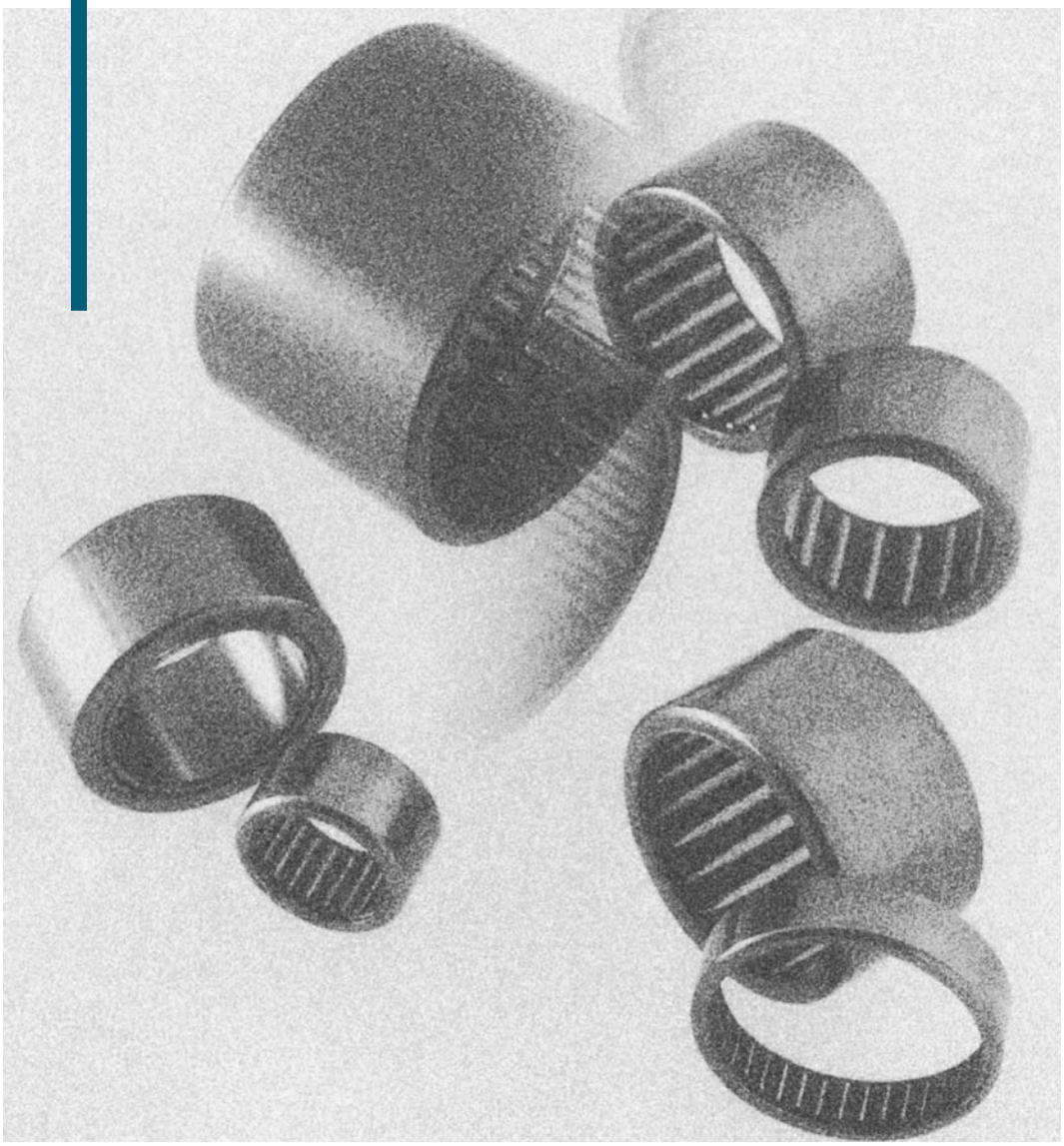
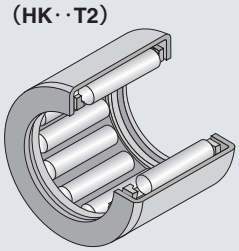
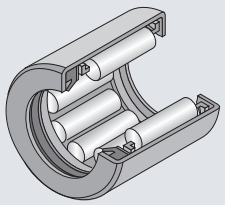
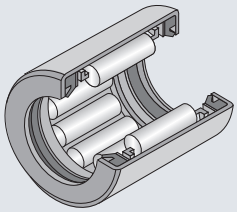
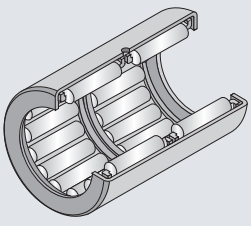
Drawn Cup Needle Roller Bearings



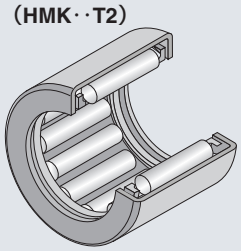
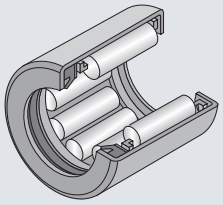
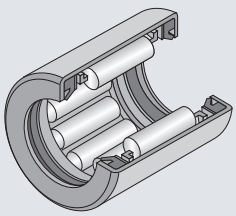
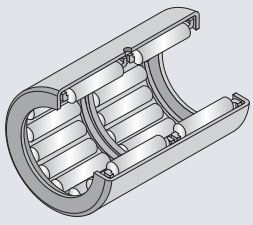
Drawn Cup Needle Roller Bearings

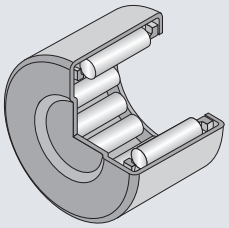
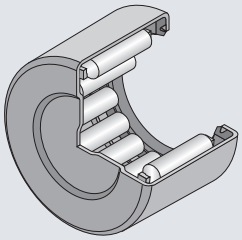
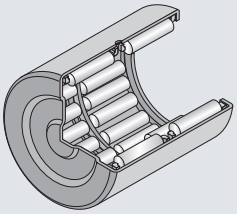
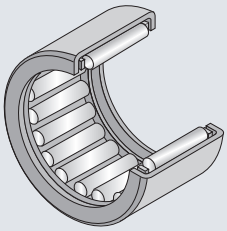
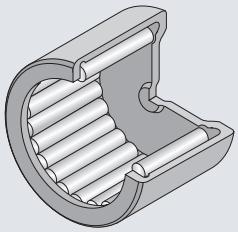
This bearing type is composed of an outer ring drawn from a thin steel plate by precision drawing, needle rollers and a cage assembled in the outer ring after the raceway surface thereof was hardened (A bearing marked with a suffix including “M” is subjected to heat-treatment after assembly.). Of the bearings with outer ring, this bearing type is a bearing with the smallest section height which enables space-saving and cost-saving.

Usually design is so made as to use a shaft as the direct raceway surface without using inner ring. The outer ring of this bearing type is of such a construction that the needle rollers and the cage are not separated from one another, so that the bearing is only press-fitted in a rigid housing with proper fit torque. Thus, this bearing type needs no snap ring, etc. to fix itself in axial direction and, in addition, is easy to handle.

Type of bearing			Applicable shaft diameter (mm)	Composition of bearing number	Bearing number	Code items and dimensions	Remarks
HK **(HK··T2)** 	Standard series	Open end	ϕ3 – ϕ50	**HK 06 09 T2** Suffix Width Roller set bore diameter Type code [Suffix] T2 : Resin cage C : Welding cage	HK0609T2	Roller set bore diameter : ϕ6 Width : 9 T2 : Resin cage	The bearings with suffix T2 using polyamide resin cage shall be used at allowable temperature 120˚C and, under continuous running, at 100˚C and less. A bearing marked with a suffix including “F” is a Premium Shell bearing. For detailed information about Premium Shell bearings, refer to **NTN** CAT. NO. 3029 (Premium Shell Bearings). A bearing marked with a suffix including “M” is a drawn cup bearing that is heat-treated after assembly (“pre-bent” specification).
HK··L 		Open end single side seal	ϕ12 – ϕ50	**HK 20 18 L / 3AS** Suffix Suffix Width Roller set bore diameter Type code	HK2018L/3AS	Roller set bore diameter : ϕ20 Width : 18 L : single side seal 3AS : grease	This seal type (Tail code : L or LL) synthetic rubber seal built in at its single side or double sides is internally filled with lithium soap base grease. To avoid deterioration of seal and grease, use a bearing in a temperature range of -20 to 120˚C. For continuous machine operation, limit the maximum permissible operating temperature to 100˚C. The roller length and rated load of this bearing type are shorter and smaller than those of the open type of same dimension.
HK··LL 		Open end double-side seal	ϕ12 – ϕ50	**HK 20 20 LL / 3AS** Suffix Suffix Width Roller set bore diameter Type code	HK2020LL/3AS	Roller set bore diameter : ϕ20 Width : 20 LL: Double-side seal 3AS : grease	
HK··ZWD 		Open end double-row type	ϕ15 – ϕ30	**HK 20 30 ZW D** Suffix Suffix Width Roller set bore diameter Type code	HK2030ZWD	Roller set bore diameter : ϕ20 Width : 30 ZW : Double-row cage D : Outer ring with oil hole	This type is provided with oil hole on its outer ring.

The lower limit of safety factor S_0 for NTN drawn cup needle roller bearings shall be 3. The lower limit for NTN Premium Shell bearings shall be 2.

Type of bearing			Applicable shaft diameter (mm)	Composition of bearing number	Bearing number	Code items and dimensions	Remarks
HMK **(HMK··T2)** 	Heavy load series	Open end	ϕ8 – ϕ50	HMK 20 15 Width Roller set bore diameter Type code	HMK2015	Roller set bore diameter : ϕ20 Width : 15	The bearings with suffix T2 using polyamide resin cage shall be used at allowable temperature 120˚C and, under continuous running, at 100˚C and less.
HMK··L 		Open end single side seal	ϕ8 – ϕ50	HMK 20 18 L / 3AS Suffix Suffix Width Roller set bore diameter Type code	HMK2018L/3AS	Roller set bore diameter : ϕ20 Width : 18 L : single side seal 3AS : Grease	This seal type (Tail code : L or LL) synthetic rubber seal built in at its single side or double sides is internally filled with lithium soap base grease. To avoid deterioration of seal and grease, use a bearing in a temperature range of -20 to 120˚C. For continuous machine operation, limit the maximum permissible operating temperature to 100˚C. The roller length and rated load of this bearing type are shorter and smaller than those of the open type of same dimension.
HMK··LL 		Open end double-side seal	ϕ8 – ϕ50	HMK 20 20 LL / 3AS Suffix Suffix Width Roller set bore diameter Type code	HMK2020LL/3AS	Roller set bore diameter : ϕ20 Width : 20 LL: Double-side seal 3AS : Grease	
HMK··ZWD 		Open end double-row type	ϕ38 – ϕ50	HMK 38 45 ZW D Suffix Suffix Width Roller set bore diameter Type code	HK3845ZWD	Roller set bore diameter : ϕ38 Width : 45 ZW : Double-row cage D : Outer ring with oil hole	This type is provided with oil hole on its outer ring.

