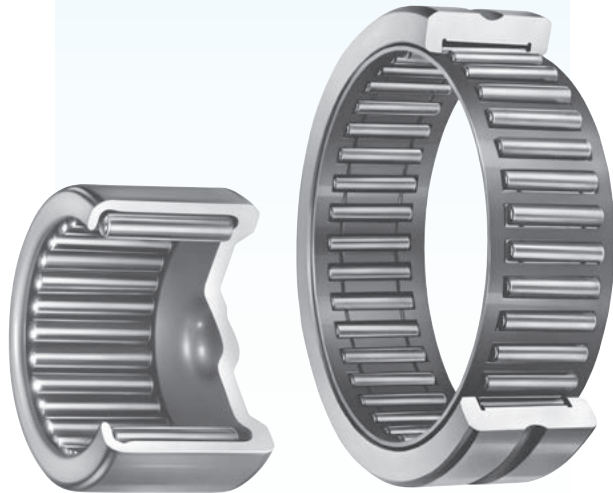




Needle roller bearings

Needle roller bearings are small in sectional height, therefore useful in making machinery smaller and lighter. This type of bearing is used in a wide range of machinery, such as automobiles, motor cycles, electric machines, machine tools, aerospace and office equipment.

- Compact, highly rigid and superior in load carrying performance, compared with other types of bearings.
- Excellent for carrying oscillating loads; contains many small diameter rollers.
- Widely employed in stud type and yoke type track rollers used as guide rollers in cam mechanisms or linear motion units. Allowable loads of these truck rollers are examined with load ratings different from those of general bearings. For detailed information, contact us.
Also used in miniature one-way clutches in the clutch mechanisms of office equipment, such as copying machines.

The catalog also covers bearings employing rollers other than those prescribed in JIS B 1506 "rollers for roller bearings".

For details, refer to JTEKT separate catalog for Europe "Needle Roller Bearings" (CAT. NO. B2020E) and catalog for regions excluding Europe "Needle Roller Bearings" (CAT. NO. BS007EN)



(CAT. NO. B2020E)



(CAT. NO. BS007EN)

Needle roller and cage assemblies

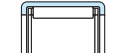


Bore diameter of a needle roller and cage assembly

Metric series 3 – 110 mm

Inch series 9.525 – 127.000 mm

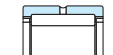
Drawn cup needle roller bearings



Metric series Roller set bore dia. 3 – 60 mm

Inch series Roller set bore dia. 3.175 – 69.850 mm

Heavy-duty needle roller bearings



Metric series Roller set bore dia. 5 – 175 mm

Inch series Roller set bore dia. 15.875 – 88.900 mm

Needle roller thrust bearings



Metric series Bore dia. 6 – 160 mm

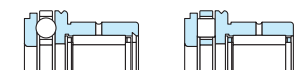
Inch series Bore dia. 6.350 – 104.780 mm

Cylindrical roller thrust bearings



Bore dia. 15 – 90 mm

Combined needle roller bearings



Roller set bore dia. 10 – 70 mm

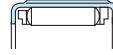
Inner rings



Metric series Bore dia. 5 – 180 mm

Inch series Bore dia. 9.525 – 76.2 mm

Miniature one-way clutches (Refer.)



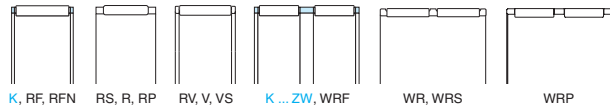
Roller set bore dia. 4 – 12 mm

Table 1 (1) Types of needle roller bearing

(1) Radial Needle Roller and Cage Assemblies

Metric Series **Inch Series**

Single-Row, Double-Row

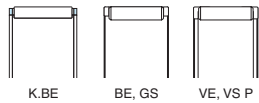


Single-Row

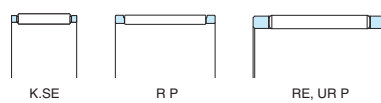
WJ, WJC

Metric Series

Assemblies for Crank Pin End Applications



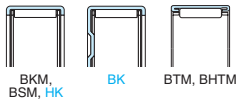
Assemblies for Wrist Pin End Applications



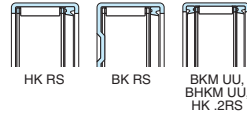
(2) Drawn Cup Needle Roller Bearings

Metric Series (Caged)

Open Ends, Closed One End

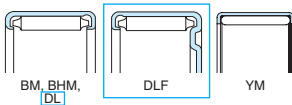


Sealed



(Full Complement)

Open Ends, Closed One End

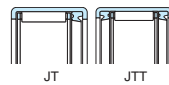


Inch Series (Caged)

Open Ends, Closed One End

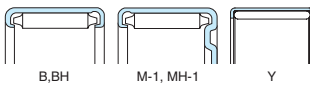


Sealed



(Full Complement)

Open Ends, Closed One End

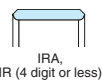


Extra-Precision



Inner Rings

Inch Series



The needle roller bearings explained in this catalog are indicated in blue.

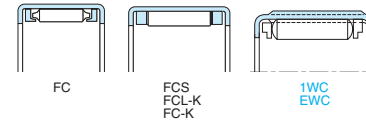
For additional details on JTEKT's Needle Roller Bearing product line please refer to Catalogs BS007EN.

Bearings surrounded by blue lines are listed in the European catalog (CAT. NO. B2020E) and not in the non-European catalog (BS007EN).

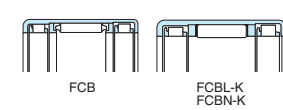
(3) Drawn Cup Roller Clutches

Metric Series

Clutches

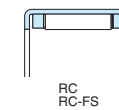


Clutch and Bearing Assemblies

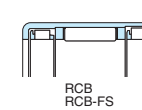


Inch Series

Clutches



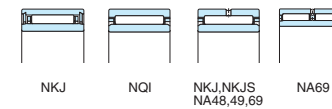
Clutch and Bearing Assemblies



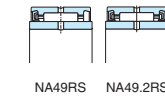
(4) Heavy-Duty Needle Roller Bearings

Metric Series (Caged, With Inner Ring)

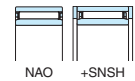
Unsealed



Sealed



Without Flanges

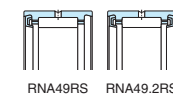


(Without Inner Ring)

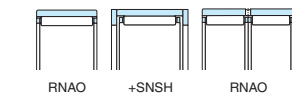
Unsealed



Sealed



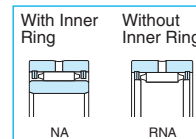
Without Flanges



(Full Complement)

Inch Series (Without Inner Ring)

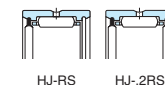
Inner Rings



Unsealed



Sealed



Inch Series



Table 1 (2) Types of needle roller bearing

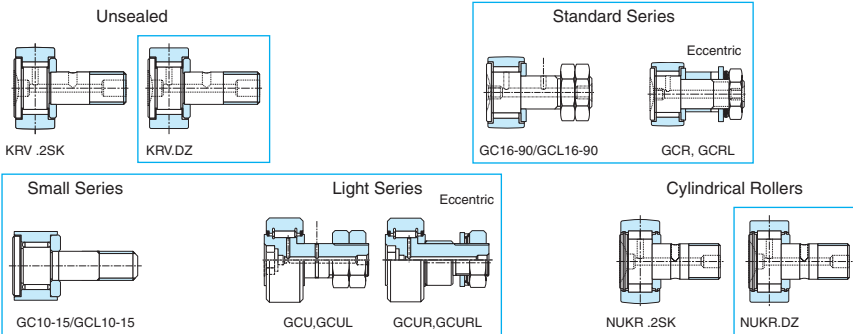
(5) Track Rollers

[Stud-Type]

Metric Series (Caged)

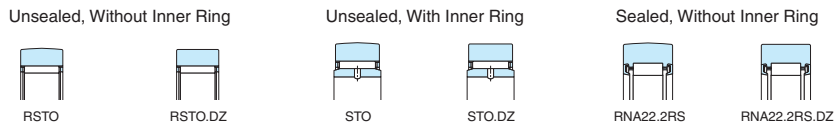


(Full Complement)



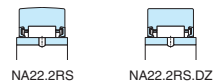
[Yoke-Type]

Metric Series (Caged, Without End Washers)



(Caged, Without End Washers)

Sealed, With Inner Ring



Unsealed, With Inner Ring

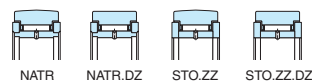


Sealed, Without Inner Ring



(Caged, With End Washers)

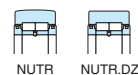
With Inner Ring



(Full Complement, With End Washers)



With Inner Ring, Cylindrical Rollers



(Full Complement, With Metal Seals)

Non-Separable, Light Series, Heavy Series

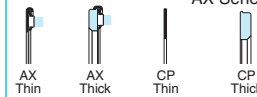


(6) Thrust Bearings, Assemblies, Washers

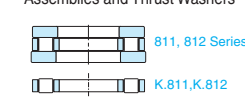
Metric Series



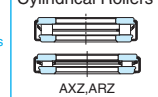
Unitized Thrust Bearing Assembly AX Series



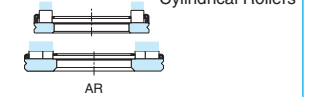
Thrust Cylindrical Roller and Cage Assemblies and Thrust Washers



Needle Rollers, Cylindrical Rollers

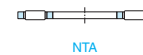


Unitized Cylindrical Rollers

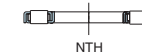


Inch Series

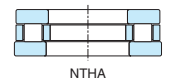
Thrust Needle Roller and Cage Assemblies and Thrust Washers



Thrust Cylindrical Roller and Cage Assembly



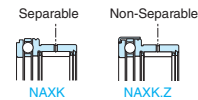
Cylindrical Roller Thrust Bearing



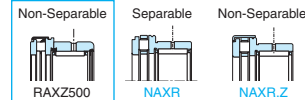
(7) Combined Needle Roller Bearings

Metric Series (Heavy-Duty, Without Inner Ring)

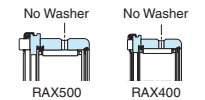
Ball Thrust Series



Cylindrical Roller Thrust Series



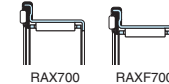
Needle Roller and Cylindrical Roller Thrust Series



(Drawn Cup, Without Inner Ring)

Needle Roller Thrust Series

Open Ends Closed One End

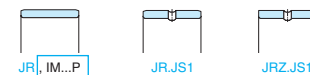


(8) Needle Rollers, Accessories

Inner Rings (Caged)

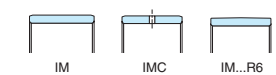
<Metric Series>

For Drawn Cup Needle Roller Bearings, Heavy-Duty



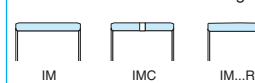
(Full Complement)

For Drawn Cup Needle Roller Bearings

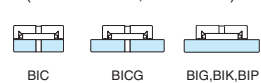


End Washer

For Machine-Tool Quality Precision-Combined Bearings



For RNA Bearings (With Oil Holes, Extra Wide)

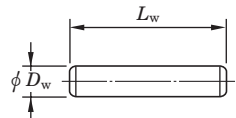


For Metric Series NAO and RNAO Bearings



[Tolerances of needle roller bearings]

Table 2 Tolerance grades of needle rollers (JIS B 1506)



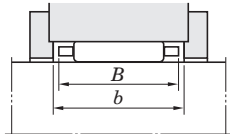
Unit : μm			
Class	Single ¹⁾ plane diameter variation V_{Dwp} max.	Deviation ¹⁾ from circular form Δ_{Rw} max.	Gauge lot ¹⁾ diameter variation V_{DwL} max.
2	1	1	2
3	1.5	1.5	3
5	2	2.5	5

Class	Actual ²⁾ length deviation Δ_{Lws}	Recommended gauge S
2	h 13	0/- 2, - 1/- 3, - 2/- 4, - 3/- 5, - 4/- 6, - 5/- 7, - 6/- 8, - 7/- 9, - 8/- 10
3		0/- 3, - 1.5/- 4.5, - 3/- 6, - 4.5/- 7.5, - 6/- 9, - 7/- 10
5		0/- 5, - 3/- 8, - 5/- 10

[Notes] 1) Values apply only at middle of roller length.
2) Applied tolerance differs according to L_w division.

[Remark] Along the entire length of the roller, all the actually measured diameters should not exceed the actual maximum diameter at the middle of the entire length of the roller by the lengths shown below.
a) Class 2 : 0.5 μm b) Class 3 : 0.8 μm
c) Class 5 : 1 μm

Table 3 Tolerance of needle roller cage width B (JIS B 1536-3)



Bearing type	B deviation (mm)	
	upper	lower
K, K...ZW	- 0.2	- 0.55
WJ, WJC	0	- 0.38

[Remark] Values in Italics are prescribed in JTEKT standards.

[Reference] The guide width (b) should satisfy the equation : $b = B + (H11)$

Table 4 Metric series drawn cup needle roller bearing gauge specifications (caged)

Unit : mm

Nominal bore diameter	Ring gage ¹⁾	Needle roller complement bore diameter	
		max.	min.
3	6.484	3.024	3.006
4	7.984	4.028	4.010
5	8.984	5.028	5.010
6	9.984	6.028	6.010
7	10.980	7.031	7.013
8	11.980	8.031	8.013
9	12.980	9.031	9.013
10	13.980	10.031	10.013
12	15.980	12.034	12.016
12	17.980	12.034	12.016
13	18.976	13.034	13.016
14	19.976	14.034	14.016
15	20.976	15.034	15.016
16	21.976	16.034	16.016
17	22.976	17.034	17.016
18	23.976	18.034	18.016
20	25.976	20.041	20.020
22	27.976	22.041	22.020
25	31.972	25.041	25.020
28	34.972	28.041	28.020
30	36.972	30.041	30.020
35	41.972	35.050	35.025
40	46.972	40.050	40.025
45	51.967	45.050	45.025
50	57.967	50.050	50.025
60	67.967	60.060	60.030

[Note] 1) The ring gage sizes are in accordance with ISO N6 lower limit.

Table 5 Inch series drawn cup needle roller bearing gauge specifications (caged)

Unit : mm

Bearing bore designation	Nominal shaft diameter	Nominal bore diameter	Ring gage	Needle roller complement bore diameter	
				max.	min.
2	3.175	3.175	6.363	3.218	3.195
2 1/2	3.970	3.967	7.155	4.013	3.99
3	4.763	4.763	8.730	4.806	4.783
4	6.350	6.350	11.125	6.411	6.388
5	7.938	7.938	12.713	7.998	7.976
H 5	H 7.938	7.938	14.300	7.998	7.976
6	9.525	9.525	14.300	9.586	9.563
H 6	H 9.525	9.525	15.888	9.586	9.563
7	11.113	11.113	15.888	11.174	11.151
H 7	H 11.113	11.113	17.475	11.174	11.151
8	12.700	12.700	17.475	12.761	12.738
H 8	H 12.700	12.700	19.063	12.761	12.738
9	14.288	14.288	19.063	14.349	14.326
H 9	H 14.288	14.288	20.650	14.349	14.326
10	15.875	15.875	20.650	14.349	15.913
H 10	H 15.875	15.875	22.238	14.349	15.913
11	17.463	17.463	22.238	17.524	17.501
H 11	H 17.463	17.463	23.825	17.524	17.501
12	19.050	19.050	25.387	19.086	19.063
H 12	H 19.050	19.050	26.975	19.086	19.063
13	20.638	20.638	26.975	20.673	20.650
H 13	H 20.638	20.638	28.562	20.673	20.650
14	22.225	22.225	28.562	22.261	22.238
H 14	H 22.225	22.225	30.150	22.261	22.238
15	23.813	23.813	30.150	23.848	23.825
16	25.400	25.400	31.737	25.436	25.413
H 16	H 25.400	25.400	33.325	25.436	25.413
17	26.988	26.988	33.325	27.023	27.000
18	28.575	28.575	34.912	28.611	28.588
H 18	H 28.575	28.575	38.087	28.611	28.588
19	30.163	30.163	38.087	30.198	30.175
20	31.750	31.750	38.087	31.786	31.763
H 20	H 31.750	31.750	41.262	31.786	31.763
21	33.338	33.338	41.262	33.376	33.350
22	34.925	34.925	41.262	34.963	34.938
H 22	H 34.925	34.925	44.437	34.963	34.938
24	38.100	38.100	47.612	38.141	38.113
26	41.275	41.275	50.787	41.316	41.288
28	44.450	44.450	53.962	44.493	44.463
30	47.625	47.625	57.137	47.668	47.638
32	50.800	50.800	60.312	50.846	50.815
H 33	H 52.388	52.388	64.280	52.436	52.400
34	53.975	53.975	63.487	54.026	53.990
36	57.150	57.150	66.662	57.201	57.165
42	66.675	66.675	76.187	66.736	66.700
44	69.850	69.850	79.362	69.911	69.875
56	88.900	88.900	101.587	88.961	88.925
88	139.700	139.700	152.375	139.774	139.725

[Remark] Bearing bore should be checked with "go" and "no go" plug gages. The "go" gage size is the minimum needle roller complement bore diameter. The "no go" gage size is larger than the maximum needle roller complement bore diameter by 0.0001 in.

Table 6 Metric series caged needle roller complement bore diameter for bearings without inner rings

Unit : mm

F_w		ΔF_w min.	
over	up to	max.	min.
3	6	+ 0.018	+ 0.010
6	10	+ 0.022	+ 0.013
10	18	+ 0.027	+ 0.016
18	30	+ 0.033	+ 0.020
30	50	+ 0.041	+ 0.025
50	80	+ 0.049	+ 0.030
80	120	+ 0.058	+ 0.036
120	180	+ 0.068	+ 0.043
180	250	+ 0.079	+ 0.050
250	315	+ 0.088	+ 0.056
315	400	+ 0.098	+ 0.062

Table 7 Metric series heavy-duty needle roller bearing tolerances = JIS B 1415 (ISO 492) =

(1) Inner ring

Unit : μm

Nominal bore diameter d (mm)		Single plane mean bore diameter deviation Δ_{dmp}						Single plane bore diameter variation V_{dsp} Diameter series 9			Mean bore diameter variation V_{dmp}				Radial runout of assembled bearing inner ring K_{ia}			S_d	Single inner ring width deviation ΔB_s						Inner ring width variation V_{Bs}		
		class 0		class 6		class 5		class 0	class 6	class 5	class 0	class 6	class 5		class 0	class 6	class 5		class 0	class 6	class 5	class 0	class 6	class 5			
		over	up to	upper	lower	upper	lower	upper	lower	max.			max.			max.			upper	lower	upper	lower	upper	lower	max.		
2.5	10	0	− 8	0	− 7	0	− 5	10	9	5	6	5	3		10	6	4	7	0	−120	0	−120	0	− 40	15	15	5
10	18	0	− 8	0	− 7	0	− 5	10	9	5	6	5	3		10	7	4	7	0	−120	0	−120	0	− 80	20	20	5
18	30	0	−10	0	− 8	0	− 6	13	10	6	8	6	3		13	8	4	8	0	−120	0	−120	0	−120	20	20	5
30	50	0	−12	0	−10	0	− 8	15	13	8	9	8	4		15	10	5	8	0	−120	0	−120	0	−120	20	20	5
50	80	0	−15	0	−12	0	− 9	19	15	9	11	9	5		20	10	5	8	0	−150	0	−150	0	−150	25	25	6
80	120	0	−20	0	−15	0	−10	25	19	10	15	11	5		25	13	6	9	0	−200	0	−200	0	−200	25	25	7
120	150	0	−25	0	−18	0	−13	31	23	13	19	14	7		30	18	8	10	0	−250	0	−250	0	−250	30	30	8
150	180	0	−25	0	−18	0	−13	31	23	13	19	14	7		30	18	8	10	0	−250	0	−250	0	−250	30	30	8
180	250	0	−30	0	−22	0	−15	38	28	15	23	17	8		40	20	10	11	0	−300	0	−300	0	−300	30	30	10

S_d : Perpendicularity of inner ring face with respect to the bore

(2) Outer ring

Unit : μm

Nominal outside diameter D (mm)		Single plane mean outside diameter deviation						Single plane outside diameter variation V_{Dsp}			Mean outside diameter variation V_{Dmp}			Radial runout of assembled bearing outer ring K_{ea}			S_D		Δ_{Cs}		Ring width variation V_{Cs}			
		Δ_{Dmp}						Diameter series 9													class 0 ¹⁾ class 6 ¹⁾ class 5			class 0 ¹⁾ class 6 ¹⁾ class 5
		class 0		class 6		class 5		class 0 ¹⁾ class 6 ¹⁾ class 5			class 0 ¹⁾ class 6 ¹⁾ class 5			class 0	class 6	class 5	class 5		class 0, 6, 5		class 0	class 6	class 5	
		over	up to	upper	lower	upper	lower	upper	lower	max.			max.			max.			max.		upper	lower	max.	
6	18	0	− 8	0	− 7	0	− 5	10	9	5	6	5	3		15	8	5	8	Shall conform to the tolerance Δ_{Bs} on d of the same bearing	Shall conform to the tolerance V_{Bs} on d of the same bearing				5
18	30	0	− 9	0	− 8	0	− 6	12	10	6	7	6	3		15	9	6	8						5
30	50	0	−11	0	− 9	0	− 7	14	11	7	8	7	4		20	10	7	8						5
50	80	0	−13	0	−11	0	− 9	16	14	9	10	8	5		25	13	8	8						6
80	120	0	−15	0	−13	0	−10	19	16	10	11	10	5		35	18	10	9						8
120	150	0	−18	0	−15	0	−11	23	19	11	14	11	6		40	20	11	10						8
150	180	0	−25	0	−18	0	−13	31	23	13	19	14	7		45	23	13	10						8
180	250	0	−30	0	−20	0	−15	38	25	15	23	15	8		50	25	15	11						10
250	315	0	−35	0	−25	0	−18	44	31	18	26	19	9		60	30	18	13						11

[Note] 1) Shall be applied when locating snap ring is not fitted.

S_D : Perpendicularity of outer ring outside surface with respect to the face

Δ_{Cs} : Deviation of a single outer ring width

Table 8 Inch series heavy-duty needle roller bearing (HJ outer ring)

(1) Outside diameter and width tolerances Unit : mm						(2) Roller complement bore tolerance Unit : mm			
Nominal outside diameter D		Single plane mean outside diameter deviation (D_{mp}) ¹⁾		Deviation from nominal of width (C)		Nominal roller complement bore diameter F_w		Deviation from nominal of the smallest single diameter of the roller complement bore (F_m) ¹⁾	
over	up to	max.	min.	max.	min.	over	up to	max.	min.
19.050	50.800	+0	-0.013			12.700	15.875	+0.043	+0.020
50.800	82.550	+0	-0.015	+0	-0.013	15.875	28.575	+0.046	+0.023
82.550	120.650	+0	-0.020			28.575	41.275	+0.048	+0.025
						41.275	47.625	+0.050	+0.025
						47.625	69.850	+0.053	+0.028
						69.850	76.200	+0.058	+0.028
						76.200	101.600	+0.060	+0.030

[Note] 1) "Single mean diameter" is defined as the mean diameter in a single radial plane.

[Note] 1) "The smallest single diameter of the roller complement bore" is defined as the diameter of the cylinder which, when used as a bearing inner ring, results in zero radial internal clearance in the bearing on at least one diameter.

Table 9 Inch series heavy-duty needle roller bearing (IR inner ring)

(1) Bore and width tolerances Unit : mm						(2) Outside diameter tolerance Unit : mm			
Nominal bore diameter d		Single plane mean bore diameter deviation (d_{mp}) ¹⁾		Deviation from nominal of width (B)		Nominal outside diameter F		Single plane mean outside diameter deviation (F_{mp}) ¹⁾	
over	up to	max.	min.	max.	min.	over	up to	max.	min.
7.938	19.050	+0	-0.010			12.700	15.875	-0.013	-0.023
19.050	50.800	+0	-0.013	+0.25	+0.12	15.875	25.400	-0.018	-0.031
50.800	82.550	+0	-0.015			25.400	28.575	-0.023	-0.036
						28.575	34.925	-0.023	-0.036
						34.925	47.625	-0.025	-0.038
						47.625	76.200	-0.028	-0.040
						76.200	95.250	-0.033	-0.046

[Note] 1) "Single mean diameter" is defined as the mean diameter in a single radial plane.

[Note] 1) "Single mean diameter" is defined as the mean diameter in a single radial plane.

Table 10 Tolerance for metric series thrust needle roller and cage assemblies (type code : FNT)

(1) Bore diameter Unit : mm				(2) Outside diameter Unit : mm			
Nominal bore diameter D_{c1}		Smallest single bore diameter deviation (E11)		Nominal outside diameter D_c		Largest single outside diameter deviation (c12)	
over	up to	upper	lower	over	up to	upper	lower
3	6	+0.095	+0.020	18	30	-0.110	-0.320
6	10	+0.115	+0.025	30	40	-0.120	-0.370
10	18	+0.142	+0.032	40	50	-0.130	-0.380
18	30	+0.170	+0.040	50	65	-0.140	-0.440
30	50	+0.210	+0.050	65	80	-0.150	-0.450
50	80	+0.250	+0.060	80	100	-0.170	-0.520
80	120	+0.292	+0.072	100	120	-0.180	-0.530
120	180	+0.335	+0.085	120	140	-0.200	-0.600
				140	160	-0.210	-0.610
				160	180	-0.230	-0.630
				180	200	-0.240	-0.700

Table 11 Tolerance for metric series thrust needle roller and cage assemblies (type code : AXK)

(1) Bore diameter Unit : mm				(2) Outside diameter Unit : mm			
Nominal bore diameter D_{c1}		Smallest single bore diameter deviation (E12)		Nominal outside diameter D_c		Largest single outside diameter deviation (c13)	
over	up to	upper	lower	over	up to	upper	lower
3	6	+0.140	+0.020	18	30	-0.110	-0.440
6	10	+0.175	+0.025	30	40	-0.120	-0.510
10	18	+0.212	+0.032	40	50	-0.130	-0.520
18	30	+0.250	+0.040	50	65	-0.140	-0.600
30	50	+0.300	+0.050	65	80	-0.150	-0.610
50	80	+0.360	+0.060	80	100	-0.170	-0.710
80	120	+0.422	+0.072	100	120	-0.180	-0.720
120	180	+0.485	+0.085	120	140	-0.200	-0.830
				140	160	-0.210	-0.840
				160	180	-0.230	-0.860
				180	200	-0.240	-0.960

Table 12 Tolerance for metric series thrust washers (type code : AS series)

(1) Bore diameter Unit : mm				(2) Outside diameter Unit : mm			
Nominal bore diameter d		Smallest single bore diameter deviation (E13)		Nominal outside diameter d_1		Largest single outside diameter deviation (e13)	
over	up to	upper	lower	over	up to	upper	lower
3	6	+0.200	+0.020	18	30	-0.040	-0.370
6	10	+0.245	+0.025	30	50	-0.050	-0.440
10	18	+0.302	+0.032	50	80	-0.060	-0.520
18	30	+0.370	+0.040	80	120	-0.072	-0.612
30	50	+0.440	+0.050	120	180	-0.085	-0.715
50	80	+0.520	+0.060	180	250	-0.100	-0.820
80	120	+0.612	+0.072				
120	180	+0.715	+0.085				

Table 13 Tolerance for metric series thrust washers (type code : LS series)

(1) Bore diameter Unit : mm				(2) Outside diameter Unit : mm			
Nominal bore diameter d		Smallest single bore diameter deviation (E12)		Nominal outside diameter d_1		Largest single outside diameter deviation (a12)	
over	up to	upper	lower	over	up to	upper	lower
3	6	+0.140	+0.020	18	30	-0.300	-0.510
6	10	+0.175	+0.025	30	40	-0.310	-0.560
10	18	+0.212	+0.032	40	50	-0.320	-0.570
18	30	+0.250	+0.040	50	65	-0.340	-0.640
30	50	+0.300	+0.050	65	80	-0.360	-0.660
50	80	+0.360	+0.060	80	100	-0.380	-0.730
80	120	+0.422	+0.072	100	120	-0.410	-0.760
120	180	+0.485	+0.085	120	140	-0.460	-0.860
				140	160	-0.520	-0.920
				160	180	-0.580	-0.980
				180	200	-0.660	-1.120

[Remark] Thickness tolerances for series LS heavy thrust washers are given in bearing tables.

**Table 14 Tolerance for metric series shaft piloted washers of thrust bearings
(type code : WS.811 and WS.812)**

Unit : mm

Nominal bore diameter d		Tolerance class P0				Tolerance class P6				Tolerance class P5			
		Deviations Δ_{dmp}		Variation V_{dsp}	$S_i^{(1)}$	Deviations Δ_{dmp}		Variation V_{dsp}	$S_i^{(1)}$	Deviations Δ_{dmp}		Variation V_{dsp}	$S_i^{(1)}$
		upper	lower	max.	min.	upper	lower	max.	min.	upper	lower	max.	min.
over	up to												
18	30	+0	-0.008	0.006	0.010	+0	-0.008	0.006	0.005	+0	-0.008	0.006	0.003
30	50	+0	-0.010	0.008	0.010	+0	-0.010	0.008	0.005	+0	-0.010	0.008	0.003
50	80	+0	-0.012	0.009	0.010	+0	-0.012	0.009	0.006	+0	-0.012	0.009	0.003
80	120	+0	-0.015	0.011	0.010	+0	-0.015	0.011	0.007	+0	-0.015	0.011	0.004
120	180	+0	-0.020	0.015	0.015	+0	-0.020	0.015	0.008	+0	-0.020	0.015	0.004
180	250	+0	-0.025	0.019	0.015	+0	-0.025	0.019	0.009	+0	-0.025	0.019	0.005
250	315	+0	-0.030	0.023	0.020	+0	-0.030	0.023	0.010	+0	-0.030	0.023	0.005
315	400	+0	-0.035	0.026	0.025	+0	-0.035	0.026	0.013	+0	-0.035	0.026	0.007
400	500	+0	-0.040	0.030	0.030	+0	-0.040	0.030	0.015	+0	-0.040	0.030	0.007
		+0	-0.045	0.034	0.030	+0	-0.045	0.034	0.018	+0	-0.045	0.034	0.009

[Note] 1) The values of the wall thickness variation S_{e1} for the housing piloted washer are identical to S_i for the shaft - piloted washers.

Δ_{dmp} : Single plane mean bore diameter deviation

V_{dsp} : Single plane bore diameter variation

S_i : Wall thickness variation

**Table 15 Tolerance for metric series housing piloted washers of thrust bearings
(type code : GS.811 and GS.812)**

Unit : mm

Nominal outside diameter D		Tolerance class P0			Tolerance class P6			Tolerance class P5		
		Deviations Δ_{Dmp}		Variation V_{Dsp}	Deviations Δ_{Dmp}		Variation V_{Dsp}	Deviations Δ_{Dmp}		Variation V_{Dsp}
		upper	lower	max.	upper	lower	max.	upper	lower	max.
over	up to									
30	50	+0	-0.013	0.010	+0	-0.013	0.010	+0	-0.013	0.010
50	80	+0	-0.016	0.012	+0	-0.016	0.012	+0	-0.016	0.012
80	120	+0	-0.019	0.014	+0	-0.019	0.014	+0	-0.019	0.014
120	180	+0	-0.022	0.017	+0	-0.022	0.017	+0	-0.022	0.017
180	250	+0	-0.025	0.019	+0	-0.025	0.019	+0	-0.025	0.019
250	315	+0	-0.030	0.023	+0	-0.030	0.023	+0	-0.030	0.023
315	400	+0	-0.035	0.026	+0	-0.035	0.026	+0	-0.035	0.026
400	500	+0	-0.040	0.030	+0	-0.040	0.030	+0	-0.040	0.030
		+0	-0.045	0.034	+0	-0.045	0.034	+0	-0.045	0.034

[Note] Δ_{Dmp} : Single plane mean outside diameter deviation

V_{Dsp} : Single plane outside diameter variation

Table 16 Tolerance for inch series thrust needle roller and cage assemblies (type code : NTA)

Unit : mm

Needle roller diameter (nominal) D_w	Deviations			
	Bore diameter D_{c1}		Outside diameter D_c	
	upper	lower	upper	lower
1.981	+0.178	+0.051	-0.254	-0.508
3.175	+0.254	+0.051	-0.254	-0.635

Table 18 Tolerance for combined needle roller bearings (thrust component thickness (C_1))

Unit : mm

Bearing series	Tolerance	
	upper	lower
NAXK, NAXK.Z	+0	-0.200
NAXR, NAXR.Z		

Table 17 Tolerance for inch series thrust washers (type code : TRA, TRB, etc.)

(1) Bore diameter Unit : mm

Nominal bore diameter d		Deviations	
over	up to	upper	lower
6.000	57.200	+0.300	+0.050
57.200	133.400	+0.430	+0.050

(2) Outside diameter Unit : mm

Nominal Outside diameter d_1		Deviations	
over	up to	upper	lower
6.000	133.400	-0.025	-0.760

[Recommended fit and internal clearance]

Table 19 Recommended fit for metric series radial needle roller and cage assemblies

Condition	Tolerance zone class		Housing bore
	Shaft		
Radial clearance	$F_w \leq 50 \text{ mm}$	$F_w > 50 \text{ mm}$	
Smaller than normal	j 5	h 5	G 6
Normal	h 5	g 5	
Larger than normal	g 6	f 6	

Table 20 Recommended fit for metric series drawn cup needle roller bearings

Bearing type	Operating condition	Shaft fit (recommended internal radial clearances)	Housing fit (recommended internal radial clearances)
HK, BK (caged)	One piece heavy section steel or cast iron housing	h5 (h6)	N6 (N7)
	Housing material of low rigidity	h5 (h6)	R6 (R7)
	Outer ring rotation (one piece heavy section steel or cast iron housing)	f5 (f6)	R6 (R7)
	Oscillating Motion	j5 (j6)	¹⁾

[Note] ¹⁾ Tolerance dependent on housing design.
 [Remark] When the bearing is provided with an inner ring, the shaft tolerance class h5 should be selected.

