

**Koyo**<sup>®</sup>

# RHR Type SPHERICAL ROLLER BEARINGS



**KOYO SEIKO CO., LTD.**

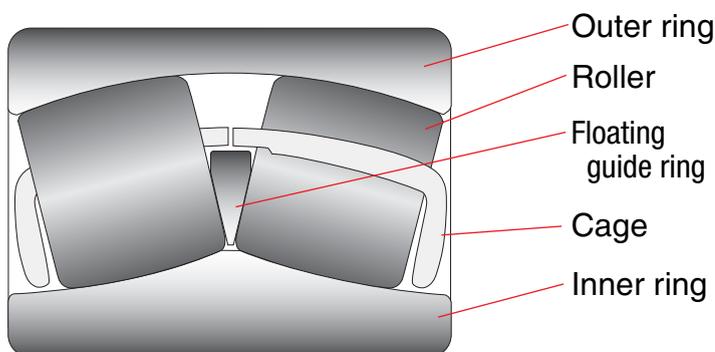
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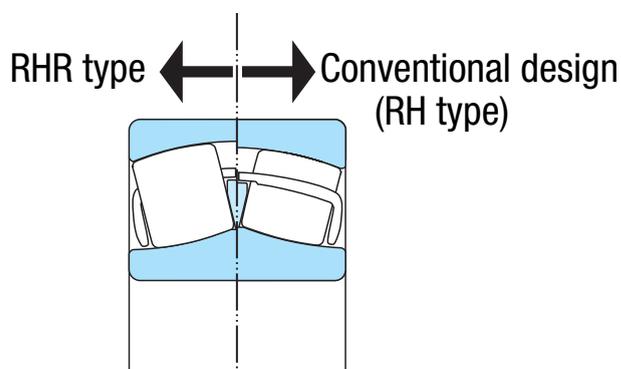
**Supply the new series of spherical roller bearings.  
Significant contribution to equipment size reduction based  
on the increase in load rating of the bearing.  
RHR Type Spherical Roller Bearings**

**Structures**

**■ Cross section of new series**



**■ Comparison with conventionals**



**Features**

**● Long Life**

By significant increase in the basic dynamic load rating based on the optimized designs of outer ring, inner ring and rollers. Rating life increase of RHR type may provide max. 2 times longer life than the conventional bearing.

**● Improve heat resistant**

As RHR type spherical Roller Bearings are implemented dimension stabilizing treatment and steel plate cages are assembled, they can be used up to 200°C.

**● Withstands Greater Loads**

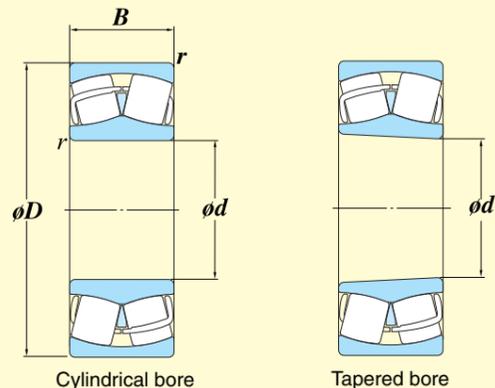
Optimized shapes of outer/inner rings and rollers ensure ideal bearing stress distribution. Due to this design, these bearings offer substantially increased resistance to impact loads.

**● Rotates Stably at High Speeds**

The floating guide ring guides rollers precisely. It controls roller skew even under high speed rotation, thereby ensuring stable and reliable operation.

**RHR Type  
Spherical Roller Bearings  
22200RHR  
22300RHR**

■ Boundary dimensions



■ Equivalent radial load

Dynamic equivalent radial load  $\left[ \text{when } \frac{F_a}{F_r} \leq e \right] P_r = F_r + Y_1 F_a$   
 $\left[ \text{when } \frac{F_a}{F_r} > e \right] P_r = 0.67 F_r + Y_2 F_a$

Static equivalent radial load  $P_{or} = F_r + Y_0 F_a$

[Note] Refer to the dimension table for the values of axial load factors  $Y_1$ ,  $Y_2$  and  $Y_0$  and of constant  $e$ .