Type of bearing			Applicable shaft diameter (mm)	Composition of bearing number	Bearing number	Code items and dimensions	Remarks
BK **(BK··T2)** 	Standard series	Closed end	ϕ3 – ϕ50	**BK 20 20 C** Suffix Width Roller set bore diameter Type code	BK2020C	Roller set bore diameter : ϕ20 Width : 20 C : Welding cage	The bearings with suffix T2 using polyamide resin cage shall be used at allowable temperature 120˚C and, under continuous running, at 100˚C and less.
BK··L 		Closed end single side seal	ϕ12 – ϕ50	**BK 20 18 L / 3AS** Suffix Suffix Width Roller set bore diameter Type code	BK2018L/3AS	Roller set bore diameter : ϕ20 Width : 18 L : single side seal 3AS : greas code	This seal type (Tail code: L) is internally filled up with lithium soap base grease. To avoid deterioration of seal and grease, use a bearing in a temperature range of -20 to 120˚C. For continuous machine operation, limit the maximum permissible operating temperature to 100˚C.
BK··ZWD 		Closed end double-row type	ϕ15 – ϕ30	**BK 20 30 ZW D** Suffix Suffix Width Roller set bore diameter Type code	BK2030ZWD	Roller set bore diameter : ϕ20 Width : 30 ZW : Double-row cage D : Outer ring with oil hole	Inscribed circle diameter
DCL 	Inch series	Open end	ϕ6.35 – ϕ50.8	**DCL 16 20** Width code Roller set bore diameter code Type code	DCL1620	Roller set bore diameter : ϕ25.4 Width : 31.75	
HCK 	Bearing series for universal joints	Closed end	ϕ10 – ϕ20	**HCK 16 22 Vn** Suffix Outer diameter Roller set bore diameter Type code	HCK1622Vn	Roller set bore diameter : ϕ16 Width : ϕ22 Vn : Special specification	Full complement roller type with no cage. Already filled up with specific grease.

Bearing Fits

It is common that drawn cup needle bearing is press-fitted in a housing by shrinkage fit so post press-fit inscribed circle diameter (F_w) comes to ISO Tolerance Rang Class F8. The post press-fit inscribed circle diameter (F_w) depends on the housing material and rigidity. It is therefore desirable to decide the interference based on the data measured in pre-testing.

Where the housing rigidity is adequately high, the post press-fit inscribed circle diameter (F_w) is secured in nearly F8 range and nearly ordinary radial clearance can be got by adopting the data of bearing fit in housing and on shaft as shown in **Table-1**.

Table 1 Bearing fit in housing and on shaft (recommended)

Bearing type	Housing		Shaft	
	Iron series	Light alloy	Without inner ring	With inner ring
HK,BK	N6 (N7)	R6 (R7)	h5 (h6)	k5 (j6)
HMK,DCL	J6 (J7)	M6 (M7)		
HCK	F7	—	k6	—

Accuracy of housing and shaft

Since the outer ring of drawn cup needle roller bearing is thin-walled, the bearing performance is significantly affected by the dimensional accuracy, profile accuracy and bore surface roughness of the housing into which the bearing is press-fitted. Therefore, the housing bore should satisfy the accuracy levels summarized in **Table 2**. For accuracy of a shaft that uses an inner ring, refer to **Table 8.3** in Sec. **8.3 "Accuracy of shaft and housing"** (page A-40); for accuracy of a shaft that is directly used as a raceway surface, refer to **Table 8.4** in Sec. **8.4 "Accuracy of raceway surface"** (page A-40).

Table 2 Accuracy of housing bore (recommended)

Property	Tolerance
Roundness (Max)	IT4 or less
Cylindricality (Max)	IT4 or less
Surface roughness (Max)	1.6a

Oil hole dimension in outer ring

The outer rings of double-row (Tail code : ZW) needle roller and cage assembly Type HK and Type BK are provided with an oil hole to facilitate oil lubrication to the bearing. **Table 3** shows the nominal oil hole diameter.

Table 3 Diameter of oil hole in outer ring (Metric system) Unit : mm

Outer ring diameter over	incl.	Nominal oil hole diameter
5	10	1.5
10	20	2.0
20	40	2.5
40	80	3.0
80	200	3.5

Bearing installation

When installing a drawn cup needle roller bearing to a housing, place the jig on the marking side of the bearing, and then press-fit the bearing into the correct location in the housing bore. (A "pre-bent" bearing marked with a suffix including "M" has no directivity for installation.)

Further, hammering directly the bearing ring in installing (press-fitting) is not allowed absolutely. In installing, it is recommended to use a mandrel with O-ring as illustrated in **Fig.1** as a press-fitting jig. The use of this mandrel would enable to insert easily any drawn cup needle bearing in a housing without risk of twisting and fall-down.

Drawn cup needle roller bearing needs no a snap ring and a shoulder for positioning itself in a housing, **but the bearing must be press-fitted so carefully as not to allow its side face to strike the shoulder for preventing it from deforming, where press-fitted in a housing with shoulder.**

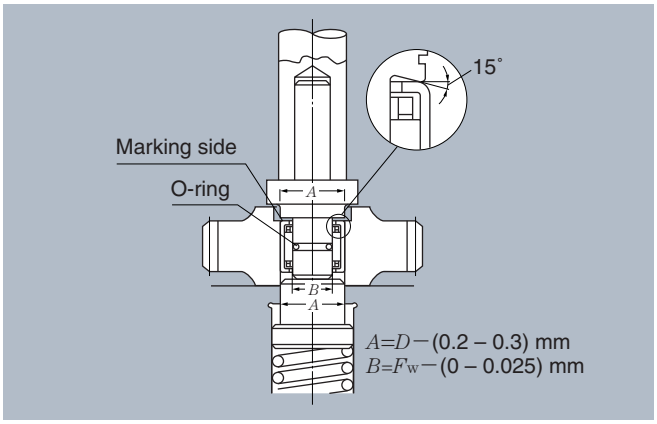


Fig. 1

The Type HCK for application to universal joints is fixed to the joint yoke by caulking, using a special-purposed assembler. Feel free to contact **NTN** for any inquiry about the special-purposed assembler (IPH Machine).

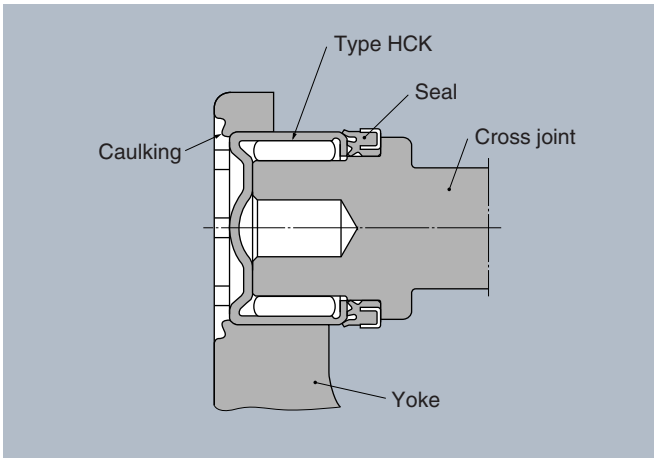


Fig. 2

Bearing Tolerances and Measuring Methods

The outer ring of drawn cup needle roller bearing is so thin-walled that deformation thereof to a certain extent is unavoidable in the manufacturing processes, particularly in the heat-treating process. However, the outer ring is so designed that it is reformed normally from such deformation when being press-fitted in a housing with specific dimensional accuracy and, as a result, it can have the accuracy required to fulfill its specific function.

Table 4 Dimensional tolerance for inscribed circle diameter (Type HK and BK)

Unit : mm

Nominal inscribed circle dia. F_w	Nominal outer ring outer dia. D	Ring gauge bore dia.	Tolerance for inscribed circle diameter	
			High	Low
3	6.5	6.484	3.016	3.006
4	8	7.984	4.022	4.010
5	9	8.984	5.022	5.010
6	10	9.984	6.022	6.010
7	11	10.980	7.028	7.013
8	12	11.980	8.028	8.013
9	13	12.980	9.028	9.013
10	14	13.980	10.028	10.013
12	16	15.980	12.034	12.016
12	18	17.980	12.034	12.016
13	19	18.976	13.034	13.016
14	20	19.976	14.034	14.016
15	21	20.976	15.034	15.016
16	22	21.976	16.034	16.016
17	23	22.976	17.034	17.016
18	24	23.976	18.034	18.016
20	26	25.976	20.041	20.020
22	28	27.976	22.041	22.020
25	32	31.972	25.041	25.020
28	35	34.972	28.041	28.020
30	37	36.972	30.041	30.020
35	42	41.972	35.050	35.025
40	47	46.972	40.050	40.025
45	52	51.967	45.050	45.025
50	58	57.967	50.050	50.025

Table 5 Dimensional tolerance for inscribed circle diameter (Type HMK)

Unit : mm

Nominal inscribed circle dia. F_w	Nominal outer ring outer dia. D	Ring gauge bore dia.	Tolerance for inscribed circle diameter	
			High	Low
8	15	14.995	8.028	8.013
9	16	15.995	9.028	9.013
10	17	16.995	10.028	10.013
12	19	18.995	12.034	12.016
14	22	21.995	14.034	14.016
15	22	21.995	15.034	15.016
16	24	23.995	16.034	16.016
17	24	23.995	17.034	17.016
18	25	24.995	18.034	18.016
19	27	26.995	19.041	19.020
20	27	26.995	20.041	20.020
21	29	28.995	21.041	21.020
22	29	28.995	22.041	22.020
24	31	30.994	24.041	24.020
25	33	32.994	25.041	25.020
26	34	33.994	26.041	26.020
28	37	36.994	28.041	28.020
29	38	37.994	29.041	29.020
30	40	39.994	30.041	30.020
32	42	41.994	32.050	32.025
35	45	44.994	35.050	35.025
37	47	46.994	37.050	37.025
38	48	47.994	38.050	38.025
40	50	49.994	40.050	40.025
45	55	54.994	45.050	45.025
50	62	61.994	50.050	50.025

Hence, **it is meaningless to measure the dimensional accuracy of bearing itself before being press-fitted. So, the following measuring method is used; a bearing to be measured is press-fitted in a linkage of specific dimension (20mm or more in wall thickness) and thereafter the inscribed circle diameter (F_w) is measured using a plug gauge or a taper gauge to evaluate the bearing accuracy.**

Tables 4 to **7** show the dimensional tolerances for the bore diameter of each ring gauge and the roller set bore diameter (F_w) each of standard metric series drawn cup needle roller bearings Type HK and BK, heavy load series Type HMK (metric series), inch series Type DCL, and inch series HCK for application to universal joints.

When measuring the roller set bore diameter (F_w) of a drawn cup needle roller bearing, the GO side dimension shall be the lower limit of dimensional tolerance of the roller set bore diameter; and the NOT GO side dimension shall be a sum of the upper limit of dimensional tolerance of the roller set bore diameter and 2 μm.

When measuring the roller set bore diameter of a drawn cup needle roller bearing, do not repeat insertion/removal with the ring gage. Also, do not install a bearing, which has been press-fitted into the ring gage for inspection, to an actual machine product.

Table 6 Dimensional tolerance for inscribed circle diameter (Type DCL)

Unit : mm

Nominal inscribed circle dia. F_w	Nominal outer ring outer dia. D	Ring gauge bore dia.	Tolerance for inscribed circle diameter	
			High	Low
6.350	11.112	11.125	6.411	6.388
7.938	12.700	12.713	7.998	7.976
9.525	14.288	14.300	9.586	9.563
11.112	15.875	15.888	11.173	11.151
12.700	17.462	17.475	12.761	12.738
14.288	19.050	19.063	14.348	14.326
15.875	20.638	20.650	15.936	15.913
17.462	22.225	22.238	17.523	17.501
19.050	25.400	25.387	19.086	19.063
20.638	26.988	26.975	20.673	20.650
22.225	28.575	28.562	22.261	22.238
23.812	30.162	30.150	23.848	23.825
25.400	31.750	31.737	25.436	25.413
26.988	33.338	33.325	27.023	27.000
28.575	34.925	34.912	28.611	28.588
30.162	38.100	38.087	30.198	30.175
31.750	38.100	38.087	31.786	31.763
34.925	41.275	41.262	34.963	34.938
38.100	47.625	47.612	38.141	38.113
41.275	50.800	50.787	41.316	41.288
44.450	53.975	53.962	44.493	44.463
47.625	57.150	57.137	47.668	47.638
50.800	60.325	60.312	50.846	50.815

Table 7 Dimensional tolerance for inscribed circle diameter (Type HCK)

Unit : mm

Nominal inscribed circle dia. F_w	Nominal outer ring outer dia. D	Ring gauge bore dia.	Tolerance for inscribed circle diameter	
			High	Low
10	15	15.016	10.026	10.011
11.656	17.1	17.116	11.687	11.669
13	19	19.020	13.031	13.013
14	20	20.020	14.031	14.013
16	22	22.020	16.031	16.013
18	24	24.020	18.031	18.013
18	24.6	24.620	18.031	18.013
20	27.9	27.920	20.038	20.017

Calculation Examples

Shrinkage factor and post-installation clearance of drawn cup needle roller bearing

The recommended fit data for the standard bearings is as described in **Table 1** on page B-35. This paragraph describes hereunder the calculation methods to be used when the bearing fit conditions are reviewed in detail.