Table 23 Recommended fit for metric series needle roller thrust bearings

Bearing components	Shaft tolerance (shaft piloting)	Housing tolerance (housing piloting)
Needle roller and cage assembly. Types : AXK, FNT	h8	H8
Thin thrust washer. Type : AS	h8	H8
Heavy thrust washer. Type : LS	h8	H8
Shaft-piloted thrust washer. Type : WS.811	h6 (j6)	Clearance
Housing-piloted thrust washer. Type : GS.811	Clearance	H7 (K7)

Table 24 Recommended fit for metric series cylindrical roller thrust bearings

Bearing components	Shaft tolerance (shaft piloting)	Housing tolerance (housing piloting)	Piloting components
Thrust cylindrical roller and cage assembly. Types : K.811 and K.812	h8	H10	Shaft
Heavy thrust washer. Type : LS	h10	H11	Shaft
Shaft-piloted thrust washer. Types : WS.811, WS.812	h6 (j6)	Clearance	Shaft
Housing-piloted thrust washer. Types : GS.811, GS.812	Clearance	H7 (K7)	Housing

Table 21 Recommended fit for inch series drawn cup needle roller bearings

Bearing design	Shaft			Housing		
	Classification	max.	min.	Classification	max.	min.
J, JTT ¹⁾	$F_w \leq 5.556 \text{ mm (7/32")}$	0	-0.008 mm (-0.0003")	$D \leq 7.144 \text{ mm (9/32")}$	+0.013 mm (-0.0005")	0
	$5.556 \text{ mm (7/32")} < F_w \leq 50.006 \text{ mm (1 31/32")}$	0	-0.013 mm (-0.0005")			
	$50.006 \text{ mm (1 31/32")} < F_w \leq 119.856 \text{ mm (4 23/32")}$	0	-0.015 mm (-0.0006")	$7.144 \text{ mm (9/32")} < D$	+0.013 mm (-0.0005")	+0.013 mm (-0.0005")
	$119.856 \text{ mm (4 23/32")} < F_w \leq 180.181 \text{ mm (7 3/32")}$	0	-0.018 mm (-0.0007")			

[Note] ¹⁾ Special fits
 When $D = 8.733 \text{ mm (0.3438")}$: housing fit : -0.003 mm (-0.0001") maximum, -0.015 mm (-0.0006") minimum
 When $D = 22.212 \text{ mm (0.8745")}$: housing fit : +0.025 mm (+0.0010") maximum, 0 mm (0") minimum
 When $D = 152.400 \text{ mm (6.0000")}$: housing fit : +0.025 mm (+0.0010") maximum, -0.025 mm (-0.0010") minimum

Table 22 Recommended fit for metric series heavy-duty needle roller bearings

Without inner ring

Rotation conditions	Nominal housing bore diameter D (mm)	ISO tolerance zone for housing		Nominal shaft diameter F shaft (mm)	ISO tolerance zone for shaft	
		caged	full		caged	full
Load stationary relative to housing	all diameters	H7 (J7)	J6	all diameters	h6 (h5)	h5
General work with larger clearance		K7	—		g6	—
Load rotates relative to housing		N7	M6		f6	g5

[Remark] Care should be taken that the selected bearing internal clearance is appropriate for the operating conditions.

[Shaft and housing specifications]

Table 25 Specifications of shafts and housings (needle roller and cage assemblies, drawn cup needle roller bearings, and heavy-duty needle roller bearings)

	Shaft		Housing bore	
	Raceway surface	Fitting surface	Raceway surface	Fitting surface
Roundness	- Shaft diameter ≤ 25 mm : 2.5 μm or less - Shaft diameter > 25 mm : 2.5 $\mu\text{m} \times (\text{shaft diameter} / 25 \text{ mm})$ or less	One-half the shaft diameter tolerance or less	8 μm or one-half the bore tolerance or less	One-half the bore tolerance or less
Variation of mean diameter (Cylindricity)	Within the range of the bearing width, 5 μm or less per 25 mm or one-half the bearing tolerance or less (whichever is smaller)	One-half the shaft diameter tolerance or less	Within the range of the bearing width, 5 μm or less per 25 mm or one-half the bearing tolerance or less (whichever is smaller)	Within the length of the outer ring, 13 μm or one-half the diameter tolerance (whichever is smaller) or less
Surface roughness	0.2 a or less	0.8 a or less	0.2 a or less	1.6 a or less
Hardness	58 HRC or harder ¹⁾	—	58 HRC or harder ¹⁾	—
Shaft slope	13 μm or less per 25 mm		—	

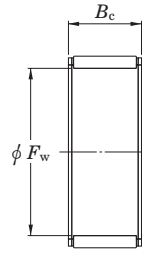
[Note] 1) During the carburizing or induction-hardening of case hardened steel, not only must the surface hardness requirement specified above be met, but the case depth of HV 550 (52.3 HRC) must be met in the range of 0.08 D_w to 0.10 D_w mm. (D_w : roller diameter)

Table 26 Needle roller thrust bearing mounting surface specifications

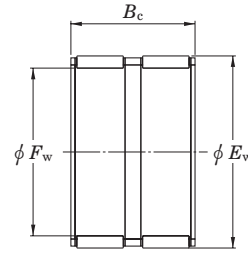
Flatness (dishing or coning)		Maximum angle : Arctan 0.001
Squareness		Maximum angle : Arctan 0.0005
Roughness (Ra)		0.2 a or less
Hardness		58 HRC or harder (refer to the note for Table 25 above regarding depth.)

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

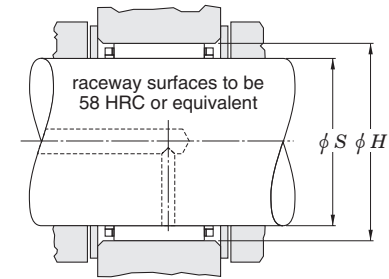
Shaft dia. 3 ~ (10) mm



K



K ZW

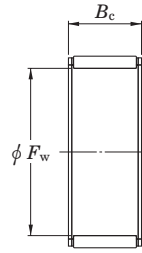


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
3	3	5	7	K3X5X7TN	1.56	1.29	0.200	P	48 000	74 000	0.0002	3.000	2.996	5.004	5.012
4	4	7	7	K4X7X7TN	1.83	1.32	0.200	P	34 000	52 000	0.0005	4.000	3.995	7.014	7.005
5	5	8	8	K5X8X8TN	2.18	1.71	0.260	P	31 000	47 000	0.0007	5.000	4.995	8.014	8.005
	5	8	10	K5X8X10TN	3.04	2.63	0.400	P	31 000	47 000	0.0008	5.000	4.995	8.014	8.005
	5	9	13	K5X9X13TN	4.29	3.55	0.540	P	26 000	40 000	0.002	5.000	4.995	9.014	9.005
6	6	9	8	K6X9X8H	3.19	2.90	0.420	S	29 000	44 000	0.0008	6.000	5.995	9.014	9.005
	6	9	8	K6X9X8TN	2.47	2.07	0.310	P	29 000	44 000	0.001	6.000	5.995	9.014	9.005
	6	9	10	K6X9X10TN	3.07	2.74	0.420	P	29 000	44 000	0.001	6.000	5.995	9.014	9.005
7	7	10	8	K7X10X8TN	2.74	2.44	0.370	P	28 000	42 000	0.001	7.000	6.994	10.014	10.005
	7	10	10	K7X10X10TN	3.40	3.22	0.490	P	28 000	42 000	0.001	7.000	6.994	10.014	10.005
	7	11	15	K7X11X15TN	6.44	6.24	0.940	P	23 000	35 000	0.003	7.000	6.994	11.017	11.006
8	8	11	8	K8X11X8FV	3.23	3.11	0.470	S	26 000	41 000	0.002	8.000	7.994	11.017	11.006
	8	11	8	K8X11X8TN	2.34	2.05	0.300	P	26 000	41 000	0.001	8.000	7.994	11.017	11.006
	8	11	10	K8X11X10H	4.57	4.89	0.740	S	26 000	41 000	0.002	8.000	7.994	11.017	11.006
	8	11	10	K8X11X10FV	4.01	4.11	0.630	S	26 000	41 000	0.002	8.000	7.994	11.017	11.006
	8	11	10	K8x11x10TN	3.84	3.91	0.600	P	26 000	41 000	0.001	8.000	7.994	11.006	11.017
	8	11	13	K8x11x13TN	5.18	5.75	0.870	P	26 000	41 000	0.002	8.000	7.994	11.006	11.017
	8	11	13	K8X11X13H	5.22	5.78	0.880	S	26 000	41 000	0.003	8.000	7.994	11.017	11.006
	8	11	13	K8X11X13H	5.22	5.78	0.880	S	26 000	41 000	0.003	8.000	7.994	11.017	11.006
9	9	12	10	K9X12X10FH	4.27	4.60	0.700	S	26 000	40 000	0.003	9.000	8.994	12.017	12.006
	9	12	10	K9X12X10FV	4.27	4.60	0.700	S	26 000	40 000	0.002	9.000	8.994	12.017	12.006
	9	12	13	K9X12X13FH	5.57	6.47	0.980	S	26 000	40 000	0.003	9.000	8.994	12.017	12.006
	9	12	13	K9X12X13FV	5.57	6.47	0.980	S	26 000	40 000	0.003	9.000	8.994	12.017	12.006
	9	13	8	K9X13X8H	3.96	3.50	0.530	S	21 000	32 000	0.003	9.000	8.994	13.017	13.006
10	10	13	10	K10X13X10H	5.40	6.43	0.980	S	25 000	39 000	0.002	10.000	9.994	13.017	13.006
	10	13	10	K10X13X10TN	4.29	4.77	0.730	P	25 000	39 000	0.002	10.000	9.994	13.017	13.006
	10	13	13	K10X13X13	5.90	7.16	1.10	S	25 000	39 000	0.003	10.000	9.994	13.017	13.006

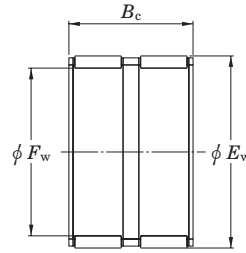
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

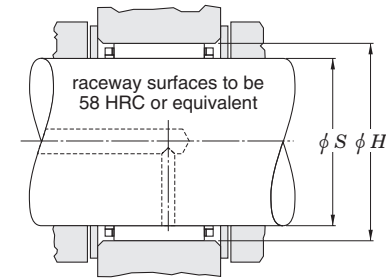
Shaft dia. (10) ~ (15) mm



K



K ZW

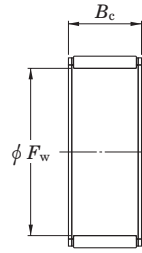


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)	H (Housing)		
												max.	min.	max.	min.
10	10	13	16	K10X13X16	7.43	9.64	1.50	S	25 000	39 000	0.004	10.000	9.994	13.017	13.006
	10	14	10	K10X14X10H	6.12	6.29	0.960	S	20 000	31 000	0.003	10.000	9.994	14.017	14.006
	10	14	13	K10X14X13H	7.88	8.71	1.35	S	20 000	31 000	0.004	10.000	9.994	14.017	14.006
	10	16	12	K10X16X12F	8.39	7.47	1.15	S	15 000	24 000	0.006	10.000	9.994	16.017	16.006
	10	16	12	K10X16X12TN	7.50	6.40	0.970	P	15 000	24 000	0.005	10.000	9.994	16.017	16.006
12	12	15	10	K12X15X10H	5.85	7.51	1.15	S	24 000	37 000	0.003	12.000	11.992	15.017	15.006
	12	15	13	K12X15X13H	6.78	9.03	1.40	S	24 000	37 000	0.004	12.000	11.992	15.017	15.006
	12	16	13	K12X16X13H	7.49	8.51	1.60	S	19 000	30 000	0.006	12.000	11.992	16.017	16.006
	12	17	13	K12X17X13	8.93	9.29	1.20	S	16 000	25 000	0.008	12.000	11.992	17.017	17.006
	12	18	12	K12X18X12H	9.76	9.40	1.40	S	14 000	22 000	0.009	12.000	11.992	18.017	18.006
13	13	17	10	K13X17X10	7.22	8.33	1.25	S	19 000	29 000	0.004	13.000	12.992	17.017	17.006
	13	18	15	K13X18X15F	10.8	12.1	1.85	S	16 000	25 000	0.008	13.000	12.992	18.017	18.006
14	14	18	8	K14X18X8	5.39	5.82	0.880	S	19 000	29 000	0.004	14.000	13.992	18.017	18.006
	14	18	10	K14X18X10	7.17	8.41	1.30	S	19 000	29 000	0.005	14.000	13.992	18.017	18.006
	14	18	13	K14X18X13	9.73	12.5	1.90	S	19 000	29 000	0.006	14.000	13.992	18.017	18.006
	14	18	15	K14X18X15	10.5	13.8	2.15	S	19 000	29 000	0.007	14.000	13.992	18.017	18.006
	14	18	17	K14X18X17H	12.4	17.1	2.65	S	19 000	29 000	0.008	14.000	13.992	18.017	18.006
	14	19	13	K14X19X13H	10.2	11.4	1.75	S	16 000	24 000	0.008	14.000	13.992	19.020	19.007
	14	19	18	K14X19X18F	13.2	16.0	2.50	S	16 000	24 000	0.011	14.000	13.992	19.020	19.007
	14	20	12	K14X20X12	10.5	10.6	1.60	S	14 000	21 000	0.009	14.000	13.992	20.020	20.007
15	15	18	14	K15X18X14TN	7.92	11.9	1.80	P	13 000	23 000	0.003	15.000	14.992	18.017	18.006
	15	18	16	K15X18X16F	8.36	12.6	1.95	S	13 000	23 000	0.005	15.000	14.992	18.017	18.006
	15	18	17	K15X18X17	8.08	12.1	1.85	S	23 000	36 000	0.005	15.000	14.992	18.017	18.006
	15	19	10	K15X19X10	7.87	9.69	1.45	S	18 000	28 000	0.005	15.000	14.992	19.020	19.007
	15	19	13	K15X19X13	9.66	12.6	1.90	S	18 000	28 000	0.007	15.000	14.992	19.020	19.007
	15	19	17	K15X19X17H	12.3	17.2	2.65	S	18 000	28 000	0.009	15.000	14.992	19.020	19.007
	15	19	22	K15X19X22ZW	12.2	17.0	2.60	S	18 000	28 000	0.010	15.000	14.992	19.020	19.007

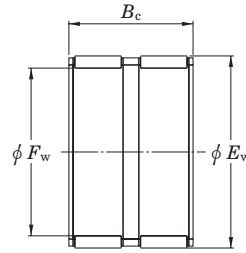
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

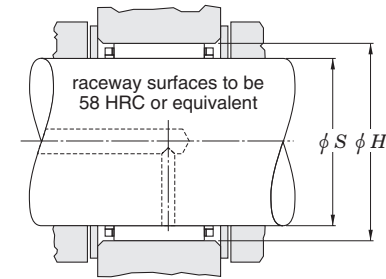
Shaft dia. (15) ~ (18) mm



K



K ZW

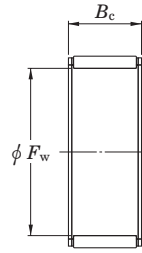


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft) max.	S (Shaft) min.	H (Housing) max.	H (Housing) min.
15	15	20	13	K15X20X13H	9.93	11.3	1.80	S	16 000	24 000	0.008	15.000	14.992	20.020	20.007
	15	21	15	K15X21X15	13.4	14.8	2.30	S	14 000	21 000	0.013	15.000	14.992	21.020	21.007
	15	21	21	K15X21X21H	18.0	21.7	3.40	S	14 000	21 000	0.018	15.000	14.992	21.020	21.007
16	16	20	8	K16X20X8F	6.37	7.51	1.15	S	18 000	28 000	0.005	16.000	15.992	20.020	20.007
	16	20	10	K16X20X10H	7.82	9.76	1.50	S	18 000	28 000	0.006	16.000	15.992	20.020	20.007
	16	20	13	K16X20X13	10.1	13.5	2.05	S	18 000	28 000	0.007	16.000	15.992	20.020	20.007
	16	20	14	K16X20X14	10.8	14.8	2.25	S	18 000	28 000	0.007	16.000	15.992	20.020	20.007
	16	20	17	K16X20X17H	12.9	18.5	2.85	S	18 000	28 000	0.008	16.000	15.992	20.020	20.007
	16	20	20	K16X20X20	13.4	19.5	3.05	S	18 000	28 000	0.011	16.000	15.992	20.020	20.007
	16	22	12	K16X22X12	11.2	11.9	1.80	S	19 000	29 000	0.010	16.000	15.992	22.020	22.007
	16	22	16	K16X22X16H	14.9	17.2	2.70	S	19 000	29 000	0.014	16.000	15.992	22.020	22.007
	16	22	20	K16X22X20	18.6	22.9	3.60	S	19 000	29 000	0.017	16.000	15.992	22.020	22.007
	16	24	20	K16X24X20	20.2	21.4	3.45	S	20 000	30 000	0.025	16.000	15.992	24.020	24.007
17	17	20	10	K17X20X10	5.96	8.53	1.30	S	16 000	25 000	0.004	17.000	16.992	20.020	20.007
	17	21	10	K17X21X10	8.12	10.4	1.60	S	17 000	26 000	0.006	17.000	16.992	21.020	21.007
	17	21	12.8	K17X21X13H	10.5	14.5	2.20	S	17 000	26 000	0.008	17.000	16.992	21.020	21.007
	17	21	15	K17X21X15	11.4	16.1	2.50	S	17 000	26 000	0.008	17.000	16.992	21.020	21.007
	17	21	17	K17X21X17H	13.4	19.8	3.05	S	17 000	26 000	0.011	17.000	16.992	21.020	21.007
	17	22	20	K17X22X20FH	17.0	23.3	3.65	S	17 000	27 000	0.015	17.000	16.992	22.020	22.007
	17	23	15	K17X23X15F	14.1	16.3	2.55	S	18 000	27 000	0.010	17.000	16.992	23.020	23.007
	17	23	15	K17X23X15F	14.1	16.3	2.55	S	18 000	27 000	0.010	17.000	16.992	23.020	23.007
18	18	22	8	K18X22X8F	6.32	7.70	1.15	S	16 000	24 000	0.005	18.000	17.992	22.020	22.007
	18	22	10	K18X22X10H	8.41	11.1	1.70	S	16 000	24 000	0.006	18.000	17.992	22.020	22.007
	18	22	13	K18X22X13H	10.8	15.4	2.35	S	16 000	24 000	0.008	18.000	17.992	22.020	22.007
	18	22	14	K18X22X14	11.6	16.8	2.55	S	16 000	24 000	0.009	18.000	17.992	22.020	22.007
	18	22	14	K18X22X14FV	11.3	16.3	2.45	S	16 000	24 000	0.009	18.000	17.992	22.020	22.007
	18	22	17	K18X22X17H	13.3	19.9	3.10	S	16 000	24 000	0.009	18.000	17.992	22.020	22.007
	18	22	20	K18X22X20F	15.0	23.4	3.65	S	16 000	24 000	0.011	18.000	17.992	22.020	22.007
	18	24	12	K18X24X12	11.8	13.1	1.95	S	17 000	25 000	0.011	18.000	17.992	24.020	24.007
	18	24	12	K18X24X12	11.8	13.1	1.95	S	17 000	25 000	0.011	18.000	17.992	24.020	24.007

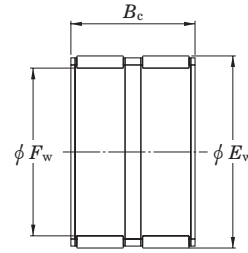
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

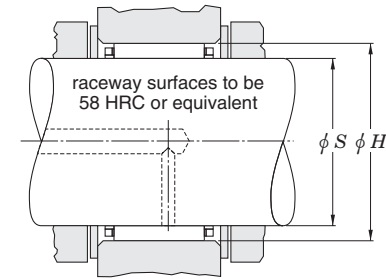
Shaft dia. (18) ~ (22) mm



K



K ZW

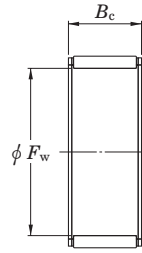


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
18	18	24	20	K18X24X20H	19.4	24.9	3.90	S	16 000	25 000	0.019	18.000	17.992	24.020	24.007
	18	25	22	K18X25X22H	23.3	28.6	4.50	S	17 000	26 000	0.025	18.000	17.992	25.020	25.007
	18	26	12	K18X26X12FV	13.8	13.5	2.10	S	11 000	17 000	0.020	18.000	17.992	26.020	26.007
	18	26	20	K18X26X20F	21.7	24.1	3.85	S	17 000	26 000	0.027	18.000	17.992	26.020	26.007
19	19	23	13	K19X23X13	10.8	15.5	2.35	S	15 000	23 000	0.008	19.000	18.991	23.020	23.007
	19	23	17	K19X23X17	13.4	20.6	3.20	S	15 000	23 000	0.011	19.000	18.991	23.020	23.007
20	20	24	8	K20X24X8F	7.31	9.60	1.50	S	14 000	22 000	0.005	20.000	19.991	24.020	24.007
	20	24	10	K20X24X10H	8.97	12.5	2.05	S	14 000	22 000	0.006	20.000	19.991	24.020	24.007
	20	24	12	K20X24X12	10.7	15.7	2.40	S	14 000	22 000	0.008	20.000	19.991	24.020	24.007
	20	24	13	K20X24X13H	11.5	17.3	2.65	S	14 000	22 000	0.009	20.000	19.991	24.020	24.007
	20	24	14	K20X24X14	12.4	18.9	2.85	S	14 000	22 000	0.009	20.000	19.991	24.020	24.007
	20	24	17	K20X24X17H	14.8	23.7	3.65	S	14 000	22 000	0.011	20.000	19.991	24.020	24.007
	20	26	12	K20X26X12	13.0	15.3	2.30	S	15 000	23 000	0.012	20.000	19.991	26.020	26.007
	20	26	13	K20X26X13H	13.4	15.9	2.35	S	15 000	23 000	0.014	20.000	19.991	26.020	26.007
	20	26	17	K20X26X17H	19.3	25.5	4.00	S	15 000	23 000	0.017	20.000	19.991	26.020	26.007
	20	26	20	K20X26X20	20.3	27.2	4.25	S	15 000	23 000	0.020	20.000	19.991	26.020	26.007
	20	28	20	K20X28X20H	24.6	29.0	2.70	S	15 000	23 000	0.028	20.000	19.991	28.020	28.007
	20	28	25	K20X28X25H	29.7	37.0	5.80	S	15 000	23 000	0.036	20.000	19.991	28.020	28.007
	20	30	30	K20X30X30H	38.9	45.8	7.20	S	16 000	24 000	0.055	20.000	19.991	30.020	30.007
	20	32	36	K20X32X36H	49.9	57.0	9.15	S	16 000	25 000	0.082	20.000	19.991	32.025	32.009
21	21	25	17	K21X25X17H	14.3	23.1	3.60	S	14 000	21 000	0.013	21.000	20.991	25.020	25.007
22	22	26	10	K22X26X10H	9.81	14.5	2.20	S	13 000	20 000	0.007	22.000	21.991	26.020	26.007
	22	26	13	K22X26X13H	11.8	18.3	2.95	S	13 000	20 000	0.012	22.000	21.991	26.020	26.007
	22	26	17	K22X26X17H	15.6	26.3	4.05	S	13 000	20 000	0.012	22.000	21.991	26.020	26.007
	22	26	18	K22X26X18H	15.3	25.5	4.00	S	13 000	20 000	0.017	22.000	21.991	26.020	26.007
	22	28	13	K22X28X13	13.9	17.1	2.60	S	13 000	20 000	0.015	22.000	21.991	28.020	28.007
	22	28	17	K22X28X17H	18.2	24.2	3.80	S	13 000	20 000	0.020	22.000	21.991	28.020	28.007

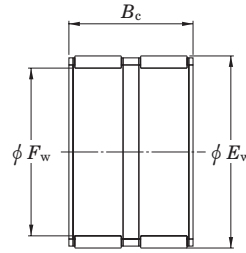
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
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K, K ZW series

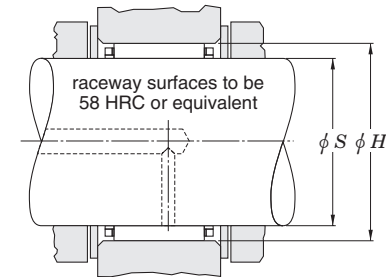
Shaft dia. (22) ~ (25) mm



K



K ZW

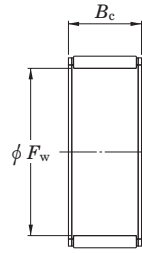


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
22	22	30	15	K22X30X15H	19.7	22.3	3.45	S	14 000	21 000	0.023	22.000	21.991	30.020	30.007
	22	30	20	K22X30X20FV	24.4	29.4	4.70	S	14 000	21 000	0.031	22.000	21.991	30.020	30.007
	22	32	24	K22X32X24F	33.1	37.9	6.05	S	14 000	22 000	0.046	22.000	21.991	32.025	32.009
	22	32	30	K22X32X30H	41.8	51.3	8.05	S	14 000	22 000	0.057	22.000	21.991	32.025	32.009
23	23	28	24	K23X28X24F	22.4	36.2	5.70	S	12 000	19 000	0.023	23.000	22.991	28.020	28.007
	23	35	16	K23X35X16H	25.9	25.1	3.90	S	14 000	21 000	0.040	23.000	22.991	35.025	35.009
24	24	28	10	K24X28X10H	9.67	14.6	2.20	S	12 000	18 000	0.027	24.000	23.991	28.020	28.007
	24	28	13	K24X28X13H	12.5	20.2	3.05	S	12 000	18 000	0.010	24.000	23.991	28.020	28.007
	24	28	16	K24X28X16F	12.6	20.4	3.10	S	12 000	18 000	0.012	24.000	23.991	28.020	28.007
	24	28	17	K24X28X17H	15.4	26.4	4.10	S	12 000	18 000	0.013	24.000	23.991	28.020	28.007
	24	30	10	K24X30X10TN	11.3	13.5	2.05	P	12 000	19 000	0.008	24.000	23.991	30.020	30.007
	24	30	17	K24X30X17H	19.8	27.7	4.35	S	12 000	19 000	0.020	24.000	23.991	30.020	30.007
	24	30	22	K24X30X22	25.0	37.3	5.80	S	12 000	19 000	0.024	24.000	23.991	30.020	30.007
	24	36	23	K24X36X23H	37.1	40.1	6.40	S	13 000	20 000	0.070	24.000	23.991	36.025	36.009
	25	29	10	K25X29X10H	9.61	14.6	2.25	S	11 000	17 000	0.008	25.000	24.991	29.020	29.007
	25	29	13	K25X29X13H	12.8	21.1	3.20	S	11 000	17 000	0.010	25.000	24.991	29.020	29.007
25	25	29	17	K25X29X17H	15.1	26.2	4.10	S	11 000	17 000	0.016	25.000	24.991	29.020	29.007
	25	30	13	K25X30X13	14.6	21.4	3.25	S	11 000	17 000	0.012	25.000	24.991	30.020	30.007
	25	30	17	K25X30X17H	18.8	29.8	4.60	S	11 000	17 000	0.016	25.000	24.991	30.020	30.007
	25	30	18	K25X30X18	20.6	33.4	5.30	S	11 000	17 000	0.017	25.000	24.991	30.020	30.007
	25	30	20	K25X30X20H	21.9	36.1	5.65	S	11 000	17 000	0.019	25.000	24.991	30.020	30.007
	25	30	24	K25X30X24H	24.8	42.4	6.60	S	11 000	17 000	0.024	25.000	24.991	30.020	30.007
	25	30	26	K25X30X26ZW	23.0	38.6	5.90	S	11 000	17 000	0.027	25.000	24.991	30.020	30.007
	25	31	14	K25X31X14H	16.8	22.7	3.45	S	12 000	18 000	0.017	25.000	24.991	31.025	31.009
	25	31	17	K25X31X17H	19.7	27.8	4.35	S	12 000	18 000	0.020	25.000	24.991	31.025	31.009
	25	31	21	K25X31X21H	25.1	38.0	5.95	S	12 000	18 000	0.026	25.000	24.991	31.025	31.009
	25	31	24	K25X31X24FH	25.3	38.5	6.05	S	12 000	18 000	0.031	25.000	24.991	31.025	31.009
	25	32	16	K25X32X16	19.8	25.3	4.00	S	12 000	18 000	0.027	25.000	24.991	32.025	32.009

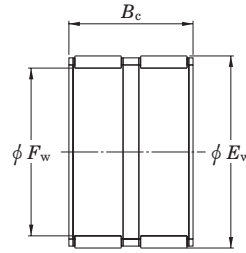
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

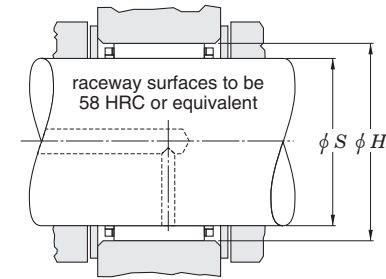
Shaft dia. (25) ~ 29 mm



K



K ZW

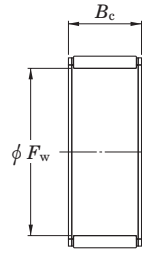


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
25	25	33	20	K25X33X20H	28.8	37.6	5.95	S	12 000	18 000	0.035	25.000	24.991	33.025	33.009
	25	33	24	K25X33X24H	32.3	43.5	6.85	S	12 000	18 000	0.038	25.000	24.991	33.025	33.009
	25	33	25	K25X33X25H	33.0	44.6	7.00	S	12 000	18 000	0.041	25.000	24.991	33.025	33.009
	25	35	23.7	K25X35X23,7H	35.9	42.3	6.90	S	12 000	19 000	0.050	25.000	24.991	35.025	35.009
	25	35	25	K25X35X25H	37.8	46.2	7.25	S	12 000	19 000	0.054	25.000	24.991	35.025	35.009
	25	35	30	K25X35X30H	44.6	57.2	9.00	S	12 000	19 000	0.060	25.000	24.991	35.025	35.009
	25	35	36	K25X35X36H	52.4	70.4	11.0	S	12 000	19 000	0.074	25.000	24.991	35.025	35.009
	25	37	20	K25X37X20H	32.5	34.1	5.45	S	12 000	19 000	0.055	25.000	24.991	37.025	37.009
26	26	30	10	K26X30X10F	9.46	14.5	2.20	S	11 000	16 000	0.007	26.000	25.991	30.020	30.007
	26	30	13	K26X30X13	12.3	20.4	3.10	S	10 000	16 000	0.011	26.000	25.991	30.020	30.007
	26	30	17	K26X30X17	15.0	26.3	3.10	S	10 000	16 000	0.014	26.000	25.991	30.020	30.007
	26	30	22	K26X30X22ZW	16.7	30.2	4.60	S	10 000	16 000	0.018	26.000	25.991	30.020	30.007
28	28	32	21	K28X32X21F	18.7	35.7	5.55	S	9 900	15 000	0.018	28.000	27.991	32.025	32.009
	28	33	13	K28X33X13F	14.1	21.4	3.25	S	10 000	15 000	0.015	28.000	27.991	33.025	33.009
	28	33	17	K28X33X17H	19.8	33.0	5.10	S	10 000	15 000	0.018	28.000	27.991	33.025	33.009
	28	33	27	K28X33X27	29.0	53.8	8.30	S	10 000	15 000	0.027	28.000	27.991	33.025	33.009
	28	34	17	K28X34X17	21.1	31.5	6.30	S	10 000	16 000	0.022	28.000	27.991	34.025	34.009
	28	34	20	K28X34X20H	24.4	37.8	7.65	S	10 000	16 000	0.025	28.000	27.991	34.025	34.009
	28	35	15	K28X35X15H	19.5	25.6	3.95	S	10 000	16 000	0.025	28.000	27.991	35.025	35.009
	28	35	16	K28X35X16H	21.5	29.1	4.60	S	10 000	16 000	0.026	28.000	27.991	35.025	35.009
	28	35	27	K28X35X27H	35.2	54.7	8.50	S	10 000	16 000	0.042	28.000	27.991	35.025	35.009
	28	36	20	K28X36X20FV	27.8	37.0	5.95	S	10 000	16 000	0.039	28.000	27.991	36.025	36.009
	28	38	25	K28X38X25,5	40.9	52.7	8.25	S	11 000	16 000	0.059	28.000	27.991	38.025	38.009
	28	40	18	K28X40X18H	33.6	36.5	5.90	S	11 000	17 000	0.060	28.000	27.991	40.025	40.009
	28	40	25	K28X40X25H	45.5	54.0	8.55	S	11 000	17 000	0.072	28.000	27.991	40.025	40.009
	28	40	30	K28X40X30H	54.3	67.8	10.7	S	11 000	17 000	0.100	28.000	27.991	40.025	40.009
	28	41	25	K28X41X25H	49.2	57.1	9.05	S	11 000	17 000	0.082	28.000	27.991	41.025	41.009
29	29	34	27	K29X34X27F	28.9	54.0	8.40	S	9 700	15 000	0.033	29.000	28.991	34.025	34.009

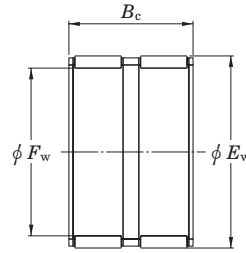
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

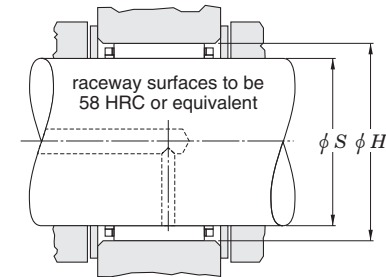
Shaft dia. 30 ~ (34) mm



K



K ZW

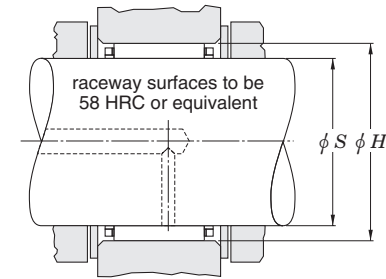
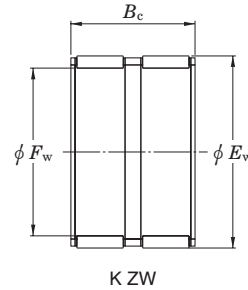
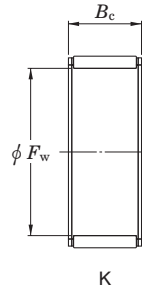


