—	—	
38.89	126	34.3	15.918	—	—	—	—	—	WB1630126 WB1630127 WB1630127-1
	127	36	16	M12	—	19	—	—	
	127	44.55	15.918	—	—	—	—	—	
	127	37.94	15.918	—	12.7	—	35.56	—	
38.89	127	32.56	15.918	—	—	—	—	—	WB1630127-2 WB1630127-3 WB1630127D
	127	27	15.918	—	12	—	59	—	
	127.7	22.41	15.918	—	—	—	—	—	
38.89	127.79	44.45	15.918	—	—	—	—	—	WB1630128 WB1630128-1 WB1630128-2
	127.79	25.8	15.918	—	—	—	—	—	
	129	31.75	15.918	—	—	—	—	—	
38.89	130	41	15.918	—	—	—	—	—	885169 WB1630130 WB1630132
	132.16	50.42	15.918	—	—	—	—	—	
	132.16	—	15.918	—	—	—	—	—	
38.89	132.16	47.85	15.918	—	—	—	—	—	885104 WB1630132-1 WB1630133
	132.54	40.87	15.918	—	—	—	—	—	
	132.64	29.77	15.918	—	—	—	—	—	
38.89	132.64	29.77	15.938	—	—	—	—	—	WB1630133-1 WB1630133-2 WB1630133-3
	133.1	55.35	15.918	—	—	—	—	—	
	133.25	38.86	15.918	—	—	—	—	—	
38.89	133.86	42.65	15.918	—	—	—	—	—	WB1630133-4 WB1630134 WB1630135
	134.92	33.15	15.918	—	—	—	—	—	
	135.28	50.85	15.918	—	—	—	—	—	
38.89	135.28	45.59	15.918	—	—	—	—	—	WB1630135-1 WB1630135-2 WB1630136
	135.74	44.5	15.969	—	—	—	—	—	
	135.74	52.4	15.918	—	—	—	—	—	
38.89	136.4	39.1	15.918	—	—	—	—	—	WB1630136-1 WB1630136-2



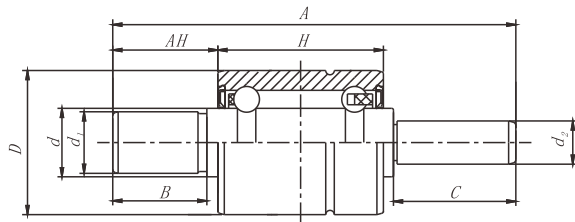
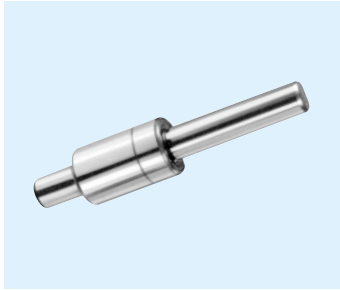
WB 1630, 1635 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	137.49	40	15.918	—	—	—	—	WB1630137
	38.89	137.67	46.23	15.918	—	—	—	—	WB1630138
	38.89	138.1	40.89	15.918	—	—	—	—	WB1630138-1
	38.89	138.1	58.34	15.918	—	—	—	—	WB1630138-2
	38.89	138.1	45.7	15.918	—	—	—	—	WB1630138-3
	38.89	139.32	35.05	15.918	—	—	—	—	WB1630139
	38.89	141	49	15.918	—	—	—	—	WB1630141
	38.89	141.22	38.93	15.918	—	—	—	—	WB1630141-1
	38.89	150	35.1	15.918	—	—	—	—	WB1630150-1
	38.89	150	52	15.918	12	M10	50.5	48.5	WB1630150
	38.89	154	34.04	15.918	—	—	—	—	WB1630154
	38.89	154.23	29.77	15.918	—	—	—	—	WB1630154-1
38.89	154.23	29.77	15.918	—	—	—	—	WB1630154-2	
38.89	155.58	69.95	15.918	—	—	—	—	WB1630156	