1) Calculation of bearing shrinkage factor

For the drawn cup bearings, the shrinkage factor is calculated using the following method.

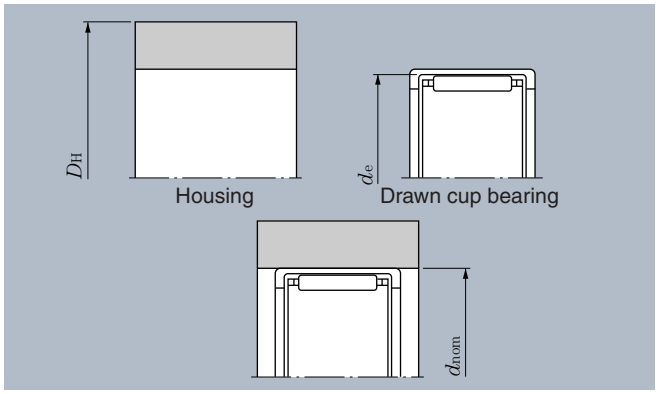


Fig. 3

$$\lambda = \frac{2t}{E_2} \cdot \frac{1-S^2}{\dfrac{(0.7S^2+1.3)(1-t^2)}{E_1} + \dfrac{(0.7+1.3t^2)(1-S^2)}{E_2}} \quad \cdots\cdots \textbf{(1)}$$

Where,

λ : Outer ring shrinkage factor
D_H : Housing outer diameter mm
d_{nom} : Nominal diameter of fitting portion mm
d_e : Rolling surface diameter of outer ring mm
E_1 : Modulus of housing vertical elasticity (Young's modulus) MPa (kgf／mm²)
E_2 : Modulus of outer ring vertical elasticity (Young's modulus)
2.07×10^6MPa (21 200kgf／mm²)

$$S = \frac{d_{nom}}{D_H}$$

$$t = \frac{d_e}{d_{nom}}$$

2) Inscribed circle diameter after complete bearing fit in the housing on actual machine

[1] Inscribed circle diameter in press-fitting of master ring

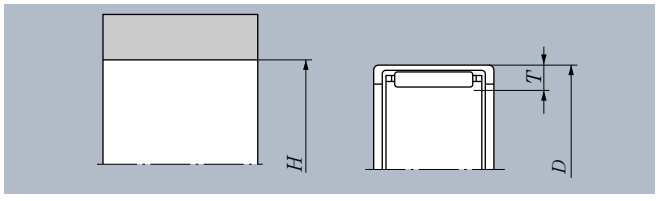


Fig. 4

H : Housing inner diameter mm
T : Roller diameter + plate thickness mm
D : Outer diameter of drawn cup needle roller bearing mm
L_i : Post press-fit inscribed circle diameter mm

When the master ring is press-fitted, the dimension of "roller diameter + plate thickness" remains unchanged. Hence, the inscribed circle diameter L_i is determined by the following **formula**.

$$L_i = D - 2T - \lambda(D-H) = (1-\lambda)D - 2T + \lambda H \quad \cdots\cdots \textbf{(2)}$$

Determine the mean value of "roller diameter + plate thickness" (=T) and standard deviation from **formula (2)**. The mean value of **formula (2)** is determined as follows.

$$m_{Li} = (1-\lambda)m_D - m_{2T} + \lambda m_H \quad \cdots\cdots \textbf{(3)}$$

Standard deviation of formula **(2)**

$$\sigma_{Li2} = (1-\lambda)_2 \cdot \sigma_{D2} + \sigma_{2T2} + \lambda_2 \sigma_{H2} \quad \cdots\cdots \textbf{(4)}$$

In the case of master ring, due to $\sigma_{H2}=0$ the **formula (4)** is expressed as follows.

$$\sigma_{Li2} = (1-\lambda)_2 \cdot \sigma_{D2} + \sigma_{2T2} \quad \cdots\cdots \textbf{(5)}$$

The unknown values in **formulas (3)**, **(5)** are only m_{2T} and σ_{2T}^2. Hence, substitute the known numerical values for **formulas (3)**, **(5)** to determine m_{2T} and σ_{2T}^2.

[2] Even when bearing ring is press-fitted in the housing on actual machine, consider the inscribed circle diameter similarly to the master ring press-fit. Herein, the calculation formulas for press-fit in the housing on actual machine can be discriminated as follows from **formula (3)**, **(4)** by adding " ' " to each formula.

$$m_{Li}' = (1-\lambda')m_D - m_{2T} + \lambda' m_H' \quad \cdots\cdots \textbf{(6)}$$
$$\sigma_{Li}'^2 = (1-\lambda')_2 \cdot \sigma_{D2} + \sigma_{2T2} + \lambda'_2 \sigma_{H}'^2 \quad \cdots\cdots \textbf{(7)}$$

[3] For m_{2T} and σ_{2T}^2 in **formula (6)**, **(7)**, substitute the values determined previously for the respective formula.

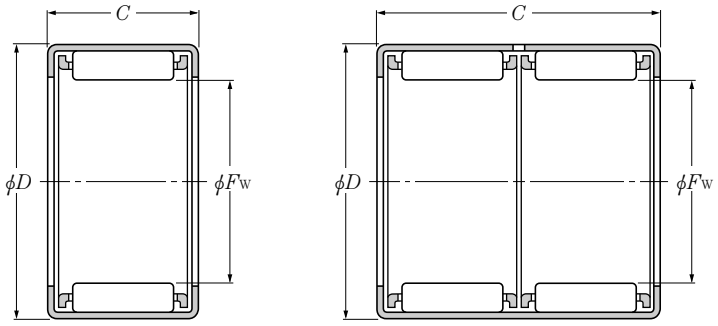
[4] From the calculations, the inscribed circle diameter in press-fitting in the housing on actual machine can be expressed in the following **formula**

$$L_i' = m_{Li}' \pm 3\sigma_{Li}' \quad \cdots\cdots \textbf{(8)}$$

[5] Radial internal clearance can be determined considering the mean value and standard deviation of shaft in **formulas (6)**, **(7)**.

[6] The aiming radial internal clearance value is generally set up so an ordinary clearance can be got. However, the recommended clearance values are available every the individual portions in the case of bearing application to automobile. Feel free to contact **NTN** for the detail.

Type HK, Type HK··ZWD
Type HMK
Type BK, Type BK··ZWD



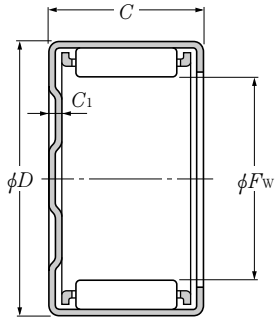
Type HK, Type HMK　　Type HK··ZWD

Opened End Type

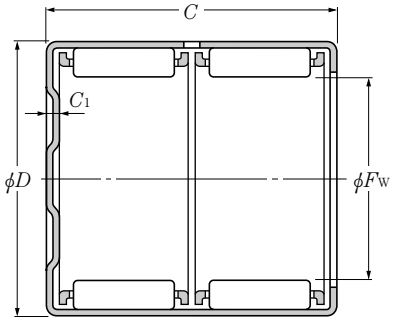
F_w 3～10mm

Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
3	6.5	6	—	925	565	94	58	33 000	50 000	**HK0306FT2**	—	0.0006	—
	6.5	6	0.8	925	565	94	58	33 000	50 000	—	**BK0306T2**	0.0007	—
4	8	8	—	1 770	1 270	180	129	30 000	45 000	**HK0408FT2**	—	0.0016	—
	8	8	1.6	1 770	1 270	180	129	30 000	45 000	—	**BK0408T2**	0.0018	—
5	9	9	—	2 450	1 990	349	203	27 000	40 000	**HK0509FM**	—	0.0019	—
	9	9	1.6	2 640	2 190	269	224	27 000	40 000	—	**BK0509T2**	0.0021	—
6	10	9	—	2 920	2 590	298	264	25 000	37 000	**HK0609FM**	—	0.0022	—
	10	9	1.6	2 660	2 280	272	233	25 000	37 000	—	**BK0609T2**	0.0024	—
7	11	9	—	3 150	2 930	320	299	23 000	34 000	**HK0709FM**	—	0.0025	—
	11	9	1.6	3 150	2 930	320	299	23 000	34 000	—	**BK0709CT**	0.0027	—
8	12	10	—	3 850	3 950	395	400	20 000	30 000	**HK0810FM**	—	0.0032	IR 5× 8×12
	12	10	1.6	3 850	3 950	395	400	20 000	30 000	—	**BK0810CT**	0.0034	IR 5× 8×12
	15	10	—	4 200	3 300	430	335	20 000	30 000	**HMK0810C**	—	0.0067	IR 5× 8×12
	15	15	—	6 600	5 800	675	590	20 000	30 000	**HMK0815**	—	0.0100	IR 5× 8×16
	15	20	—	9 050	8 750	925	890	20 000	30 000	**HMK0820T2**	—	0.0130	—
9	13	10	—	4 300	4 650	440	475	18 000	27 000	**HK0910FM**	—	0.0035	IR 6× 9×12
	13	10	1.6	4 750	5 300	485	540	18 000	27 000	—	**BK0910**	0.0039	IR 6× 9×12
	13	12	—	5 400	6 250	550	640	18 000	27 000	**HK0912F**	—	0.0042	IR 6× 9×12
	13	12	1.6	5 650	6 650	575	680	18 000	27 000	—	**BK0912**	0.0045	IR 6× 9×12
	16	12	—	5 300	4 450	540	455	18 000	27 000	**HMK0912**	—	0.0087	IR 6× 9×16
	16	16	—	7 400	6 850	755	700	18 000	27 000	**HMK0916**	—	0.0120	—
10	14	10	—	4 500	5 100	460	520	16 000	24 000	**HK1010FM**	—	0.0038	IR 7×10×10.5
	14	10	1.6	4 500	5 100	460	520	16 000	24 000	—	**BK1010**	0.0042	IR 7×10×10.5
	14	12	—	5 650	6 800	575	695	16 000	24 000	**HK1012F**	—	0.0045	IR 7×10×16
	14	12	1.6	5 900	7 250	605	735	16 000	24 000	—	**BK1012**	0.0050	IR 7×10×16
	14	15	—	7 250	9 400	740	955	16 000	24 000	**HK1015F**	—	0.0056	IR 7×10×16
	14	15	1.6	7 100	9 150	725	935	16 000	24 000	—	**BK1015**	0.0062	IR 7×10×16
	17	10	—	4 250	3 450	435	350	16 000	24 000	**HMK1010**	—	0.0079	IR 7×10×10.5
	17	12	—	5 600	4 850	570	495	16 000	24 000	**HMK1012**	—	0.0094	IR 7×10×16

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-129.)
EX. HK1012 + IR7×10×16