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
30	30	34	13	K30X34X13	13.5	24.1	3.65	S	9 200	14 000	0.011	30.000	29.991	34.025	34.009
	30	35	13	K30X35X13H	15.6	24.9	3.80	S	9 300	14 000	0.017	30.000	29.991	35.025	35.009
	30	35	17	K30X35X17H	20.2	34.6	5.35	S	9 300	14 000	0.022	30.000	29.991	35.025	35.009
	30	35	20	K30X35X20H	23.5	41.9	6.55	S	9 300	14 000	0.023	30.000	29.991	35.025	35.009
	30	35	22.8	K30X35X23F	25.6	46.8	7.40	S	9 300	14 000	0.028	30.000	29.991	35.025	35.009
	30	35	27	K30X35X27H	30.6	59.0	9.10	S	9 300	14 000	0.032	30.000	29.991	35.025	35.009
	30	35	27	K30X35X27HZW	19.9	33.6	5.10	S	9 300	14 000	0.033	30.000	29.991	35.025	35.009
	30	36	14	K30X36X14	18.0	26.2	4.00	S	9 500	15 000	0.020	30.000	29.991	36.025	36.009
	30	37	17.8	K30X37X18	24.3	34.8	6.00	S	9 600	15 000	0.033	30.000	29.991	37.025	37.009
	30	40	30	K30X40X30H	49.2	67.8	10.6	S	9 900	15 000	0.077	30.000	29.991	40.025	40.009
	30	42	30	K30X42X30H	54.2	68.6	10.8	S	10 000	16 000	0.096	30.000	29.991	42.025	42.009
	30	44	26	K30X44X26H	52.4	59.9	9.55	S	10 000	16 000	0.095	30.000	29.991	44.025	44.009
32	32	36	15	K32X36X15F	11.6	20.2	3.10	S	8 600	13 000	0.015	32.000	31.989	36.025	36.009
	32	37	13	K32X37X13	15.2	24.4	4.00	S	8 700	13 000	0.018	32.000	31.989	37.025	37.009
	32	37	17	K32X37X17H	20.0	34.8	5.40	S	8 700	13 000	0.020	32.000	31.989	37.025	37.009
	32	37	27	K32X37X27	29.3	56.8	8.85	S	8 700	13 000	0.035	32.000	31.989	37.025	37.009
	32	38	20	K32X38X20H	27.3	45.7	7.15	S	8 800	14 000	0.030	32.000	31.989	38.025	38.009
	32	38	26	K32X38X26H	33.2	58.8	9.15	S	8 800	14 000	0.037	32.000	31.989	38.025	38.009
	32	39	16	K32X39X16H	23.0	33.0	5.20	S	8 900	14 000	0.030	32.000	31.989	39.025	39.009
	32	39	18	K32X39X18H	25.8	38.2	6.05	S	8 900	14 000	0.033	32.000	31.989	39.025	39.009
	32	40	25	K32X40X25H	37.9	57.2	8.90	S	9 000	14 000	0.052	32.000	31.989	40.025	40.009
	32	40	36	K32X40X36H	52.3	86.4	13.6	S	9 000	14 000	0.080	32.000	31.989	40.025	40.009
	32	42	42	K32X42X42H	69.2	108	17.1	S	9 200	14 000	0.110	32.000	31.989	42.025	42.009
	32	46	18	K32X46X18H	39.2	41.9	6.80	S	9 600	15 000	0.075	32.000	31.989	46.025	46.009
	32	46	32	K32X46X32H	67.0	83.4	13.1	S	9 600	15 000	0.140	32.000	31.989	46.025	46.009
	32	46	40	K32X46X40H	81.7	108	12.2	S	9 600	15 000	0.158	32.000	31.989	46.025	46.009
	33	51	23	K33X51X23H	55.9	57.6	9.35	S	9 600	15 000	0.140	33.000	32.989	51.029	51.010
	34	38	11	K34X38X11	12.2	21.9	3.35	S	8 100	12 000	0.011	34.000	33.989	38.025	38.009

[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

Shaft dia. (34) ~ (38) mm

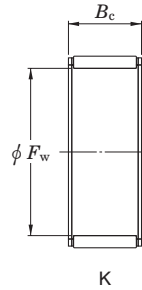


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
34	34	44	26	K34X44X26FH	42.9	58.9	9.40	S	8 600	13 000	0.080	34.000	33.989	44.025	44.009
35	35	40	13	K35X40X13H	16.2	27.2	4.15	S	7 900	12 000	0.018	35.000	34.989	40.025	40.009
	35	40	17	K35X40X17H	22.1	40.8	6.35	S	7 900	12 000	0.025	35.000	34.989	40.025	40.009
	35	40	19	K35X40X19H	23.2	43.2	6.80	S	7 900	12 000	0.025	35.000	34.989	40.025	40.009
	35	40	25	K35X40X25H	28.4	56.2	8.70	S	7 900	12 000	0.035	35.000	34.989	40.025	40.009
	35	40	27	K35X40X27H	29.8	59.6	9.20	S	7 900	12 000	0.037	35.000	34.989	40.025	40.009
	35	42	16	K35X42X16AH	24.5	36.8	5.80	S	8 100	12 000	0.031	35.000	34.989	42.025	42.009
	35	42	18	K35X42X18	27.5	42.6	6.75	S	8 100	12 000	0.035	35.000	34.989	42.025	42.009
	35	42	20	K35X42X20H	30.4	48.5	7.65	S	8 100	12 000	0.037	35.000	34.989	42.025	42.009
	35	42	30	K35X42X30FH	40.5	70.0	10.9	S	8 100	12 000	0.061	35.000	34.989	42.025	42.009
	35	45	20	K35X45X20FH	36.5	49.9	8.00	S	8 400	13 000	0.059	35.000	34.989	45.025	45.009
	35	45	30	K35X45X30F	51.2	74.5	11.7	S	8 400	13 000	0.100	35.000	34.989	45.025	45.009
	35	45	35	K35X45X35H	62.1	95.5	15.0	S	8 400	13 000	0.085	35.000	34.989	45.025	45.009
	35	45	41	K35X45X41	70.8	113	17.7	S	8 400	13 000	0.120	35.000	34.989	45.025	45.009
	35	45	49	K35X45X49H	82.5	138	21.4	S	8 400	13 000	0.143	35.000	34.989	45.025	45.009
	35	45	49	K35X45X49HZW	71.8	115	18.1	S	8 400	13 000	0.143	35.000	34.989	45.025	45.009
	35	50	23	K35X50X23H	53.0	60.3	9.75	S	8 700	13 000	0.110	35.000	34.989	50.025	50.009
	35	50	40	K35X50X40F	79.7	102	16.2	S	8 700	13 000	0.200	35.000	34.989	50.025	50.009
36	36	40	29	K36X40X29TN	21.2	45.2	7.15	P	7 600	12 000	0.029	36.000	35.989	40.025	40.009
	36	42	16	K36X42X16	22.8	37.7	5.95	S	7 800	12 000	0.027	36.000	35.989	42.025	42.009
37	37	42	13	K37X42X13H	16.9	29.4	4.50	S	7 500	11 000	0.017	37.000	36.989	42.025	42.009
	37	42	17	K37X42X17H	21.9	41.0	6.35	S	7 500	11 000	0.025	37.000	36.989	42.025	42.009
	37	42	27	K37X42X27F	32.1	66.9	10.4	S	7 500	11 000	0.039	37.000	36.989	42.025	42.009
	37	44	19	K37X44X19H	29.7	48.0	7.65	S	7 600	12 000	0.039	37.000	36.989	44.025	44.009
38	38	41	9	K38X41X9TN	5.93	11.0	1.65	P	7 100	11 000	0.004	38.000	37.989	41.025	41.009
	38	43	17	K38X43X17H	21.8	41.0	6.35	S	7 300	11 000	0.032	38.000	37.989	43.025	43.009
	38	43	27	K38X43X27	31.9	67.0	10.4	S	7 300	11 000	0.041	38.000	37.989	43.025	43.009

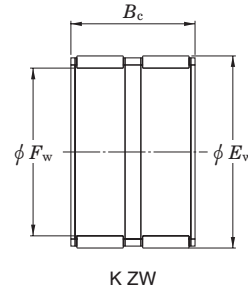
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

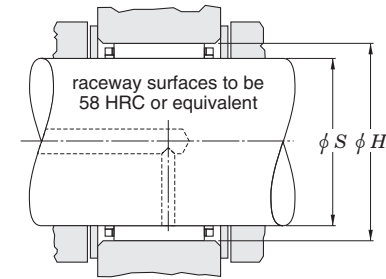
Shaft dia. (38) ~ 42 mm



K



K ZW

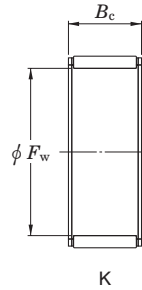


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft) max.	S (Shaft) min.	H (Housing) max.	H (Housing) min.
38	38	46	19.8	K38X46X20H	33.3	51.0	8.10	S	7 500	12 000	0.055	38.000	37.989	46.025	46.009
	38	46	32	K38X46X32H	55.2	98.1	15.3	S	7 500	12 000	0.090	38.000	37.989	46.025	46.009
	38	50	25	K38X50X25	53.0	70.8	11.2	S	7 800	12 000	0.100	38.000	37.989	50.025	50.009
	38	50	33	K38X50X33H	68.3	98.2	15.4	S	7 800	12 000	0.126	38.000	37.989	50.025	50.009
	38	50	40	K38X50X40FH	76.2	113	17.8	S	7 800	12 000	0.170	38.000	37.989	50.025	50.009
40	40	45	13	K40X45X13H	17.6	31.7	4.80	S	6 900	11 000	0.022	40.000	39.989	45.025	45.009
	40	45	18	K40X45X18H	25.1	50.4	8.00	S	6 900	11 000	0.031	40.000	39.989	45.025	45.009
	40	45	21	K40X45X21H	23.3	45.2	8.50	S	6 900	11 000	0.033	40.000	39.989	45.025	45.009
	40	45	27	K40X45X27H	32.7	70.2	10.8	S	6 900	11 000	0.040	40.000	39.989	45.025	45.009
	40	45	27	K40X45X27TN	33.3	72.1	11.2	P	6 900	11 000	0.030	40.000	39.989	45.025	45.009
	40	45	29	K40X45X29H	34.7	75.9	11.7	S	6 900	11 000	0.050	40.000	39.989	45.025	45.009
	40	46	17	K40X46X17	25.2	44.0	6.95	S	7 000	11 000	0.033	40.000	39.989	46.025	46.009
	40	47	18	K40X47X18	28.0	45.6	7.25	S	7 000	11 000	0.041	40.000	39.989	47.025	47.009
	40	47	20	K40X47X20	31.1	52.1	8.25	S	7 000	11 000	0.042	40.000	39.989	47.025	47.009
	40	48	20	K40X48X20FV1	35.5	56.3	8.45	S	7 100	11 000	0.052	40.000	39.989	48.025	48.009
	40	48	20	K40X48X20H	35.5	56.3	8.95	S	7 100	11 000	0.050	40.000	39.989	48.025	48.009
	40	48	35	K40X48X35H	57.3	104	16.3	S	7 100	11 000	0.098	40.000	39.989	48.025	48.009
	40	50	27	K40X50X27H	53.0	81.0	12.7	S	7 200	11 000	0.084	40.000	39.989	50.025	50.009
	40	55	45	K40X55X45H	103	146	23.0	S	7 500	12 000	0.221	40.000	39.989	55.029	55.010
	40	56	26	K40X56X26H	63.7	75.7	12.0	S	7 600	12 000	0.138	40.000	39.989	56.029	56.010
41	41	48	31	K41X48X31HZW	38.0	68.1	10.6	S	6 800	11 000	0.067	41.000	40.989	48.025	48.009
42	42	47	13	K42X47X13H	18.7	34.9	5.30	S	6 500	10 000	0.027	42.000	41.989	47.025	47.009
	42	47	17	K42X47X17H	22.8	45.2	7.30	S	6 500	10 000	0.028	42.000	41.989	47.025	47.009
	42	47	27	K42X47X27H	33.8	74.7	11.6	S	6 500	10 000	0.041	42.000	41.989	47.025	47.009
	42	48	24	K42X48X24F	33.1	63.9	10.1	S	6 600	10 000	0.046	42.000	41.989	48.025	48.009
	42	50	13	K42X50X13H	20.9	28.9	4.45	S	6 700	10 000	0.035	42.000	41.989	50.025	50.009
	42	50	20	K42X50X20H	35.2	56.6	9.00	S	6 700	10 000	0.054	42.000	41.989	50.025	50.009
	42	50	30	K42X50X30H	51.3	91.9	14.4	S	6 700	10 000	0.080	42.000	41.989	50.025	50.009

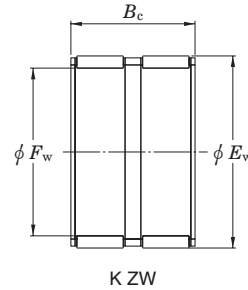
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

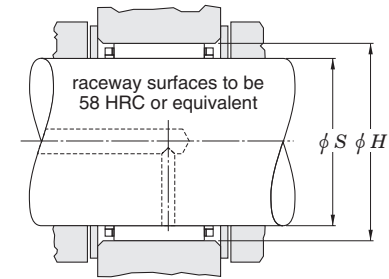
Shaft dia. 43 ~ (47) mm



K



K ZW

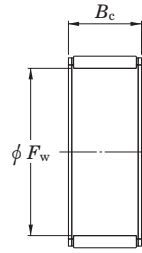


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft) max.	S (Shaft) min.	H (Housing) max.	H (Housing) min.
43	43	48	17	K43X48X17FH	23.0	45.8	6.85	S	6 400	9 800	0.036	43.000	42.989	48.025	48.009
	43	48	27	K43X48X27H	34.8	78.0	12.1	S	6 400	9 800	0.050	43.000	42.989	48.025	48.009
44	44	50	22	K44X50X22H	31.6	60.6	9.45	S	6 400	9 900	0.046	44.000	43.989	50.025	50.009
	44	50	30	K44X50X30,5HZW	35.5	70.5	10.7	S	6 400	9 900	0.068	44.000	43.989	50.025	50.009
45	45	50	13	K45X50X13H	18.4	35.1	5.35	S	6 100	9 400	0.022	45.000	44.989	50.025	50.009
	45	50	15	K45X50X15H	19.4	37.3	5.75	S	6 100	9 400	0.028	45.000	44.989	50.025	50.009
	45	50	17	K45X50X17H	24.9	51.8	8.05	S	6 100	9 400	0.030	45.000	44.989	50.025	50.009
	45	50	20	K45X50X20F	27.0	57.4	9.00	S	6 100	9 400	0.040	45.000	44.989	50.025	50.009
	45	50	21	K45X50X21CH	24.6	50.4	7.85	S	6 100	9 400	0.036	45.000	44.989	50.025	50.009
	45	50	27	K45X50X27FH	34.2	77.4	12.0	S	6 100	9 400	0.043	45.000	44.989	50.025	50.009
	45	50	27	K45X50X27TN	31.8	70.7	11.0	P	6 100	9 400	0.048	45.000	44.989	50.025	50.009
	45	52	18	K45X52X18H	30.1	52.0	8.25	S	6 200	9 500	0.045	45.000	44.989	52.029	52.010
	45	52	21	K45X52X21F	35.0	63.2	9.90	S	6 200	9 500	0.055	45.000	44.989	52.029	52.010
	45	53	20	K45X53X20H	36.0	59.5	9.45	S	6 200	9 600	0.054	45.000	44.989	53.029	53.010
	45	53	24.8	K45X53X25H	45.9	81.5	12.7	S	6 200	9 600	0.072	45.000	44.989	53.029	53.010
	45	53	25	K45X53X25F	42.5	73.7	11.7	S	6 200	9 600	0.075	45.000	44.989	53.029	53.010
	45	53	28	K45X53X28H	49.3	89.2	13.9	S	6 200	9 600	0.078	45.000	44.989	53.029	53.010
	45	55	20	K45X55X20H	42.0	62.2	10.0	S	6 400	9 800	0.074	45.000	44.989	55.029	55.010
	45	59	18	K45X59X18H	47.8	58.9	9.60	S	6 600	10 000	0.107	45.000	44.989	59.029	59.010
	45	59	18	K45X59X18TN	45.7	55.4	9.00	P	6 600	10 000	0.097	45.000	44.989	59.029	59.010
	45	59	36	K45X59X36H	82.4	118	18.6	S	6 600	10 000	0.181	45.000	44.989	59.029	59.010
	45	60	30	K45X60X30H	75.5	101	16.0	S	6 600	10 000	0.171	45.000	44.989	60.029	60.010
	45	60	45	K45X60X45H	108	160	25.2	S	6 600	10 000	0.280	45.000	44.989	60.029	60.010
46	46	53	36	K46X53X36HZW	48.6	96.7	15.3	S	6 100	9 300	0.100	46.000	45.989	53.029	53.010
47	47	52	15	K47X52X15FH	20.1	39.8	6.15	S	5 800	8 900	0.030	47.000	46.989	52.029	52.010
	47	52	17	K47X52X17H	24.2	50.4	7.85	S	5 800	8 900	0.032	47.000	46.989	52.029	52.010
	47	52	27	K47X52X27H	36.6	85.9	13.3	S	5 800	8 900	0.045	47.000	46.989	52.029	52.010

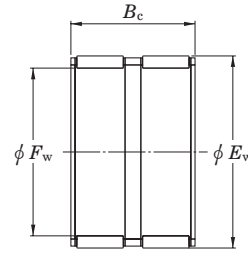
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

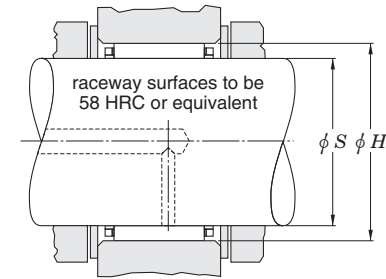
Shaft dia. (47) ~ (55) mm



K



K ZW

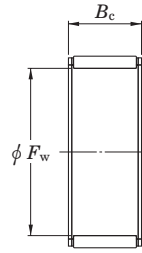


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
47	47	55	28	K47X55X28FV1	48.9	89.5	14.0	S	6 000	9 200	0.092	47.000	46.989	55.029	55.010
48	48	53	17	K48X53X17H K48X54X19H	25.7	54.9	8.55	S	5 700	8 700	0.032	48.000	47.989	53.029	53.010
	48	54	19		30.9	61.2	9.85	S	5 700	8 800	0.042	48.000	47.989	54.029	54.010
49	49	55	32	K49X55X32HZW K49X65X38H	40.2	86.4	13.4	S	5 600	8 600	0.080	49.000	48.989	55.029	55.010
	49	65	38		100	142	22.7	S	6 100	9 300	0.244	49.000	48.989	65.029	65.010
50	50	55	17	K50X55X17H K50X55X20H K50X55X30	25.5	55.0	8.55	S	5 400	8 400	0.032	50.000	49.989	55.029	55.010
	50	55	20		30.2	68.5	10.7	S	5 400	8 400	0.038	50.000	49.989	55.029	55.010
	50	55	30		38.2	92.4	14.4	S	5 400	8 400	0.057	50.000	49.989	55.029	55.010
	50	55	30	K50X55X30FV1 K50X56X23 K50X57X18FH	38.2	92.4	14.4	S	5 400	8 400	0.057	50.000	49.989	55.029	55.010
	50	56	23		35.5	74.1	11.7	S	5 500	8 500	0.051	50.000	49.989	56.029	56.010
	50	57	18		31.3	56.4	8.95	S	5 500	8 500	0.050	50.000	49.989	57.029	57.010
	50	58	20	K50X58X20H K50X58X25H K50X58X35H	38.8	67.8	10.8	S	5 600	8 600	0.065	50.000	49.989	58.029	58.010
	50	58	25		46.5	85.6	13.4	S	5 600	8 600	0.081	50.000	49.989	58.029	58.010
	50	58	35		64.9	131	20.6	S	5 600	8 600	0.105	50.000	49.989	58.029	58.010
	50	62	30	K50X62X30H K50X66X30H K50X70X32H	64.6	98.1	15.5	S	5 800	8 900	0.136	50.000	49.989	62.029	62.010
	50	66	30		80.9	109	17.4	S	5 900	9 100	0.192	50.000	49.989	66.029	66.010
	50	70	32		103	129	20.6	S	6 100	9 300	0.224	50.000	49.989	70.029	70.010
52	52	57	12	K52X57X12 K52X57X17H K52X60X24	18.4	36.7	5.60	S	5 200	8 000	0.022	52.000	51.987	57.029	57.010
	52	57	17		21.4	44.3	6.90	S	5 200	8 000	0.035	52.000	51.987	57.029	57.010
	52	60	24		47.1	88.3	13.9	S	5 400	8 200	0.078	52.000	51.987	60.029	60.010
55	55	60	17	K55X60X17 K55X60X20H K55X60X27H	26.0	58.3	9.10	S	4 900	7 600	0.037	55.000	54.987	60.029	60.010
	55	60	20		30.7	72.4	11.3	S	4 900	7 600	0.042	55.000	54.987	60.029	60.010
	55	60	27		40.1	102	15.7	S	4 900	7 600	0.055	55.000	54.987	60.029	60.010
	55	60	30	K55X60X30FH K55X61X26H K55X62X18H	40.6	103	16.1	S	4 900	7 600	0.068	55.000	54.987	60.029	60.010
	55	61	26		44.3	102	15.9	S	5 000	7 600	0.063	55.000	54.987	61.029	61.010
	55	62	18		33.2	62.8	10.0	S	5 000	7 700	0.055	55.000	54.987	62.029	62.010
	55	63	15	K55X63X15F	30.5	51.5	8.00	S	5 000	7 800	0.054	55.000	54.987	63.029	63.010

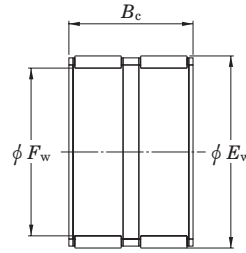
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

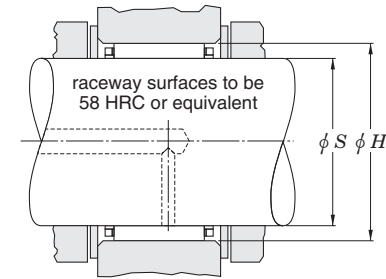
Shaft dia. (55) ~ 68 mm



K



K ZW

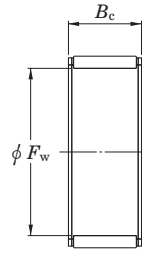


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
55	55	63	20	K55X63X20	40.3	73.5	11.7	S	5 000	7 800	0.072	55.000	54.987	63.029	63.010
	55	63	25	K55X63X25	49.8	96.5	15.1	S	5 000	7 800	0.080	55.000	54.987	63.029	63.010
	55	63	32	K55X63X32	62.3	129	20.0	S	5 000	7 800	0.108	55.000	54.987	63.029	63.010
58	58	63	17	K58X63X17F	27.0	62.6	9.80	S	4 700	7 200	0.037	58.000	57.987	63.029	63.010
	58	64	19	K58X64X19H	32.9	70.6	11.3	S	4 700	7 200	0.037	58.000	57.987	64.029	64.010
	58	65	18	K58X65X18H	34.3	67.1	10.7	S	4 700	7 300	0.058	58.000	57.987	65.029	65.010
60	60	65	20	K60X65X20H	31.9	78.1	12.2	S	4 500	6 900	0.046	60.000	59.987	65.029	65.010
	60	65	26.8	K60X65X27FH	39.5	103	16.0	S	4 500	6 900	0.059	60.000	59.987	65.029	65.010
	60	65	29.8	K60X65X30FH	42.9	114	17.8	S	4 500	6 900	0.085	60.000	59.987	65.029	65.010
	60	65	30	K60X65X30	42.9	114	17.8	S	4 500	6 900	0.070	60.000	59.987	65.029	65.010
	60	68	17	K60X68X17F	34.2	61.4	9.50	S	4 600	7 100	0.066	60.000	59.987	68.029	68.010
	60	68	20	K60X68X20H	41.8	79.2	12.6	S	4 600	7 100	0.066	60.000	59.987	68.029	68.010
	60	68	23	K60X68X23H	49.0	97.2	15.4	S	4 600	7 100	0.089	60.000	59.987	68.029	68.010
	60	68	25	K60X68X25	51.6	104	16.3	S	4 600	7 100	0.091	60.000	59.987	68.029	68.010
	60	68	30	K60X68X30ZW	46.4	90.1	13.9	S	4 600	7 100	0.119	60.000	59.987	68.029	68.010
63	63	71	20	K63X71X20	41.4	79.4	12.7	S	4 400	6 700	0.070	63.000	62.987	71.029	71.010
64	64	70	16	K64X70X16	26.4	55.1	8.55	S	4 200	6 500	0.049	64.000	63.987	70.029	70.010
65	65	70	20	K65X70X20CH	28.6	69.2	10.8	S	4 100	6 400	0.050	65.000	64.987	70.029	70.010
	65	70	30	K65X70X30	44.4	123	19.1	S	4 100	6 400	0.075	65.000	64.987	70.029	70.010
	65	73	23	K65X73X23H	48.2	97.7	15.5	S	4 200	6 500	0.091	65.000	64.987	73.029	73.010
	65	73	30	K65X73X30H	60.1	129	20.3	S	4 200	6 500	0.116	65.000	64.987	73.029	73.010
68	68	74	20	K68X74X20FH	37.5	88.1	13.2	S	4 000	6 100	0.062	68.000	67.987	74.029	74.010
	68	74	28	K68X74X28CH	44.8	110	17.1	S	4 000	6 100	0.082	68.000	67.987	74.029	74.010
	68	74	30	K68X74X30H	47.6	119	18.5	S	4 000	6 100	0.098	68.000	67.987	74.029	74.010
	68	74	35	K68X74X35HZW	45.1	111	17.1	S	4 000	6 100	0.120	68.000	67.987	74.029	74.010
	68	76	20	K68X76X20	43.8	87.8	14.0	S	4 000	6 200	0.086	68.000	67.987	76.029	76.010

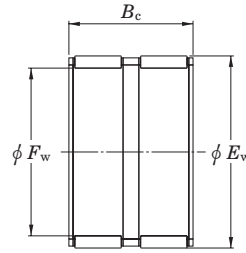
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

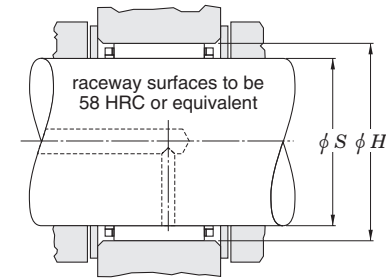
Shaft dia. 70 ~ 95 mm



K



K ZW

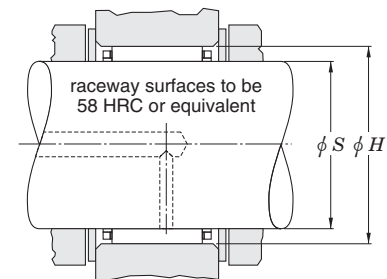
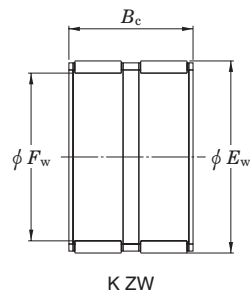
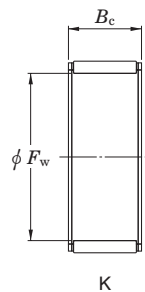


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)	H (Housing)		
												max.	min.	max.	min.
70	70	76	20	K70X76X20	36.1	84.7	13.5	S	3 900	5 900	0.065	70.000	69.987	76.029	76.010
	70	76	30	K70X76X30	51.6	134.0	20.9	S	3 900	5 900	0.097	70.000	69.987	76.029	76.010
	70	78	20	K70X78X20H	43.6	87.9	14.0	S	3 900	6 000	0.090	70.000	69.987	78.029	78.010
	70	78	23	K70X78X23F	49.8	104.0	16.6	S	3 900	6 000	0.115	70.000	69.987	78.029	78.010
	70	78	24.8	K70X78X25F	49.8	104.0	16.6	S	3 900	6 000	0.115	70.000	69.987	78.029	78.010
	70	78	30	K70X78X30H	62.2	139.0	21.8	S	3 900	6 000	0.140	70.000	69.987	78.029	78.010
	70	78	46	K70X78X46ZW	78.4	187.0	29.5	S	3 900	6 000	0.188	70.000	69.987	78.029	78.010
	70	85	40	K70X85X40F	118	203	32.4	S	4 100	6 300	0.338	70.000	69.987	85.034	85.012
	70	88	30	K70X88X30H	115	175	28.1	S	4 100	6 400	0.205	70.000	69.987	88.034	88.012
72	72	80	20	K72X80X20	44.4	90.7	14.5	S	3 800	5 800	0.084	72.000	71.987	80.029	80.010
73	73	79	20	K73X79X20	37.0	88.7	14.1	S	3 700	5 700	0.068	73.000	72.987	79.029	79.010
75	75	81	20	K75X81X20F	37.4	90.7	14.5	S	3 600	5 500	0.075	75.000	74.987	81.034	81.012
	75	83	23	K75X83X23	52.5	114.0	18.2	S	3 600	5 600	0.104	75.000	74.987	83.034	83.012
	75	83	30	K75X83X30	60.9	138	21.7	S	3 600	5 600	0.141	75.000	74.987	83.034	83.012
	75	83	30	K75X83X30FH	60.9	138	21.7	S	3 600	5 600	0.141	75.000	74.987	83.034	83.012
80	80	86	20	K80X86X20H	38.6	96.7	15.4	S	3 400	5 200	0.072	80.000	79.987	86.034	86.012
	80	88	25	K80X88X25FV1	54.0	121	19.2	S	3 400	5 200	0.134	80.000	79.987	88.034	88.012
	80	88	30	K80X88X30	67.5	161	25.4	S	3 400	5 200	0.153	80.000	79.987	88.034	88.012
85	85	92	20	K85X92X20H	39.9	91.7	14.6	S	3 200	4 900	0.085	84.988	84.973	92.034	92.012
	85	93	25	K85X93X25F	58.8	138	21.7	S	3 200	4 900	0.128	84.988	84.973	93.034	93.012
	85	93	30	K85X93X30H	69.4	170.4	26.8	S	3 200	4 900	0.166	84.988	84.973	93.034	93.012
90	90	97	20	K90X97X20	46.3	114	18.1	S	3 000	4 600	0.095	89.988	89.973	97.034	97.012
	90	98	25	K90X98X25F	54.8	128	20.3	S	3 000	4 600	0.134	89.988	89.973	98.034	98.012
	90	98	30	K90X98X30	63.6	155	24.3	S	3 000	4 600	0.168	89.988	89.973	98.034	98.012
95	95	103	20	K95X103X20	49.3	114	18.3	S	2 800	4 400	0.130	94.988	94.973	103.034	103.012
	95	103	30	K95X103X30F	71.0	183	28.6	S	2 800	4 400	0.180	94.988	94.973	103.034	103.012

[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies
single-row, double-row assemblies
metric series
K, K ZW series

Shaft dia. 100 ~ 110 mm

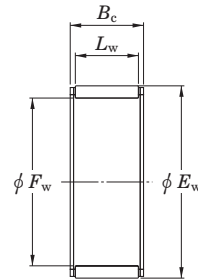


Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Cage material ¹⁾ P / S	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions (mm)			
Shaft dia.	F_w	E_w	B_c -0.20 -0.55		C_r	C_{0r}			Grease lub.	Oil lub.		S (Shaft)		H (Housing)	
												max.	min.	max.	min.
100	100	108	30	K100X108X30	72.4	191	29.5	S	2 700	4 200	0.210	99.988	99.973	108.034	108.012
110	110	118	24	K110X118X24	64.0	168	25.6	S	2 400	3 800	0.165	109.988	109.973	118.034	118.012
	110	118	30	K110X118X30H	75.3	207	31.2	S	2 400	3 800	0.200	109.988	109.973	118.034	118.012

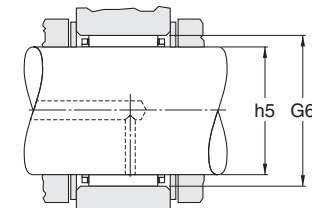
[Note] 1) Cage material: P: polymer cage, S: steel cage

Radial needle roller and cage assemblies single-row assemblies inch series

Shaft dia. $\frac{3}{8} \sim (1 \frac{1}{2})$ in
(9.525 ~ (38.100) mm)



WJ, WJC



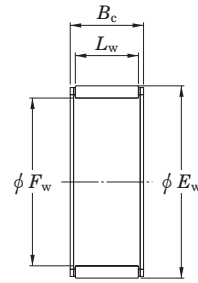
raceway surfaces to be
58 HRC or equivalent

Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		Recommended dimensions (mm)				(Refer.) Mass (kg)
Shaft dia. (in)	F_w	E_w	B_c $^{+0}_{-0.38}$		C_r	C_{0r}		Grease lub.	Oil lub.	Shaft dia. (h5) max.	min.	Housing bore dia. (G6) max.	min.	
$\frac{3}{8}$	9.525	12.700	9.53	WJC-060806	3.87	4.00	0.600	24 000	37 000	9.525	9.520	12.715	12.705	0.003
$\frac{1}{2}$	12.700	15.875	12.70	WJC-081008	6.23	8.01	1.65	23 000	35 000	12.700	12.692	15.890	15.880	0.005
$\frac{9}{16}$	14.288	17.463	12.70	WJC-091108	6.81	9.25	1.40	22 000	34 000	14.288	14.280	17.478	17.468	0.006
$\frac{5}{8}$	15.875	19.050	12.70	WJC-101208	7.03	9.96	1.50	18 000	27 000	15.875	15.867	19.070	19.058	0.006
	15.875	22.225	15.88	WJ-101410	15.6	17.8	2.80	19 000	29 000	15.875	15.867	22.245	22.233	0.012
	15.875	22.225	22.23	WJ-101414	21.3	26.4	4.10	19 000	29 000	15.875	15.867	22.245	22.233	0.017
$\frac{3}{4}$	19.050	25.400	25.40	WJ-121616	26.8	37.2	5.80	16 000	24 000	19.050	19.040	25.420	25.408	0.023
$\frac{13}{16}$	20.638	26.988	22.23	WJ-131714	25.1	35.0	5.50	14 000	22 000	20.638	20.627	27.008	26.995	0.021
$\frac{7}{8}$	22.225	28.575	25.40	WJ-141816	29.2	43.5	6.75	13 000	20 000	22.225	22.215	28.595	28.583	0.026
1	25.400	33.338	19.05	WJ-162112	28.1	37.1	5.90	12 000	18 000	25.400	25.390	33.363	33.348	0.029
	25.400	33.338	25.40	WJ-162116	36.8	52.5	8.20	12 000	18 000	25.400	25.390	33.363	33.348	0.038
	25.400	33.338	31.75	WJ-162120	44.5	67.2	10.5	12 000	18 000	25.400	25.390	33.363	33.348	0.048
$1 \frac{1}{8}$	28.575	38.100	25.40	WJ-182416	42.4	57.8	9.05	10 000	16 000	28.575	28.565	38.125	38.110	0.041
	28.575	38.100	31.75	WJ-182420	52.0	74.7	11.7	10 000	16 000	28.575	28.565	38.125	38.110	0.065
$1 \frac{1}{4}$	31.750	41.275	19.05	WJ-202612	33.4	43.7	7.05	9 300	14 000	31.750	31.740	41.300	41.285	0.043
	31.750	41.275	25.40	WJ-202616	44.1	62.3	9.80	9 300	14 000	31.750	31.740	41.300	41.285	0.061
	31.750	41.275	31.75	WJ-202620	53.8	81.0	12.6	9 300	14 000	31.750	31.740	41.300	41.285	0.071
	31.750	41.275	38.10	WJ-202624	63.6	99.6	15.6	9 300	14 000	31.750	31.740	41.300	41.285	0.085
$1 \frac{3}{8}$	34.925	44.450	25.40	WJ-222816	45.8	67.2	10.5	8 300	13 000	34.925	34.915	44.475	44.460	0.067
	34.925	44.450	31.75	WJ-222820	56.0	87.2	13.6	8 300	13 000	34.925	34.915	44.475	44.460	0.077
$1 \frac{1}{2}$	38.100	47.625	25.40	WJ-243016	47.2	71.6	11.3	7 600	12 000	38.100	38.090	47.650	47.635	0.078
	38.100	47.625	31.75	WJ-243020	57.8	93.0	14.5	7 600	12 000	38.100	38.090	47.650	47.635	0.083

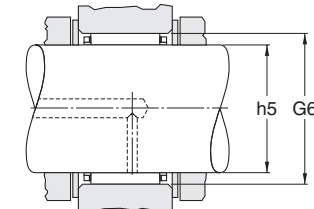
[Remarks] 1) Load ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
2) Minimum axial clearance should be 0.02 mm (0.008 in).