38.89	159.54	76.2	15.918	—	—	—	—	WB1630160	
38.89	159.77	62.66	15.918	—	—	—	—	WB1630160-1	
38.89	161.47	58.34	15.918	—	—	—	—	WB1630161	
38.89	165.85	63.48	15.918	—	—	—	—	WB1630166	
38.89	177.09	79.88	15.918	—	—	—	—	WB1630167	
22.5	73	14.5	16	—	12	—	34.2	WB1635073	
38.9	91	—	15.918	—	—	—	—	WB1635091	
38.89	101	—	—	—	12	—	35	WB1635101	



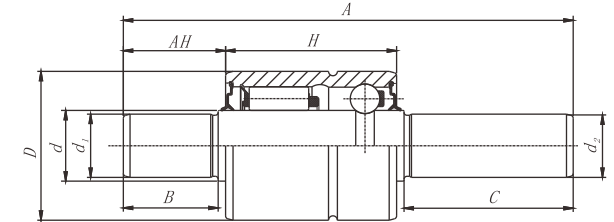
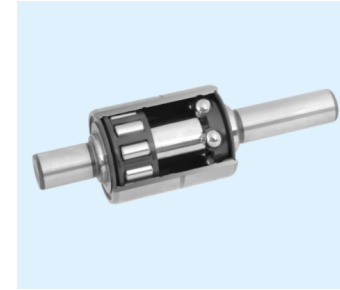
WB 1938 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
38.1	53.975	120.65	24.26	18.961	—	15.918	—	39.675	WB1938121
	53.975	95.4	14.7	18.948	15.926	—	11.3	—	885802
	41.275	120.65	—	18.961	—	15.918	—	43.26	885825
53.975	125.73	30.861	18.961	15.918	15.918	27.432	37.338	WB1938126	
53.975	127	31.369	18.961	—	15.918	—	38.1	WB1938127	
53.975	127	26.67	18.961	15.938	15.918	11.634	44.45	WB1938127-1	
53.975	127.48	—	18.961	15.918	15.918	13.72	39.29	885869	
53.975	127.51	31.115	18.961	15.918	15.918	14.275	39.878	WB1938127-2	
53.975	132.08	29.845	18.961	15.918	15.918	12.319	43.18	WB1938132	
53.975	134.05	37.605	18.961	—	15.918	—	39.678	WB1938134	
53.975	134.112	30.353	18.961	—	15.918	—	47.244	WB1938134-1	
53.975	136.652	36.703	18.961	15.918	15.918	33.02	42.418	WB1938136	
53.975	136.398	36.195	18.961	15.918	15.918	12.219	43.434	WB1938136-1	
53.975	135.636	31.877	18.961	—	15.918	—	47.244	WB1938136-2	
53.975	136.779	40.366	18.961	15.918	15.918	14.275	39.873	WB1938137	
53.975	140.589	39.624	18.961	—	15.918	—	43.815	WB1938140	
53.975	139.7	35.56	18.961	15.918	15.918	15.392	47.752	WB1938140-1	
53.975	140	33.7	18.961	15.918	15.918	29	49.146	WB1938140-2	
53.975	141.76	—	18.961	—	15.918	—	51.59	885815	
53.975	141.757	43.84	18.961	—	15.918	—	41.021	WB1938142	
53.975	143.485	30.836	18.961	15.918	15.918	12.243	45.72	WB1938143	
53.975	143.256	35.305	18.961	—	15.918	—	49.2	WB1938143-1	
53.975	143.764	41.021	18.961	15.918	15.918	37.5	44.577	WB1938144	
53.975	145.796	44.704	18.961	—	15.918	—	44.45	WB1938145	