Type BK



Type BK··ZWD

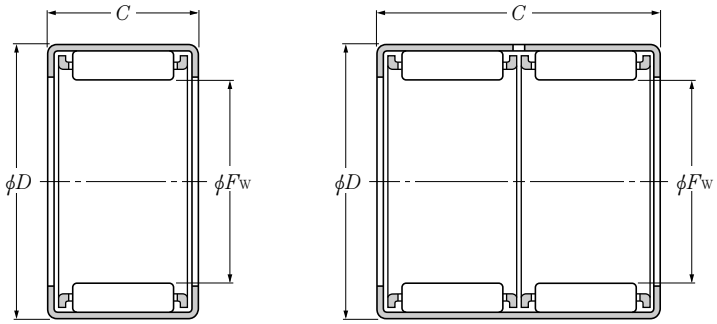
Closed End Type

F_w 10～16mm

Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
10	17	15	—	7 400	6 950	755	710	16 000	24 000	**HMK1015**	—	0.0120	IR 7×10×16
	17	20	—	10 200	10 500	1 040	1 070	16 000	24 000	**HMK1020**	—	0.0160	—
12	16	10	—	5 050	6 250	515	635	13 000	20 000	**HK1210FM**	—	0.0046	IR 8×12×10.5
	16	10	1.6	5 050	6 250	515	635	13 000	20 000	—	**BK1210**	0.0052	IR 8×12×10.5
	18	12	—	6 600	7 300	675	745	13 000	20 000	**HK1212FM**	—	0.0091	IR 8×12×12.5
	18	12	2.7	6 600	7 300	675	745	13 000	20 000	—	**BK1212**	0.0100	IR 8×12×12.5
	19	12	—	7 100	6 900	725	705	13 000	20 000	**HMK1212**	—	0.0110	IR 8×12×12.5
	19	15	—	9 400	9 900	955	1 010	13 000	20 000	**HMK1215**	—	0.0140	IR 9×12×16
	19	20	—	12 300	14 000	1 260	1 430	13 000	20 000	**HMK1220**	—	0.0180	—
	19	25	—	15 300	18 600	1 560	1 890	13 000	20 000	**HMK1225**	—	0.0230	—
13	19	12	—	6 950	7 900	705	805	12 000	18 000	**HK1312FM**	—	0.0100	IR10×13×12.5
	19	12	2.7	6 950	7 900	705	805	12 000	18 000	—	**BK1312**	0.0110	IR10×13×12.5
14	20	12	—	7 200	8 500	735	865	11 000	17 000	**HK1412FM**	—	0.0110	IR10×14×13
	20	12	2.7	7 200	8 500	735	865	11 000	17 000	—	**BK1412**	0.0120	IR10×14×13
	20	16	—	10 300	13 400	1 050	1 370	11 000	17 000	**HK1416F**	—	0.0150	—
	20	16	2.7	10 700	14 000	1 090	1 430	11 000	17 000	—	**BK1416**	0.0160	—
	22	16	—	11 500	12 000	1 180	1 220	11 000	17 000	**HMK1416C**	—	0.0190	IR10×14×20
	22	20	—	14 600	16 200	1 490	1 650	11 000	17 000	**HMK1420C**	—	0.0240	—
15	21	12	—	7 500	9 100	765	930	11 000	16 000	**HK1512FM**	—	0.0110	IR12×15×12.5
	21	12	2.7	7 500	9 100	765	930	11 000	16 000	—	**BK1512**	0.0130	IR12×15×12.5
	21	16	—	10 700	14 400	1 090	1 470	11 000	16 000	**HK1516F**	—	0.0150	IR12×15×16.5
	21	16	2.7	10 700	14 400	1 090	1 470	11 000	16 000	—	**BK1516**	0.0170	IR12×15×16.5
	21	22	—	12 900	18 200	1 310	1 860	11 000	16 000	**HK1522ZWFD**	—	0.0200	IR12×15×22.5
	21	22	2.7	12 900	18 200	1 310	1 860	11 000	16 000	—	**BK1522ZWD**	0.0220	IR12×15×22.5
	22	10	—	6 100	6 000	620	610	11 000	16 000	**HMK1510**	—	0.0110	IR10×15×12.5
	22	12	—	7 950	8 450	810	860	11 000	16 000	**HMK1512**	—	0.0130	IR12×15×12.5
	22	15	—	10 500	12 100	1 070	1 240	11 000	16 000	**HMK1515C**	—	0.0160	IR12×15×16
	22	20	—	14 900	18 900	1 510	1 920	11 000	16 000	**HMK1520**	—	0.0220	IR12×15×22.5
	22	25	—	18 500	25 000	1 880	2 550	11 000	16 000	**HMK1525**	—	0.0270	—
16	22	12	—	7 750	9 700	795	990	10 000	15 000	**HK1612FM**	—	0.0120	IR12×16×13

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-129, B130.)
EX. HK1312FM + IR10×13×12.5

Type HK, Type HK··ZWD
Type HMK
Type BK, Type BK··ZWD



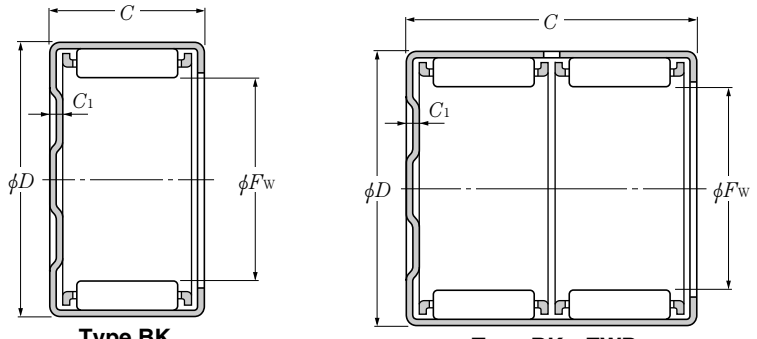
Type HK, Type HMK　　Type HK··ZWD

Opened End Type

F_w 16～20mm

Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
	22	12	2.7	7 750	9 700	795	990	10 000	15 000	—	**BK1612**	0.014	IR12×16×13
	22	16	—	11 100	15 300	1 130	1 560	10 000	15 000	**HK1616F**	—	0.016	IR12×16×20
	22	16	2.7	11 100	15 300	1 130	1 560	10 000	15 000	—	**BK1616**	0.018	IR12×16×20
16	22	22	—	13 300	19 400	1 360	1 980	10 000	15 000	**HK1622ZWFD**	—	0.022	—
	22	22	2.7	13 300	19 400	1 360	1 980	10 000	15 000	—	**BK1622ZWD**	0.023	—
	24	16	—	12 400	13 500	1 260	1 370	10 000	15 000	**HMK1616**	—	0.021	IR12×16×20
	24	20	—	15 600	18 200	1 590	1 860	10 000	15 000	**HMK1620CT**	—	0.027	IR12×16×22
	23	12	—	8 050	10 300	820	1 050	9 500	14 000	**HK1712FM**	—	0.012	—
	23	12	2.7	8 500	11 100	865	1 130	9 500	14 000	—	**BK1712**	0.015	—
17	24	15	—	12 100	15 000	1 230	1 530	9 500	14 000	**HMK1715**	—	0.018	IR14×17×17
	24	20	—	15 200	20 000	1 540	2 040	9 500	14 000	**HMK1720CT**	—	0.024	IR12×17×20.5
	24	25	—	19 3000	26 700	1 930	2 720	9 500	14 000	**7E-HMK1725CT**	—	0.030	IR12×17×25.5
	24	12	—	8 300	10 900	845	1 110	8 500	13 000	**HK1812FM**	—	0.013	IR15×18×12.5
	24	12	2.7	8 300	10 900	845	1 110	8 500	13 000	—	**BK1812**	0.015	IR15×18×12.5
	24	16	—	11 800	17 300	1 210	1 760	8 500	13 000	**HK1816F**	—	0.018	IR15×18×16.5
	24	16	2.7	11 800	17 300	1 210	1 760	8 500	13 000	—	**BK1816**	0.020	IR15×18×16.5
18	25	13	—	10 200	12 200	1 040	1 240	8 500	13 000	**HMK1813**	—	0.016	IR15×18×16
	25	15	—	12 000	15 100	1 220	1 540	8 500	13 000	**HMK1815**	—	0.019	IR15×18×16
	25	17	—	13 300	17 200	1 360	1 760	8 500	13 000	**HMK1817C**	—	0.021	IR15×18×17.5
	25	19	—	15 500	20 900	1 580	2 130	8 500	13 000	**HMK1819**	—	0.024	IR15×18×20.5
	25	20	—	16 300	22 300	1 660	2 280	8 500	13 000	**HMK1820**	—	0.025	IR15×18×20.5
	25	25	—	20 300	29 600	2 070	3 000	8 500	13 000	**HMK1825**	—	0.031	IR15×18×25.5
19	27	16	—	13 900	16 300	1 410	1 660	8 500	13 000	**HMK1916**	—	0.025	IR15×19×20
	27	20	—	17 500	22 100	1 790	2 250	8 500	13 000	**HMK1920**	—	0.031	—
	26	12	—	8 750	12 100	895	1240	8 000	12 000	**HK2012FM**	—	0.014	IR15×20×13
	26	12	2.7	9 250	13 000	945	1330	8 000	12 000	—	**BK2012**	0.017	IR15×20×13
	26	16	—	12 500	19 200	1 280	1 960	8 000	12 000	**HK2016F**	—	0.019	IR17×20×16.5
20	26	16	2.7	13 000	20 100	1 320	2 050	8 000	12 000	—	**BK2016**	0.022	IR17×20×16.5
	26	20	—	16 000	26 200	1 630	2 670	8 000	12 000	**HK2020F**	—	0.024	IR17×20×20.5
	26	20	2.7	16 400	27 100	1 670	2 760	8 000	12 000	—	**BK2020**	0.027	IR17×20×20.5

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-130, B131.)
EX. HK1812FM + IR15×18×12.5