Radial needle roller and cage assemblies single-row assemblies inch series

Shaft dia. (1 1/2) ~ 3 in
((38.100) ~ 76.200 mm)



WJ, WJC



raceway surfaces to be
58 HRC or equivalent

Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		Recommended dimensions (mm)				(Refer.) Mass (kg)
Shaft dia. (in)	F_w	E_w	B_c +0 -0.38		C_r	C_{0r}		Grease lub.	Oil lub.	Shaft dia. (h5) max.	min.	Housing bore dia. (G6) max.	min.	
1 1/2	38.100	47.625	38.10	WJ-243024	68.1	114.8	18.0	7 600	12 000	38.100	38.090	47.650	47.635	0.100
	38.100	47.625	44.45	WJ-243028	77.4	135.7	21.2	7 600	12 000	38.100	38.090	47.650	47.635	0.134
1 3/4	44.450	53.975	19.05	WJ-283412	39.5	59.6	9.60	6 400	9 900	44.450	44.440	54.003	53.985	0.058
	44.450	53.975	25.40	WJ-283416	52.0	85.0	13.4	6 400	9 900	44.450	44.440	54.003	53.985	0.084
	44.450	53.975	38.10	WJ-283424	74.7	136	21.3	6 400	9 900	44.450	44.440	54.003	53.985	0.115
2	50.800	60.325	19.05	WJ-323812	42.8	69.0	11.1	5 600	8 600	50.800	50.787	60.353	60.335	0.065
	50.800	60.325	25.40	WJ-323816	56.5	98.0	15.5	5 600	8 600	50.800	50.787	60.353	60.335	0.105
	50.800	60.325	31.75	WJ-323820	69.0	127	20.0	5 600	8 600	50.800	50.787	60.353	60.335	0.108
	50.800	60.325	38.10	WJ-323824	81.0	157	24.6	5 600	8 600	50.800	50.787	60.353	60.335	0.130
2 1/16	52.388	61.913	25.40	WJ-333916	57.8	102	16.2	5 400	8 300	52.388	52.375	61.940	61.923	0.099
2 1/8	53.975	63.500	25.40	WJ-344016	52.5	92.08	14.6	5 200	8 000	53.975	53.962	63.528	63.510	0.089
	53.975	63.500	38.10	WJ-344024	78.3	153	24.0	5 200	8 000	53.975	53.962	63.528	63.510	0.137
2 3/16	55.563	65.088	19.05	WJ-354112	44.5	75.17	12.2	5 000	7 800	55.563	55.550	65.115	65.098	0.070
	55.563	65.088	25.40	WJ-354116	57.8	107	16.9	5 000	7 800	55.563	55.550	65.115	65.098	0.094
2 1/4	57.150	66.675	25.40	WJ-364216	53.8	96.08	15.2	4 900	7 500	57.150	57.137	66.703	66.685	0.096
	57.150	66.675	31.75	WJ-364220	67.6	128	20.1	4 900	7 500	57.150	57.137	66.703	66.685	0.120
2 3/8	60.325	69.850	38.10	WJ-384424	81.4	167	26.1	4 600	7 100	60.325	60.312	69.878	69.860	0.151
2 1/2	63.500	73.025	25.40	WJ-404616	55.6	104	16.5	4 400	6 700	63.500	63.487	73.053	73.035	0.106
	63.500	73.025	31.75	WJ-404620	69.8	139	21.8	4 400	6 700	63.500	63.487	73.053	73.035	0.132
	63.500	73.025	38.10	WJ-404624	83.2	173	27.2	4 400	6 700	63.500	63.487	73.053	73.035	0.179
2 3/4	69.850	79.375	25.40	WJ-445016	57.8	112.54	17.8	4 000	6 100	69.850	69.837	79.403	79.385	0.116
3	76.200	85.725	25.40	WJ-485416	59.6	120.55	19.1	3 600	5 600	76.200	76.187	85.761	85.738	0.126
	76.200	85.725	38.10	WJ-485424	85.4	191.72	29.9	3 600	5 600	76.200	76.187	85.761	85.738	0.189

[Remarks] 1) Load ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
2) Minimum axial clearance should be 0.02 mm (0.008 in).

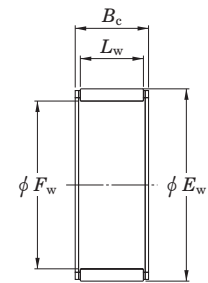
Radial needle roller and cage assemblies

single-row assemblies

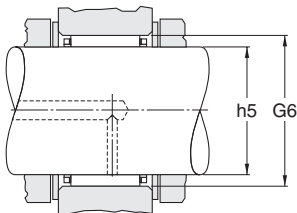
inch series

JTEKT

Shaft dia. 3 1/4 ~ 5 in
(82.550 ~ 127.000 mm)



WJ, WJC



raceway surfaces to be 58 HRC or equivalent

Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) <i>C_u</i>	Limiting speeds (min ⁻¹)		Recommended dimensions (mm)				(Refer.) Mass (kg)
Shaft dia. (in)	<i>F_w</i>	<i>E_w</i>	<i>B_c</i> ⁺⁰ _{-0.38}		<i>C_r</i>	<i>C_{0r}</i>		Grease lub.	Oil lub.	Shaft dia. (h5) max.	min.	Housing bore dia. (G6) max.	min.	
3 1/4	82.550	92.075	25.40	WJ-525816	61.4	128.55	20.4	3 300	5 100	82.550	82.535	92.111	92.088	0.136
	82.550	92.075	38.10	WJ-525824	88.1	204.62	31.9	3 300	5 100	82.550	82.535	92.111	92.088	0.220
3 1/2	88.900	98.425	25.40	WJ-566216	63.2	136.56	21.7	3 100	4 700	88.900	88.885	98.461	98.438	0.146
	88.900	101.600	25.40	WJ-566416	79.6	150.35	23.9	3 100	4 800	88.900	88.885	101.636	101.613	0.197
	88.900	101.600	38.10	WJ-566424	113	237.53	37.4	3 100	4 800	88.900	88.885	101.636	101.613	0.296
4	101.600	114.300	25.40	WJ-647216	83.6	166.59	30.9	2 700	4 200	101.600	101.585	114.336	114.313	0.224
	101.600	114.300	38.10	WJ-647224	119	263.33	40.6	2 700	4 200	101.600	101.585	114.336	114.313	0.335
5	127.000	152.400	38.10	WJ-809624	211	365.20	51.9	2 200	3 400	127.000	126.982	152.438	152.415	1.018

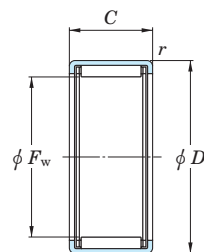
[Remarks]

1) Load ratings are based on a minimum raceway hardness of 58 HRC or equivalent.

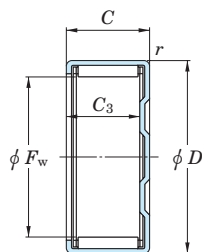
2) Minimum axial clearance should be 0.02 mm (0.008 in).

Drawn cup needle roller bearings
caged,
open ends, closed one end
metric series
HK, BK series

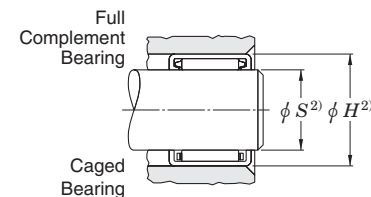
Shaft dia. 3 ~ (10) mm



HK



BK



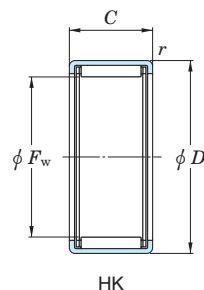
Shaft surface to be
58 HRC or equivalent

Shaft dia.	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Inspection gage	Mounting inner ring (pages B464 to B471)
	F_w	D	C $+0$ -0.3	C_3 min.	r min.		C_r	C_{0r}		Grease lub.	Oil lub.			
3	3	6.5	6	5.20	0.30	BK0306	1.20	0.78	0.130	30 000	46 000	0.001	Table 4	
	3	6.5	6	—	0.30	HK0306	1.20	0.78	0.130	30 000	46 000	0.001	Table 4	
4	4	8	8	6.40	0.40	BK0408	1.88	1.38	0.200	25 000	39 000	0.002	Table 4	
	4	8	8	—	0.40	HK0408	1.88	1.38	0.200	25 000	39 000	0.002	Table 4	
5	5	9	9	7.40	0.40	BK0509	2.52	2.07	0.320	23 000	36 000	0.002	Table 4	
	5	9	9	—	0.40	HK0509	2.52	2.07	0.320	23 000	36 000	0.002	Table 4	
6	6	10	8	6.40	0.40	BK0608	2.34	1.95	0.290	22 000	33 000	0.002	Table 4	
	6	10	8	—	0.40	HK0608	2.34	1.95	0.290	22 000	33 000	0.002	Table 4	
	6	10	9	7.40	0.40	BK0609	3.14	2.85	0.290	22 000	33 000	0.003	Table 4	
	6	10	9	—	0.40	HK0609	3.14	2.85	0.290	22 000	33 000	0.002	Table 4	
7	7	11	9	7.40	0.40	BK0709	3.23	3.05	0.470	21 000	32 000	0.003	Table 4	
	7	11	9	—	0.40	HK0709	3.23	3.05	0.470	21 000	32 000	0.003	Table 4	
8	8	12	8	6.40	0.40	BK0808	2.90	2.73	0.400	20 000	31 000	0.003	Table 4	
	8	12	8	—	0.40	HK0808	2.90	2.73	0.400	20 000	31 000	0.003	Table 4	
	8	12	10	8.40	0.40	BK0810	3.95	4.07	0.600	20 000	31 000	0.004	Table 4	JR5x8x12
	8	12	10	—	0.40	HK0810	3.95	4.07	0.600	20 000	31 000	0.004	Table 4	JR5x8x12
9	9	13	10	8.40	0.40	BK0910	4.57	5.07	0.770	19 000	30 000	0.004	Table 4	JR6x9x12
	9	13	10	—	0.40	HK0910	4.57	5.07	0.770	19 000	30 000	0.004	Table 4	JR6x9x12
	9	13	12	10.40	0.40	BK0912	5.65	6.65	1.00	19 000	30 000	0.005	Table 4	JR6x9x12
	9	13	12	—	0.40	HK0912	5.65	6.65	1.00	19 000	30 000	0.005	Table 4	JR6x9x12
10	10	14	10	8.40	0.40	BK1010	4.78	5.51	0.840	19 000	29 000	0.004	Table 4	JR7x10x10,5
	10	14	10	—	0.40	HK1010	4.78	5.51	0.840	19 000	29 000	0.004	Table 4	JR7x10x10,5
	10	14	12	10.40	0.40	BK1012	5.90	7.23	1.10	19 000	29 000	0.006	Table 4	JR7x10x12
	10	14	12	—	0.40	HK1012	5.90	7.23	1.10	19 000	29 000	0.005	Table 4	JR7x10x12

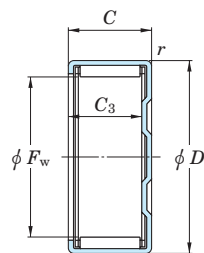
[Notes] 1) Drawn cup needle roller bearings with two needle roller and cage assemblies and one lubricating hole.
2) For the recommended mounting dimensions see Table 20.

Drawn cup needle roller bearings
caged,
open ends, closed one end
metric series
HK, BK series

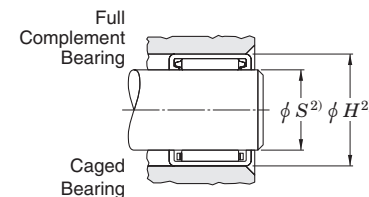
Shaft dia. (10) ~ (18) mm



HK



BK



Shaft surface to be
58 HRC or equivalent

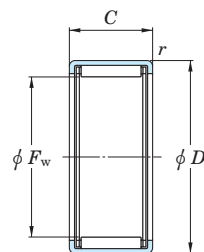
Shaft dia.	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) Cu	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Inspection gage	Mounting inner ring (pages B464 to B471)
	Fw	D	C +0 -0.3	C3 min.	r min.		Cr	C0r		Grease lub.	Oil lub.			
10	10	14	15	13.40	0.40	BK1015	7.49	9.81	1.50	19 000	29 000	0.006	Table 4	JR7x10x16
	10	14	15	—	0.40	HK1015	7.49	9.81	1.50	19 000	29 000	0.006	Table 4	JR7x10x16
12	12	16	10	8.40	0.4	BK1210	5.24	6.55	0.890	18 000	28 000	0.006	Table 4	JR8x12x10,5
	12	16	10	—	0.4	HK1210	5.24	6.55	0.890	18 000	28 000	0.006	Table 4	JR8x12x10,5
	12	18	12	9.30	1	BK1212	6.61	7.29	1.10	14 000	22 000	0.012	Table 4	JR8x12x12,5
	12	18	12	—	1	HK1212	6.61	7.29	1.10	14 000	22 000	0.01	Table 4	JR8x12x12,5
13	13	19	12	9.30	1	BK1312	6.92	7.89	1.20	14 000	22 000	0.012	Table 4	JR10x13x12,5
	13	19	12	—	1	HK1312	6.92	7.89	1.20	14 000	22 000	0.01	Table 4	JR10x13x12,5
14	14	20	12	9.30	1	BK1412	7.21	8.50	1.30	14 000	21 000	0.014	Table 4	JR10x14x12
	14	20	12	—	1	HK1412	7.21	8.50	1.30	14 000	21 000	0.011	Table 4	JR10x14x12
15	15	21	12	9.30	1	BK1512	7.49	9.11	1.40	14 000	21 000	0.015	Table 4	JR12x15x12,5
	15	21	12	—	1	HK1512	7.49	9.11	1.40	14 000	21 000	0.012	Table 4	JR12x15x12,5
	15	21	16	13.30	1	BK1516	10.70	14.4	2.20	14 000	21 000	0.019	Table 4	JR12x15x16,5
	15	21	16	—	1	HK1516	10.70	14.4	2.20	14 000	21 000	0.018	Table 4	JR12x15x16,5
	15	21	22	19.30	1	BK1522 ¹⁾	13.50	19.4	2.95	14 000	21 000	0.022	Table 4	JR12x15x22,5
	15	21	22	—	1	HK1522 ¹⁾	13.50	19.4	2.95	14 000	21 000	0.024	Table 4	JR12x15x22,5
16	16	22	12	9.30	1	BK1612	7.76	9.72	1.50	14 000	21 000	0.016	Table 4	JR12x16x12
	16	22	12	—	1	HK1612	7.76	9.72	1.50	14 000	21 000	0.012	Table 4	JR12x16x12
	16	22	16	13.30	1	BK1616	11.1	15.3	2.35	14 000	21 000	0.02	Table 4	JR12x16x16
	16	22	16	—	1	HK1616	11.1	15.3	2.35	14 000	21 000	0.016	Table 4	JR12x16x16
	16	22	22	19.30	1	BK1622 ¹⁾	13.4	19.5	2.95	14 000	21 000	0.028	Table 4	JR12x16x22
	16	22	22	—	1	HK1622 ¹⁾	13.40	19.5	2.95	14 000	21 000	0.022	Table 4	JR12x16x22
17	17	23	12	9.30	1	BK1712	8.12	10.4	1.60	13 000	20 000	0.018	Table 4	
	17	23	12	—	1	HK1712	8.12	10.4	1.60	13 000	20 000	0.013	Table 4	
18	18	24	12	9.30	1	BK1812	8.41	11.1	1.70	12 000	18 000	0.017	Table 4	

[Notes] 1) Drawn cup needle roller bearings with two needle roller and cage assemblies and one lubricating hole.

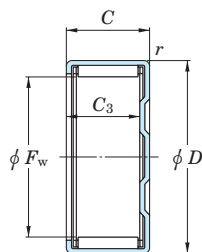
2) For the recommended mounting dimensions see Table 20.

Drawn cup needle roller bearings
caged,
open ends, closed one end
metric series
HK, BK series

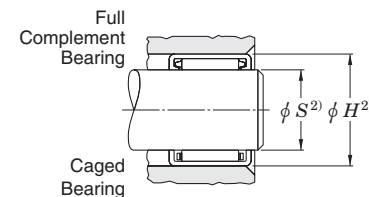
Shaft dia. (18) ~ (25) mm



HK



BK



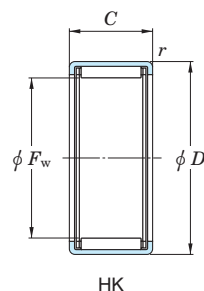
Shaft surface to be
58 HRC or equivalent

Shaft dia.	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Inspection gage	Mounting inner ring (pages B464 to B471)
	F_w	D	C +0 -0.3	C_3 min.	r min.		C_r	C_{0r}		Grease lub.	Oil lub.			
18	18	24	12	—	1	HK1812	8.41	11.1	1.70	12 000	18 000	0.015	Table 4	JR15x18x16,5 JR15x18x16,5
	18	24	16	13.30	1	BK1816	11.6	16.8	2.55	12 000	18 000	0.022	Table 4	
	18	24	16	—	1	HK1816	11.6	16.8	2.55	12 000	18 000	0.018	Table 4	
20	20	26	12	9.3	1	BK2012	8.97	12.5	1.90	11 000	16 000	0.017	Table 4	JR15x20x12 JR15x20x12 JR17x20x16,5
	20	26	12	—	1	HK2012	8.97	12.5	1.90	11 000	16 000	0.015	Table 4	
	20	26	16	13.3	1	BK2016	12.40	18.90	2.85	11 000	16 000	0.024	Table 4	
	20	26	16	—	1	HK2016	12.40	18.90	2.85	11 000	16 000	0.022	Table 4	JR17x20x16,5 JR17x20x20,5 JR17x20x20,5
	20	26	20	17.3	1	BK2020	15.50	25.30	3.95	11 000	16 000	0.027	Table 4	
	20	26	20	—	1	HK2020	15.50	25.30	3.95	11 000	16 000	0.025	Table 4	
	20	26	30	27.3	1	BK2030 ¹⁾	21.20	37.80	5.75	11 000	16 000	0.043	Table 4	JR17x20x30,5 JR17x20x30,5
	20	26	30	—	1	HK2030 ¹⁾	21.20	37.80	5.75	11 000	16 000	0.041	Table 4	
22	22	28	10	—	1	HK2210	7.06	9.49	1.45	9 600	15 000	0.013	Table 4	JR17x22x13 JR17x22x13 JR17x22x13
	22	28	12	9.3	1	BK2212	9.81	14.50	2.20	9 600	15 000	0.02	Table 4	
	22	28	12	—	1	HK2212	9.81	14.50	2.20	9 600	15 000	0.015	Table 4	
	22	28	16	13.3	1	BK2216	13.10	20.90	3.20	9 600	15 000	0.027	Table 4	JR17x22x16 JR17x22x16 JR17x22x23
	22	28	16	—	1	HK2216	13.10	20.90	3.20	9 600	15 000	0.022	Table 4	
	22	28	20	17.3	1	BK2220	15.30	25.50	4.00	9 600	15 000	0.028	Table 4	
	22	28	20	—	1	HK2220	15.30	25.50	4.00	9 600	15 000	0.026	Table 4	JR17x22x23
25	25	32	12	9.30	1	BK2512	10.90	14.70	2.25	8 500	13 000	0.025	Table 4	JR20x25x17 JR20x25x17 JR20x25x20,5
	25	32	12	—	1	HK2512	10.90	14.70	2.25	8 500	13 000	0.021	Table 4	
	25	32	16	13.3	1	BK2516	15.60	23.50	3.55	8 500	13 000	0.031	Table 4	
	25	32	16	—	1	HK2516	15.60	23.50	3.55	8 500	13 000	0.028	Table 4	JR20x25x20,5 JR20x25x20,5 JR20x25x26,5
	25	32	20	17.3	1	BK2520	20.60	33.40	5.30	8 500	13 000	0.043	Table 4	
	25	32	20	—	1	HK2520	20.60	33.40	5.30	8 500	13 000	0.040	Table 4	
	25	32	26	23.3	1	BK2526	25.70	44.40	6.95	8 500	13 000	0.051	Table 4	JR20x25x26,5 JR20x25x26,5 JR20x25x38,5
	25	32	26	—	1	HK2526	25.70	44.40	6.95	8 500	13 000	0.046	Table 4	
	25	32	38	35.3	1	BK2538 ¹⁾	35.30	66.90	10.6	8 500	13 000	0.077	Table 4	

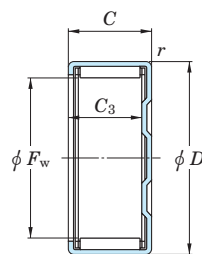
[Notes] 1) Drawn cup needle roller bearings with two needle roller and cage assemblies and one lubricating hole.
2) For the recommended mounting dimensions see Table 20.

Drawn cup needle roller bearings
caged,
open ends, closed one end
metric series
HK, BK series

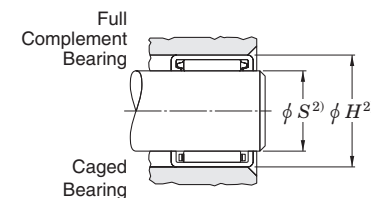
Shaft dia. (25) ~ (45) mm



HK



BK



Shaft surface to be
58 HRC or equivalent

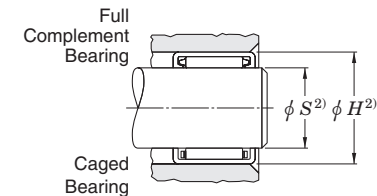
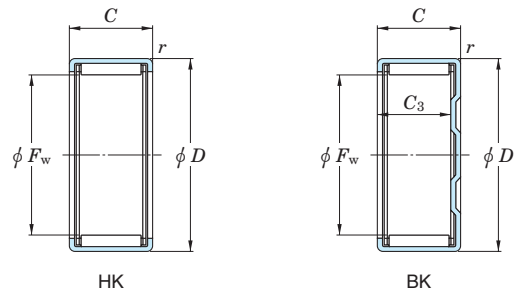
Shaft dia.	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Inspection gage	Mounting inner ring (pages B464 to B471)
	F_w	D	C $+0$ -0.3	C_3 min.	r min.		C_r	C_{0r}		Grease lub.	Oil lub.			
25	25	32	38	—	1	HK2538 ¹⁾	35.30	66.90	10.6	8 500	13 000	0.068	Table 4	JR20x25x38,5
28	28	35	16	—	1	HK2816	17.4	28.1	3.85	7 500	12 000	0.032	Table 4	JR22x28x17
	28	35	20	17.3	1	BK2820	20.9	35.3	5.60	7 500	12 000	0.047	Table 4	JR22x28x20,5
	28	35	20	—	1	HK2820	20.9	35.3	5.60	7 500	12 000	0.040	Table 4	JR22x28x20,5
30	30	37	12	9.3	1	BK3012	12.0	17.7	2.90	7 000	11 000	0.031	Table 4	JR25x30x17
	30	37	12	—	1	HK3012	12.0	17.7	2.70	7 000	11 000	0.024	Table 4	
	30	37	16	13.30	1	BK3016	16.8	27.3	4.20	7 000	11 000	0.041	Table 4	
	30	37	16	—	1	HK3016	16.8	27.3	4.20	7 000	11 000	0.032	Table 4	JR25x30x17
	30	37	20	17.3	1	BK3020	22.4	39.6	6.25	7 000	11 000	0.053	Table 4	JR25x30x20,5
	30	37	20	—	1	HK3020	22.4	39.6	6.25	7 000	11 000	0.042	Table 4	JR25x30x20,5
	30	37	26	23.3	1	BK3026	27.4	51.2	7.95	7 000	11 000	0.067	Table 4	JR25x30x26,5
	30	37	26	—	1	HK3026	27.4	51.2	7.95	7 000	11 000	0.054	Table 4	JR25x30x26,5
	30	37	38	35.3	1	BK3038 ¹⁾	38.4	79.2	12.5	7 000	11 000	0.093	Table 4	JR25x30x38,5
	30	37	38	—	1	HK3038 ¹⁾	38.4	79.2	12.5	7 000	11 000	0.075	Table 4	JR25x30x38,5
35	35	42	12	—	1	HK3512	12.3	19.2	2.90	5 900	9 100	0.028	Table 4	JR30x35x17
	35	42	16	—	1	HK3516	18.7	33.0	4.60	5 900	9 100	0.037	Table 4	
	35	42	20	17.3	1	BK3520	24.5	46.8	7.40	5 900	9 100	0.065	Table 4	
	35	42	20	—	1	HK3520	24.5	46.8	7.40	5 900	9 100	0.049	Table 4	JR30x35x20,5
40	40	47	12	—	1	HK4012	13.4	22.4	3.40	5 200	7 900	0.033	Table 4	JR35x40x17
	40	47	16	—	1	HK4016	18.9	34.8	5.35	5 200	7 900	0.042	Table 4	
	40	47	20	17.3	1	BK4020	25.1	50.4	8.00	5 200	7 900	0.070	Table 4	
	40	47	20	—	1	HK4020	25.1	50.4	8.00	5 200	7 900	0.060	Table 4	JR35x40x20,5
45	45	52	12	—	1	HK4512	14.1	24.8	3.75	4 600	7 000	0.036	Table 4	JR40x45x17
	45	52	16	—	1	HK4516	19.8	38.5	5.95	4 600	7 000	0.048	Table 4	
	45	52	20	17.3	1	BK4520	27.2	58.2	8.80	4 600	7 000	0.079	Table 4	

[Notes] 1) Drawn cup needle roller bearings with two needle roller and cage assemblies and one lubricating hole.

2) For the recommended mounting dimensions see Table 20.

Drawn cup needle roller bearings
 caged,
 open ends, closed one end
 metric series
 HK, BK series

Shaft dia. (45) ~ 60 mm



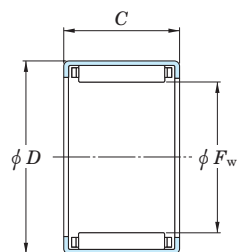
Shaft surface to be
 58 HRC or equivalent

Shaft dia.	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) <i>C_u</i>	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Inspection gage	Mounting inner ring (pages B464 to B471)
	<i>F_w</i>	<i>D</i>	<i>C</i> _{+0 -0.3}	<i>C₃</i> min.	<i>r</i> min.		<i>C_r</i>	<i>C_{0r}</i>		Grease lub.	Oil lub.			
45	45	52	20	—	1	HK4520	27.2	58.2	8.80	4 600	7 000	0.059	Table 4	JR40x45x20,5
50	50	58	12	—	1	HK5012	17.0	28.7	4.40	4 100	6 300	0.045	Table 4	JR45x50x20 JR45x50x25,5
	50	58	20	—	1	HK5020	30.9	62.2	8.80	4 100	6 300	0.072	Table 4	
	50	58	25	—	1	HK5025	35.5	74.1	11.7	4 100	6 300	0.092	Table 4	
55	55	63	20	—	1	HK5520	31.0	64.4	10.0	3 700	5 700	0.079	Table 4	
60	60	68	12	—	1	HK6012	18.6	34.4	5.25	3 400	5 200	0.060	Table 4	
	60	68	20	—	1	HK6020	35.6	79.5	10.9	3 400	5 200	0.090	Table 4	

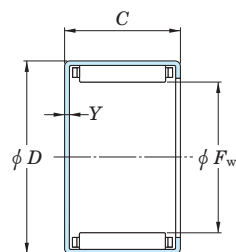
[Notes] 1) Drawn cup needle roller bearings with two needle roller and cage assemblies and one lubricating hole.
 2) For the recommended mounting dimensions see Table 20.

Drawn cup needle roller bearings
caged,
open ends, closed one end
inch series
J, JH, MJ-1,
MJH-1 series

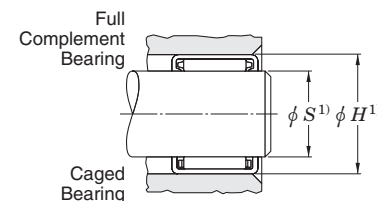
Shaft dia. $\frac{1}{8} \sim \frac{1}{2}$ in
(3.175 ~ 12.700 mm)



J, JH



MJ-1, MJH-1



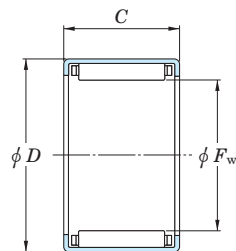
Shaft surface to be
58 HRC or equivalent

Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.		Basic load ratings (kN)		Fatigue load limit (kN)		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)		Inspection gage
	F_w	D	C $^{+0}_{-0.3}$	Y max.	With open ends	With closed end	C_r	C_{0r}	C_u		Grease lub.	Oil lub.	With open ends	With closed end	
$\frac{1}{8}$	3.175	6.350	4.78	—	JP-23-F	—	0.90	0.61	0.100		33 000	51 000	0.001	—	Table 5
	3.175	6.350	6.35	—	JP-24-F	—	1.33	1.01	0.150		33 000	51 000	0.001	—	Table 5
$\frac{5}{32}$	3.970	7.142	4.78	—	JP-2 1/2 3F	—	0.91	0.62	0.110		31 000	47 000	0.001	—	Table 5
$\frac{3}{16}$	4.763	8.733	4.77	—	JP-33-F	—	1.07	0.73	0.120		25 000	38 000	0.001	—	Table 5
	4.763	8.733	6.35	—	JP-34-F	—	1.72	1.34	0.200		25 000	38 000	0.001	—	Table 5
	4.763	8.733	9.53	1.02	J-36	MJ-361	2.28	1.92	0.290		25 000	38 000	0.002	0.002	Table 5
$\frac{1}{4}$	6.350	11.113	7.92	1.02	J-45	MJ-451	2.21	1.74	0.300		20 000	30 000	0.003	0.003	Table 5
	6.350	11.113	11.13	1.02	J-47	MJ-471	3.40	3.01	0.450		20 000	30 000	0.004	0.004	Table 5
$\frac{5}{16}$	7.938	12.700	7.92	—	J-55	—	2.40	2.01	0.340		18 000	28 000	0.003	—	Table 5
	7.938	12.700	11.13	1.02	J-57	MJ-571	4.03	3.92	0.590		18 000	28 000	0.004	0.005	Table 5
	7.938	14.288	11.13	1.02	JH-57	MJH-571	4.65	3.76	0.570		14 000	22 000	0.006	0.007	Table 5
$\frac{3}{8}$	9.525	14.288	7.92	1.02	J-65	MJ-651	2.73	2.49	0.430		18 000	27 000	0.004	0.004	Table 5
	9.525	14.288	9.53	1.02	J-66	MJ-661	3.53	3.46	0.530		18 000	27 000	0.004	0.005	Table 5
	9.525	14.288	12.70	1.02	J-68	MJ-681	5.22	5.72	0.860		18 000	27 000	0.005	0.006	Table 5
	9.525	15.875	12.70	—	JH-68	—	6.59	6.08	0.920		13 000	20 000	0.008	—	Table 5
$\frac{7}{16}$	11.113	15.875	12.70	1.02	J-78	MJ-781	6.34	7.67	1.15		17 000	26 000	0.006	0.007	Table 5
	11.113	17.463	12.70	—	JH-78	—	7.10	6.89	1.05		13 000	19 000	0.009	—	Table 5
$\frac{1}{2}$	12.700	17.463	7.92	1.02	J-85	MJ-851	3.46	3.66	0.630		16 000	25 000	0.005	0.005	Table 5
	12.700	17.463	9.53	1.02	J-86	MJ-861	4.67	5.39	0.830		16 000	25 000	0.005	0.006	Table 5
	12.700	17.463	12.70	1.02	J-88	MJ-881	6.32	7.92	1.20		16 000	25 000	0.007	0.008	Table 5
	12.700	17.463	19.05	—	J-812	—	10.23	14.72	2.25		16 000	25 000	0.010	—	Table 5
	12.700	19.050	11.13	1.02	JH-87	MJH-871	6.39	6.20	0.950		12 000	19 000	0.009	0.010	Table 5
	12.700	19.050	12.70	1.02	JH-88	MJH-881	7.56	7.69	1.15		12 000	19 000	0.010	0.012	Table 5
	12.700	19.050	19.05	—	JH-812	—	12.32	14.41	2.25		12 000	19 000	0.015	—	Table 5

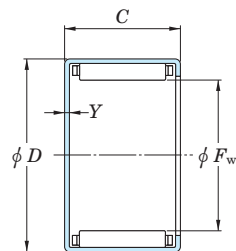
[Note] 1) For the recommended mounting dimensions see Table 21.