53.975	145.796	44.704	18.961	—	15.918	—	40.767	WB1938145-1	
53.975	146.05	36.322	18.961	15.918	15.918	13.716	51.562	WB1938146	
53.975	146.05	36.322	18.961	15.918	15.918	33.02	51.562	WB1938146-1	
53.975	148.84	—	18.961	15.918	15.918	34.92	49.66	885790	
53.975	150.52	35.052	18.961	—	15.918	—	58.318	WB1938150	



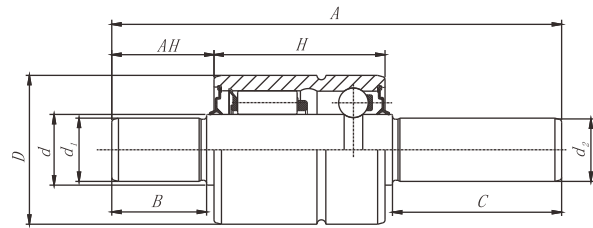
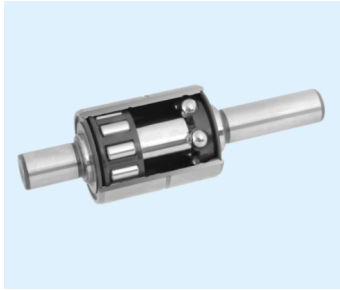
WB 1938, 1940 series

D	Boundary dimensions (mm)								Bearing numbers	
	H	A	AH	d	d ₁	d ₂	B	C		
38.1	41.275	152.4	35.66	18.961	15.918	15.918	15.265	60.528	WB1938152 WB1938153 WB1938153-1	
	53.975	153.416	45.72	18.961	—	15.918	—	50.546		
	53.975	152.908	53.694	18.961	15.918	15.918	28.448	41.783		
	53.975	152.908	46.355	18.961	15.918	15.918	28.575	43.035	WB1938153-2 WB1938154 885746	
	53.975	154.229	29.769	18.961	15.918	15.918	8.89	57.15		
	53.975	156.6	—	18.961	—	15.918	—	59.82		
	53.975	161	—	18.961	15.918	15.918	33.53	55.88		
	40	46	113	23	19	17	15.939	42	20	WB1940113 WB1940113T WB1940122
		46	113	17	19	—	12	—	45.5	
		46	121.5	23	19	17	15.939	20	50.55	
46		123	23	19	15.918	15.918	21	52	WB1940123 WB1940126 WB1940137	
46		126	30.2	19	—	12	—	45		
46		137	23	18.961	—	12	—	63		
46		143	—	19	15.918	15.918	20	72		
42		46	115.5	43	19	18	18	38.5	24	WB1942115



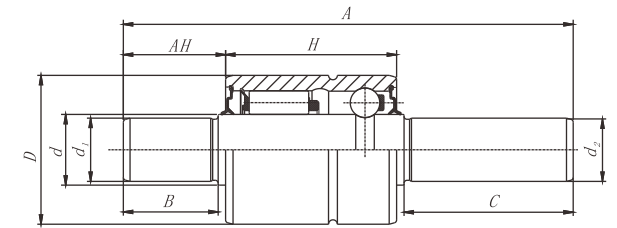
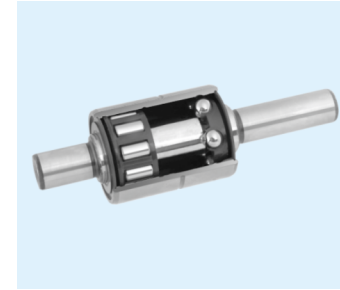
WB 1630 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	28	79	14	16	—	12	—	34.5	WR1630079 WR1630083 WR1630084
	28	82.7	17.7	16	—	12	—	34.5	
	30	84	—	15.918	—	12	—	36.3	
	30	85	17	15.918	—	12.038	—	36	WR1630085 WR1630085-1 WR1630087C
	30	85	17	15.918	—	12	—	12.038	
	38.8	86.5	13.5	15.918	—	12	—	32.7	
	38.8	86.5	13.5	15.918	—	12	—	32.7	WR1630087C-2 WR1630091 WR1630091-2
	38.89	91	—	15.918	—	12	—	36	
	38.89	90.5	14.81	15.918	—	12	—	34.5	
	38.89	92	—	16	—	—	—	—	WR1630092 WR1630093 WR1630093-1
	38.9	93	—	15.918	—	12	—	33	