Type BK

Type BK··ZWD

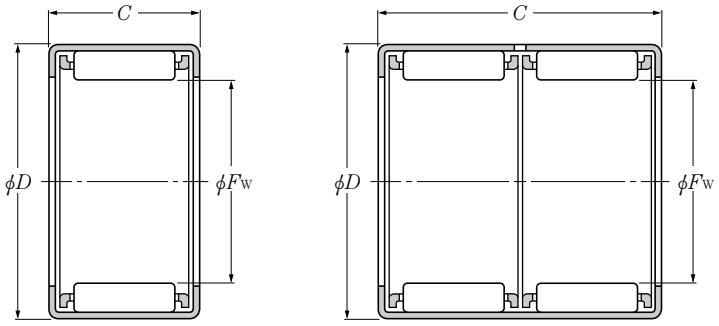
Closed End Type

F_w 20～25mm

Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
	26	30	—	21 500	38 500	2 190	3 900	8 000	12 000	HK2030ZWFD	—	0.035	IR17×20×30.5
	26	30	2.7	22 200	40 000	2 270	4 100	8 000	12 000	—	BK2030ZWD	0.037	IR17×20×30.5
20	27	15	—	13 000	17 300	1 330	1 760	8 000	12 000	HMK2015	—	0.021	IR17×20×16.5
	27	20	—	17 700	25 600	1 800	2 610	8 000	12 000	HMK2020	—	0.027	IR17×20×20.5
	27	25	—	22 000	34 000	2 240	3 450	8 000	12 000	HMK2025	—	0.034	IR15×20×26
	27	30	—	26 100	42 000	2 660	4 300	8 000	12 000	HMK2030	—	0.041	IR17×20×30.5
21	29	16	—	15 300	19 100	1 560	1 940	7 500	11 000	HMK2116	—	0.027	IR17×21×20
	29	20	—	19 400	25 800	1 970	2 630	7 500	11 000	HMK2120	—	0.033	—
	28	12	—	9 200	13 400	940	1 360	7 500	11 000	HK2212FM	—	0.013	IR17×22×13
	28	12	2.7	9 750	14 300	995	1 460	7 500	11 000	—	BK2212	0.015	IR17×22×13
	28	16	—	13 200	21 100	1 340	2 150	7 500	11 000	HK2216F	—	0.021	IR17×22×18
	28	16	2.7	13 600	22 100	1 390	2 250	7 500	11 000	—	BK2216	0.024	IR17×22×18
	28	20	—	16 800	28 800	1 710	2 940	7 500	11 000	HK2220F	—	0.026	IR17×22×20.5
22	28	20	2.7	17 200	29 800	1 760	3 050	7 500	11 000	—	BK2220	0.030	IR17×22×20.5
	29	10	—	8 400	10 100	855	1 030	7 500	11 000	HMK2210	—	0.015	IR17×22×13
	29	15	—	13 400	18 500	1 370	1 890	7 500	11 000	HMK2215	—	0.022	IR17×22×16D
	29	20	—	18 200	27 400	1 860	2 790	7 500	11 000	HMK2220	—	0.030	IR17×22×20.5
	29	25	—	23 600	38 500	2 410	3 900	7 500	11 000	HMK2225	—	0.037	IR17×22×26
	29	30	—	26 900	45 000	2 740	4 600	7 500	11 000	HMK2230	—	0.045	IR17×22×32
24	31	20	—	18 300	28 200	1 860	2 880	6 500	10 000	HMK2420CT	—	0.032	—
	31	28	—	26 000	44 500	2 650	4 500	6 500	10 000	HMK2428	—	0.045	IR20×24×28.5
	32	12	—	11 100	15 200	1 140	1 550	6 500	9 500	HK2512F	—	0.021	IR20×25×12.5
	32	12	2.7	11 800	16 300	1 200	1 660	6 500	9 500	—	BK2512	0.023	IR20×25×12.5
	32	16	—	15 900	24 000	1 620	2 450	6 500	9 500	HK2516F	—	0.027	IR20×25×17
	32	16	2.7	15 900	24 000	1 620	2 450	6 500	9 500	—	BK2516	0.031	IR20×25×17
25	32	20	—	20 300	33 000	2 070	3 350	6 500	9 500	HK2520	—	0.034	IR20×25×20.5
	32	20	2.7	20 300	33 000	2 070	3 350	6 500	9 500	—	BK2520	0.039	IR20×25×20.5
	32	26	—	26 400	46 000	2 690	4 700	6 500	9 500	HK2526	—	0.045	IR20×25×26.5
	32	26	2.7	26 400	46 000	2 690	4 700	6 500	9 500	—	BK2526	0.049	IR20×25×26.5
	32	38	—	35 000	65 500	3 550	6 700	6 500	9 500	HK2538ZWD	—	0.065	IR20×25×38.5

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-131, B132.)
EX. HK2512F + IR20×25×12.5

Type HK, Type HK··ZWD
Type HMK, Type HMK··ZWD
Type BK, Type BK··ZWD



Type HK, Type HMK

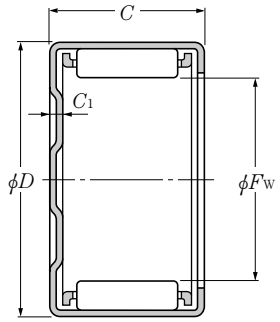
Type HK··ZWD
Type HMK··ZWD

Opened End Type

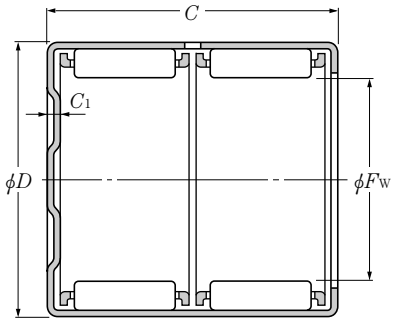
F_w 25～30mm

Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
25	32	38	2.7	35 000	65 500	3 550	6 700	6 500	9 500	—	BK2538ZWD	0.069	IR20×25×38.5
	33	10	—	9 150	10 400	935	1 060	6 500	9 500	HMK2510	—	0.019	IR20×25×12.5
	33	15	—	15 200	19 900	1 550	2 030	6 500	9 500	HMK2515CT	—	0.029	IR20×25×16
	33	20	—	21 800	31 500	2 220	3 200	6 500	9 500	HMK2520	—	0.039	IR20×25×20.5
	33	25	—	26 700	41 000	2 720	4 200	6 500	9 500	HMK2525	—	0.048	IR20×25×26.5
	33	30	—	32 500	53 000	3 300	5 400	6 500	9 500	HMK2530	—	0.058	IR20×25×32
26	34	16	—	17 100	23 400	1 740	2 390	6 000	9 000	HMK2616	—	0.032	IR22×26×20
	34	20	—	21 100	30 500	2 150	3 150	6 000	9 000	7E-HMK2620CT	—	0.040	—
28	35	16	—	16 700	26 400	1 700	2 690	5 500	8 500	HK2816C	—	0.030	IR22×28×17
	35	16	2.7	17 300	27 600	1 760	2 820	5 500	8 500	—	BK2816	0.034	IR22×28×17
	35	20	—	21 300	36 000	2 170	3 700	5 500	8 500	HK2820	—	0.038	IR22×28×20.5
	35	20	2.7	21 300	36 000	2 170	3 700	5 500	8 500	—	BK2820	0.043	IR22×28×20.5
	37	20	—	23 600	32 500	2 410	3 350	5 500	8 500	HMK2820	—	0.049	IR22×28×20.5
	37	30	—	35 000	54 500	3 600	5 550	5 500	8 500	HMK2830	—	0.073	—
29	38	20	—	24 600	35 000	2 510	3 550	5 500	8 500	HMK2920	—	0.050	—
	38	30	—	34 500	54 000	3 550	5 550	5 500	8 500	HMK2930	—	0.075	—
30	37	12	—	13 000	19 500	1 320	1 990	5 500	8 000	HK3012	—	0.024	IR25×30×12.5
	37	12	2.7	13 000	19 500	1 320	1 990	5 500	8 000	—	BK3012	0.028	IR25×30×12.5
	37	16	—	18 100	30 000	1 850	3 050	5 500	8 000	HK3016	—	0.032	IR25×30×17
	37	16	2.7	18 100	30 000	1 850	3 050	5 500	8 000	—	BK3016	0.037	IR25×30×17
	37	20	—	22 300	39 500	2 280	4 000	5 500	8 000	HK3020F	—	0.040	IR25×30×20.5
	37	20	2.7	22 300	39 500	2 280	4 000	5 500	8 000	—	BK3020	0.047	IR25×30×20.5
	37	26	—	28 500	54 000	2 910	5 500	5 500	8 000	HK3026F	—	0.053	IR25×30×26.5
	37	26	2.7	28 500	54 000	2 910	5 500	5 500	8 000	—	BK3026	0.059	IR25×30×26.5
	37	38	—	38 500	78 500	3 900	8 000	5 500	8 000	HK3038ZWD	—	0.076	IR25×30×38.5
	37	38	2.7	38 500	78 500	3 900	8 000	5 500	8 000	—	BK3038ZWD	0.083	IR25×30×38.5
	40	13	—	14 100	17 100	1 430	1 750	5 500	8 000	HMK3013	—	0.040	IR25×30×16
	40	15	—	17 100	22 100	1 750	2 250	5 500	8 000	HMK3015	—	0.044	IR25×30×16
	40	20	—	24 200	34 500	2 470	3 500	5 500	8 000	HMK3020	—	0.058	IR25×30×20.5
	40	25	—	31 000	47 000	3 150	4 800	5 500	8 000	HMK3025	—	0.073	IR25×30×26.5

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-131, B-132.)
EX. HK2820 + IR22×28×20.5



Type BK



Type BK··ZWD

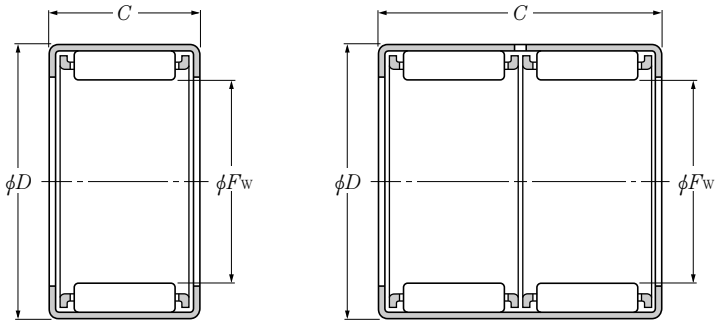
Closed End Type

F_w 30～40mm

Boundary dimensions mm				Basic load ratings N dynamic		static		Limiting speeds min^{-1}		Bearing numbers		Mass kg	Appropriate[1] inner ring
						kgf							
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}	grease	oil	open end design	closed end design	(approx.)	(as a reference)
30	40	30	—	36 000	57 500	3 700	5 850	5 500	8 000	**HMK3030**	—	0.087	IR25×30×32
32	42	20	—	27 500	38 000	2 800	3 850	5 000	7 500	**HMK3220**	—	0.062	—
	42	30	—	41 500	64 500	4 250	6 550	5 000	7 500	**HMK3230**	—	0.092	—
35	42	12	—	14 000	22 800	1 430	2 320	4 700	7 000	**HK3512**	—	0.028	—
	42	12	2.7	14 000	22 800	1 430	2 320	4 700	7 000	—	**BK3512**	0.033	—
	42	16	—	19 000	33 500	1 940	3 400	4 700	7 000	**HK3516C**	—	0.037	—
	42	16	2.7	19 700	35 000	2 000	3 600	4 700	7 000	—	**BK3516**	0.044	—
	42	20	—	24 800	47 500	2 530	4 850	4 700	7 000	**HK3520**	—	0.046	—
	42	20	2.7	24 800	47 500	2 530	4 850	4 700	7 000	—	**BK3520**	0.055	—
	45	12	—	14 900	17 600	1 520	1 800	4 700	7 000	**HMK3512**	—	0.040	—
	45	15	—	20 200	26 200	2 060	2 670	4 700	7 000	**HMK3515**	—	0.050	—
	45	20	—	28 400	40 500	2 890	4 100	4 700	7 000	**HMK3520**	—	0.067	—
	45	25	—	36 000	54 500	3 650	5 550	4 700	7 000	**HMK3525**	—	0.083	—
	45	30	—	43 000	69 000	4 400	7 000	4 700	7 000	**HMK3530**	—	0.100	—
37	47	20	—	29 300	43 000	2 990	4 350	4 300	6 500	**HMK3720**	—	0.070	—
	47	30	—	44 500	73 000	4 550	7 450	4 300	6 500	**HMK3730**	—	0.105	—
38	48	15	—	21 700	29 300	2 210	2 990	4 300	6 500	**HMK3815**	—	0.054	—
	48	20	—	30 500	45 000	3 100	4 600	4 300	6 500	**HMK3820**	—	0.072	—
	48	25	—	38 500	61 000	3 900	6 250	4 300	6 500	**HMK3825**	—	0.090	—
	48	30	—	46 000	77 000	4 700	7 850	4 300	6 500	**HMK3830**	—	0.107	IR32×38×32
	48	45	—	62 000	113 000	6 300	11 500	4 300	6 500	**HMK3845ZWD**	—	0.161	—
40	47	12	—	15 100	26 000	1 540	2 660	4 000	6 000	**HK4012**	—	0.031	IR35×40×12.5
	47	12	2.7	15 100	26 000	1 540	2 660	4 000	6 000	—	**BK4012**	0.038	IR35×40×12.5
	47	16	—	20 300	38 500	2 070	3 900	4 000	6 000	**HK4016C**	—	0.041	IR35×40×17
	47	16	2.7	21 100	40 000	2 150	4 100	4 000	6 000	—	**BK4016**	0.051	IR35×40×17
	47	20	—	25 900	52 500	2 650	5 350	4 000	6 000	**HK4020**	—	0.052	IR35×40×20.5
	47	20	2.7	25 900	52 500	2 650	5 350	4 000	6 000	—	**BK4020**	0.064	IR35×40×20.5
	50	15	—	23 100	32 500	2 350	3 300	4 000	6 000	**HMK4015**	—	0.056	IR35×40×17
	50	20	—	32 500	50 000	3 300	5 100	4 000	6 000	**HMK4020**	—	0.075	IR35×40×20.5
	50	25	—	41 000	67 500	4 150	6 900	4 000	6 000	**HMK4025**	—	0.094	—

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-132 to B134.)
EX. HK4012 + IR35×40×12.5