Drawn cup needle roller bearings
caged,
open ends, closed one end
inch series
J, JH, MJ-1,
MJH-1 series

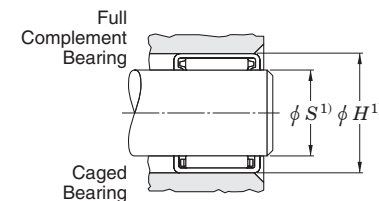
Shaft dia. $\frac{9}{16} \sim \frac{7}{8}$ in
 (14.288 ~ 22.225 mm)



J, JH



MJ-1, MJH-1



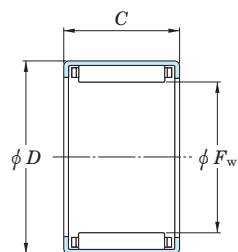
Shaft surface to be
 58 HRC or equivalent

Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.		Basic load ratings (kN)		Fatigue load limit (kN)		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)		Inspection gage
	F_w	D	C $^{+0}_{-0.3}$	Y max.	With open ends	With closed end	C_r	C_{0r}	C_u		Grease lub.	Oil lub.	With open ends	With closed end	
$\frac{9}{16}$	14.288	19.050	11.13	1.02	J-97	MJ-971	5.47	6.80	1.05		16 000	25 000	0.007	0.009	Table 5
	14.288	19.050	12.70	1.02	J-98	MJ-981	6.23	8.03	1.20		16 000	25 000	0.008	0.009	Table 5
	14.288	19.050	15.88	—	J-910	—	8.27	11.60	1.75		16 000	25 000	0.010	—	Table 5
	14.288	20.638	12.70	1.02	JH-98	MJH-981	7.98	8.49	1.30		12 000	18 000	0.011	0.014	Table 5
$\frac{5}{8}$	15.875	20.638	12.70	1.02	J-108	MJ-1081	6.71	9.13	1.40		13 000	21 000	0.009	0.010	Table 5
	15.875	20.638	15.88	1.02	J-1010	MJ-10101	8.80	12.94	1.95		13 000	21 000	0.010	0.013	Table 5
	15.875	20.638	19.05	1.02	J-1012	MJ-10121	11.80	18.86	2.90		13 000	21 000	0.013	0.015	Table 5
	15.875	22.212	15.88	1.02	JH-1010	MJH-10101	11.57	14.10	2.15		14 000	21 000	0.015	0.017	Table 5
	15.875	22.212	25.40	1.02	JH-1016	MJH-10161	19.79	28.11	4.35		14 000	21 000	0.024	0.028	Table 5
$\frac{11}{16}$	17.463	22.212	19.05	1.02	J-1112	MJ-11121	12.46	20.91	3.20		12 000	19 000	0.014	0.016	Table 5
	17.463	23.813	15.88	1.02	JH-1110	MJH-11101	12.05	15.21	2.30		13 000	19 000	0.016	0.019	Table 5
	17.463	23.813	19.05	—	JH-1112	—	16.10	22.20	3.10		13 000	19 000	0.019	—	Table 5
$\frac{3}{4}$	19.050	25.400	9.53	—	J-126	—	6.49	7.05	1.10		11 000	18 000	0.010	—	Table 5
	19.050	25.400	12.70	—	J-128	—	9.94	12.19	1.85		11 000	18 000	0.014	—	Table 5
	19.050	25.400	15.88	1.02	J-1210	MJ-12101	12.50	16.32	2.50		11 000	18 000	0.017	0.020	Table 5
	19.050	25.400	19.05	1.02	J-1212	MJ-12121	15.52	21.62	3.35		11 000	18 000	0.020	0.025	Table 5
	19.050	26.988	19.05	1.02	JH-1212	MJH-12121	19.08	23.58	3.70		12 000	18 000	0.026	0.031	Table 5
$\frac{13}{16}$	20.638	26.988	22.23	—	J-1314	—	19.31	29.31	4.55		10 000	16 000	0.025	—	Table 5
	20.638	28.575	19.05	1.27	JH-1312	MJH-13121	18.77	24.50	3.85		11 000	16 000	0.028	0.034	Table 5
$\frac{7}{8}$	22.225	28.575	9.53	—	J-146	—	7.20	8.43	1.30		9 700	15 000	0.012	—	Table 5
	22.225	28.575	12.70	—	J-148	—	10.94	14.50	2.20		9 700	15 000	0.015	—	Table 5
	22.225	28.575	19.05	1.02	J-1412	MJ-14121	17.88	27.18	4.20		9 700	15 000	0.024	0.028	Table 5
	22.225	28.575	25.40	1.02	J-1416	MJ-14161	23.66	38.97	6.05		9 700	15 000	0.031	0.059	Table 5
	22.225	30.163	19.05	1.27	JH-1412	MJH-14121	18.33	24.50	3.75		9 800	15 000	0.030	0.036	Table 5
	22.225	30.163	25.40	1.27	JH-1416	MJH-14161	25.40	37.37	5.80		9 800	15 000	0.040	0.048	Table 5

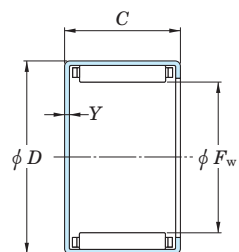
[Note] 1) For the recommended mounting dimensions see Table 21.

Drawn cup needle roller bearings
caged,
open ends, closed one end
inch series
J, JH, MJ-1,
MJH-1 series

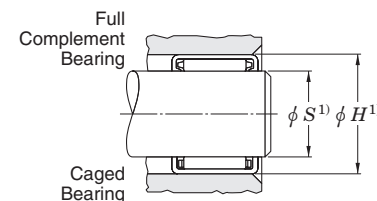
Shaft dia. 1 ~ (1 3/4) in
(25.400 ~ (44.450) mm)



J, JH



MJ-1, MJH-1

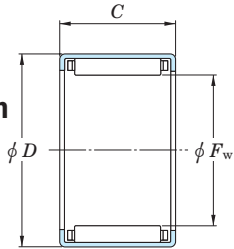


Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.		Basic load ratings (kN)		Fatigue load limit (kN)		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)		Inspection gage
	F _w	D	C +0 -0.3	Y max.	With open ends	With closed end	C _r	C _{0r}	C _u		Grease lub.	Oil lub.	With open ends	With closed end	
1	25.400	31.750	19.05	—	J-1612	—	18.15	28.82	4.45		8 400	13 000	0.026	—	Table 5
	25.400	31.750	25.40	1.02	J-1616	MJ-16161	24.95	43.41	6.75		8 400	13 000	0.035	0.042	Table 5
	25.400	33.338	19.05	1.27	JH-1612	MJH-16121	20.68	29.58	4.60		8 500	13 000	0.034	0.040	Table 5
	25.400	33.338	25.40	1.27	JH-1616	MJH-16161	27.58	42.88	6.65		8 500	13 000	0.045	0.054	Table 5
1 1/8	28.575	34.925	12.70	1.02	J-188	MJ-1881	11.65	16.95	2.55		7 400	11 000	0.020	0.023	Table 5
	28.575	34.925	19.05	1.02	J-1812	MJ-18121	19.04	31.76	4.90		7 400	11 000	0.029	0.035	Table 5
	28.575	34.925	25.40	1.02	J-1816	MJ-18161	26.16	48.04	7.40		7 400	11 000	0.039	0.047	Table 5
	28.575	38.100	19.05	1.27	JH-1812	MJH-18121	23.35	31.32	4.75		7 600	12 000	0.046	0.055	Table 5
	28.575	38.100	25.40	1.27	JH-1816	MJH-18161	33.14	49.38	7.70		7 600	12 000	0.061	0.074	Table 5
	28.575	38.100	28.58	1.27	JH-1818	MJH-18181	36.30	55.16	8.60		7 600	12 000	0.069	0.082	Table 5
1 1/4	31.750	38.100	19.05	1.02	J-2012	MJ-20121	19.84	34.70	5.35		6 600	10 000	0.036	0.043	Table 5
	31.750	38.100	25.40	1.02	J-2016	MJ-20161	28.82	56.49	8.70		6 600	10 000	0.043	0.051	Table 5
	31.750	41.275	19.05	—	JH-2012	—	24.11	33.94	5.80		6 800	10 000	0.050	—	Table 5
	31.750	41.275	25.40	—	JH-2016	—	33.94	52.93	8.20		6 800	10 000	0.067	—	Table 5
	31.750	41.275	31.75	—	JH-2020	—	43.37	72.51	10.8		6 800	10 000	0.084	—	Table 5
1 3/8	34.925	41.275	12.70	1.02	J-228	MJ-2281	13.97	22.91	3.50		6 000	9 200	0.024	0.028	Table 5
	34.925	41.275	19.05	—	J-2212	—	22.82	42.97	6.65		6 000	9 200	0.035	—	Table 5
	34.925	44.450	19.05	1.27	JH-2212	MJH-22121	26.24	38.43	5.90		6 100	9 400	0.055	0.065	Table 5
	34.925	44.450	25.40	1.27	JH-2216	MJH-22161	36.52	58.72	9.20		6 100	9 400	0.073	0.087	Table 5
1 1/2	38.100	47.625	19.05	1.27	J-2412	MJ-24121	29.89	47.15	7.40		5 600	8 600	0.059	0.094	Table 5
	38.100	47.625	25.40	1.27	J-2416	MJ-24161	39.32	66.72	10.4		5 600	8 600	0.079	0.094	Table 5
	38.100	47.625	31.75	—	J-2420	—	49.38	89.85	14.0		5 600	8 600	0.099	—	Table 5
1 5/8	41.275	50.800	15.88	—	J-2610	—	26.11	40.97	6.25		5 100	7 900	0.053	—	Table 5
	41.275	50.800	25.40	1.27	J-2616	M-26161	39.28	68.95	10.8		5 100	7 900	0.085	0.101	Table 5
1 3/4	44.450	53.975	19.05	1.27	J-2812	MJ-28121	29.58	49.38	7.45		4 700	7 300	0.068	0.081	Table 5

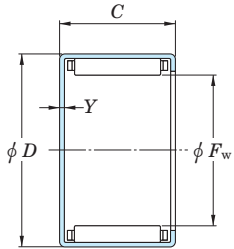
[Note] 1) For the recommended mounting dimensions see Table 21.

Drawn cup needle roller bearings
caged,
open ends, closed one end
inch series
J, JH, MJ-1,
MJH-1 series

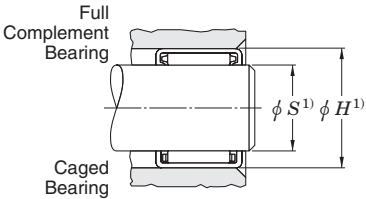
Shaft dia. (1 3/4) ~ 2 3/4 in
((44.450) ~ 69.850 mm)



J, JH



MJ-1, MJH-1

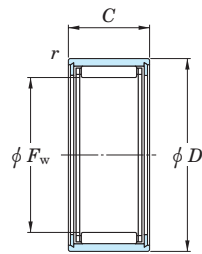


Shaft surface to be
58 HRC or equivalent

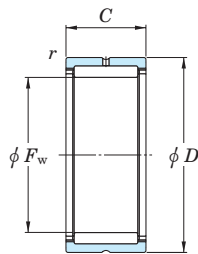
Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.		Basic load ratings (kN)		Fatigue load limit (kN)		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)		Inspection gage
	F_w	D	$C_{+0-0.3}$	$Y_{max.}$	With open ends	With closed end	C_r	C_{Or}	C_u		Grease lub.	Oil lub.	With open ends	With closed end	
1 3/4	44.450	53.975	25.40	1.27	J-2816	MJ-28161	40.08	72.95	11.4		4 700	7 300	0.091	0.108	Table 5
	44.450	53.975	38.10	1.27	J-2824	MJ-28241	59.61	121.88	18.9		4 700	7 300	0.136	0.162	Table 5
1 7/8	47.625	57.150	25.40	1.27	J-3016	MJ-30161	41.10	76.06	11.9		4 400	6 800	0.097	0.115	Table 5
2	50.800	60.325	25.40	1.27	J-3216	MJ-32161	42.39	81.40	12.7		4 100	6 300	0.103	0.137	Table 5
2 1/4	57.150	66.675	19.05	—	J-3612	—	35.41	65.83	10.0		3 600	5 600	0.086	—	Table 5
	57.150	66.675	25.40	—	J-3616	—	46.26	92.52	14.4		3 600	5 600	0.114	—	Table 5
2 3/4	69.850	79.375	19.05	—	J-4412	—	36.25	72.95	11.3		2 900	4 500	0.103	—	Table 5

[Note] 1) For the recommended mounting dimensions see Table 21.

Heavy-duty needle roller bearings
without inner rings
metric series
NK, NKS, RNA48, RNA49
RNA69, NKTN series
Shaft dia. 5 ~ (17) mm



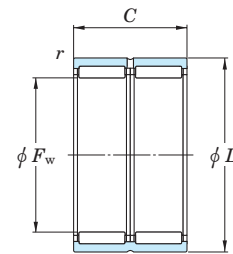
NK ($\phi F_w \leq 10$)



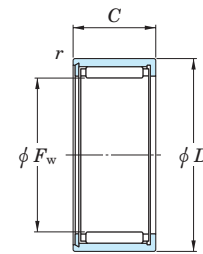
NK ($\phi F_w \geq 12$), NKS, RNA48,
RNA49, RNA69 ($\phi F_w \geq 35$)

Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
5	5	10	10	0.2	NK5/10TN NK5/12TN	2.18	1.71	0.260	31 000	47 000	0.004
	5	10	12	0.2		3.04	2.63		31 000	47 000	
6	6	12	10	0.2	NK6/10 NK6/12TN	3.19	2.90	0.420	29 000	44 000	0.005
	6	12	12	0.2		3.07	2.74		29 000	44 000	
7	7	14	10	0.3	NK7/10TN NK7/12TN	2.74	2.44	0.370	28 000	42 000	0.007
	7	14	12	0.3		3.40	3.22		28 000	42 000	
8	8	15	12	0.3	NK8/12 NK8/12ASR1 NK8/16	4.57	4.89	0.740	26 000	41 000	0.011
	8	15	12	0.3		4.57	4.89		26 000	41 000	
	8	15	16	0.3		5.22	5.78		26 000	41 000	
9	9	16	12	0.3	NK9/12 NK9/16	4.27	4.60	0.700	26 000	40 000	0.012
	9	16	16	0.3		5.57	6.47		26 000	40 000	
10	10	17	12	0.3	NK10/12 NK10/16TN	5.40	6.43	0.980	25 000	39 000	0.013
	10	17	16	0.3		5.30	6.27		25 000	39 000	
12	12	19	12	0.3	NK12/12 NK12/16	6.86	7.60	1.15	19 000	30 000	0.013
	12	19	16	0.3		6.78	9.03		24 000	37 000	
14	14	22	13	0.3	RNA4900 NK14/16 NK14/20	9.39	10.3	1.55	16 000	24 000	0.018
	14	22	16	0.3		12.4	14.8		16 000	24 000	
	14	22	20	0.3		14.7	18.4		16 000	24 000	
15	15	23	16	0.3	NK15/16 NK15/20	12.4	15.0	2.30	15 000	24 000	0.024
	15	23	20	0.3		14.7	18.6		15 000	24 000	
16	16	24	13	0.3	RNA4901 NK16/16 NK16/20 RNA6901	10.5	12.3	1.85	18 000	28 000	0.020
	16	24	16	0.3		15.4	20.2		18 000	28 000	
	16	24	20	0.3		16.1	21.3		18 000	28 000	
	16	24	22	0.3		16.1	21.3		18 000	28 000	
17	17	25	16	0.3	NK17/16	13.6	17.5	2.70	17 000	27 000	0.027

Shaft dia. (17) ~ 25 mm



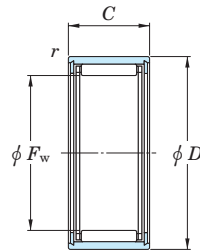
RNA69
($\phi F_w \geq 40$)



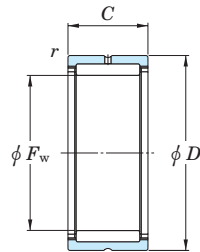
NKTN

Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
17	17	25	20	0.3	NK17/20	15.4	20.4	3.25	17 000	27 000	0.034
18	18	26	16	0.3	NK18/16 NK18/20	13.6	17.7	2.70	16 000	25 000	0.028
	18	26	20	0.3		16.1	22.0		16 000	25 000	
19	19	27	16	0.3	NK19/16 NK19/20 NKS18	14.1	19.0	2.90	15 000	24 000	0.029
	19	27	20	0.3		18.8	23.6		15 000	24 000	
	19	30	16	0.3		15.9	16.2		17 000	26 000	
20	20	28	13	0.3	RNA4902 NK20/16 NK20/20 RNA6902 NKS20	11.8	15.3	2.35	14 000	22 000	0.023
	20	28	16	0.3		14.1	19.1		14 000	22 000	
	20	28	20	0.3		17.5	25.3		14 000	22 000	
	20	28	23	0.3		18.4	26.9		14 000	22 000	
	20	32	20	0.6		24.4	26.7		15 000	24 000	
21	21	29	16	0.3	NK21/16 NK21/20	15.3	21.6	3.30	14 000	21 000	0.032
	21	29	20	0.3		18.1	26.9		14 000	21 000	
22	22	30	13	0.3	RNA4903 NK22/16 NK22/20 RNA6903 NKS22	12.2	16.4	2.50	13 000	20 000	0.025
	22	30	16	0.3		15.2	21.7		13 000	20 000	
	22	30	20	0.3		18.0	27.0		13 000	20 000	
	22	30	23	0.3		19.8	30.6		13 000	20 000	
	22	35	20	0.6		22.9	27.1		14 000	21 000	
24	24	32	16	0.3	NK24/16 NK24/20 NKS24	16.2	24.3	3.70	12 000	18 000	0.035
	24	32	20	0.3		19.3	30.3		12 000	18 000	
	24	37	20	0.6		29.1	32.8		13 000	20 000	
25	25	33	16	0.3	NK25/16 NK25/20 RNA4904 RNA6904 NKS25	16.1	24.4	3.75	11 000	17 000	0.037
	25	33	20	0.3		19.1	30.4		11 000	17 000	
	25	37	17	0.3		21.3	25.5		12 000	18 000	
	25	37	30	0.3		36.6	51.0		12 000	18 000	
	25	38	20	0.6		29.1	33.0		12 000	19 000	

Heavy-duty needle roller bearings
without inner rings
metric series
NK, NKS, RNA48, RNA49
RNA69, NKTN series
Shaft dia. 26 ~ 37 mm



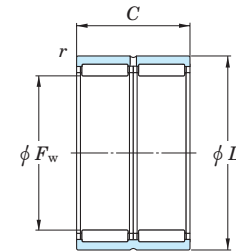
NK ($\phi F_w \leq 10$)



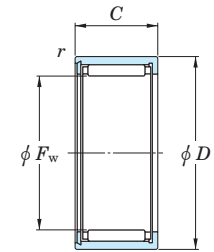
NK ($\phi F_w \geq 12$), NKS, RNA48,
RNA49, RNA69 ($\phi F_w \leq 35$)

Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
26	26	34	16	0.3	NK26/16	16.6	25.7	3.95	11 000	17 000	0.039
	26	34	20	0.3	NK26/20	19.7	32.0	5.05	11 000	17 000	0.048
28	28	37	20	0.3	NK28/20	22.6	34.4	5.50	10 000	16 000	0.057
	28	37	30	0.3	NK28/30	29.0	53.8	8.30	10 000	16 000	0.088
	28	39	17	0.3	RNA49/22	23.3	29.6	4.55	10 000	16 000	0.059
	28	39	30	0.3	RNA69/22	30.6	50.7	3.95	10 000	16 000	0.107
	28	42	20	0.6	NKS28	30.3	38.4	6.15	11 000	16 000	0.094
29	29	38	20	0.3	NK29/20	23.4	36.4	5.80	9 800	15 000	0.059
	29	38	30	0.3	NK29/30	29.8	56.4	8.70	9 700	15 000	0.090
30	30	40	20	0.3	NK30/20	24.2	38.3	6.10	9 500	15 000	0.071
	30	40	30	0.3	NK30/30	34.7	61.0	9.45	9 500	15 000	0.107
	30	42	17	0.3	RNA4905	24.3	31.7	4.90	9 700	15 000	0.071
	30	42	30	0.3	RNA6905	39.7	59.6	9.30	9 700	15 000	0.127
	30	45	22	0.6	NKS30	34.3	42.8	6.85	9 900	15 000	0.114
32	32	42	20	0.3	NK32/20	24.8	40.4	6.45	8 800	14 000	0.074
	32	42	30	0.3	NK32/30	35.6	64.3	9.95	8 800	14 000	0.112
	32	45	17	0.3	RNA49/28	25.1	33.8	5.20	9 000	14 000	0.080
	32	45	30	0.3	RNA69/28	43.2	62.5	9.75	9 100	14 000	0.140
	32	47	22	0.6	NKS32	36.0	46.2	7.40	9 200	14 000	0.120
35	35	45	20	0.3	NK35/20	26.1	44.4	7.05	8 000	12 000	0.081
	35	45	30	0.3	NK35/30	37.4	70.6	11.0	8 000	12 000	0.122
	35	47	18	0.3	RNA4906	25.9	36.0	5.55	8 200	13 000	0.081
	35	47	30	0.3	RNA6906	42.6	68.2	10.6	8 200	13 000	0.148
	35	50	22	0.6	NKS35	37.5	49.9	8.00	8 400	13 000	0.130
37	37	47	20	0.3	NK37/20	26.6	46.4	7.40	7 600	12 000	0.084
	37	47	30	0.3	NK37/30	38.2	73.9	11.5	7 600	12 000	0.128
	37	52	22	0.6	NKS37	39.0	53.4	8.55	7 900	12 000	0.134

Shaft dia. 38 ~ 52 mm



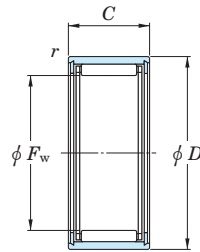
RNA69
($\phi F_w \geq 40$)



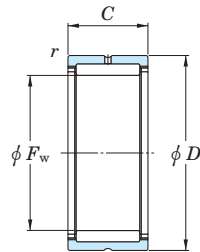
NKTN

Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
38	38	48	20	0.3	NK38/20	21.7	40.9	6.40	7 300	11 000	0.087
	38	48	30	0.3	NK38/30	31.9	67.0	10.4	7 300	11 000	0.131
40	40	50	20	0.3	NK40/20	27.8	50.4	8.05	7 000	11 000	0.089
	40	50	30	0.3	NK40/30	40.0	80.2	12.4	7 000	11 000	0.137
	40	52	20	0.6	RNA49/32	32.0	49.3	7.85	7 100	11 000	0.100
	40	52	36	0.6	RNA69/32	48.6	84.5	26.1	7 100	11 000	0.185
	40	55	22	0.6	NKS40	40.3	57.0	9.15	7 200	11 000	0.140
42	42	52	20	0.3	NK42/20	28.3	52.4	8.35	6 600	10 000	0.085
	42	52	30	0.3	NK42/30	40.7	83.5	13.0	6 600	10 000	0.141
	42	55	20	0.6	RNA4907	32.8	51.7	8.25	6 700	10 000	0.114
	42	55	36	0.6	RNA6907	49.9	88.7	13.7	6 700	10 000	0.218
43	43	53	20	0.3	NK43/20	29.0	54.4	8.65	6 400	9 900	0.096
	43	53	30	0.3	NK43/30	41.6	86.6	13.4	6 400	9 900	0.134
	43	58	22	0.6	NKS43	41.6	60.7	9.75	6 700	10 000	0.150
45	45	55	20	0.3	NK45/20	29.5	56.4	9.00	6 100	9 400	0.100
	45	55	30	0.3	NK45/30	42.3	89.8	13.9	6 100	9 400	0.151
	45	60	22	0.6	NKS45	43.0	64.2	10.3	6 400	9 800	0.156
47	47	57	20	0.3	NK47/20	30.0	58.5	9.30	5 900	9 000	0.104
	47	57	30	0.3	NK47/30	43.0	93.1	14.4	5 900	9 000	0.158
48	48	62	22	0.6	RNA4908	44.2	67.8	10.9	5 900	9 100	0.154
	48	62	40	0.6	RNA6908	70.8	124	19.8	5 900	9 100	0.300
50	50	62	25	0.3	NK50/25	40.7	79.3	12.5	5 500	8 500	0.171
	50	62	35	0.6	NK50/35	55.0	117	18.2	5 500	8 500	0.242
	50	65	22	1	NKS50	45.5	71.3	11.4	5 700	8 700	0.170
52	52	68	22	0.6	RNA4909	46.8	74.8	12.0	5 400	8 400	0.201
	52	68	40	0.6	RNA6909	74.7	137	21.7	5 400	8 400	0.392

Heavy-duty needle roller bearings
without inner rings
metric series
NK, NKS, RNA48, RNA49
RNA69, NKTN series
Shaft dia. 55 ~ (75) mm



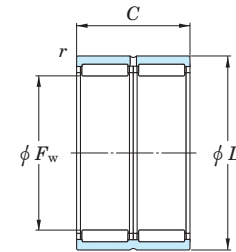
NK ($\phi F_w \leq 10$)



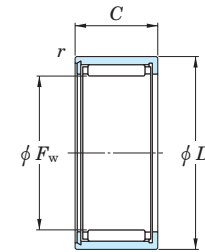
NK ($\phi F_w \geq 12$), NKS, RNA48,
RNA49, RNA69 ($\phi F_w \leq 35$)

Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
55	55	68	25	0.6	NK55/25	46.1	87.3	13.9	5 000	7 800	0.207
	55	68	35	0.6	NK55/35	62.3	129	20.0	5 000	7 800	0.293
	55	72	22	1	NKS55	47.9	78.4	12.6	5 100	7 900	0.225
58	58	72	22	0.6	RNA4910	48.9	82.0	13.2	4 800	7 400	0.179
	58	72	40	0.6	RNA6910	75.7	144	22.8	4 800	7 400	0.364
60	60	72	25	0.6	NK60/25	44.3	94.0	14.9	4 400	7 000	0.202
	60	72	35	0.6	NK60/35	59.9	139	21.5	4 400	7 000	0.286
	60	80	28	1.1	NKS60	66.9	103	16.5	4 800	7 300	0.337
63	63	80	25	1	RNA4911	62.0	107	17.1	4 500	6 900	0.285
	63	80	45	1	RNA6911	94.2	172	27.8	4 500	6 900	0.540
65	65	78	25	0.6	NK65/25	48.2	97.7	15.5	4 200	6 500	0.257
	65	78	35	0.6	NK65/35	65.2	144	22.4	4 200	6 500	0.298
	65	85	28	1.1	NKS65	71.0	114	18.3	4 200	6 700	0.362
68	68	82	25	0.6	NK68/25	49.0	101	16.1	4 000	6 200	0.287
	68	82	35	0.6	NK68/35	66.2	149	23.2	4 000	6 200	0.350
	68	85	25	1	RNA4912	64.8	116	18.6	4 100	6 300	0.304
	68	85	45	1	RNA6912	99.3	189	30.5	4 100	6 300	0.546
70	70	85	25	0.6	NK70/25	43.6	87.9	16.6	3 900	6 000	0.298
	70	85	35	0.6	NK70/35	62.2	139	24.0	3 900	6 000	0.411
	70	90	28	1.1	NKS70	72.6	120	19.3	4 000	6 200	0.383
72	72	90	25	1	RNA4913	66.0	121	19.4	3 900	5 900	0.346
	72	90	45	1	RNA6913	107	213	34.5	3 900	5 900	0.679
73	73	90	25	0.6	NK73/25	61.5	119	19.0	3 800	5 800	0.320
	73	90	35	0.6	NK73/35	82.5	173	27.1	3 800	5 800	0.450
75	75	92	25	0.6	NK75/25	43.7	90.2	19.0	3 600	5 600	0.364
	75	92	35	0.6	NK75/35	60.9	138	27.1	3 600	5 600	0.518

Shaft dia. (75) ~ 110 mm



RNA69
($\phi F_w \geq 40$)

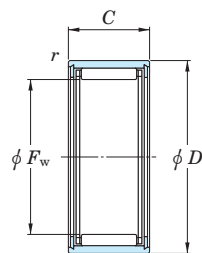


NKTN

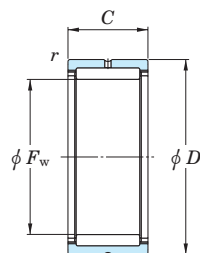
Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
75	75	95	28	1.1	NKS75	76.5	132	21.1	3 700	5 800	0.413
80	80	95	25	1	NK80/25	65.0	131	21.0	3 400	5 300	0.331
	80	95	35	1	NK80/35	79.7	184	28.7	3 400	5 300	0.380
	80	100	30	1	RNA4914	86.3	157	25.1	3 500	5 400	0.502
	80	100	54	1	RNA6914	137	286	45.7	3 500	5 400	0.946
85	85	105	25	1	NK85/25	76.4	137	22.2	3 300	5 000	0.506
	85	105	30	1	RNA4915	92.4	175	28.0	3 300	5 000	0.528
	85	105	35	1	NK85/35	108	214	34.7	3 300	5 000	0.610
	85	105	54	1	RNA6915	143	308	49.3	3 300	5 000	1.020
90	90	110	25	1	NK90/25	79.5	147	23.8	3 100	4 700	0.450
	90	110	30	1	RNA4916	91.5	176	28.1	3 100	4 700	0.556
	90	110	35	1	NK90/35	113	230	36.1	3 100	4 700	0.745
	90	110	54	1	RNA6916	126	320	50.8	3 100	4 700	1.050
95	95	115	26	1	NK95/26	49.3	114	24.6	2 800	4 400	0.572
	95	115	36	1	NK95/36	114	238	37.3	2 900	4 500	0.803
100	100	120	26	1	NK100/26	83.6	163	25.8	2 800	4 200	0.530
	100	120	35	1.1	RNA4917	110	230	36.0	2 800	4 200	0.715
	100	120	36	1	NK100/36	118	254	39.1	2 800	4 200	0.658
	100	120	63	1.1	RNA6917	150	416	63.0	2 800	4 200	1.350
105	105	125	26	1	NK105/26	52.2	127	19.9	2 600	3 900	0.595
	105	125	35	1.1	RNA4918	114	245	37.8	2 600	4 000	0.746
	105	125	63	1.1	RNA6918	154	437	66.0	2 600	4 000	1.500
110	110	130	30	1.1	NK110/30	103	220	33.6	2 500	3 800	0.660
	110	130	35	1.1	RNA4919	115	253	38.4	2 500	3 800	0.777
	110	130	40	1.1	NK110/40	132	301	45.7	2 500	3 800	0.900
	110	130	63	1.1	RNA6919	158	458	68.8	2 500	3 800	1.470

Heavy-duty needle roller bearings
without inner rings
metric series
NK, NKS, RNA48, RNA49
RNA69, NKTN series

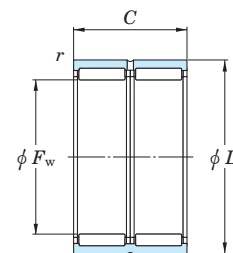
Shaft dia. 115 ~ 175 mm



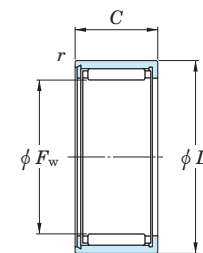
NK ($\phi F_w \leq 10$)



NK ($\phi F_w \geq 12$), NKS, RNA48,
RNA49, RNA69 ($\phi F_w \leq 35$)



RNA69
($\phi F_w \geq 40$)



NKTN

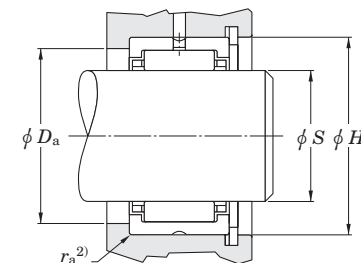
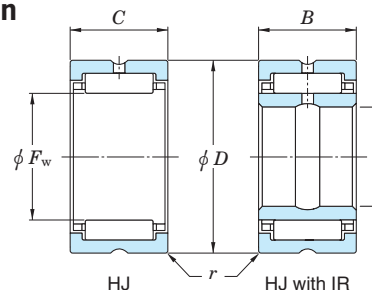
Shaft dia.	Boundary dimensions (mm)				Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)
	F_w	D	C	$r_{min.}$		C_r	C_{0r}		Grease lub.	Oil lub.	
115	115	140	40	1.1	RNA4920	139	296	43.9	2 400	3 700	1.220
120	120	140	30	1	RNA4822	90.3	230	33.7	2 300	3 500	0.785
125	125	150	40	1.1	RNA4922	147	325	47.0	2 200	3 400	1.320
130	130	150	30	1	RNA4824	94.1	249	35.7	2 100	3 200	0.850
135	135	165	45	1.1	RNA4924	177	407	58.5	2 000	3 100	1.980
145	145	165	35	1	RNA4826	112	323	44.8	1 900	2 900	1.100
150	150	180	50	1.5	RNA4926	201	495	68.7	1 800	2 800	2.420
155	155	175	35	1.1	RNA4828	116	346	47.1	1 700	2 700	1.170
160	160	190	50	1.5	RNA4928	214	549	74.8	1 700	2 600	2.560
165	165	190	40	1.1	RNA4830	142	402	53.5	1 600	2 500	1.540
175	175	200	40	1.1	RNA4832	146	425	55.6	1 500	2 400	1.910