	38.9	93.6	—	15.918	—	12	—	38	
	33.38	95	—	15.918	—	12	—	37	WR1630095 WR1630095-1 WR1630096
	30	95.5	16.5	15.918	—	12	—	46.5	
	38.9	95.5	—	15.918	—	—	—	—	
	38.9	95.8	—	15.918	—	12	—	38.5	WR1630096-2 WR1630096-3 WR1630098
	38.9	96.52	—	15.918	—	—	—	—	
	38.9	98	17	15.918	—	—	—	—	
46	100	17	16	—	12	—	34	WR1630100 WR1630101 WR1630102C	
38.9	101	—	15.918	—	—	—	—		
38.9	101.5	—	15.918	—	—	—	—		
38.9	102.2	—	15.918	—	12	—	37.5	WR1630102-2 WR1630102-3 WR1630103	
38.89	101.5	—	15.918	—	12.038	—	41.65		
38.89	103.12	—	15.918	—	—	—	—		
38.89	103.12	27.94	15.918	—	—	—	—	WR1630103-1 WR1630105-1 WR1630105C	
39	104.2	16.9	15.918	—	12	—	46.5		
38.8	104.5	16.5	15.918	—	12	—	48.2		
38.9	106.2	—	15.918	—	12	—	41.4	WR1630106 WR1630106-1	
38.9	105.7	17.5	15.918	12	12	16	46.7		



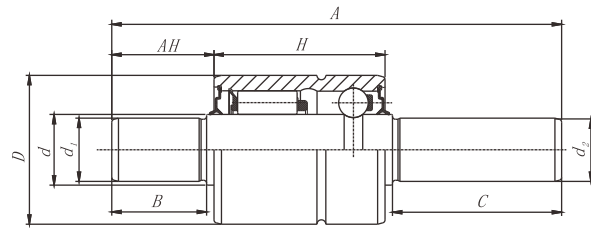
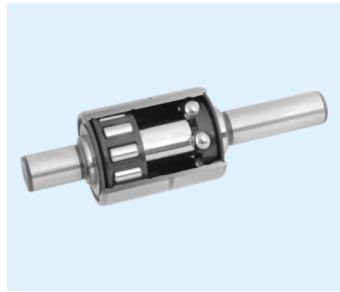
WB 1630, 1635 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	106	30	15.918	—	—	—	—	WR1630106-2 WR1630106-3 WR1630107
	38.9	106.3	—	15.918	—	12	—	39.9	
	38.89	107	21.5	15.918	—	12	—	43	
	38.9	109.5	—	15.918	12.038	12.038	14	51.5	WR1630110 WR1630110-1 WR1630115-1
	38.89	110	—	15.918	—	—	—	—	
	38.9	115.4	—	15.918	—	12	—	46.1	
	38.89	116.6	—	15.918	—	—	—	—	WR1630117 WR1630124 WR1630133
	38.9	124	35	15.918	12	12	33	48	
	38.9	132.7	—	15.918	—	—	—	—	
38.9	135.8	—	15.918	—	12	—	61.9	WR1630136 WR1630139 WR1630148	
38.89	139	23.11	15.918	—	—	—	—		
38.89	148	28.48	15.918	—	—	—	—		
35	38.9	96	—	15.918	12.038	12.038	15	37	WR1635096 WR1635101 WR1635101-2
	39	101	25	17.5	15.918	12	23.5	33.8	
	39	100.5	24	15.918	—	12	—	36	
	39	101	—	15.918	—	12	—	34.8	WR1635101A-1 WR1635106 WR1635112
	39	106	42	17.5	15.918	12	28.5	34.8	
	39	112	—	17.5	15.918	12	41.5	40.5	
	56	122.6	—	18	—	12	—	35.2	WR1835123 WR1635124
	39	124	30	17.5	15.918	12	39.5	28.5	



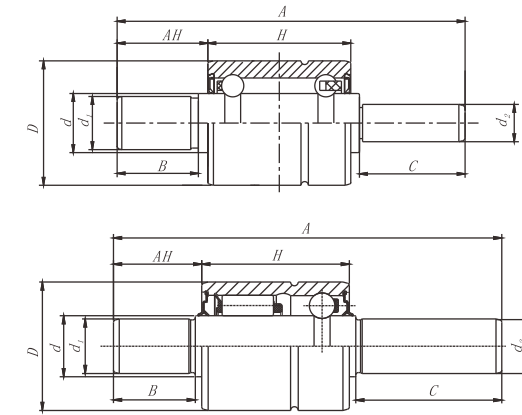
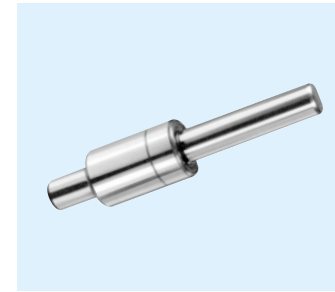