Type HK
Type HMK, Type HMK··ZWD
Type BK



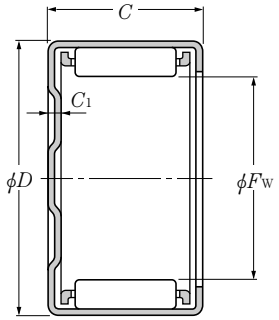
Type HK, Type HMK　　Type HMK··ZWD

Opened End Type

F_w 40～50mm

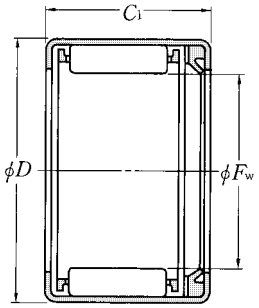
Boundary dimensions mm				Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open end design	closed end design	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
F_w	D	C $^{0}_{-0.2}$	C_1 max	C_r	C_{or}	C_r	C_{or}						
40	50	30	—	49 000	85 000	5 000	8 700	4 000	6 000	**HMK4030**	—	0.112	IR35×40×34
	50	40	—	58 500	107 000	5 950	10 900	4 000	6 000	**HMK4040ZWD**	—	0.150	—
45	52	16	—	21 600	43 000	2 210	4 400	3 700	5 500	**HK4516**	—	0.046	IR40×45×17
	52	16	2.7	21 600	43 000	2 210	4 400	3 700	5 500	—	**BK4516**	0.058	IR40×45×17
	52	20	—	27 600	59 000	2 810	6 000	3 700	5 500	**HK4520**	—	0.058	IR40×45×20.5
	52	20	2.7	27 600	59 000	2 810	6 000	3 700	5 500	—	**BK4520**	0.072	IR40×45×20.5
	55	20	—	32 000	51 000	3 250	5 200	3 700	5 500	**HMK4520CT**	—	0.083	IR40×45×20.5
	55	25	—	41 500	71 500	4 250	7 300	3 700	5 500	**HMK4525**	—	0.104	IR40×45×26.5
	55	30	—	49 500	90 000	5 050	9 150	3 700	5 500	**HMK4530**	—	0.125	IR40×45×34
	55	40	—	59 500	113 000	6 050	11 500	3 700	5 500	**HMK4540ZWD**	—	0.167	—
50	58	20	—	31 500	63 000	3 200	6 450	3 200	4 800	**HK5020**	—	0.072	IR40×50×22
	58	20	2.7	31 500	63 000	3 200	6 450	3 200	4 800	—	**BK5020**	0.087	IR40×50×22
	58	25	—	38 500	82 000	3 900	8 400	3 200	4 800	**HK5025**	—	0.090	IR45×50×25.5
	58	25	2.7	38 500	82 000	3 900	8 400	3 200	4 800	—	**BK5025**	0.109	IR45×50×25.5
	62	12	—	18 200	23 600	1 860	2 410	3 200	4 800	**HMK5012**	—	0.067	—
	62	15	—	25 900	37 000	2 650	3 800	3 200	4 800	**HMK5015**	—	0.084	—
	62	20	—	37 500	60 000	3 850	6 100	3 200	4 800	**HMK5020**	—	0.112	IR40×50×22
	62	25	—	48 000	82 500	4 900	8 450	3 200	4 800	**HMK5025**	—	0.140	IR45×50×25.5
	62	30	—	58 500	105 000	5 950	10 700	3 200	4 800	**HMK5030B**	—	0.168	IR45×50×32
	62	40	—	70 000	134 000	7 150	13 600	3 200	4 800	**HMK5040ZWD**	—	0.224	—
	62	45	—	79 000	156 000	8 050	15 900	3 200	4 800	**HMK5045ZWBD**	—	0.252	—

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-134, B135.)
EX. HK4516 + IR40×45×17

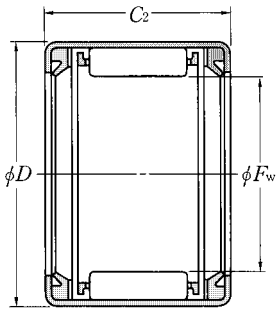


Type BK
Closed End Type

Type HK··L
Type HMK··L
Type HK··LL
Type HMK··LL
Type BK··L



Type HK··L, Type HMK··L
(Opened end and single-side seal type)

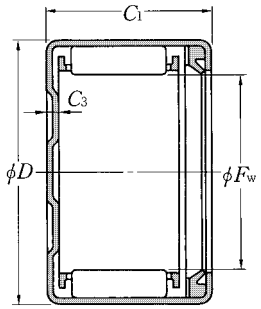


Type HK··LL, Type HMK··LL
(Opened end and double-side seal type)

F_w 8～25mm

Boundary dimensions mm					Basic load ratings dynamic N	static N	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	Bearing numbers open end single seal	open end double seal	closed end single seal
F_w	D	C_1 $^{0}_{-0.2}$	C_2 $^{0}_{-0.2}$	C_3 max	C_r	C_{or}	C_r	C_{or}				
8	15	12	14	–	3 800	2 870	390	293	10 000	HMK0812L/3AS	HMK0814LL/3AS	–
10	17	12	14	–	4 250	3 450	435	350	10 000	HMK1012L/3AS	HMK1014LL/3AS	–
12	18	14	16	2.7	6 600	7 300	675	745	10 000	HK 1214L/3AS	HK 1216LL/3AS	BK1214L/3AS
	19	14	16	–	7 100	6 900	725	705	10 000	HMK1214L/3AS	HMK1216LL/3AS	–
14	20	14	16	2.7	7 200	8 500	735	865	10 000	HK 1414L/3AS	HK 1416LL/3AS	BK1414L/3AS
	22	19	22	–	11 500	12 000	1 180	1 220	10 000	HMK1419L/3AS	HMK1422LL/3AS	–
15	21	14	16	2.7	7 500	9 100	765	930	10 000	HK 1514L/3AS	HK 1516LL/3AS	BK1514L/3AS
	22	13	16	–	6 100	6 000	620	610	10 000	HMK1513L/3AS	HMK1516LL/3AS	–
	22	18	21	–	10 900	12 700	1 120	1 300	10 000	HMK1518L/3AS	HMK1521LL/3AS	–
16	22	14	16	2.7	7 750	9 700	795	990	10 000	HK 1614L/3AS	HK 1616LL/3AS	BK1614L/3AS
	24	23	26	–	15 600	18 200	1 590	1 860	10 000	HMK1623CLT/3AS	HMK1626CLLT/3AS	–
17	24	18	21	–	12 100	15 000	1 230	1 530	9 500	HMK1718L/3AS	HMK1721LL/3AS	–
18	24	14	16	2.7	8 300	10 900	845	1 110	9 000	HK 1814L/3AS	HK 1816LL/3AS	BK1814L/3AS
	25	18	21	–	12 000	15 100	1 220	1 540	9 000	HMK1818L/3AS	HMK1821LL/3AS	–
	25	20	23	–	13 800	18 000	1 400	1 830	9 000	HMK1820L/3AS	HMK1823LL/3AS	–
19	27	19	22	–	13 900	16 300	1 410	1 660	8 500	HMK1919L/3AS	HMK1922LL/3AS	–
20	26	–	16	–	9 250	13 000	945	1 330	8 000	–	HK 2016LL/3AS	–
	26	18	20	2.7	13 000	20 100	1 320	2 050	8 000	HK 2018L/3AS	HK 2020LL/3AS	BK2018L/3AS
	27	18	21	–	13 000	17 300	1 330	1 760	8 000	HMK2018L/3AS	HMK2021LL/3AS	–
	27	23	26	–	17 700	25 600	1 800	2 610	8 000	HMK2023L/3AS	HMK2026LL/3AS	–
22	28	–	16	–	9 750	14 300	995	1 460	7 500	–	HK 2216LL/3AS	–
	28	18	20	2.7	13 600	22 100	1 390	2 250	7 500	HK 2218L/3AS	HK 2220LL/3AS	BK2218L/3AS
	29	18	21	–	13 400	18 500	1 370	1 890	7 500	HMK2218L/3AS	HMK2221LL/3AS	–
	29	23	26	–	18 200	27 400	1 860	2 790	7 500	HMK2223L/3AS	HMK2226LL/3AS	–
24	31	23	26	–	18 300	28 200	1 860	2 880	6 500	HMK2423CLT /3AS	HMK2426CLLT/3AS	–
25	32	–	16	–	11 800	16 300	1 200	1 660	6 500	–	HK 2516LL/3AS	–
	32	18	20	2.7	15 900	24 000	1 620	2 450	6 500	HK 2518L /3AS	HK 2520LL/3AS	BK2518L/3AS

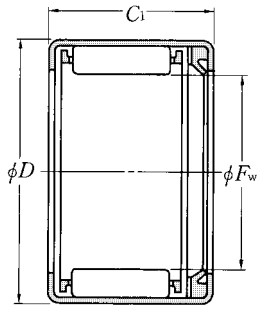
Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-129 to B131.)
EX. HK1416LL/3AS + IR10×14×20



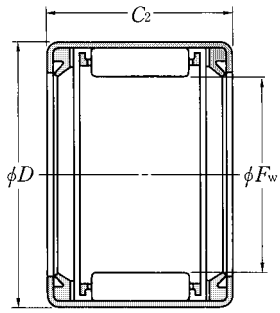
Type BK··L
(Closed end and single-side seal type)

Mass kg (approx.)			Appropriate[1] inner ring (as a reference)	
open end single seal	open end double seal	closed end single seal	single seal	double seal
0.0071	0.0075	—	IR 5×8×16	IR 5× 8×16
0.0084	0.0089	—	IR 7×10×16	IR 7×10×16
0.011	0.0120	0.012	IR 9×12×16	—
0.011	0.0120	—	IR 9×12×16	—
0.012	0.0140	0.014	IR10×14×16	IR10×14×20
0.020	0.0210	—	IR10×14×20	—
0.013	0.0140	0.014	IR12×15×16.5	IR12×15×16.5
0.014	0.0150	—	IR12×15×16	IR12×15×16.5
0.017	0.0180	—	IR12×15×22.5	IR12×15×22.5
0.013	0.0150	0.015	IR12×16×16	IR12×16×20
0.028	0.0290	—	—	—
0.019	0.0200	—	IR12×17×20.5	IR12×17×25.5
0.015	0.0170	0.017	IR15×18×16	IR15×18×17.5
0.020	0.0210	—	IR15×18×20.5	IR15×18×25.5
0.023	0.0240	—	IR15×18×20.5	IR15×18×25.5
0.027	0.0290	—	IR15×19×20	—
—	0.0190	—	—	IR15×20×18
0.021	0.0240	0.024	IR17×20×20	IR17×20×20.5
0.022	0.0240	—	IR17×20×20	IR15×20×23
0.029	0.0310	—	IR15×20×26	IR17×20×30.5
—	0.0200	—	—	IR17×22×18
0.024	0.0260	0.027	IR17×22×20.5	IR17×22×23
0.024	0.0260	—	IR17×22×20.5	IR17×22×23
0.032	0.0330	—	IR17×22×26	—
0.035	0.0370	—	—	IR20×24×28.5
—	0.0270	—	—	IR20×25×18D
0.031	0.0330	0.035	IR20×25×20	IR20×25×23

Type HK··L
Type HMK··L
Type HK··LL
Type HMK··LL
Type BK··L



Type HK··L, Type HMK··L
(Opened end and single-side seal type)

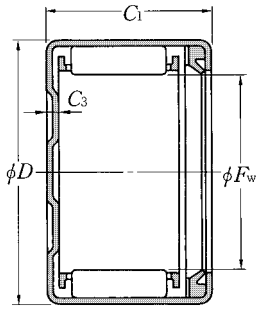


Type HK··LL, Type HMK··LL
(Opened end and double-side seal type)