Heavy-duty needle roller bearings

inch series

HJ type

Shaft dia. $\frac{5}{8} \sim (1 \frac{3}{4})$ in
(15.875 ~ (44.450) mm)



Shaft surface to be 58 HRC or equivalent

Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.	Used with inner ring No. ¹⁾	Basic load ratings (kN)		Fatigue load limit (kN) <i>C</i> _u		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions								Shoulder dia. <i>D</i> _a ±0.38
	<i>F</i> _w	<i>D</i>	<i>C</i> (B)	<i>r</i> min.			<i>C</i> _r	<i>C</i> _{0r}			Grease lub.	Oil lub.		Clearance fit				Tight transition fit				
														S (h6)		H (H7)		S (f6)		H (N7)		
														max.	min.	max.	min.	max.	min.	max.	min.	
5/8	15.875	28.575	19.050	0.64	HJ-101812	IR-061012	19.3	20.7	3.25		20 000	30 000	0.050	15.875	15.865	28.595	28.575	15.860	15.850	28.567	28.547	23.83
3/4	19.050	31.750	19.050	1.02	HJ-122012	IR-081212	20.7	23.3	3.65		16 000	25 000	0.059	19.050	19.037	31.775	31.750	19.030	19.017	31.742	31.717	26.97
	19.050	31.750	25.400	1.02	HJ-122016	IR-081216	27.5	33.7	5.30		16 000	25 000	0.077	19.050	19.037	31.775	31.750	19.030	19.017	31.742	31.717	26.97
7/8	22.225	34.925	19.050	1.02	HJ-142212	IR-101412	23	27.9	4.35		13 000	21 000	0.064	22.225	22.212	34.950	34.925	22.205	22.192	34.917	34.892	30.18
	22.225	34.925	25.400	1.02	HJ-142216	IR-101416	30.7	40.3	6.35		13 000	21 000	0.086	22.225	22.212	34.950	34.925	22.205	22.192	34.917	34.892	30.18
1	25.400	38.100	19.050	1.02	HJ-162412	IR-121612	25.3	32.5	5.10		12 000	18 000	0.073	25.400	25.387	38.125	38.100	25.380	25.367	38.092	38.067	33.32
	25.400	38.100	25.400	1.02	HJ-162416	IR-121616	33.6	47.2	7.40		12 000	18 000	0.095	25.400	25.387	38.125	38.100	25.380	25.367	38.092	38.067	33.32
	25.400	38.100	25.400	1.02	HJ-162416	IR-131616	33.6	47.2	7.40		12 000	18 000	0.095	25.400	25.387	38.125	38.100	25.380	25.367	38.092	38.067	33.32
1 1/8	28.575	41.275	25.400	1.02	HJ-182616	IR-141816	36.3	53.8	8.45		10 000	16 000	0.104	28.575	28.562	41.300	41.275	28.555	28.542	41.267	41.242	36.53
	28.575	41.275	25.400	1.02	HJ-182616	IR-151816	36.3	53.8	8.45		10 000	16 000	0.104	28.575	28.562	41.300	41.275	28.555	28.542	41.267	41.242	36.53
	28.575	41.275	31.750	1.02	HJ-182620	IR-141820	44.9	70.3	10.9		10 000	16 000	0.132	28.575	28.562	41.300	41.275	28.555	28.542	41.267	41.242	36.53
	28.575	41.275	31.750	1.02	HJ-182620	IR-151820	44.9	70.3	10.9		10 000	16 000	0.132	28.575	28.562	41.300	41.275	28.555	28.542	41.267	41.242	36.53
1 1/4	31.750	44.450	25.400	1.02	HJ-202816	IR-162016	37.4	57.4	9.00		9 100	14 000	0.113	31.750	31.735	44.475	44.450	31.725	31.709	44.442	44.417	39.67
	31.750	44.450	31.750	1.02	HJ-202820	IR-162020	46.3	75.2	11.7		9 100	14 000	0.145	31.750	31.735	44.475	44.450	31.725	31.709	44.442	44.417	39.67
1 3/8	34.925	47.625	25.400	1.02	HJ-223016	IR-182216	39.8	64.1	10.1		8 200	13 000	0.127	34.925	34.910	47.650	47.625	34.900	34.884	47.617	47.592	42.88
	34.925	47.625	31.750	1.02	HJ-223020	IR-182220	49.4	84.1	13.0		8 200	13 000	0.159	34.925	34.910	47.650	47.625	34.900	34.884	47.617	47.592	42.88
1 1/2	38.100	52.388	25.400	1.52	HJ-243316	IR-202416	47.6	72.5	11.4		7 600	12 000	0.154	38.100	38.085	52.418	52.388	38.075	38.059	52.380	52.349	47.63
	38.100	52.388	31.750	1.52	HJ-243320	IR-192420	58.7	95.2	14.9		7 600	12 000	0.195	38.100	38.085	52.418	52.388	38.075	38.059	52.380	52.349	47.63
	38.100	52.388	31.750	1.52	HJ-243320	IR-202420	58.7	95.2	14.9		7 600	12 000	0.195	38.100	38.085	52.418	52.388	38.075	38.059	52.380	52.349	47.63
1 5/8	41.275	55.563	25.400	1.52	HJ-263516	IR-212616	48.5	76.5	12.1		7 000	11 000	0.163	41.275	41.260	55.593	55.563	41.250	41.234	55.555	55.524	50.80
	41.275	55.563	31.750	1.52	HJ-263520	IR-212620	60.1	100.5	15.7		7 000	11 000	0.209	41.275	41.260	55.593	55.563	41.250	41.234	55.555	55.524	50.80
	41.275	55.563	31.750	1.52	HJ-263520	IR-222620	60.1	100.5	15.7		7 000	11 000	0.209	41.275	41.260	55.593	55.563	41.250	41.234	55.555	55.524	50.80
1 3/4	44.450	58.738	25.400	1.52	HJ-283716	IR-232816	49.8	81.0	12.8		6 400	9 900	0.177	44.450	44.435	58.768	58.738	44.425	44.409	58.730	58.699	53.98
	44.450	58.738	25.400	1.52	HJ-283716	IR-242816	49.8	81.0	12.8		6 400	9 900	0.177	44.450	44.435	58.768	58.738	44.425	44.409	58.730	58.699	53.98
	44.450	58.738	31.750	1.52	HJ-283720	IR-222820	61.8	106	16.6		6 400	9 900	0.222	44.450	44.435	58.768	58.738	44.425	44.409	58.730	58.699	53.98

[Notes] 1) See pages B472 to B474 for inch series inner rings. Order inner rings separately.

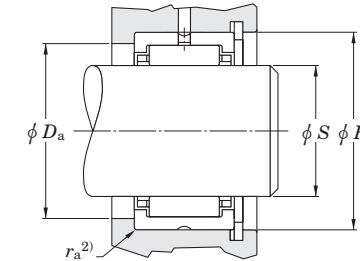
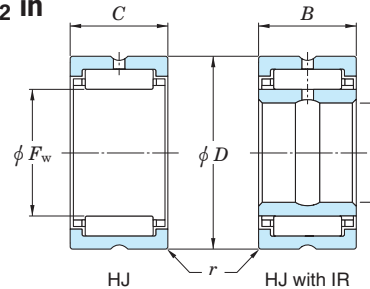
2) $r_{a \max}$ is equal to the minimum bearing chamfer ($r_{\min}$) at unmarked end.

Heavy-duty needle roller bearings

inch series

HJ type

Shaft dia. (1 3/4) ~ 3 1/2 in
((44.450) ~ 88.900 mm)



Shaft surface to be 58 HRC or equivalent

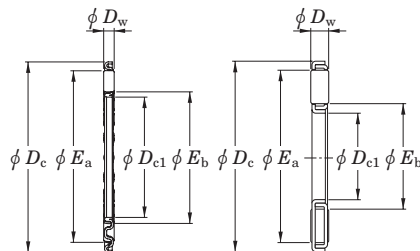
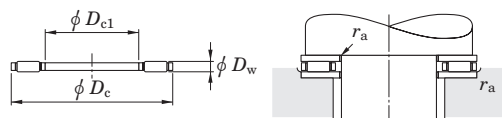
Shaft dia. (in)	Boundary dimensions (mm)				Bearing No.	Used with inner ring No. 1)	Basic load ratings (kN)		Fatigue load limit (kN) Cu		Limiting speeds (min ⁻¹)		(Refer.) Mass (kg)	Recommended dimensions								Shoulder dia. Da ±0.38
	Fw	D	C (B)	r min.			Cr	Cor			Grease lub.	Oil lub.		S (h6) max.	Clearance fit min.	H (H7) max.	Tight transition fit min.	S (f6) max.	H (N7) max.	H (N7) min.	H (N7) min.	
1 3/4	44.450	58.738	31.750	1.52	HJ-283720	IR-232820	61.8	106	16.6		6 400	9 900	0.222	44.450	44.435	58.768	58.738	44.425	44.409	58.730	58.699	53.98
	44.450	58.738	31.750	1.52	HJ-283720	IR-242820	61.8	106	16.6		6 400	9 900	0.222	44.450	44.435	58.768	58.738	44.425	44.409	58.730	58.699	53.98
1 7/8	47.625	61.913	31.750	1.52	HJ-303920	IR-253020	65.4	117	18.1		6 000	9 200	0.236	47.625	47.610	61.943	61.913	47.600	47.584	61.905	61.874	57.15
2	50.800	65.088	25.400	1.52	HJ-324116	IR-273216	53.8	93.0	14.7		5 600	8 600	0.200	50.800	50.782	65.118	65.088	50.770	50.752	65.080	65.049	60.33
	50.800	65.088	31.750	1.52	HJ-324120	IR-243220	66.7	122	19.1		5 600	8 600	0.249	50.800	50.782	65.118	65.088	50.770	50.752	65.080	65.049	60.33
	50.800	65.088	31.750	1.52	HJ-324120	IR-253220	66.7	122	19.1		5 600	8 600	0.249	50.800	50.782	65.118	65.088	50.770	50.752	65.080	65.049	60.33
	50.800	65.088	31.750	1.52	HJ-324120	IR-263220	66.7	122	19.1		5 600	8 600	0.249	50.800	50.782	65.118	65.088	50.770	50.752	65.080	65.049	60.33
	50.800	65.088	31.750	1.52	HJ-324120	IR-273220	66.7	122	19.1		5 600	8 600	0.249	50.800	50.782	65.118	65.088	50.770	50.752	65.080	65.049	60.33
2 1/4	57.150	76.200	38.100	1.52	HJ-364824	IR-283624	89.9	164	25.7		5 000	7 600	0.458	57.150	57.132	76.230	76.200	57.120	57.102	76.192	76.162	68.28
	57.150	76.200	44.450	1.52	HJ-364828	IR-283628	104	198	30.8		5 000	7 600	0.531	57.150	57.132	76.230	76.200	57.120	57.102	76.192	76.162	68.28
2 1/2	63.500	82.550	38.100	2.03	HJ-405224	IR-314024	97.0	187	29.4		4 400	6 800	0.499	63.500	63.482	82.586	82.550	63.470	63.452	82.537	82.502	74.63
	63.500	82.550	38.100	2.03	HJ-405224	IR-324024	97.0	187	29.4		4 400	6 800	0.499	63.500	63.482	82.586	82.550	63.470	63.452	82.537	82.502	74.63
	63.500	82.550	44.450	2.03	HJ-405228	IR-314028	97.0	187	35.2		4 400	6 800	0.499	63.500	63.482	82.586	82.550	63.470	63.452	82.537	82.502	74.63
	63.500	82.550	44.450	2.03	HJ-405228	IR-324028	97.0	187	35.2		4 400	6 800	0.499	63.500	63.482	82.586	82.550	63.470	63.452	82.537	82.502	74.63
2 3/4	69.850	88.900	25.400	2.03	HJ-445616	—	67.2	120	19.1		4 000	6 200	0.363	69.850	69.832	88.936	88.900	69.820	69.802	88.887	88.852	80.98
	69.850	88.900	38.100	2.03	HJ-445624	IR-364424	101	203	31.9		4 000	6 200	0.544	69.850	69.832	88.936	88.900	69.820	69.802	88.887	88.852	80.98
	69.850	88.900	44.450	2.03	HJ-445628	IR-354428	117	245	38.2		4 000	6 200	0.635	69.850	69.832	88.936	88.900	69.820	69.802	88.887	88.852	80.98
	69.850	88.900	44.450	2.03	HJ-445628	IR-364428	117	245	38.2		4 000	6 200	0.635	69.850	69.832	88.936	88.900	69.820	69.802	88.887	88.852	80.98
3	76.200	95.250	38.100	2.03	HJ-486024	IR-404824	107	226	35.5		3 700	5 600	0.585	76.200	76.182	95.286	95.250	76.170	76.152	95.237	95.202	87.33
	76.200	95.250	44.450	2.03	HJ-486028	IR-384828	124	273	42.5		3 700	5 600	0.685	76.200	76.182	95.286	95.250	76.170	76.152	95.237	95.202	87.33
	76.200	95.250	44.450	2.03	HJ-486028	IR-404828	124	273	42.5		3 700	5 600	0.685	76.200	76.182	95.286	95.250	76.170	76.152	95.237	95.202	87.33
3 1/4	82.550	107.950	44.450	2.03	HJ-526828	IR-445228	162	305	48.3		3 400	5 300	1.016	82.550	82.527	107.986	107.950	82.514	82.492	107.937	107.902	98.43
	82.550	107.950	50.800	2.03	HJ-526832	IR-445232	184	358	56.2		3 400	5 300	1.161	82.550	82.527	107.986	107.950	82.514	82.492	107.937	107.902	98.43
3 1/2	88.900	114.300	50.800	2.03	HJ-567232	IR-475632	187	375	58.9		3 200	4 900	1.238	88.900	88.877	114.336	114.300	88.864	88.842	114.287	114.252	104.78
	88.900	114.300	50.800	2.03	HJ-567232	IR-485632	187	375	58.9		3 200	4 900	1.238	88.900	88.877	114.336	114.300	88.864	88.842	114.287	114.252	104.78

[Notes] 1) See pages B472 to B474 for inch series inner rings. Order inner rings separately.

2) ra max is equal to the minimum bearing chamfer (r min) at unmarked end.

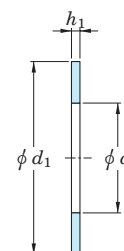
Needle roller thrust bearings, assemblies, washers
thrust needle roller and cage assemblies, thrust washers
metric series
AXK, FNT series

Shaft dia. 6 ~ 45 mm

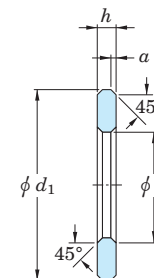


AXK

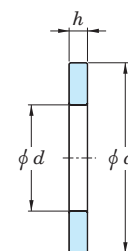
FNT



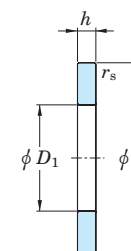
AS
(h₁ = 1.0)



LS



WS.811

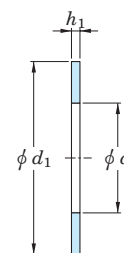
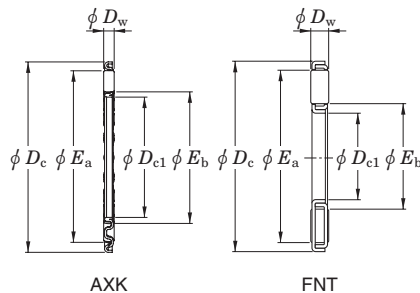
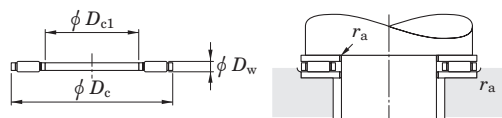


GS.811

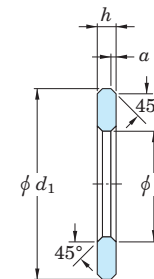
Shaft dia.	Boundary dimensions (mm)						Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C _u	Limiting speed (min ⁻¹) Oil lub.	(Refer.) Mass (kg)		Washer dimensions (mm)			Thin Washer (Refer.) Mass (kg)			Heavy (LS) Washer (Refer.) Mass (kg)				r min.		Heavy Washer No.		(Refer.) Mass (kg)
	D _{c1}	D _c	D _w	E _a	E _b	r _a max.		C _a	C _{0a}					d	D, d ₁	D ₁	h ₁ (mm)	Washer No.	Mass	h (h11) (mm)	a (mm)	Washer No.	Mass	h (mm)	r min. (mm)	Shaft piloted	Housing piloted	
6	6	19	2	16.9 18.0	7.8 8.0	0.3 0.3	AXK0619TN FNT-619	6.37 6.82	14.3 15.6	1.40 1.50	23 000 21 000	0.001 0.002		6	19	1.00	AS0619	0.001										
8	8	21	2	18.6 20.0	9.6 10.0	0.3 0.3	AXK0821TN FNT-821	8.34 7.67	21.1 19.1	2.00 1.85	20 000 20 000	0.001 0.002		8	21	1.00	AS0821	0.002	2.75	0.30	LS0821	0.004						
10	10	24	2	22.5 23.0	11.0 12.0	0.3 0.3	AXK1024 FNT-1024	9.32 9.14	25.9 25.2	2.90 2.40	17 000 17 000	0.003 0.002		10	24	1.00	AS1024	0.003	2.75	0.50	LS1024	0.008						
12	12	26	2	24.5 25.0	13.0 14.0	0.3 0.3	AXK1226 FNT-1226	10.8 9.92	32.3 29.0	3.40 2.75	15 000 15 000	0.004 0.004		12	26	1.00	AS1226	0.003	2.75	0.50	LS1226	0.009						
15	15	28	2	27.0 27.0	17.0 17.0	0.3 0.3	AXK1528 FNT-1528	11.1 10.2	35.2 31.3	3.35 3.00	15 000 15 000	0.004 0.004		15	28	16	1.00	AS1528	0.003	2.75	0.50	LS1528	0.010	2.75	0.30	WS.81102	GS.81102	0.0100
17	17	30	2	28.7 29.0	18.3 19.0	0.3 0.3	AXK1730TN FNT-1730	11.7 10.8	38.7 34.8	3.70 3.35	14 000 14 000	0.004 0.004		17	30	18	1.00	AS1730	0.003	2.75	0.50	LS1730	0.011	2.75	0.30	WS.81103	GS.81103	0.011
20	20	35	2	34.0 34.0	22.0 22.0	0.3 0.3	AXK2035 FNTA-2035	12.8 13.8	45.4 50.7	4.40 4.80	12 000 12 000	0.006 0.005		20	35	21	1.00	AS2035	0.005	2.75	0.50	LS2035	0.014	2.75	0.30	WS.81104	GS.81104	0.014
25	25	42	2	41.0 41.0	29.0 27.0	0.6 0.6	AXK2542 FNT-2542	14.3 18.0	56.8 75.3	5.50 8.05	10 000 9 700	0.007 0.008		25	42	26	1.00	AS2542	0.007	3.00	1.00	LS2542	0.021	3.00	0.60	WS.81105	GS.81105	0.021
30	30	47	2	46.0 46.0	35.0 32.0	0.6 0.6	AXK3047 FNTA-3047	16.0 18.6	68.1 82.4	6.60 8.65	9 000 8 900	0.009 0.009		30	47	32	1.00	AS3047	0.008	3.00	1.00	LS3047	0.023	3.00	0.60	WS.81106	GS.81106	0.023
35	35	52	2	51.0 51.0	40.0 37.0	0.6 0.6	AXK3552 FNT-3552	17.4 21.7	79.5 104.0	7.70 11.1	8 100 7 900	0.010 0.010		35	52	37	1.00	AS3552	0.009	3.50	1.00	LS3552	0.030	3.50	0.60	WS.81107	GS.81107	0.032
40	40	60	3	58.0 57.0	45.0 43.0	0.6 0.6	AXK4060 FNT-4060	27.1 31.5	110.0 132.0	11.9 14.6	7 000 7 100	0.016 0.020		40	60	42	1.00	AS4060	0.012	3.50	1.00	LS4060	0.041	3.50	0.60	WS.81108	GS.81108	0.043
45	45	65	3	63.0 63.0	50.0 47.0	0.6 0.6	AXK4565 FNT-4565	29.0 37.6	124.0 172.0	13.4 18.5	6 500 6 400	0.020 0.024		45	65	47	1.00	AS4565	0.013	4.00	1.00	LS4565	0.052	4.00	0.60	WS.81109	GS.81109	0.054

Needle roller thrust bearings, assemblies, washers
thrust needle roller and cage assemblies, thrust washers
metric series
AXK, FNT series

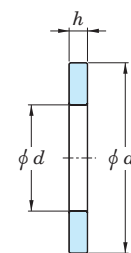
Shaft dia. 50 ~ 160 mm



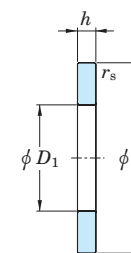
AS
(h₁ = 1.0)



LS



WS.811

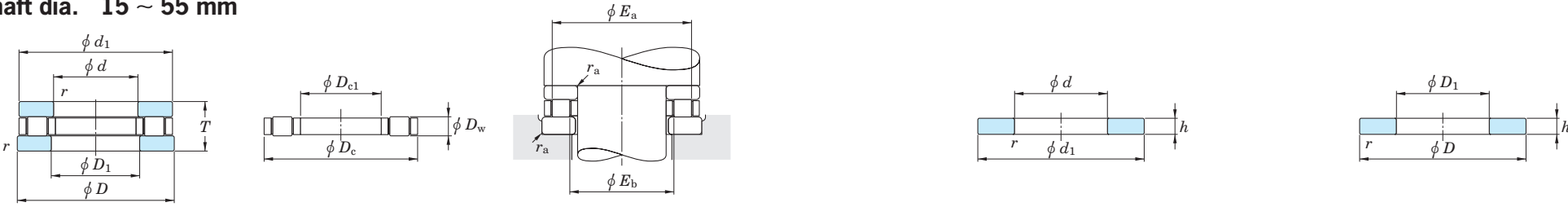


GS.811

Shaft dia.	Boundary dimensions (mm)						Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C _u	Limiting speed (min ⁻¹) Oil lub.	(Refer.) Mass (kg)	Washer dimensions (mm)			Thin (Refer.) Washer No. Mass (kg)			Heavy (LS) (Refer.) Washer No. Mass (kg)				r min.		Heavy Washer No.		(Refer.) Mass (kg)	
	D _{c1}	D _c	D _w	E _a	E _b	r _a max.		C _a	C _{0a}				d	D, d ₁	D ₁	h ₁ (mm)	Washer No.	Mass (kg)	h (h11) (mm)	a (mm)	Washer No.	Mass (kg)	h (mm)	r min. (mm)	Shaft piloted	Housing piloted		
50	50	70	3	68.0 68.0	55.0 52.0	0.6 0.6	AXK5070 FNT-5070	30.8 37.9	137.0 179.0	14.9 19.1	6 000 5 900	0.020 0.026		50	70	52	1.00	AS5070	0.014	4.00	1.00	LS5070	0.0560	4.00	0.60	WS.81110	GS.81110	0.059
55	55	78	3	76.0 76.0	60.0 57.0	0.6 0.6	AXK5578 FNT-5578	39.4 48.5	195.0 254.0	20.5 26.3	5 300 5 300	0.026 0.033		55	78	57	1.00	AS5578	0.018	5.00	1.00	LS5578	0.0910	5.00	0.60	WS.81111	GS.81111	0.094
60	60	85	3	83.0	65.0	0.6	AXK6085	44.5	234.0	24.7	4 900	0.035		60	85	62	1.00	AS6085	0.022	4.75	1.50	LS6085	0.102	4.75	1.00	WS.81112	GS.81112	0.106
65	65	90	3	88.0	70.0	0.6	AXK6590	46.7	254	26.8	4 600	0.036		65	90	67	1.00	AS6590	0.023	5.25	1.50	LS6590	0.121	5.25	1.00	WS.81113	GS.81113	0.125
70	70	95	4	93.0 93.0	74.0 73.0	0.6 0.6	AXK7095 FNTA-7095	53.8 66.6	253 333	28.0 35.3	4 400 4 400	0.055 0.057		70	95	72	1.00	AS7095	0.025	5.25	1.50	LS7095	0.1280	5.25	1.00	WS.81114	GS.81114	0.133
75	75	100	4	98.0 98.0	79.0 78.0	0.6 0.6	AXK75100 FNT-75100	55.1 71.6	266 374	29.4 39.7	4 200 4 100	0.058 0.064		75	100	77	1.00	AS75100	0.027	5.75	1.50	LS75100	0.1500	5.75	1.00	WS.81115	GS.81115	0.155
80	80	105	4	103.0 103.0	84.0 83.0	0.6 0.6	AXK80105 FNTA-80105	56.4 71.3	279 379	30.8 40.1	4 000 3 900	0.092 0.062		80	105	82	1.00	AS80105	0.028	5.75	1.50	LS80105	0.1580	5.75	1.00	WS.81116	GS.81116	0.165
85	85	110	4	108.0	89.0	0.6	AXK85110	57.6	291	32.2	3 800	0.063		85	110	87	1.00	AS85110	0.028	5.75	1.50	LS85110	0.166	5.75	1.00	WS.81117	GS.81117	0.173
90	90	120	4	118.0	94.0	0.6	AXK90120	72.9	405	43.0	3 500	0.081		90	120	92	1.00	AS90120	0.038	6.50	1.50	LS90120	0.245	6.50	1.00	WS.81118	GS.81118	0.253
100	100	135	4	133.0	105.0	0.6	AXK100135	90.2	552	56.4	3 100	0.106		100	135		1.00	AS100135	0.050									
110	110	145	4	143.0	115.0	0.6	AXK110145	93.2	591	59.0	2 800	0.117		110	145		1.00	AS110145	0.055	7.00	1.50	LS110145	0.373	7.00				
120	120	155	4	153.0	125.0	0.6	AXK120155	98.5	650	63.5	2 700	0.126		120	155		1.00	AS120155	0.059									
130	130	170	5	167.0	136.0	0.6	AXK130170	132	829	78.7	2 400	0.198		130	170		1.00	AS130170	0.074	9.00	1.50	LS130170	0.065					
140	140	180	5	177.0	146.0	0.6	AXK140180	136	887	82.5	2 300	0.221		140	180		1.00	AS140180	0.078									
150	150	190	5	187.0	156.0	0.6	AXK150190	141	944	86.2	2 200	0.225		150	190		1.00	AS150190	0.083									
160	160	200	5	197.0	166.0	0.6	AXK160200	146	1 000	89.9	2 100	0.249		160	200		1.00	AS160200	0.089									

Needle roller thrust bearings, assemblies, washers
thrust cylindrical roller and cage assemblies, thrust washers
metric series

Shaft dia. 15 ~ 55 mm



811, 812

K.811, K.812

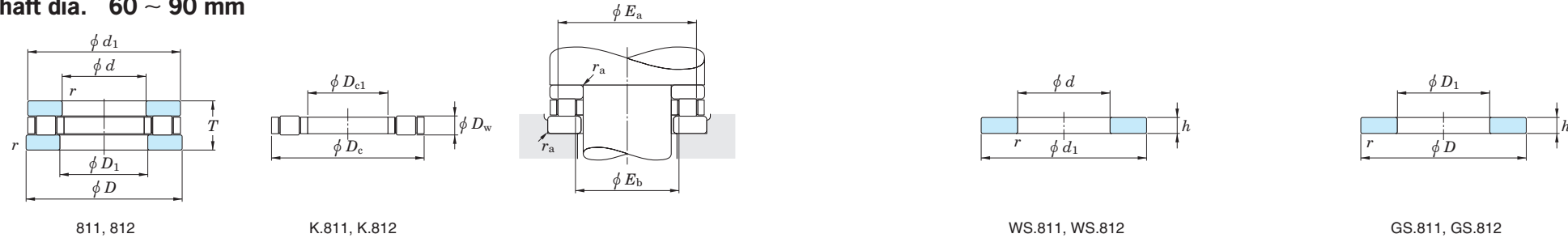
WS.811, WS.812

GS.811, GS.812

Shaft dia.	Boundary dimensions (mm)							Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) <i>C_u</i>	Limiting speed (min ⁻¹) Oil lub.		(Refer.) Mass (kg)	Washer dimensions (mm)						Washer No.		(Refer.) Mass (kg)
	<i>D</i> _{c1} (E11)	<i>D</i> _c (a13)	<i>D</i> _w	<i>T</i>	<i>E</i> _b max.	<i>E</i> _a min.	<i>r</i> _a max.		<i>C</i> _a	<i>C</i> _{0a}					<i>d</i>	<i>D</i> ₁	<i>D</i> , <i>d</i> ₁	max. <i>h</i>	min.	<i>r</i> min.	Shaft piloted	Housing piloted	
15	15	28	3.5	9	18	25	0.3	K.81102LPB	12.1	26.3	3.70	12 000	0.006	15	16	28	2.75	2.64	0.3	WS.81102	GS.81102	0.010	
	15	28	3.5	9	18	25	0.3	K.81102TVP	12.8	28.6	4.05	12 000	0.006	15	16	28	2.75	2.64	0.3	WS.81102	GS.81102	0.010	
17	17	30	3.5	—	20	27	0.3	K.81103LPB	12.6	28.6	4.05	11 000	0.008	17	18	30	2.75	2.64	0.3	WS.81103	GS.81103	0.011	
	17	30	3.5	9	20	27	0.3	K.81103TVP	14.2	33.4	4.70	11 000	0.008	17	18	30	2.75	2.64	0.3	WS.81103	GS.81103	0.011	
20	20	35	4.5	10	23	32	0.3	K.81104TVP	23.6	56.8	6.85	9 500		0.009	20	21	35	2.75	2.62	0.3	WS.81104	GS.81104	0.014
25	25	42	5.0	11	28	39	0.6	K.81105TVP	31.2	81.0	11.4	8 000		0.014	25	26	42	3.00	2.87	0.6	WS.81105	GS.81105	0.021
30	30	47	5.0	—	33	44	0.6	K.81106LPB	28.5	69.5	10.7	6 700	0.026	30	32	47	3.00	2.87	0.6	WS.81106	GS.81106	0.023	
	30	47	5.0	11	33	44	0.6	K.81106TVP	33.0	91.1	12.8	6 700	0.016	30	32	47	3.00	2.87	0.6	WS.81106	GS.81106	0.023	
	30	52	7.5	—	33	49	0.6	K.81206LPB	53.4	129	13.9	6 300	0.052	30	32	52	4.25	4.12	0.6	WS.81206	GS.81206	0.047	
	30	52	7.5	16	33	49	0.6	K.81206TVP	56.9	141	15.2	6 300	0.034	30	32	52	4.25	4.12	0.6	WS.81206	GS.81206	0.047	
35	35	52	5.0	—	38	49	0.6	K.81107LPB	30.8	86.0	12.1	6 000	0.025	35	37	52	3.50	3.34	0.6	WS.81107	GS.81107	0.032	
	35	52	5.0	12	38	49	0.6	K.81107TVP	34.8	101	14.2	6 000	0.020	35	37	52	3.50	3.34	0.6	WS.81107	GS.81107	0.032	
	35	62	7.5	—	41	56	1.0	K.81207LPB	58.3	152	16.5	5 300	0.073	35	37	62	5.25	5.09	1.0	WS.81207	GS.81207	0.085	
	35	62	7.5	18	41	56	1.0	K.81207TVP	61.6	164	17.7	5 300	0.055	35	37	62	5.25	5.09	1.0	WS.81207	GS.81207	0.085	
40	40	60	6.0	—	44	56	0.6	K.81108LPB	44.2	126	12.0	5 300	0.044	40	42	60	3.50	3.34	0.6	WS.81108	GS.81108	0.043	
	40	60	6.0	13	44	56	0.6	K.81108TVP	49.8	148	14.1	5 300	0.031	40	42	60	3.50	3.34	0.6	WS.81108	GS.81108	0.043	
	40	68	9.0	19	45	63	1.0	K.81208TVP	86.8	233	26.9	4 800	0.076	40	42	68	5.00	4.84	1.0	WS.81208	GS.81208	0.093	
45	45	65	6.0	—	49	61	0.6	K.81109LPB	47.0	140	13.4	4 800	0.035	45	47	65	4.00	3.84	0.6	WS.81109	GS.81109	0.054	
	45	65	6.0	14	49	61	0.6	K.81109TVP	52.3	163	15.5	4 800	0.035	45	47	65	4.00	3.84	0.6	WS.81109	GS.81109	0.054	
	45	73	9.0	—	50	68	1.0	K.81209TVP	94.2	266	30.8	4 500	0.083	45	47	73	5.50	5.34	1.0	WS.81209	GS.81209	0.112	
50	50	70	6.0	14	54	66	0.6	K.81110LPB	49.7	155	14.8	4 300	0.052	50	52	70	4.00	3.84	0.6	WS.81110	GS.81110	0.059	
	50	70	6.0	14	54	66	0.6	K.81110TVP	54.8	177	17.0	4 300	0.042	50	52	70	4.00	3.84	0.6	WS.81110	GS.81110	0.059	
	50	78	9.0	22	55	73	1.0	K.81210TVP	101	299	34.6	4 000	0.089	50	52	78	6.5	6.34	1.0	WS.81210	GS.81210	0.144	
55	55	78	6.0	16	60	73	0.6	K.81111TVP	60.3	207	19.8	4 000	0.066	55	57	78	5.00	4.81	0.6	WS.81111	GS.81111	0.094	
	55	90	11.0	—	61	84	1.0	K.81211LPB	127	359	39.6	3 600	0.156	55	57	90	7.00	6.81	1.0	WS.81211	GS.81211	0.219	
	55	90	11.0	25	61	84	1.0	K.81211TVP	138	403	45.2	3 600	0.140	55	57	90	7.00	6.81	1.0	WS.81211	GS.81211	0.219	

Needle roller thrust bearings, assemblies, washers
thrust cylindrical roller and cage assemblies, thrust washers
metric series