WB 1938 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
38.1	41.275	99	19.5	19	15.918	12	17.5	36	WR1938099 WR1938101 WR1938117
	37	101	—	19	15.918	12	23.2	36.8	
	41.3	117.2	—	19	—	15.918	—	47.4	
54	117.2	—	19	—	15.918	—	43	WR1938117-1 WR1938117-2 WR1938120	
41.3	117.2	—	19	—	15.918	—	48		
54	120.7	—	19	—	15.918	—	38.4		
54	123	—	19	15.918	15.918	13.5	35.5	WR1938123 WR1938125 WR1938126	
54	125.3	—	19	—	15.918	—	40		
54	126	—	19	15.918	15.918	14	39		
54	126	—	19	15.918	12	26.5	37	WR1938126-1 WR1938128 WR1938129	
54	127.7	—	19	—	15.918	—	40		
54	128.6	—	19	—	15.918	—	54.5		
54	128.7	—	19	—	15.918	—	41.7	WR1938129-1 WR1938129-3 WR1938133	
54	129	—	19	—	15.918	—	42.1		
54	133	—	19	15.918	15.918	12	45		
54	134.2	22.4	19	—	15.918	—	49.7	WR1938134 WR1938134-1 WR1938135	
54	134	—	19	—	15.918	—	47.5		
54	135	—	19	—	15.918	—	41		
54	135	—	19	—	15.918	—	41.4	WR1938135-1 WR1938136-3 WR1938136-4	
54	135	—	19	—	15.918	—	56		
54	136.5	—	19	—	15.918	—	58.5		
54	139.2	—	19	—	15.918	—	46.5	WR1938139 WR1938145 WR1938151	
54	144.5	—	19	—	15.918	—	46		
54	150.5	—	19	15.918	15.918	14	49		
54	154.4	—	19	15.918	15.918	9.5	57	WR1938154 WR1938155 WR1938157	
54	155.1	—	19	—	15.918	—	59.7		
54	156.5	—	19	15.918	15.918	15	53		
54	158.1	—	19	15.918	15.918	14.3	57	WR1938158 WR1938165 WR1938166	
54	165.3	—	19	—	15.918	—	70.4		
54	166.5	—	19	—	15.918	—	64		



WR 20, 22, 25, 32 series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
40	42	105	—	20	—	15.918	—	40.5	WR2040105 WR2040112 WR2040151
	44	111.5	—	20	—	15.918	—	41	
	50	151	—	20	—	16	—	44	
42	46	115.5	—	20	—	13	—	38.5	WR2042115 WR2242111 WR2242136
	46	110.8	—	22	—	12	—	33.8	
	56	138.5	—	22	—	15.918	—	52.5	
47	62.5	165	—	22	—	17	—	55.5	WR2247165
52	52	133	—	25	—	15.92	—	50	WR2552133 WR2552138 WR2552138C
	56	138	—	25	—	15.92	—	50	
	56	138	—	25	—	15.92	—	50	
56	138	—	25	—	15.92	—	50	WR2552138-4 WR2552140-1 WR2552143	
	140	—	25	—	15.92	—	47		
	143	—	25	—	15.92	—	50		