F_w 25～50mm

Boundary dimensions mm					Basic load ratings N dynamic		kgf dynamic		Limiting speeds min^{-1} grease	Bearing numbers		
F_w	D	C_1 $^{0}_{-0.2}$	C_2 $^{0}_{-0.2}$	C_3 max	C_r	C_{or}	C_r	C_{or}		open end single seal	open end double seal	closed end single seal
25	33	18	21	—	15 200	19 900	1 550	2 030	6 500	HMK2518CLT/3AS	HMK2521CLLT/3AS	—
	33	23	26	—	21 800	31 500	2 220	3 200	6 500	HMK2523L/3AS	HMK2526LL/3AS	—
28	35	—	20	—	17 300	27 600	1 760	2 820	5 500	—	HK 2820LL/3AS	—
	37	23	26	—	23 600	32 500	2 410	3 350	5 500	HMK2823L/3AS	HMK2826LL/3AS	—
30	37	—	16	—	13 000	19 500	1 320	1 990	5 500	—	HK 3016LL/3AS	—
	37	18	20	2.7	18 100	30 000	1 850	3 050	5 500	HK 3018L/3AS	HK 3020LL/3AS	BK3018L/3AS
	40	23	26	—	24 200	34 500	2 470	3 500	5 500	HMK3023L/3AS	HMK3026LL/3AS	—
	40	28	31	—	31 000	47 000	3 150	4 800	5 500	HMK3028L/3AS	HMK3031LL/3AS	—
32	42	23	26	—	27 500	38 000	2 800	3 850	5 000	HMK3223L/3AS	HMK3226LL/3AS	—
35	42	—	16	—	14 000	22 800	1 430	2 320	4 600	—	HK 3516LL/3AS	—
	42	18	20	2.7	19 700	35 000	2 000	3 600	4 600	HK 3518L/3AS	HK 3520LL/3AS	BK3518L/3AS
	45	18	21	—	20 200	26 200	2 060	2 670	4 600	HMK3518L/3AS	HMK3521LL/3AS	—
	45	28	31	—	36 000	54 500	3 650	5 550	4 600	HMK3528L/3AS	HMK3531LL/3AS	—
38	48	28	31	—	38 500	61 000	3 900	6 250	4 200	HMK3828L/3AS	HMK3831LL/3AS	—
40	47	—	16	—	15 100	26 000	1 540	2 660	4 000	—	HK 4016LL/3AS	—
	47	18	20	2.7	21 100	40 000	2 150	4 100	4 000	HK 4018L/3AS	HK 4020LL/3AS	BK4018L/3AS
	50	18	21	—	23 100	32 500	2 350	3 300	4 000	HMK4018L/3AS	HMK4021LL/3AS	—
	50	28	31	—	41 000	67 500	4 150	6 900	4 000	HMK4028L/3AS	HMK4031LL/3AS	—
45	52	18	20	2.7	21 600	43 000	2 210	4 400	3 600	HK 4518L/3AS	HK 4520LL/3AS	BK4518L/3AS
	55	23	26	—	32 000	51 000	3 250	5 200	3 600	HMK4523CLT/3AS	HMK4526CLLT/3AS	—
50	58	22	24	2.7	31 500	63 000	3 200	6 450	3 200	HK 5022L/3AS	HK 5024LL/3AS	BK5022L/3AS
	62	28	31	—	48 000	82 500	4 900	8 450	3 200	HMK5028L/3AS	HMK5031LL/3AS	—

Note 1) Bearing with inner ring is represented by HK+IR. (Refer to "Inner Ring Dimensions Table" on page B-131 to B135.)
EX. HK5022L/3AS + IR45×50×25

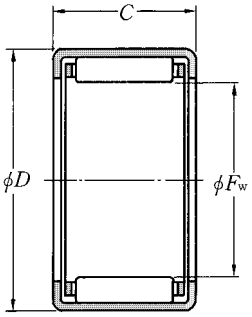


Type BK··L
(Closed end and single-side seal type)

Mass kg (approx.)			Appropriate[1] inner ring (as a reference)	
open end single seal	open end double seal	closed end single seal	single seal	double seal
0.031	0.034	—	IR20×25×20	IR20×25×23
0.041	0.043	—	IR20×25×26.5	IR20×25×26.5
—	0.037	—	—	IR22×28×23
0.051	0.054	—	—	IR22×28×30
—	0.027	—	—	IR25×30×18D
0.037	0.039	0.045	IR25×30×20	IR25×30×23
0.061	0.064	—	IR25×30×26	IR25×30×26.5
0.076	0.078	—	IR25×30×30	IR25×30×32
0.065	0.069	—	—	IR28×32×30
—	0.036	—	—	—
0.037	0.040	0.047	—	—
0.053	0.056	—	—	—
0.086	0.089	—	—	—
0.094	0.098	—	IR32×38×32	IR32×38×32
—	0.041	—	—	IR35×40×17
0.047	0.050	0.062	IR35×40×20	—
0.060	0.063	—	IR35×40×20	—
0.097	0.100	—	IR35×40×30	IR32×40×36
0.054	0.057	0.072	IR40×45×20	—
0.087	0.091	—	IR40×45×26.5	IR40×45×26.5
0.086	0.089	0.104	IR45×50×25	IR45×50×25.5
0.144	0.149	—	IR45×50×32	IR45×50×32

Inch series

Type DCL



F_w 6.350～15.875mm

Boundary dimensions mm (1/25.4mm) F_w	D	C $^{0}_{-0.2}$	Basic load ratings dynamic N C_r	static N C_{or}	dynamic kgf C_r	static kgf C_{or}	Limiting speeds min^{-1} grease	oil	Bearing numbers	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
	11.112(7/16)	6.350(1/4)	1 580	1 110	161	113	25 000	38 000	DCL 44T2	0.0022	—
6.350(1/4)	11.112(7/16)	7.938(5/16)	2 160	1 670	221	170	25 000	38 000	DCL 45T2	0.0033	—
	11.112(7/16)	11.112(7/16)	3 550	3 150	360	320	25 000	38 000	DCL 47T2	0.0038	—
	12.700(1/2)	7.938(5/16)	2 940	2 610	300	266	20 000	30 000	DCL 55	0.0032	—
7.938(5/16)	12.700(1/2)	9.525(3/8)	3 900	3 750	400	385	20 000	30 000	DCL 56	0.0039	—
	12.700(1/2)	11.112(7/16)	4 800	4 950	490	505	20 000	30 000	DCL 57	0.0048	—
	12.700(1/2)	14.288(9/16)	6 500	7 250	665	740	20 000	30 000	DCL 59	0.0058	—
	14.288(9/16)	7.938(5/16)	3 100	2 910	315	297	17 000	25 000	DCL 65	0.0037	—
9.525(3/8)	14.288(9/16)	9.525(3/8)	4 100	4 200	420	430	17 000	25 000	DCL 66	0.0045	—
	14.288(9/16)	12.700(1/2)	5 900	6 650	600	675	17 000	25 000	DCL 68	0.0065	—
	14.288(9/16)	15.875(5/8)	7 500	9 050	765	925	17 000	25 000	DCL 610	0.0075	—
11.112(7/16)	15.875(5/8)	12.700(1/2)	6 450	7 800	660	795	15 000	22 000	DCL 78	0.0068	—
	17.462(11/16)	7.938(5/16)	3 550	3 700	360	380	13 000	19 000	DCL 85	0.0047	—
	17.462(11/16)	9.525(3/8)	4 700	5 350	480	550	13 000	19 000	DCL 86	0.0057	—
12.700(1/2)	17.462(11/16)	11.112(7/16)	5 800	7 050	590	715	13 000	19 000	DCL 87	0.0066	—
	17.462(11/16)	12.700(1/2)	6 700	8 500	685	865	13 000	19 000	DCL 88	0.0080	—
	17.462(11/16)	15.875(5/8)	8 550	11 600	870	1 180	13 000	19 000	DCL 810	0.0095	—
	17.462(11/16)	19.050(3/4)	10 400	14 900	1 060	1 520	13 000	19 000	DCL 812	0.0120	—
	19.050(3/4)	7.938(5/16)	3 800	4 250	390	430	11 000	17 000	DCL 95	0.0052	—
	19.050(3/4)	9.525(3/8)	5 050	6 100	515	625	11 000	17 000	DCL 96	0.0063	MI-060908
14.288(9/16)	19.050(3/4)	11.112(7/16)	6 250	8 000	635	815	11 000	17 000	DCL 97	0.0073	MI-060908
	19.050(3/4)	12.700(1/2)	7 200	9 650	735	985	11 000	17 000	DCL 98	0.0086	MI-060908
	19.050(3/4)	15.875(5/8)	9 200	13 200	935	1 350	11 000	17 000	DCL 910	0.0110	—
	19.050(3/4)	19.050(3/4)	11 200	17 000	1 140	1 730	11 000	17 000	DCL 912	0.0130	—
	20.638(13/16)	7.938(5/16)	4 050	4 750	415	485	10 000	15 000	DCL 105	0.0075	—
	20.638(13/16)	11.112(7/16)	6 650	9 000	680	915	10 000	15 000	DCL 107	0.0080	—
15.875(5/8)	20.638(13/16)	12.700(1/2)	7 700	10 800	785	1 110	10 000	15 000	DCL 108	0.0091	—
	20.638(13/16)	15.875(5/8)	9 800	14 800	1 000	1 510	10 000	15 000	DCL1010	0.0130	MI-061012
	20.638(13/16)	19.050(3/4)	11 900	19 000	1 220	1 940	10 000	15 000	DCL1012	0.0140	MI-061012

Note 1) Bearing with inner ring is represented by DCL-MI. (Refer to Inner Ring Dimension Table on page B-141.)
EX. DCL96 + MI-060908
Remarks: Manufacture of the closed end type bearings under this Table is also available.