Shaft dia. 60 ~ 90 mm



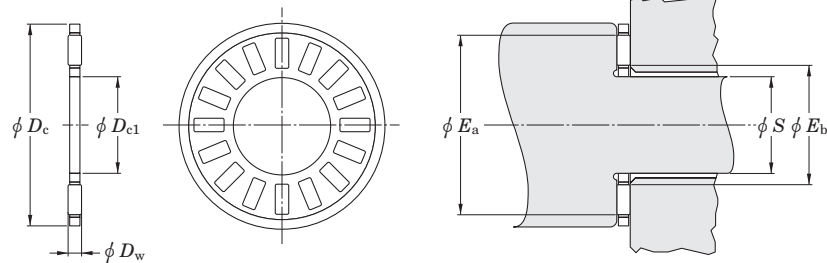
Shaft dia.	Boundary dimensions (mm)							Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speed (min ⁻¹) Oil lub.	(Refer.) Mass (kg)	Washer dimensions (mm)						Washer No.		(Refer.) Mass (kg)
	D_{c1} (E11)	D_c (a13)	D_w	T	E_b max.	E_a min.	r_a max.		C_a	C_{0a}				d	D_1	D, d_1	h max.	h min.	r min.	Shaft piloted	Housing piloted	
60	60	85	7.5	17	65	80	1.0	K.81112TVP K.81212LPB	84.4	281	30.4	3 600	0.103	60	62	85	4.75	4.56	1.0	WS.81112	GS.81112	0.106
	60	95	11.0	26	66	89	1.0		129	378	42.4	3 400	0.166	60	62	95	7.50	7.31	1.0	WS.81212	GS.81212	0.251
65	65	90	7.5	18	70	85	1.0	K.81113TVP K.81213LPB	88.3	305	33.0	3 400	0.109	65	67	90	5.25	5.06	1.0	WS.81113	GS.81113	0.125
	65	100	11.0	27	71	94	1.0		134	403	45.2	3 200	0.176	65	67	100	8.00	7.81	1.0	WS.81213	GS.81213	0.285
70	70	95	7.5	18	75	90	1.0	K.81114TVP K.81214LPB	92.1	328	35.5	3 200	0.056	70	72	95	5.25	5.06	1.0	WS.81114	GS.81114	0.133
	70	105	11.0	27	76	99	1.0		138	428	48.0	3 000	0.186	70	72	105	8.00	7.81	1.0	WS.81214	GS.81214	0.302
75	75	100	7.5	19	80	95	1.0	K.81115LPB K.81215LPB	86.1	305	33.0	3 000	0.091	75	77	100	5.75	5.56	1.0	WS.81115	GS.81115	0.155
	75	110	11.0	27	81	104	1.0		143	453	50.9	2 800	0.197	75	77	110	8.00	7.81	1.0	WS.81215	GS.81215	0.319
80	80	105	7.5	19	85	100	1.0	K.81116LPB K.81216LPB	87.5	316	34.2	2 800	0.103	80	82	105	5.75	5.56	1.0	WS.81116	GS.81116	0.165
	80	115	11.0	28	86	109	1.0		147	478	53.7	2 600	0.208	80	82	115	8.50	8.31	1.0	WS.81216	GS.81216	0.357
85	85	110	7.5	19	90	105	1.0	K.81117LPB K.81217LPB	88.9	328	35.5	2 600	0.108	85	87	110	5.75	5.53	1.0	WS.81117	GS.81117	0.173
	85	125	12.0	31	93	117	1.0		174	572	65.5	2 400	0.376	85	88	125	9.50	9.28	1.0	WS.81217	GS.81217	0.492
90	90	120	9.0	22	96	114	1.0	K.81118LPB K.81218LPB	119	432	49.3	2 400	0.156	90	92	120	6.50	6.28	1.0	WS.81118	GS.81118	0.253
	90	135	14.0	35	98	127	1.0		215	691	81.5	2 400	0.540	90	93	135	10.50	10.28	1.1	WS.81218	GS.81218	0.655

Needle roller thrust bearings, assemblies, washers

thrust needle roller and cage assemblies, thrust washers

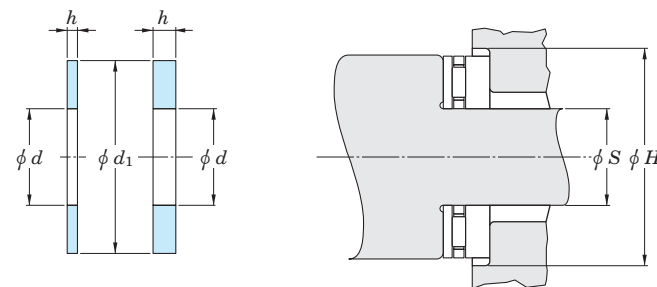
inch series

Shaft dia. $\frac{1}{4} \sim (\frac{7}{8})$ in (6.35 ~ (22.23) mm)



NTA

Raceway hardness to be 58 HRC or equivalent



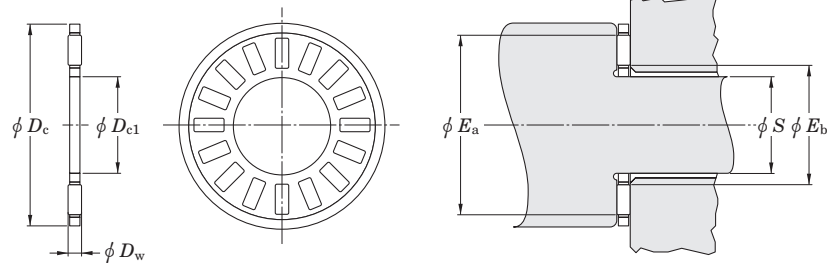
Shaft dia. (in)	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speed ¹⁾ (min ⁻¹)	(Refer.) Mass (kg)	Washer No.	Washer dimensions (mm)				Piloting dimensions (mm)		Dia. to clear O.D. (mm) H ²⁾	(Refer.) Washer mass (kg)
	D_{c1}	D_c	D_w	E_b	E_a		C_a	C_{0a}					d	d_1	max.	min.	max.	min.		
$\frac{1}{4}$	6.35	17.45	1.984	8.636	14.732	NTA-411	5.12	10.76	1.05	26 000	0.001	TRA-411 TRB-411 TRC-411	6.35	17.45	0.81	0.76	6.35	6.27	18.26	0.001
													6.35	17.45	1.60	1.52	6.35	6.27		0.002
													6.35	17.45	2.41	2.34	6.35	6.27		0.004
$\frac{5}{16}$	7.92	19.05	1.984	10.16	16.256	NTA-512	5.83	13.17	1.30	24 000	0.002	TRA-512 TRB-512	7.92	19.05	0.81	0.76	7.92	7.85	19.84	0.001
													7.92	19.05	1.60	1.52	7.92	7.85		0.003
$\frac{3}{8}$	9.53	20.625	1.984	11.68	18.034	NTA-613	6.05	14.32	1.40	22 000	0.002	TRA-613 TRB-613 TRC-613	9.53	20.62	0.81	0.76	9.53	9.45	21.44	0.001
													9.53	20.62	1.60	1.52	9.53	9.45		0.003
													9.53	20.62	2.41	2.34	9.53	9.45		0.004
$\frac{1}{2}$	12.70	23.80	1.984	14.99	21.08	NTA-815	7.16	19.13	1.85	19 000	0.002	TRA-815 TRB-815 TRC-815	12.70	23.80	0.81	0.76	12.70	12.62	24.61	0.002
													12.70	23.80	1.60	1.52	12.70	12.62		0.004
													12.70	23.80	2.41	2.34	12.70	12.62		0.005
$\frac{9}{16}$	14.275	25.40	1.9837	16.51	22.606	NTA-916	7.70	21.53	2.10	18 000	0.003	TRA-916 TRB-916 TRC-916	14.27	25.40	0.81	0.76	14.27	14.20	26.19	0.002
													14.27	25.40	1.60	1.52	14.27	14.20		0.004
													14.27	25.40	2.41	2.34	14.27	14.20		0.006
$\frac{5}{8}$	15.88	28.575	1.9837	18.03	25.908	NTA-1018	9.79	30.38	2.85	15 000	0.003	TRA-1018 TRB-1018 TRC-1018 TRD-1018 TRE-1018	15.88	28.58	0.81	0.76	15.88	15.80	29.36	0.003
													15.88	28.58	1.60	1.52	15.88	15.80		0.005
													15.88	28.58	2.41	2.34	15.88	15.80		0.008
													15.88	28.58	3.20	3.12	15.88	15.80		0.011
													15.88	28.58	3.99	3.91	15.88	15.80		0.013
$\frac{3}{4}$	19.05	31.75	1.9837	21.34	28.956	NTA-1220	10.90	36.48	3.40	14 000	0.004	TRA-1220 TRB-1220 TRC-1220 TRD-1220 TRE-1220	19.05	31.75	0.81	0.76	19.05	18.97	32.54	0.003
													19.05	31.75	1.60	1.52	19.05	18.97		0.006
													19.05	31.75	2.41	2.34	19.05	18.97		0.010
													19.05	31.75	3.20	3.12	19.05	18.97		0.012
													19.05	31.75	3.99	3.91	19.05	18.97		0.015
$\frac{7}{8}$	22.23	36.50	1.984	24.38	33.782	NTA-1423	13.43	49.82	4.65	12 000	0.005	TRA-1423 TRB-1423	22.23	36.50	0.81	0.76	22.23	22.15	37.31	0.004
													22.23	36.50	1.60	1.52	22.23	22.15		0.008

[Notes] 1) Limiting speeds listed are based on adequate oil lubrication.
Suggestions for an application requiring O.D. piloting should be determined in consultation with JTEKT.

2) If the shaft and the housing adjacent to the bearing O.D. are not concentric, the T.I.R. between the shaft and housing should be added to this dimension.

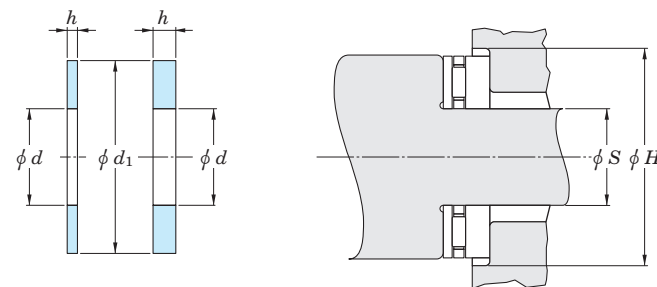
Needle roller thrust bearings, assemblies, washers thrust needle roller and cage assemblies, thrust washers inch series

Shaft dia. ($7/8$) ~ ($1\ 1/2$) in ((22.23) ~ (38.10) mm)



NTA

Raceway hardness to be 58 HRC or equivalent



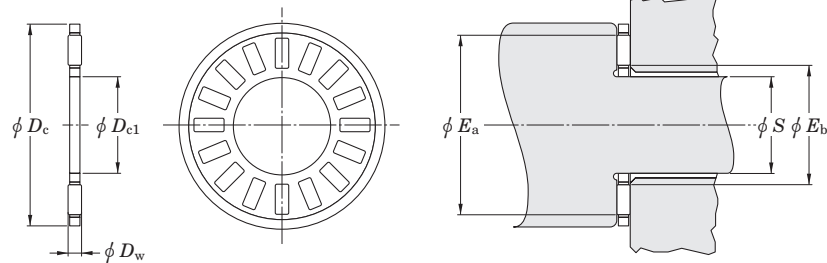
Shaft dia. (in)	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) C_u	Limiting speed ¹⁾ (min ⁻¹)		(Refer.) Mass (kg)	Washer No.	Washer dimensions (mm)				Piloting dimensions (mm) S		Dia. to clear O.D. (mm) H ²⁾	(Refer.) Washer mass (kg)
	D_{c1}	D_c	D_w	E_b	E_a		C_a	C_{0a}						d	d_1	max.	min.	max.	min.		
$7/8$	22.23	42.85	1.984	25.91	39.878	NTC-1427	18.46	78.29	8.05	9 800		0.008	TRC-1423	22.23	36.50	2.41	2.34	22.23	22.15	37.31	0.012
													TRD-1423	22.23	36.50	3.20	3.12	22.23	22.15	37.31	0.015
													TRB-1427	22.23	42.86	1.60	1.52	22.23	22.15	43.66	0.013
													TRC-1427	22.23	42.86	2.41	2.34	22.23	22.15	43.66	0.020
													TRD-1427	22.23	42.86	3.20	3.12	22.23	22.15	43.66	0.026
1	25.40	39.675	1.984	27.69	36.83	NTA-1625	13.83	53.82	5.00	11 000		0.006	TRA-1625	25.40	39.67	0.81	0.76	25.40	25.32	40.49	0.005
													TRB-1625	25.40	39.67	1.60	1.52	25.40	25.32	40.49	0.009
													TRD-1625	25.40	39.67	3.20	3.12	25.40	25.32	40.49	0.017
													TRE-1625	25.40	39.67	3.99	3.91	25.40	25.32	40.49	0.021
$1\ 1/8$	28.58	44.45	1.9837	30.73	41.656	NTA-1828	16.68	71.17	7.30	9 600		0.009	TRA-1828	28.58	44.45	0.81	0.76	28.58	28.50	45.24	0.006
													TRB-1828	28.58	44.45	1.60	1.52	28.58	28.50	45.24	0.011
													TRC-1828	28.58	44.45	2.41	2.34	28.58	28.50	45.24	0.017
													TRD-1828	28.58	44.45	3.20	3.12	28.58	28.50	45.24	0.022
$1\ 1/4$	31.75	49.20	1.9837	34.04	46.228	NTA-2031	20.15	93.41	9.55	8 600		0.010	TRA-2031	31.75	49.20	0.81	0.76	31.75	31.67	50.01	0.007
													TRB-2031	31.75	49.20	1.60	1.52	31.75	31.67	50.01	0.014
													TRC-2031	31.75	49.20	2.41	2.34	31.75	31.67	50.01	0.020
													TRD-2031	31.75	49.20	3.20	3.12	31.75	31.67	50.01	0.026
													TRF-2031	31.75	49.20	4.78	4.70	31.75	31.67	50.01	0.041
$1\ 3/8$	34.93	52.375	1.9837	37.08	49.53	NTA-2233	21.35	103.20	10.5	8 000		0.010	TRA-2233	34.93	52.37	0.81	0.76	34.93	34.85	53.19	0.007
													TRB-2233	34.93	52.37	1.60	1.52	34.93	34.85	53.19	0.015
													TRC-2233	34.93	52.37	2.41	2.34	34.93	34.85	53.19	0.018
													TRD-2233	34.93	52.37	3.20	3.12	34.93	34.85	53.19	0.029
													TRE-2233	34.93	52.37	3.99	3.91	34.93	34.85	53.19	0.037
													TRF-2233	34.93	52.37	4.78	4.70	34.93	34.85	53.19	0.044
$1\ 1/2$	38.10	55.55	1.9837	40.39	52.578	NTA-2435	23.22	117.88	12.0	7 600		0.011	TRA-2435	38.10	55.55	0.81	0.76	38.10	38.02	56.36	0.008
													TRB-2435	38.10	55.55	1.60	1.52	38.10	38.02	56.36	0.015

[Notes] 1) Limiting speeds listed are based on adequate oil lubrication.
Suggestions for an application requiring O.D. piloting should be determined in consultation with JTEKT.

2) If the shaft and the housing adjacent to the bearing O.D. are not concentric, the T.I.R. between the shaft and housing should be added to this dimension.

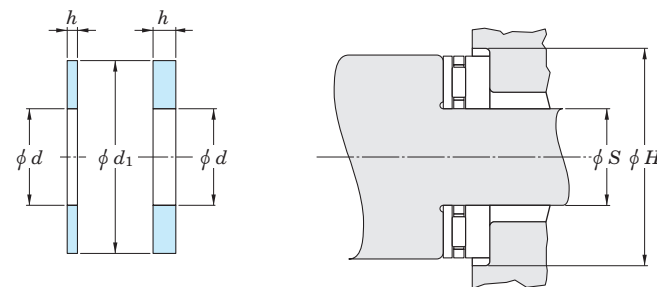
Needle roller thrust bearings, assemblies, washers thrust needle roller and cage assemblies, thrust washers inch series

Shaft dia. (1 1/2) ~ (2 1/2) in ((38.10) ~ (63.50) mm)



NTA

Raceway hardness to be 58 HRC or equivalent



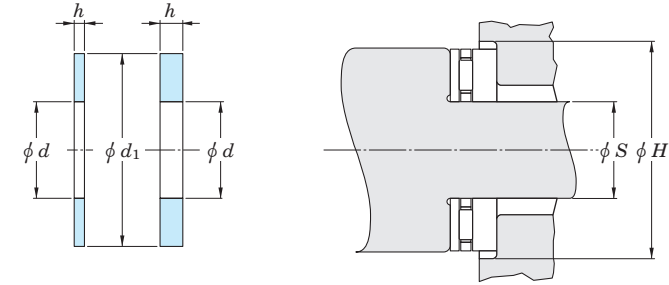
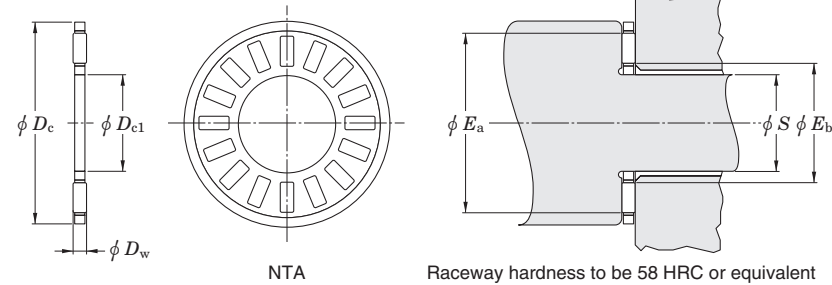
Shaft dia. (in)	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) Cu	Limiting speed ¹⁾ (min ⁻¹)		(Refer.) Mass (kg)	Washer No.	Washer dimensions (mm)				Piloting dimensions (mm) S		Dia. to clear O.D. (mm) H ²⁾	(Refer.) Washer mass (kg)
	Dc1	Dc	Dw	Eb	Ea		Ca	C0a						d	d1	max.	min.	max.	min.		
1 1/2	38.10	55.55	1.9837	40.39	52.578	NTA-2435	23.22	117.88	12.0	7 600		0.011	TRC-2435	38.10	55.55	2.41	2.34	38.10	38.02	56.36	0.023
													TRD-2435	38.10	55.55	3.20	3.12	38.10	38.02	56.36	0.030
													TRF-2435	38.10	55.55	4.78	4.70	38.10	38.02	56.36	0.045
1 3/4	44.45	63.50	1.984	46.74	58.928	NTA-2840	25.31	137.45	14.0	6 800		0.014	TRA-2840	44.45	63.50	0.81	0.76	44.45	44.37	64.29	0.010
													TRB-2840	44.45	63.50	1.60	1.52	44.45	44.37	64.29	0.020
													TRC-2840	44.45	63.50	2.41	2.34	44.45	44.37	64.29	0.029
													TRD-2840	44.45	63.50	3.20	3.12	44.45	44.37	64.29	0.038
													TRF-2840	44.45	63.50	4.78	4.70	44.45	44.37	64.29	0.057
2	50.80	69.85	1.9837	53.09	65.278	NTA-3244	24.02	132.56	13.5	6 100		0.015	TRA-3244	50.80	69.85	0.81	0.76	50.80	50.72	70.64	0.011
													TRB-3244	50.80	69.85	1.60	1.52	50.80	50.72	70.64	0.022
													TRC-3244	50.80	69.85	2.41	2.34	50.80	50.72	70.64	0.033
													TRD-3244	50.80	69.85	3.20	3.12	50.80	50.72	70.64	0.044
													TRF-3244	50.80	69.85	4.78	4.70	50.80	50.72	70.64	0.066
2 1/8	53.98	73.025	1.984	56.39	68.58	NTA-3446	24.42	137.45	14.0	5 800		0.016	TRA-3446	53.98	73.03	0.81	0.76	53.98	53.90	73.81	0.012
													TRB-3446	53.98	73.03	1.60	1.52	53.98	53.90	73.81	0.024
													TRC-3446	53.98	73.03	2.41	2.34	53.98	53.90	73.81	0.035
													TRD-3446	53.98	73.03	3.20	3.12	53.98	53.90	73.81	0.047
2 1/4	57.15	76.20	1.984	59.44	71.628	NTA-3648	24.78	142.34	14.6	5 600		0.017	TRA-3648	57.15	76.20	0.81	0.76	57.15	57.07	76.99	0.012
													TRB-3648	57.15	76.20	1.60	1.52	57.15	57.07	76.99	0.022
													TRC-3648	57.15	76.20	2.41	2.34	57.15	57.07	76.99	0.037
													TRD-3648	57.15	76.20	3.20	3.12	57.15	57.07	76.99	0.048
	57.15	79.375	3.175	59.94	75.184	NTA-3650	37.68	177.04	18.6	5 300		0.029	TRF-3648	57.15	76.20	4.78	4.70	57.15	57.07	76.99	0.071
													TRC-3650	57.15	79.38	2.41	2.34	57.15	57.07	80.16	0.043
2 1/2	63.50	82.55	1.9837	65.79	77.978	NTA-4052	25.53	152.13	15.6	5 100		0.019	TRA-4052	63.50	82.55	0.81	0.76	63.50	63.42	83.34	0.013
													TRB-4052	63.50	82.55	1.60	1.52	63.50	63.42	83.34	0.027
													TRC-4052	63.50	82.55	2.41	2.34	63.50	63.42	83.34	0.041

[Notes] 1) Limiting speeds listed are based on adequate oil lubrication.
Suggestions for an application requiring O.D. piloting should be determined in consultation with JTEKT.

2) If the shaft and the housing adjacent to the bearing O.D. are not concentric, the T.I.R. between the shaft and housing should be added to this dimension.

Needle roller thrust bearings, assemblies, washers
thrust needle roller and cage assemblies, thrust washers
inch series

Shaft dia. (2 1/2) ~ 4 1/8 in ((63.50) ~ 104.78 mm)



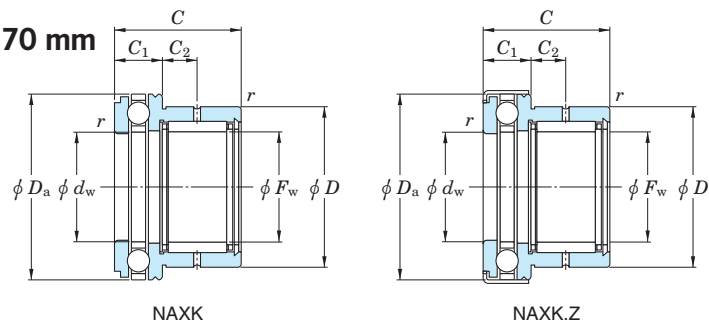
Shaft dia. (in)	Boundary dimensions (mm)					Bearing No.	Basic load ratings (kN)		Fatigue load limit (kN) Cu	Limiting speed ¹⁾ (min ⁻¹)		(Refer.) Mass (kg)	Washer No.	Washer dimensions (mm)				Piloting dimensions (mm) S		Dia. to clear O.D. (mm) H ²⁾	(Refer.) Washer mass (kg)
	Dc1	Dc	Dw	Eb	Ea		Ca	C0a						d	d1	max.	min.	max.	min.		
2 1/2	63.50	82.55	1.9837	65.79	77.978	NTA-4052	25.53	152.13	15.6	5 100		0.019	TRC-4052	63.50	82.55	3.20	3.12	63.50	63.42	83.34	0.054
2 3/4	69.85	92.075	3.175	72.64	87.884	NTA-4458	47.60	255.8	26.8	4 600		0.037	TRA-4458	69.85	92.08	0.81	0.76	69.85	69.77	92.86	0.018
													TRB-4458	69.85	92.08	1.60	1.52	69.85	69.77	92.86	0.035
													TRC-4458	69.85	92.08	2.41	2.34	69.85	69.77	92.86	0.051
													TRD-4458	69.85	92.08	3.20	3.12	69.85	69.77	92.86	0.069
3	76.20	95.25	1.9837	78.49	90.678	NTA-4860	26.96	172.1	17.6	4 400		0.022	TRA-4860	76.20	95.25	0.81	0.76	76.20	76.12	96.04	0.015
													TRB-4860	76.20	95.25	1.60	1.52	76.20	76.12	96.04	0.032
													TRD-4860	76.20	95.25	3.20	3.12	76.20	76.12	96.04	0.061
3 1/4	82.55	104.78	3.175	85.34	100.58	NTA-5266	51.60	294.9	30.9	4 000		0.042	TRA-5266	82.55	104.78	0.81	0.76	82.55	82.47	105.56	0.020
													TRD-5266	82.55	104.78	3.20	3.12	82.55	82.47	105.56	0.080
3 3/4	95.25	117.48	3.175	98.04	113.28	NTA-6074	56.05	344.3	35.5	3 500		0.050	TRA-6074	95.25	117.48	0.81	0.76	95.25	95.17	118.26	0.023
													TRB-6074	95.25	117.48	1.60	1.52	95.25	95.17	118.26	0.046
													TRC-6074	95.25	117.48	2.41	2.34	95.25	95.17	118.26	0.069
													TRD-6074	95.25	117.48	3.20	3.12	95.25	95.17	118.26	0.092
4 1/8	104.78	128.57	3.175	107.44	124.46	NTA-6681	63.61	414.6	41.3	3 200		0.062	TRA-6681	104.78	128.57	0.81	0.76	104.78	104.70	129.39	0.027
													TRC-6681	104.78	128.57	2.41	2.34	104.78	104.70	129.39	0.081
													TRD-6681	104.78	128.57	3.20	3.12	104.78	104.70	129.39	0.109
													TRF-6681	104.78	128.57	4.78	4.70	104.78	104.70	129.39	0.161

[Notes] 1) Limiting speeds listed are based on adequate oil lubrication.
Suggestions for an application requiring O.D. piloting should be determined in consultation with JTEKT.

2) If the shaft and the housing adjacent to the bearing O.D. are not concentric, the T.I.R. between the shaft and housing should be added to this dimension.

Combined needle roller bearings
ball thrust series
metric series

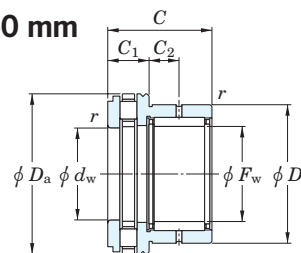
Shaft dia. 10 ~ 70 mm



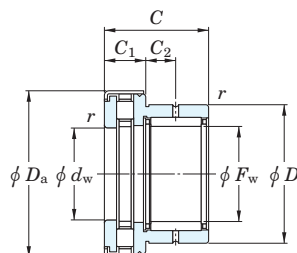
Shaft dia.	Boundary dimensions (mm)								Bearing No.	Limiting speed (min ⁻¹) Oil lub.	Basic load ratings (kN)				Fatigue load limits (kN)		(Refer.) Mass (kg)	Matching inner ring No.
	F_w	D	C	d_w (E7)	D_a	C_1	C_2	r min.			Radial		Thrust		Radial	Thrust		
10	10	19	23	10	24	9	6.5	0.3	NAXK10 NAXK10Z	9 500	7.9	8.7	10.4	14	1.35	0.630	0.04	JR7x10x16
	10	19	23	10	25	9	6.5	0.3			7.9	8.7	10.4	14	1.35	0.630		
12	12	21	23	12	26	9	6.5	0.3	NAXK12 NAXK12Z	9 000	7.5	8.5	10.7	15.4	1.30	0.690	0.046	JR9x12x16
	12	21	23	12	27	9	6.5	0.3			7.5	8.5	10.7	15.4	1.30	0.690		
15	15	24	23	15	28	9	6.5	0.3	NAXK15 NAXK15Z	8 500	9.7	12.6	10.9	16.8	1.90	0.760	0.047	JR12x15x16
	15	24	23	15	29	9	6.5	0.3			9.7	12.6	10.9	16.8	1.90	0.760		
17	17	26	25	17	30	9	8	0.3	NAXK17 NAXK17Z	8 500	11.4	16.1	11.8	19.6	2.50	0.880	0.06	JR14x17x17
	17	26	25	17	31	9	8	0.3			11.4	16.1	11.8	19.6	2.50	0.880		
20	20	30	30	20	35	10	10.5	0.3	NAXK20 NAXK20Z	7 000	14.8	23.7	15.5	26.6	3.65	1.20	0.089	JR17x20x20
	20	30	30	20	36	10	10.5	0.3			14.8	23.7	15.5	26.6	3.65	1.20		
25	25	37	30	25	42	11	9.5	0.6	NAXK25 NAXK25Z	6 300	18.8	29.8	18.8	35.5	4.60	1.60	0.134	JR20x25x20
	25	37	30	25	43	11	9.5	0.6			18.8	29.8	18.8	35.5	4.60	1.60		
30	30	42	30	30	47	11	9.5	0.6	NAXK30 NAXK30Z	5 600	20.2	34.6	19.5	39.9	5.35	2.15	0.146	JR25x30x20
	30	42	30	30	48	11	9.5	0.6			20.2	34.6	19.5	39.9	5.35	2.15		
35	35	47	30	35	52	12	9	0.6	NAXK35 NAXK35Z	5 300	22.1	40.8	20.8	46.6	6.35	2.10	0.176	JR30x35x20
	35	47	30	35	53	12	9	0.6			22.1	40.8	20.8	46.6	6.35	2.10		
40	40	52	32	40	60	13	10	0.6	NAXK40 NAXK40Z	4 500	23.8	47	28	62.9	7.30	2.85	0.224	JR35x40x20
	40	52	32	40	61	13	10	0.6			23.8	47	28	62.9	7.30	2.85		
45	45	58	32	45	65	14	9	0.6	NAXK45 NAXK45Z	4 500	24.9	51.8	29	69.2	8.05	3.10	0.262	JR40x45x20
	45	58	32	45	66.5	14	9	0.6			24.9	51.8	29	69.2	8.05	3.10		
50	50	62	35	50	70	14	10	0.6	NAXK50 NAXK50Z	4 300	30.2	68.5	29.9	75.5	10.7	3.40	0.316	JR45x50x25
	50	62	35	50	71.5	14	10	0.6			30.2	68.5	29.9	75.5	10.7	3.40		
60	60	72	40	60	85	17	12	1	NAXK60	3 600	31.9	78.1	43	113	12.2	5.10	0.48	JR50x60x25
70	70	85	40	70	95	18	11	1	NAXK70	3 400	43.6	87.9	41.6	110	13.9	4.95	0.659	JR60x70x25

**Combined needle roller bearings
cylindrical roller thrust series
metric series**

Shaft dia. 15 ~ 50 mm



NAXR



NAXR.Z

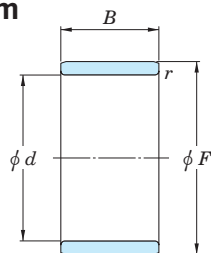
Shaft dia.	Boundary dimensions (mm)								Bearing No.		Limiting speed (min ⁻¹)	Basic load ratings (kN)				Fatigue load limits (kN)		(Refer.) Mass (kg)	Matching inner ring No.
	F_w	D	C	d_w (E7)	D_a	C_1	C_2	$r_{min.}$	NAXR	NAXR.Z		Radial C_r	C_{0r}	Thrust C_a	C_{0a}	Radial C_u	Thrust		
15	15	24	23	15	28	9	6.5	0.3	NAXR15	—	12 000	9.7	12.6	12.1	26.3	2.30	3.70	0.032	JR12x15x16
	15	24	23	15	29	9	6.5	0.3	—	NAXR15.Z	12 000	9.7	12.6	12.1	26.3	2.30	3.70	0.035	JR12x15x16
17	17	26	25	17	30	9	8.0	0.3	NAXR17	—	11 000	11.4	16.1	12.6	28.6	2.70	4.05	0.050	JR14x17x17
	17	26	25	17	31	9	8.0	0.3	—	NAXR17.Z	11 000	11.4	16.1	12.6	28.6	2.70	4.05	0.053	JR14x17x17
20	20	30	30	20	35	10	10.5	0.3	NAXR20TN	—	9 500	14.8	23.7	23.6	56.8	4.00	8.00	0.090	JR17x20x20
	20	30	30	20	36	10	10.5	0.3	—	NAXR20Z.TN	9 500	14.8	23.7	23.6	56.8	4.00	8.00	0.095	JR17x20x20
25	25	37	30	25	42	11	9.5	0.6	NAXR25TN	—	8 000	18.8	29.8	31.2	81.0	4.80	11.4	0.146	JR20x25x20
	25	37	30	25	43	11	9.5	0.6	—	NAXR25Z.TN	8 000	18.8	29.8	31.2	81.0	4.80	11.4	0.152	JR20x25x20
30	30	42	30	30	47	11	9.5	0.6	NAXR30TN	—	6 700	20.2	34.6	33.0	91.1	6.10	12.8	0.162	JR25x30x20
	30	42	30	30	48	11	9.5	0.6	—	NAXR30Z.TN	6 700	20.2	34.6	33.0	91.1	6.10	12.8	0.169	JR25x30x20
35	35	47	30	35	52	12	9.0	0.6	NAXR35	—	6 000	22.1	40.8	30.9	86.0	7.05	12.1	0.186	JR30x35x20
	35	47	30	35	53	12	9.0	0.6	—	NAXR35.Z	6 000	22.1	40.8	30.9	86.0	7.05	12.1	0.195	JR30x35x20
40	40	52	32	40	60	13	10.0	0.6	NAXR40	—	5 300	23.8	47.0	44.5	126.0	8.05	12.0	0.288	JR35x40x20
	40	52	32	40	61	13	10.0	0.6	—	NAXR40.Z	5 300	23.8	47.0	44.5	126.0	8.05	12.0	0.299	JR35x40x20
45	45	58	32	45	65	14	9.0	0.6	NAXR45TN	—	4 800	24.9	51.8	47.0	140.0	9.00	15.5	0.360	JR40x45x20
	45	58	32	45	66	14	9.0	0.6	—	NAXR45Z.TN	4 800	24.9	51.8	47.0	140.0	9.00	15.5	0.370	JR40x45x20
50	50	62	35	50	70	14	10.0	0.6	NAXR50	—	4 300	30.2	68.5	49.7	155.0	12.5	14.8	0.432	JR45x50x25
	50	62	35	50	71	14	10.0	0.6	—	NAXR50.Z	4 300	30.2	68.5	49.7	155.0	12.5	14.8	0.452	JR45x50x25