52	145	—	25	—	15.92	—	62	WR2552145-1 WR2552150 WR2552153	
	150	—	25	—	15.92	—	57		
	153	—	25	—	15.92	—	54.5		
70	155	—	25	—	15.92	—	50	WR2552155 WR2552162 WR2552163	
	162	—	25	—	15.92	—	59		
	163	—	25	—	15.92	—	50		
56	163	—	25	—	15.92	—	50	WR2552163-1 WR2552164 WR2552165 WR2552208	
	164	—	25	—	15.92	—	64		
	165	—	25	—	15.92	—	54.5		
	208	—	25	M14	15.92	18	50		
	208	—	25	M14	15.92	18	50		
55	60	127	—	25	—	15.92	—	40.9	WR2555127A WR2555145
	60	145	—	25	19	15.92	28.5	50	
58	52	133	—	32	—	15.918	—	51	WR3258133 WR3258140 WR3258152 WR3258155
	52	140	—	32	—	15.918	—	51	
	62.5	152	—	32	—	17	—	62	
	70	155	—	32	—	15.918	—	51	
52	78	165.5	—	25	—	15.918	—	50.5	WR2552165



Other series

D	Boundary dimensions (mm)								Bearing numbers
	H	A	AH	d	d ₁	d ₂	B	C	
30	38.89	85	13.06	15	—	12	—	28.5	WB1530085 WB1530088 WB1730075
	36	87.5	13.5	15	—	—	—	—	
	23	75	14	17.208	—	12	—	35.2	
23	76	14.8	17.208	—	12	—	36	WB1730076 WB1730079 WB1730080.	
	30	78.65	12	17.2	—	12	—		—
	23	79.7	15.5	17.208	—	12	—		38.3
23	80.5	20.9	17.208	—	12	—	34.7	WB1730081 WB1730083	
	83	15.5	17.208	—	12	—	41.6		
36	38.89	90.7	14	17	—	15	—	34	WB1736091 WB1736091-1
	38.89	90.7	—	17	—	12	—	34	
40	46	121	27.5	22	17	17	25.5	45.5	WB1740121 WB1740136
	46	136	26	19	17	17	24	62	
30	14	69.9	20.4	17.8	12.4	12.7	19.2	33	WB1830070
35	46	119	26.5	18	—	13	—	42.2	WB1835119
	46	109.8	27.7	22	15.915	12	10.5	35	
42	46	118	27.8	22	—	12	—	41.2	WB2242110 WB2242118
	46	109.8	27.7	22	15.915	12	10.5	35	
30	38.89	104.5	17.5	15.918	12	12	16	45.5	WR1230104 WR1230106C
	38.89	105.65	16.25	15.918	12	12	14.5	48.15	
36	52	125.5	25.5	17.5	15	15	22.5	44.5	WR1536126 WR1536131
	52	131	33	17.5	15	12	30	44	
35	46	121	27.5	18	17	17	25.5	45.5	WR1735121 WR1835103 WR1835138
	39	103.2	26.5	18	15.918	12	24.5	35.7	
	46	138	30.5	18	—	17	—	57	
42	32	83.4	15	22	—	12	—	34.4	WR2242083 WR2242091 WR2242138
	32	91.3	17	22	—	12	—	40	
	56	138	28.5	22	15.918	15.918	25.7	49.1	