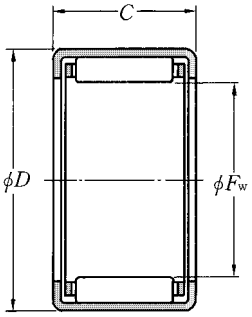
F_w 15.875～25.400mm

Boundary dimensions mm ($\frac{1}{25.4}$mm)			Basic load ratings N dynamic		Basic load ratings kgf dynamic		Limiting speeds min^{-1}		Bearing numbers	Mass kg	Appropriate[1] inner ring
F_w	D	C $^{0}_{-0.2}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)	(as a reference)
15.875(5/8)	20.638(13/16)	22.225(7/8)	14 100	23 500	1 430	2 400	10 000	15 000	**DCL1014**	0.0160	MI-061016
17.462(11/16)	22.225(7/8)	9.525(3/8)	5 700	7 650	585	780	9 500	14 000	**DCL 116**	0.0075	—
	22.225(7/8)	12.700(1/2)	8 150	12 000	830	1 230	9 500	14 000	**DCL 118**	0.0110	—
	22.225(7/8)	15.875(5/8)	10 400	16 400	1 060	1 680	9 500	14 000	**DCL1110**	0.0130	—
	22.225(7/8)	19.050(3/4)	12 600	21 100	1 290	2 150	9 500	14 000	**DCL1112**	0.0160	—
19.050(3/4)	25.400(1)	9.525(3/8)	6 450	6 950	660	705	8 500	13 000	**DCL 126**	0.0110	—
	25.400(1)	12.700(1/2)	9 800	11 900	1 000	1 210	8 500	13 000	**DCL 128**	0.0140	MI-081210
	25.400(1)	15.875(5/8)	12 900	16 800	1 310	1 720	8 500	13 000	**DCL1210**	0.0170	MI-081210
	25.400(1)	19.050(3/4)	15 900	22 100	1 620	2 250	8 500	13 000	**DCL1212**	0.0210	MI-081212
	25.400(1)	22.225(7/8)	19 000	27 700	1 930	2 830	8 500	13 000	**DCL1214**	0.0260	MI-081216
	25.400(1)	25.400(1)	21 700	33 000	2 210	3 350	8 500	13 000	**DCL1216**	0.0300	MI-081216
20.638(13/16)	26.988(1 1/16)	9.525(3/8)	6 950	7 800	710	795	8 000	12 000	**DCL 136**	0.0120	—
	26.988(1 1/16)	12.700(1/2)	10 600	13 400	1 080	1 370	8 000	12 000	**DCL 138**	0.0160	—
	26.988(1 1/16)	15.875(5/8)	13 900	19 000	1 410	1 930	8 000	12 000	**DCL1310**	0.0200	—
	26.988(1 1/16)	19.050(3/4)	17 100	24 900	1 750	2 540	8 000	12 000	**DCL1312**	0.0230	—
	26.988(1 1/16)	22.225(7/8)	20 400	31 500	2 080	3 200	8 000	12 000	**DCL1314**	0.0280	—
	26.988(1 1/16)	25.400(1)	23 400	37 000	2 380	3 800	8 000	12 000	**DCL1316**	0.0320	—
	26.988(1 1/16)	31.750(1 1/4)	29 000	49 000	2 960	5 000	8 000	12 000	**DCL1320**	0.0400	—
22.225(7/8)	28.575(1 1/8)	9.525(3/8)	7 150	8 300	730	845	7 500	11 000	**DCL 146**	0.0130	MI-101406
	28.575(1 1/8)	12.700(1/2)	10 900	14 200	1 110	1 450	7 500	11 000	**DCL 148**	0.0170	MI-101408
	28.575(1 1/8)	19.050(3/4)	17 600	26 400	1 800	2 700	7 500	11 000	**DCL1412**	0.0250	MI-101412
	28.575(1 1/8)	22.225(7/8)	21 000	33 000	2 140	3 400	7 500	11 000	**DCL1414**	0.0340	MI-101416
	28.575(1 1/8)	25.400(1)	24 100	39 500	2 450	4 000	7 500	11 000	**DCL1416**	0.0340	MI-101416
23.812(15/16)	30.162(1 3/16)	15.875(5/8)	14 600	21 300	1 490	2 170	6 500	10 000	**DCL1510**	0.0230	—
	30.162(1 3/16)	25.400(1)	24 700	41 500	2 520	4 250	6 500	10 000	**DCL1516**	0.0360	—
25.400(1)	31.750(1 1/4)	9.525(3/8)	7 550	9 250	770	940	6 500	9 500	**DCL 166**	0.0140	—
	31.750(1 1/4)	12.700(1/2)	11 500	15 800	1 170	1 610	6 500	9 500	**DCL 168**	0.0190	—
	31.750(1 1/4)	19.050(3/4)	18 600	29 500	1 890	3 000	6 500	9 500	**DCL1612**	0.0310	MI-121612
	31.750(1 1/4)	22.225(7/8)	22 100	37 000	2 260	3 750	6 500	9 500	**DCL1614**	0.0340	MI-121616

Note 1) Bearing with inner ring is represented by DCL-MI. (Refer to Inner Ring Dimension Table on page B-141.)
EX. DCL128 + MI-081210
Remarks: Manufacture of the closed end type bearings under this Table is also available.

Inch series

Type DCL



F_w 25.400～41.275mm

Boundary dimensions mm (1/25.4mm) F_w	D	C $^{0}_{-0.2}$	Basic load ratings dynamic N C_r	static N C_{or}	dynamic kgf C_r	static kgf C_{or}	Limiting speeds min^{-1} grease	oil	Bearing numbers	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
25.400(1)	31.750(1 1/4)	25.400(1)	25 400	44 000	2 590	4 500	6 500	9 500	**DCL1616**	0.038	MI-121616
	31.750(1 1/4)	31.750(1 1/4)	31 500	58 000	3 200	5 900	6 500	9 500	**DCL1620**	0.048	—
26.988(1 1/16)	33.338(1 5/16)	15.875(5/8)	15 900	24 600	1 620	2 510	6 000	9 000	**DCL1710**	0.025	—
28.575(1 1/8)	34.925(1 3/8)	9.525(3/8)	8 150	10 600	830	1 080	5 500	8 500	**DCL 186**	0.016	MI-141808
	34.925(1 3/8)	12.700(1/2)	12 400	18 200	1 260	1 850	5 500	8 500	**DCL 188**	0.021	MI-141808
	34.925(1 3/8)	19.050(3/4)	20 100	34 000	2 050	3 450	5 500	8 500	**DCL1812**	0.032	MI-141812
	34.925(1 3/8)	25.400(1)	27 400	50 500	2 790	5 150	5 500	8 500	**DCL1816**	0.043	MI-141816
	34.925(1 3/8)	31.750(1 1/4)	34 000	66 500	3 450	6 800	5 500	8 500	**DCL1820**	0.053	MI-141820
30.162(1 3/16)	38.100(1 1/2)	25.400(1)	33 000	54 000	3 350	5 500	5 500	8 000	**DCL1916**	0.057	—
31.750(1 1/4)	38.100(1 1/2)	12.700(1/2)	12 500	19 000	1 280	1 940	5 000	7 500	**DCL 208**	0.023	—
	38.100(1 1/2)	15.875(5/8)	16 400	27 000	1 670	2 750	5 000	7 500	**DCL2010**	0.029	—
	38.100(1 1/2)	19.050(3/4)	20 300	35 500	2 070	3 600	5 000	7 500	**DCL2012**	0.036	—
	38.100(1 1/2)	25.400(1)	27 700	53 000	2 830	5 400	5 000	7 500	**DCL2016**	0.047	—
	38.100(1 1/2)	31.750(1 1/4)	34 500	70 000	3 500	7 100	5 000	7 500	**DCL2020**	0.058	—
34.925(1 3/8)	41.275(1 5/8)	12.700(1/2)	13 400	21 400	1 360	2 180	4 700	7 000	**DCL 228**	0.027	—
	41.275(1 5/8)	19.050(3/4)	21 700	40 000	2 210	4 050	4 700	7 000	**DCL2212**	0.038	—
	41.275(1 5/8)	25.400(1)	29 600	59 500	3 000	6 050	4 700	7 000	**DCL2216**	0.051	—
	41.275(1 5/8)	31.750(1 1/4)	36 500	78 500	3 750	8 000	4 700	7 000	**DCL2220**	0.064	—
38.100(1 1/2)	47.625(1 7/8)	12.700(1/2)	17 100	22 800	1 750	2 320	4 300	6 500	**DCL 248**	0.043	—
	47.625(1 7/8)	15.875(5/8)	21 000	29 700	2 150	3 050	4 300	6 500	**DCL2410**	0.054	—
	47.625(1 7/8)	19.050(3/4)	26 600	40 000	2 710	4 100	4 300	6 500	**DCL2412**	0.065	—
	47.625(1 7/8)	22.225(7/8)	32 000	50 500	3 250	5 150	4 300	6 500	**DCL2414**	0.076	MI-202416
	47.625(1 7/8)	25.400(1)	36 500	60 500	3 750	6 200	4 300	6 500	**DCL2416**	0.087	MI-202416
	47.625(1 7/8)	31.750(1 1/4)	46 500	82 000	4 750	8 350	4 300	6 500	**DCL2420**	0.107	MI-202420
41.275(1 5/8)	50.800(2)	12.700(1/2)	18 000	24 900	1 840	2 540	4 000	6 000	**DCL 268**	0.046	MI-222610
	50.800(2)	15.875(5/8)	22 100	32 500	2 260	3 300	4 000	6 000	**DCL2610**	0.058	MI-222610
	50.800(2)	25.400(1)	38 500	66 500	3 950	6 800	4 000	6 000	**DCL2616**	0.106	—
	50.800(2)	31.750(1 1/4)	49 000	90 000	5 000	9 150	4 000	6 000	**DCL2620**	0.116	MI-212620

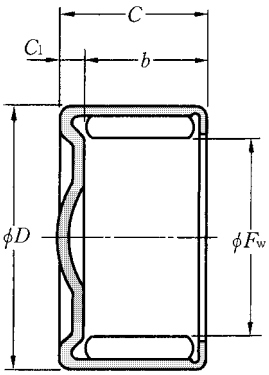
Note 1) Bearing with inner ring is represented by DCL-MI. (Refer to Inner Ring Dimension Table on page B-141.)
EX. DCL2414 + MI-202416
Remarks: Manufacture of the closed end type bearings under this Table is also available.

F_w 44.450～50.800mm

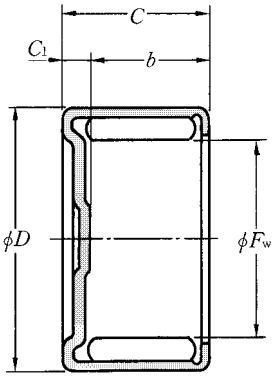
Boundary dimensions mm ($\frac{1}{25.4}$mm) F_w	D	C $^{0}_{-0.2}$	Basic load ratings dynamic N C_r	static N C_{or}	dynamic kgf C_r	static kgf C_{or}	Limiting speeds min^{-1} grease	oil	Bearing numbers	Mass kg (approx.)	Appropriate[1] inner ring (as a reference)
	53.975(2 1/8)	19.050(3/4)	29 200	47 500	2 980	4 850	3 700	5 500	**DCL2812**	0.074	MI-242812
44.450(1 3/4)	53.975(2 1/8)	25.400(1)	40 500	72 000	4 100	7 350	3 700	5 500	**DCL2816**	0.099	MI-242816
	53.975(2 1/8)	38.100(1 1/2)	62 000	126 000	6 350	12 800	3 700	5 500	**DCL2824**	0.149	—
	57.150(2 1/4)	12.700(1/2)	19 700	29 200	2 000	2 980	3 300	5 000	**DCL 308**	0.053	—
47.625(1 7/8)	57.150(2 1/4)	15.875(5/8)	24 200	38 000	2 460	3 900	3 300	5 000	**DCL3010**	0.066	—
	57.150(2 1/4)	25.400(1)	42 000	78 000	4 300	7 950	3 300	5 000	**DCL3016**	0.106	—
	60.325(2 3/8)	12.700(1/2)	20 400	31 500	2 080	3 200	3 100	4 700	**DCL 328**	0.056	—
50.800(2)	60.325(2 3/8)	25.400(1)	44 000	83 500	4 450	8 550	3 100	4 700	**DCL3216**	0.112	—
	60.325(2 3/8)	31.750(1 1/4)	55 500	113 000	5 650	11 500	3 100	4 700	**DCL3220**	0.140	—
	60.325(2 3/8)	38.100(1 1/2)	67 500	146 000	6 850	14 800	3 100	4 700	**DCL3224**	0.168	—

Note 1) Bearing with inner ring is represented by DCL-MI. (Refer to Inner Ring Dimension Table on page B-142.)
EX. DCL2816 + MI-242816
Remarks: Manufacture of the closed end type bearings under this Table is also available.

Type HCK



Dimple type



Waffle type

F_w 10～20mm

Boundary dimensions mm					Basic load ratings N dynamic		kgf dynamic		Bearing numbers standard type	waffle type		Mass kg
F_w	D	C	b	C_1	C_r	C_{or}	C_r	C_{or}				(approx.)
10	15	9.35	7.6	1.75	6 200	9 250	635	940	**HCK1015Vn**	—	○	0.007
11.656	17.1	11.85	9.6	2.25	8 850	13 800	905	1 400	**HCK1217Vn**	○	—	0.013
13	19	11.85	9.6	2.25	10 000	15 000	1 020	1 530	**HCK1319Vn**	○	—	0.013
14	20	11.85	9.6	2.25	10 500	16 600	1 070	1 690	**HCK1420Vn**	○	○	0.014
16	22	12.85	10.6	2.25	12 200	20 700	1 240	2 110	**HCK1622Vn**	○	○	0.017
18	24	13.85	11.6	2.25	13 900	25 300	1 420	2 580	**HCK1824Vn**	○	—	0.021
18	24.6	13.85	11.6	2.25	13 900	25 300	1 420	2 580	**HCK1825Vn**	○	○	0.025
20	27.9	15.82	13.1	2.72	17 800	31 000	1 810	3 150	**HCK2028Vn**	○	—	0.037

Suffix (Vn) is different from the Dimple type and the Waffle type. For more informations, contact **NTN** engineering.