Needle roller bearings, accessories

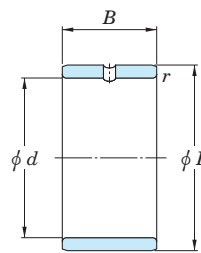
inner rings

metric series

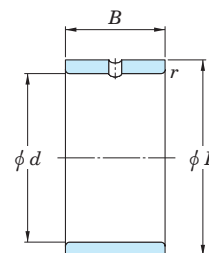
Shaft dia. 5 ~ (12) mm



JR



JR.JS1



JRZ.JS1

Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
5	5	8	8	0.3	JR5x8x8JS1	0.002
	5	8	12	0.3	JR5x8x12	0.003
	5	8	16	0.3	JR5x8x16	0.004
6	6	9	8	0.3	JR6x9x8JS1	0.002
	6	9	12	0.3	JR6x9x12	0.003
	6	9	16	0.3	JR6x9x16	0.004
	6	10	10	0.3	JR6x10x10	0.004
	6	10	10	0.3	JR6x10x10JS1	0.004
	6	10	12	0.3	JRZ6x10x12JS1	0.005
	6	10	12	0.3	JRZ6x10x12JS1	0.005
7	7	10	10.5	0.3	JR7x10x10,5	0.003
	7	10	12	0.3	JR7x10x12	0.004
	7	10	16	0.3	JR7x10x16	0.005
8	8	12	10	0.3	JR8x12x10	0.005
	8	12	10	0.3	JR8x12x10JS1	0.005
	8	12	10.5	0.3	JR8x12x10,5	0.005
	8	12	12	0.3	JRZ8x12x12JS1	0.006
	8	12	12.5	0.3	JR8x12x12,5	0.006
9	9	12	12	0.3	JR9x12x12	0.005
	9	12	16	0.3	JR9x12x16	0.006
10	10	13	12.5	0.3	JR10x13x12,5	0.005
	10	14	11	0.3	JR10x14x11JS1	0.007
	10	14	12	0.3	JR10x14x12	0.007
	10	14	12	0.3	JR10x14x12JS1	0.007
	10	14	13	0.3	JR10x14x13	0.007
	10	14	14	0.3	JRZ10x14x14JS1	0.008
	10	14	16	0.3	JR10x14x16	0.009
	10	14	20	0.3	JR10x14x20	0.012
12	12	15	12.5	0.3	JR12x15x12,5	0.006

Shaft dia. (12) ~ (17) mm

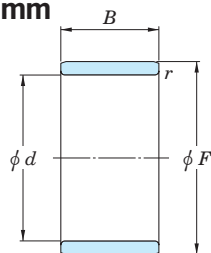
Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
12	12	15	16	0.3	JR12x15x16	0.008
	12	15	16.5	0.3	JR12x15x16,5	0.008
	12	15	18.5	0.3	JR12x15x18,5	0.009
	12	15	22.5	0.3	JR12x15x22,5	0.011
	12	16	12	0.3	JR12x16x12	0.008
	12	16	12	0.3	JR12x16x12JS1	0.008
	12	16	13	0.3	JR12x16x13	0.008
	12	16	14	0.3	JRZ12x16x14JS1	0.010
	12	16	16	0.3	JR12x16x16	0.011
	12	16	20	0.3	JR12x16x20	0.014
	12	16	22	0.3	JR12x16x22	0.015
	12	16	22	0.3	JR12x16x22	0.015
14	14	17	17	0.3	JR14x17x17	0.009
15	15	18	16.5	0.3	JR15x18x16,5	0.010
	15	19	16	0.3	JR15x19x16	0.013
	15	19	20	0.3	JR15x19x20	0.017
	15	20	12	0.3	JR15x20x12	0.012
	15	20	12	0.3	JR15x20x12JS1	0.012
	15	20	13	0.3	JR15x20x13	0.014
	15	20	14	0.3	JRZ15x20x14JS1	0.015
	15	20	16	0.3	JR15x20x16	0.017
	15	20	23	0.3	JR15x20x23	0.025
	15	20	26	0.3	JR15x20x26	0.028
17	17	20	16.5	0.3	JR17x20x16,5	0.011
	17	20	20	0.3	JR17x20x20	0.014
	17	20	20.5	0.3	JR17x20x20,5	0.014
	17	20	30.5	0.3	JR17x20x30,5	0.021
	17	21	16	0.3	JR17x21x16	0.015
	17	21	20	0.3	JR17x21x20	0.019
	17	22	13	0.3	JR17x22x13	0.015
	17	22	13	0.3	JR17x22x13	0.015

Needle roller bearings, accessories

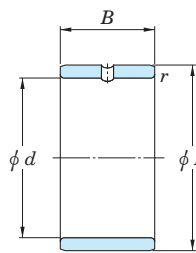
inner rings

metric series

Shaft dia. (17) ~ (25) mm

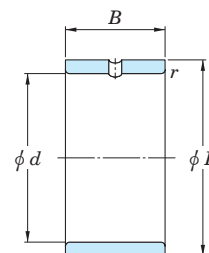


JR



JR.JS1

Shaft dia. (25) ~ (35) mm



JRZ.JS1

Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
17	17	22	16	0.3	JR17x22x16	0.019
	17	22	16	0.3	JR17x22x16JS1	0.019
	17	22	16	0.3	JRZ17x22x16JS1	0.019
	17	22	23	0.3	JR17x22x23	0.028
	17	22	26	0.3	JR17x22x26	0.031
	17	22	32	0.3	JR17x22x32	0.038
20	20	24	16	0.3	JR20x24x16	0.018
	20	24	20	0.3	JR20x24x20	0.022
	20	25	16	0.3	JR20x25x16	0.022
	20	25	16	0.3	JR20x25x16JS1	0.022
	20	25	17	0.3	JR20x25x17	0.023
	20	25	18	0.3	JRZ20x25x18JS1	0.025
	20	25	20	0.3	JR20x25x20	0.028
	20	25	20.5	0.3	JR20x25x20,5	0.029
	20	25	26	0.3	JR20x25x26	0.036
	20	25	26.5	0.3	JR20x25x26,5	0.037
	20	25	30	0.3	JR20x25x30	0.042
	20	25	32	0.3	JR20x25x32	0.044
	20	25	38.5	0.3	JR20x25x38,5	0.054
22	22	26	16	0.3	JR22x26x16	0.019
	22	26	20	0.3	JR22x26x20	0.023
	22	28	17	0.3	JR22x28x17	0.030
	22	28	20.5	0.3	JR22x28x20,5	0.038
	22	28	30	0.3	JR22x28x30	0.056
25	25	29	20	0.3	JR25x29x20	0.027
	25	29	30	0.3	JR25x29x30	0.040
	25	30	16	0.3	JR25x30x16	0.027
	25	30	16	0.3	JR25x30x16JS1	0.027
	25	30	17	0.3	JR25x30x17	0.028

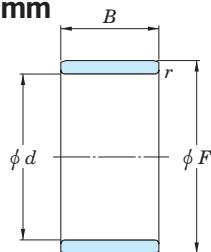
Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
25	25	30	18	0.3	JRZ25x30x18JS1	0.031
	25	30	20	0.3	JR25x30x20	0.034
	25	30	20.5	0.3	JR25x30x20,5	0.035
	25	30	26	0.3	JR25x30x26	0.044
	25	30	26.5	0.3	JR25x30x26,5	0.045
	25	30	30	0.3	JR25x30x30	0.051
	25	30	32	0.3	JR25x30x32	0.054
	25	30	38.5	0.3	JR25x30x38,5	0.066
28	28	32	17	0.3	JR28x32x17	0.028
	28	32	20	0.3	JR28x32x20	0.030
	28	32	30	0.3	JR28x32x30	0.044
30	30	35	16	0.3	JR30x35x16	0.031
	30	35	17	0.3	JR30x35x17	0.033
	30	35	18	0.3	JRZ30x35x18JS1	0.036
	30	35	20	0.3	JR30x35x20	0.039
	30	35	20	0.3	JRZ30x35x20JS1	0.039
	30	35	20.5	0.3	JR30x35x20,5	0.040
	30	35	26	0.3	JR30x35x26	0.054
	30	35	30	0.3	JR30x35x30	0.057
	30	35	32	0.3	JR30x35x32	0.062
	30	38	20	0.6	JR30x38x20JS1	0.067
32	32	37	20	0.3	JR32x37x20	0.043
	32	37	30	0.3	JR32x37x30	0.064
	32	40	20	0.6	JR32x40x20	0.069
	32	40	36	0.6	JR32x40x36	0.128
35	35	40	17	0.3	JR35x40x17	0.040
	35	40	20	0.3	JR35x40x20	0.046
	35	40	20.5	0.3	JR35x40x20,5	0.049

Needle roller bearings, accessories

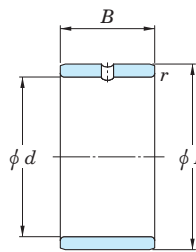
inner rings

metric series

Shaft dia. (35) ~ (45) mm

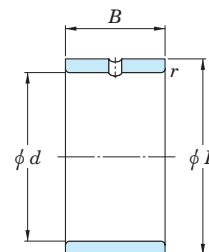


JR



JR.JS1

Shaft dia. (45) ~ (60) mm



JRZ.JS1

Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
35	35	40	22	0.3	JR35x40x22	0.052
	35	40	30	0.3	JR35x40x30	0.071
	35	40	34	0.3	JR35x40x34	0.080
	35	40	40	0.3	JR35x40x40	0.094
	35	42	20	0.6	JR35x42x20	0.065
	35	42	20	0.6	JR35x42x20JS1	0.065
	35	42	23	0.6	JRZ35x42x23JS1	0.074
	35	42	36	0.6	JR35x42x36	0.122
	35	44	22	0.6	JR35x44x22	0.097
38	38	43	20	0.3	JR38x43x20	0.050
	38	43	30	0.3	JR38x43x30	0.075
40	40	45	17	0.3	JR40x45x17	0.044
	40	45	20	0.3	JR40x45x20	0.052
	40	45	20.5	0.3	JR40x45x20,5	0.054
	40	45	30	0.3	JR40x45x30	0.078
	40	45	34	0.3	JR40x45x34	0.089
	40	45	40	0.3	JR40x45x40	0.115
	40	48	22	0.6	JR40x48x22	0.094
	40	48	23	0.6	JRZ40x48x23JS1	0.100
	40	48	40	0.6	JR40x48x40	0.173
	40	50	20	1	JR40x50x20	0.110
42	42	47	20	0.3	JR42x47x20	0.055
	42	47	30	0.3	JR42x47x30	0.083
45	45	50	20	0.3	JR45x50x20	0.058
	45	50	25	0.6	JR45x50x25	0.073
	45	50	25.5	0.3	JR45x50x25,5	0.075
	45	50	35	0.6	JR45x50x35	0.103
	45	50	40	0.3	JR45x50x40	0.117
	45	52	22	0.6	JR45x52x22	0.090

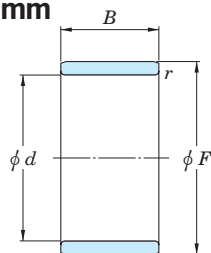
Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
45	45	52	23	0.6	JR45x52x23	0.096
	45	52	23	0.6	JRZ45x52x23JS1	0.096
	45	52	40	0.6	JR45x52x40	0.167
	45	55	20	1	JR45x55x20	0.133
	45	55	20	1	JR45x55x20JS1	0.133
	45	55	22	1	JR45x55x22	0.135
	45	55	40	1	JR45x55x40	0.247
50	50	55	20	0.3	JR50x55x20	0.065
	50	55	25	0.6	JR50x55x25	0.081
	50	55	35	0.6	JR50x55x35	0.113
	50	55	40	0.3	JR50x55x40	0.130
	50	58	22	0.6	JR50x58x22	0.117
	50	58	23	0.6	JRZ50x58x23JS1	0.122
	50	58	40	0.6	JR50x58x40	0.213
	50	60	20	1	JR50x60x20	0.155
	50	60	20	1	JR50x60x20JS1	0.155
	50	60	25	1	JR50x60x25	0.170
	50	60	40	1	JR50x60x40	0.310
55	55	60	25	0.6	JR55x60x25	0.088
	55	60	35	0.6	JR55x60x35	0.124
	55	63	25	1	JR55x63x25	0.141
	55	63	45	1	JR55x63x45	0.286
	55	65	30	1	JR55x65x30	0.222
	55	65	60	1	JR55x65x60	0.444
60	60	68	25	0.6	JR60x68x25	0.153
	60	68	35	0.6	JR60x68x35	0.220
	60	68	45	1	JR60x68x45	0.284
	60	70	25	1	JR60x70x25	0.200
	60	70	30	1	JR60x70x30	0.240

Needle roller bearings, accessories

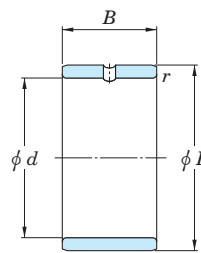
inner rings

metric series

Shaft dia. (60) ~ (90) mm

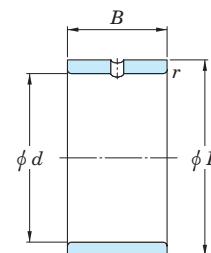


JR



JR.JS1

Shaft dia. (90) ~ 180 mm



JRZ.JS1

Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
60	60	70	60	1	JR60x70x60	0.480
65	65	72	25	1	JR65x72x25	0.143
	65	72	45	1	JR65x72x45	0.266
	65	73	25	0.6	JR65x73x25	0.170
	65	73	35	0.6	JR65x73x35	0.240
	65	75	28	1	JR65x75x28	0.240
	65	75	30	1	JR65x75x30	0.260
	65	75	60	1	JR65x75x60	0.520
	65	75	60	1	JR65x75x60	0.520
70	70	80	25	1	JR70x80x25	0.230
	70	80	30	1	JR70x80x30	0.270
	70	80	35	1	JR70x80x35	0.320
	70	80	54	1	JR70x80x54	0.500
	70	80	60	1	JR70x80x60	0.556
75	75	85	25	1	JR75x85x25	0.240
	75	85	30	1	JR75x85x30	0.289
	75	85	35	1	JR75x85x35	0.338
	75	85	54	1	JR75x85x54	0.530
80	80	90	25	1	JR80x90x25	0.260
	80	90	30	1	JR80x90x30	0.306
	80	90	35	1	JR80x90x35	0.355
	80	90	54	1	JR80x90x54	0.565
85	85	95	26	1	JR85x95x26	0.290
	85	95	30	1	JR85x95x30	0.334
	85	95	36	1	JR85x95x36	0.397
	85	100	35	1.1	JR85x100x35	0.595
	85	100	63	1.1	JR85x100x63	1.080
90	90	100	26	1	JR90x100x26	0.300

B 470

Shaft dia.	Boundary dimensions (mm)				Bearing No.	(Refer.) Mass (kg)
	d	F	B	r min.		
90	90	100	30	1	JR90x100x30	0.350
	90	100	36	1	JR90x100x36	0.422
	90	105	32	1.1	JR90x105x32	0.580
	90	105	35	1.1	JR90x105x35	0.624
	90	105	63	1.1	JR90x105x63	1.140
95	95	105	26	1	JR95x105x26	0.310
	95	105	36	1	JR95x105x36	0.430
	95	110	35	1.1	JR95x110x35	0.653
	95	110	63	1.1	JR95x110x63	1.200
100	100	110	30	1.1	JR100x110x30	0.384
	100	110	40	1.1	JR100x110x40	0.510
	100	115	40	1.1	JR100x115x40	0.790
110	110	120	30	1	JR110x120x30	0.425
	110	125	40	1.1	JR110x125x40	0.870
120	120	130	30	1	JR120x130x30	0.460
	120	135	45	1.1	JR120x135x45	1.060
130	130	145	35	1.1	JR130x145x35	0.890
	130	150	50	1.5	JR130x150x50	1.730
140	140	155	35	1.1	JR140x155x35	0.955
	140	160	50	1.5	JR140x160x50	1.860
150	150	165	40	1.1	JR150x165x40	1.170
160	160	175	40	1.1	JR160x175x40	1.240
170	170	185	45	1.1	JR170x185x45	1.480
180	180	195	45	1.1	JR180x195x45	1.560

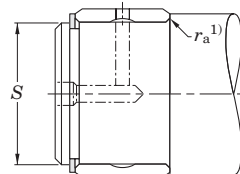
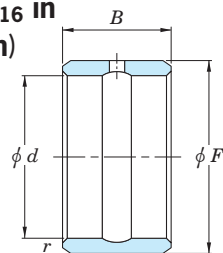
B 471

Heavy-duty needle roller bearings

inner rings

inch series

Shaft dia. $\frac{3}{8} \sim 1 \frac{5}{16}$ in
(9.525 ~ 33.338 mm)



Shaft dia. (in)	Boundary dimensions (mm)				Inner ring No.	(Refer.) Mass (kg)	Shaft dia. (mm)				Used with bearing No.
	d	F	B	r min.			Loose transition fit max.	min.	Interference fit max.	min.	
$\frac{3}{8}$	9.525	15.875	19.05	0.64	IR-061012	0.018	9.520	9.510	9.538	9.530	HJ-101812
$\frac{1}{2}$	12.700	19.050	19.05	1.02	IR-081212	0.023	12.692	12.682	12.715	12.708	HJ-122012
	12.700	19.050	25.40	1.02	IR-081216	0.032	12.692	12.682	12.715	12.708	HJ-122016
$\frac{5}{8}$	15.875	22.225	19.05	1.02	IR-101412	0.027	15.867	15.857	15.890	15.883	HJ-142212
	15.875	22.225	25.40	1.02	IR-101416	0.036	15.867	15.857	15.890	15.883	HJ-142216
$\frac{11}{16}$	17.463	22.225	19.05	1.02	IR-111412	0.023	17.455	17.445	17.478	17.470	HJ-142212
$\frac{3}{4}$	19.050	25.400	19.05	1.02	IR-121612	0.032	19.042	19.030	19.068	19.058	HJ-162412
	19.050	25.400	25.40	1.02	IR-121616	0.041	19.042	19.030	19.068	19.058	HJ-162416
$\frac{13}{16}$	20.638	25.400	25.40	1.02	IR-131616	0.032	20.630	20.617	20.655	20.645	HJ-162416
$\frac{7}{8}$	22.225	28.575	25.40	1.02	IR-141816	0.050	22.217	22.205	22.243	22.233	HJ-182616
	22.225	28.575	31.75	1.02	IR-141820	0.059	22.217	22.205	22.243	22.233	HJ-182620
$\frac{15}{16}$	23.813	28.575	25.40	1.02	IR-151816	0.036	23.805	23.792	23.830	23.820	HJ-182616
	23.813	28.575	31.75	1.02	IR-151820	0.045	23.805	23.792	23.830	23.820	HJ-182620
1	25.400	31.750	25.40	1.02	IR-162016	0.054	25.392	25.380	25.418	25.408	HJ-202816
	25.400	31.750	31.75	1.02	IR-162020	0.068	25.392	25.380	25.418	25.408	HJ-202820
$1 \frac{1}{8}$	28.575	34.925	25.40	1.02	IR-182216	0.059	28.567	28.555	28.593	28.583	HJ-223016
	28.575	34.925	31.75	1.02	IR-182220	0.077	28.567	28.555	28.593	28.583	HJ-223020
$1 \frac{1}{16}$	30.163	38.100	31.75	1.52	IR-192420	0.100	30.155	30.142	30.180	30.170	HJ-243320
$1 \frac{1}{4}$	31.750	38.100	25.40	1.52	IR-202416	0.068	31.740	31.725	31.770	31.760	HJ-243316
	31.750	38.100	31.75	1.52	IR-202420	0.082	31.740	31.725	31.770	31.760	HJ-243320
$1 \frac{5}{16}$	33.338	41.275	25.40	1.52	IR-212616	0.086	33.327	33.312	33.358	33.348	HJ-263516
	33.338	41.275	31.75	1.52	IR-212620	0.109	33.327	33.312	33.358	33.348	HJ-263520

[Note] 1) $r_{a \max}$ is equal to the minimum bearing chamfer ($r_{s \min}$).

Shaft dia. $1 \frac{3}{8} \sim (2 \frac{1}{2})$ in
(34.925 ~ (63.500) mm)

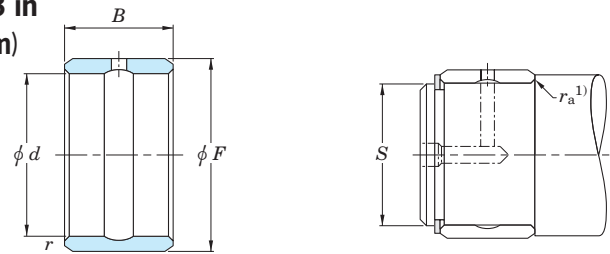
Shaft dia. (in)	Boundary dimensions (mm)				Inner ring No.	(Refer.) Mass (kg)	Shaft dia. (mm)				Used with bearing No.
	d	F	B	r min.			Loose transition fit max.	min.	Interference fit max.	min.	
$1 \frac{3}{8}$	34.925	41.275	31.75	1.52	IR-222620	0.091	34.915	34.900	34.945	34.935	HJ-263520
	34.925	44.450	31.75	1.52	IR-222820	0.141	34.915	34.900	34.945	34.935	HJ-283720
$1 \frac{7}{16}$	36.513	44.450	25.40	1.52	IR-232816	0.095	36.502	36.487	36.533	36.523	HJ-283716
	36.513	44.450	31.75	1.52	IR-232820	0.118	36.502	36.487	36.533	36.523	HJ-283720
$1 \frac{1}{2}$	38.100	44.450	25.40	1.52	IR-242816	0.077	38.090	38.075	38.120	38.110	HJ-283716
	38.100	44.450	31.75	1.52	IR-242820	0.095	38.090	38.075	38.120	38.110	HJ-283720
	38.100	50.800	31.75	1.52	IR-243220	0.209	38.090	38.075	38.120	38.110	HJ-324120
$1 \frac{9}{16}$	39.688	47.625	31.75	1.52	IR-253020	0.127	39.677	39.662	39.708	39.698	HJ-303920
	39.688	50.800	31.75	1.52	IR-253220	0.186	39.677	39.662	39.708	39.698	HJ-324120
$1 \frac{5}{8}$	41.275	50.800	31.75	1.52	IR-263220	0.163	41.265	41.250	41.295	41.285	HJ-324120
$1 \frac{11}{16}$	42.863	50.800	25.40	1.52	IR-273216	0.109	42.852	42.837	42.883	42.873	HJ-324116
	42.863	50.800	31.75	1.52	IR-273220	0.136	42.852	42.837	42.883	42.873	HJ-324120
$1 \frac{3}{4}$	44.450	57.150	38.10	1.52	IR-283624	0.286	44.440	44.425	44.470	44.460	HJ-364824
	44.450	57.150	44.45	1.52	IR-283628	0.336	44.440	44.425	44.470	44.460	HJ-364828
$1 \frac{15}{16}$	49.213	63.500	38.10	2.03	IR-314024	0.358	49.202	49.187	49.233	49.223	HJ-405224
	49.213	63.500	44.45	2.03	IR-314028	0.417	49.202	49.187	49.233	49.223	HJ-405228
2	50.800	63.500	38.10	2.03	IR-324024	0.322	50.790	50.772	50.823	50.810	HJ-405224
	50.800	63.500	44.45	2.03	IR-324028	0.376	50.790	50.772	50.823	50.810	HJ-405228
$2 \frac{3}{16}$	55.563	69.850	44.45	2.03	IR-354428	0.467	55.552	55.535	55.585	55.573	HJ-445628
$2 \frac{1}{4}$	57.150	69.850	38.10	2.03	IR-364424	0.358	57.140	57.122	57.173	57.160	HJ-445624
	57.150	69.850	44.45	2.03	IR-364428	0.417	57.140	57.122	57.173	57.160	HJ-445628
$2 \frac{3}{8}$	60.325	76.200	44.45	2.03	IR-384828	0.562	60.315	60.297	60.348	60.335	HJ-486028
$2 \frac{1}{2}$	63.500	76.200	38.10	2.03	IR-404824	0.395	63.490	63.472	63.523	63.510	HJ-486024

Heavy-duty needle roller bearings

inner rings

inch series

Shaft dia. (2 1/2) ~ 3 in
((63.500) ~ 76.200 mm)



Boundary dimensions (mm)					Inner ring No.	(Refer.) Mass (kg)	Shaft dia. (mm)				Used with bearing No.
Shaft dia. (in)	<i>d</i>	<i>F</i>	<i>B</i>	<i>r</i> min.			Loose transition fit		Interference fit		
							max.	min.	max.	min.	
2 1/2	63.500	76.200	44.45	2.03	IR-404828	0.463	63.490	63.472	63.523	63.510	HJ-486028
2 3/4	69.850	82.550	44.45	2.03	IR-445228	0.503	69.840	69.822	69.873	69.860	HJ-526828
	69.850	82.550	50.80	2.03	IR-445232	0.576	69.840	69.822	69.873	69.860	HJ-526832
2 15/16	74.613	88.900	50.80	2.03	IR-475632	0.694	74.602	74.585	74.635	74.623	HJ-567232
3	76.200	88.900	50.80	2.03	IR-485632	0.621	76.190	76.172	76.223	76.210	HJ-567232

[Note] 1) ra max is equal to the minimum bearing chamfer (rs min).

Miniature one-way clutches

Miniature one-way clutches consist of a case carburizing steel drawn cup, metal or synthetic resin spring, synthetic resin cage and needle rollers.

They are used in clutch mechanisms of various machines. Use in office automation equipment such as copying and facsimile machines is especially common.

- Useful for making equipment smaller and lighter, due to a drawn cup made of thin sheet steel.
- Locking protrusions are provided around the drawn cup, so that creeping can be prevented without having to hold the surface dimensional accuracy precisely.
- Pre-lubricated with optimum grease, so that no lubrication is necessary under normal operating conditions.
- Unit products with a synthetic resin housing are also available. They are compatible with components of various types, such as gears, timing pulleys, cams and rubber rollers. Consult with JTEKT for further information.



1WC series

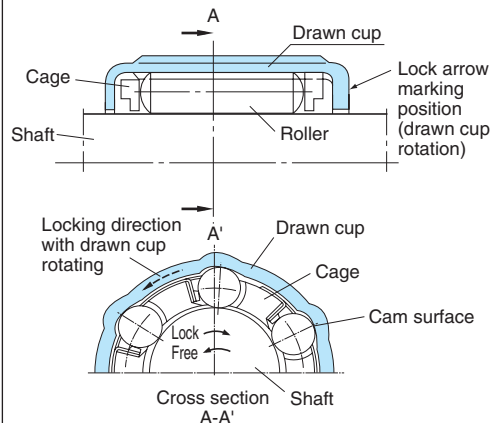


EWC series



Various housings and unit products

Structure and principles



[When the clutch system works]

When the shaft rotates clockwise as in cross section A-A', rollers are locked while engaged with the drawn cup cam surfaces by the effect of springs (wedging of the shaft by the cam surfaces). The drawn cup is driven as a consequence.

[Clutch idle running]

When the shaft rotates counter-clockwise as in cross section A-A', rollers move away from the drawn cup cam surfaces and rotate freely.

Miniature one-way clutch types and characteristics

	1WC series (with metal springs)	EWC series (with synthetic resin springs)	
	Heavy load type	Heavy load type	Light load type
	1WC...	EWC...C	EWC...A
Torque capacity	Heavy load	Heavy load	Light load
Operating temperature range	- 10 to + 90°C		- 10 to + 70°C
Locking life	Locking system can function more than one million. 〔 Note : this estimation is valid as long as torque magnitude does not exceed the torque capacity shown in the specification table. 〕		
Insert molding	Possible	Impossible	
Delivery of clutch only	Possible		
Unit delivery	Possible		

Shaft tolerance

	Heavy load type (1WC..., EWC...C)	Light load type (EWC...A)
Shaft tolerance class	h 8	
Surface hardness	50 HRC or harder	30 HRC or harder
Roughness (Ra)	0.3 a or less	0.8 a or less
Roundness and cylindricity	0.005 mm or less	

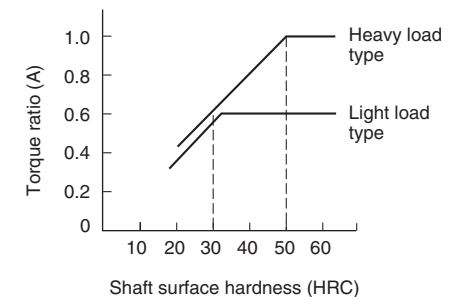
[Remarks] In some operating conditions, shafts need not be as accurate as shown here.

For example :

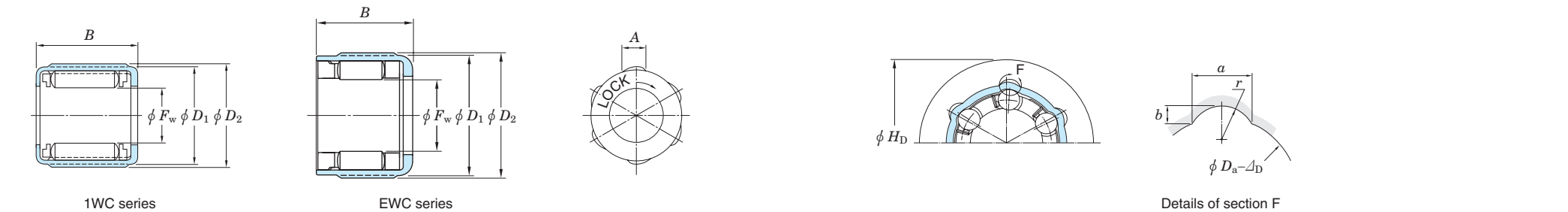
1. When clutch engaging accuracy is considered unimportant, or when a radial load or moment is not generated, the shaft diameter tolerance can be :
 - shaft diameter 6 mm or less,
 - and EWC0809 (C, A) : 0 to - 0.040 mm
 - shaft diameter 8 mm or more : h 10
2. When the loaded torque is smaller than the torque capacity, shaft surface hardness can be determined as follows :

* The diagram on the right shows approximate shaft surface hardness relative to torque ratio A.

$$\text{Torque ratio (A)} = \frac{\text{Loaded torque}}{\text{Heavy load type torque capacity}}$$



d 4 ~ 12 mm



Shaft dia. (mm)	Boundary dimensions (mm)					Torque capacity (N·m)	Designations		No. of outer ring protrusion	Recommended housing dimensions (Polyacetal resin) (mm)						Recommended housing dimensions (Steel) (mm)						(Refer.) Mass (g)	
	<i>F_w</i>	<i>D</i> ₁	<i>D</i> ₂	<i>B</i>	<i>A</i>		1WC series (With metal springs)	EWC series (With resin springs)		<i>H_D</i>	<i>a</i>	<i>b</i>	<i>r</i>	<i>D_a</i>	∠ <i>D</i>	<i>H_D</i>	<i>a</i>	<i>b</i>	<i>r</i>	<i>D_a</i>	∠ <i>D</i>	1WC	EWC
4	4	8	8.4	6	2.6	0.08	—	EWC0406A	4	12	2.65	0.50	2	8	0.06	10	2.9	0.65	2	8	0.03	—	1.0
	4	8	8.4	6	2.6	0.15	—	EWC0406C	4	12	2.65	0.50	2	8	0.06	10	2.9	0.65	2	8	0.03	—	1.0
6	6	10	10.4	6	2.8	0.19	—	EWC0606XC	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	—	1.4
	6	10	10.4	7.5	2.8	0.25	—	EWC0608XA	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	—	1.7
	6	10	10.4	7.5	2.8	0.44	—	EWC0608XC	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	—	1.7
	6	10	10.4	8	2.8	0.25	—	EWC0608A	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	—	1.7
	6	10	10.4	8	2.8	0.44	—	EWC0608C	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	—	1.7
	6	10	10.4	8	2.8	0.44	1WC0608	—	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	2.0	—
	6	10	10.4	8	2.8	0.44	—	—	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	2.0	—
	6	10	10.4	12	2.8	0.88	1WC0612	—	6	14	2.8	0.57	2	10	0.08	12.5	3.1	0.85	2	10	0.03	3.0	—
8	8	12	12.4	9	2.6	0.49	—	EWC0809A	6	16	2.6	0.48	2	12	0.10	14	3	0.7	2	12	0.035	—	2.4
	8	12	12.4	9	2.6	0.88	—	EWC0809C	6	16	2.6	0.48	2	12	0.10	14	3	0.7	2	12	0.035	—	2.4
	8	14.2	15	12	3.6	1.18	—	EWC0812A	6	18.5	3.6	0.87	2.3	14.2	0.11	17.5	3.9	1.15	2.3	14.2	0.035	—	5.8
	8	14.2	15	12	3.6	1.96	—	EWC0812C	6	18.5	3.6	0.87	2.3	14.2	0.11	17.5	3.9	1.15	2.3	14.2	0.035	—	5.8
	8	14.2	15	12	3.6	1.96	1WC0812	—	6	18.5	3.6	0.87	2.3	14.2	0.11	17.5	3.9	1.15	2.3	14.2	0.035	7.0	—
	8	14.2	15	14.5	3.6	2.65	1WC0815	—	6	18.5	3.6	0.87	2.3	14.2	0.11	17.5	3.9	1.15	2.3	14.2	0.035	8.0	—
10	10	16	17	10	5	1.18	—	EWC1010A	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	—	6.0
	10	16	17	10	5	1.96	—	EWC1010C	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	—	6.0
	10	16	17	12	5	1.37	—	EWC1012A	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	—	6.8
	10	16	17	12	5	2.35	—	EWC1012C	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	—	6.8
	10	16	17	12	5	2.35	1WC1012	—	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	8.0	—
	10	16	17	12	5	2.35	—	—	6	21	5.0	1.20	3.2	16	0.13	19	5.3	1.4	3.2	16	0.035	8.0	—
12	12	18	19	16	5.1	6.28	1WC1216	—	8	23	5.1	1.20	3.3	18	0.14	21	5.4	1.4	3.3	18	0.035	12	—



Ball bearing units

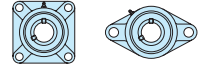
Ball bearing units consist of pre-lubricated sealed ball bearings and a housing which varies in shape.

They are capable of aligning themselves efficiently using the spherical fitting surface between the bearing and housing, effectively preventing overloads due to misalignment.

Pillow block type



Flanged type



Flanged type with spigot joint



Take-up type



Cartridge type



Light duty units



"Compact" series (made from light alloy)



Stainless-series



Pressed steel units



Ball bearings for units



For details, refer to JTEKT separate catalog "Ball bearing units" (CAT. NO. BS006EN).