Boundary Dimensions (mm)				Basic Load Ratings (kN)		Limiting Speeds (rpm)		Bearing No.		Mounting Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)		(Ref.) Adapter Sleeve
<i>d</i>	<i>D</i>	<i>B</i>	<i>r</i> (min.)	<i>C</i>	<i>C<sub>0</sub></i>	Grease lubrication	Oil lubrication	Cylindrical bore	Tapered bore	<i>d<sub>a</sub></i> (min.)	<i>D<sub>a</sub></i> (max.)	<i>r<sub>a</sub></i> (max.)	<i>e</i>	<i>Y<sub>1</sub></i>	<i>Y<sub>2</sub></i>	<i>Y<sub>0</sub></i>	Cylindrical bore	Tapered bore	
25	52	18	1	45.4	48.1	7000	9300	<b>22205RHR</b>	<b>22205RHRK</b>	31	46	1	0.35	1.91	2.85	1.87	0.22	0.215	H305X
30	62	20	1	61.2	65.9	5900	7900	<b>22206RHR</b>	<b>22206RHRK</b>	36	56	1	0.33	2.04	3.04	2.00	0.36	0.35	H306X
35	72	23	1.1	80.3	88.7	5000	6700	<b>22207RHR</b>	<b>22207RHRK</b>	42	65	1	0.32	2.09	3.11	2.04	0.55	0.54	H307X
40	80	23	1.1	90.9	102	4500	6000	<b>22208RHR</b>	<b>22208RHRK</b>	47	73	1	0.28	2.37	3.53	2.32	0.66	0.65	H308X
	90	33	1.5	136	152	4100	5500	<b>22308RHR</b>	<b>22308RHRK</b>	48.5	81.5	1.5	0.37	1.83	2.72	1.79	1.25	1.23	H2308X
45	85	23	1.1	95.6	110	4200	5600	<b>22209RHR</b>	<b>22209RHRK</b>	52	78	1	0.26	2.55	3.80	2.50	0.72	0.71	H309X
	100	36	1.5	166	183	3700	4900	<b>22309RHR</b>	<b>22309RHRK</b>	53.5	91.5	1.5	0.37	1.83	2.72	1.79	1.62	1.59	H2309X
50	90	23	1.1	103	122	3900	5200	<b>22210RHR</b>	<b>22210RHRK</b>	57	83	1	0.24	2.79	4.15	2.73	0.78	0.77	H310X
	110	40	2	204	237	3300	4500	<b>22310RHR</b>	<b>22310RHRK</b>	60	100	2	0.36	1.85	2.76	1.81	2.21	2.18	H2310X
55	100	25	1.5	124	144	3400	4600	<b>22211RHR</b>	<b>22211RHRK</b>	63.5	91.5	1.5	0.24	2.84	4.23	2.78	1.05	1.04	H311X
	120	43	2	236	264	3000	4000	<b>22311RHR</b>	<b>22311RHRK</b>	65	110	2	0.36	1.85	2.76	1.81	2.72	2.67	H2311X
60	110	28	1.5	153	181	3100	4200	<b>22212RHR</b>	<b>22212RHRK</b>	68.5	101.5	1.5	0.25	2.74	4.08	2.68	1.45	1.43	H312X
	130	46	2.1	283	334	2800	3700	<b>22312RHR</b>	<b>22312RHRK</b>	72	118	2	0.36	1.86	2.77	1.82	3.43	3.37	H2312X
65	120	31	1.5	178	211	2900	3800	<b>22213RHR</b>	<b>22213RHRK</b>	73.5	111.5	1.5	0.25	2.69	4.00	2.63	1.84	1.81	H313X
	140	48	2.1	305	360	2600	3400	<b>22313RHR</b>	<b>22313RHRK</b>	77	128	2	0.34	1.98	2.94	1.93	4.15	4.07	H2313X
70	125	31	1.5	187	222	2700	3600	<b>22214RHR</b>	<b>22214RHRK</b>	78.5	116.5	1.5	0.24	2.87	4.27	2.80	1.94	1.91	H314X
	150	51	2.1	348	413	2400	3200	<b>22314RHR</b>	<b>22314RHRK</b>	82	138	2	0.34	1.98	2.94	1.93	5.01	4.92	H2314X
75	130	31	1.5	193	236	2600	3400	<b>22215RHR</b>	<b>22215RHRK</b>	83.5	121.5	1.5	0.22	3.07	4.57	3.00	2.05	2.01	H315X
	160	55	2.1	393	473	2200	3000	<b>22315RHR</b>	<b>22315RHRK</b>	87	148	2	0.35	1.95	2.90	1.91	6.13	6.02	H2315X
80	140	33	2	217	271	2400	3200	<b>22216RHR</b>	<b>22216RHRK</b>	90	130	2	0.22	3.07	4.57	3.00	2.61	2.57	H316X
	170	58	2.1	431	521	2100	2800	<b>22316RHR</b>	<b>22316RHRK</b>	92	158	2	0.35	1.95	2.90	1.91	7.18	7.04	H2316X
85	150	36	2	258	324	2200	3000	<b>22217RHR</b>	<b>22217RHRK</b>	95	140	2	0.22	3.01	4.48	2.94	3.23	3.16	H317X
	180	60	3	481	586	2000	2600	<b>22317RHR</b>	<b>22317RHRK</b>	99	166	2.5	0.33	2.02	3.00	1.97	8.41	8.26	H2317X
90	160	40	2	298	381	2100	2800	<b>22218RHR</b>	<b>22218RHRK</b>	100	150	2	0.24	2.79	4.15	2.73	4.01	3.94	H318X
	190	64	3	538	662	1900	2500	<b>22318RHR</b>	<b>22318RHRK</b>	104	176	2.5	0.34	2.00	2.98	1.96	9.87	9.68	H2318X
95	170	43	2.1	334	422	2000	2600	<b>22219RHR</b>	<b>22219RHRK</b>	107	158	2	0.24	2.76	4.11	2.70	4.90	4.80	H319X
	200	67	3	586	726	1800	2300	<b>22319RHR</b>	<b>22319RHRK</b>	109	186	2.5	0.33	2.02	3.00	1.97	11.6	11.3	H2319X
100	180	46	2.1	377	481	1900	2500	<b>22220RHR</b>	<b>22220RHRK</b>	112	168	2	0.25	2.74	4.08	2.68	5.82	5.72	H320X
	215	73	3	700	877	1600	2200	<b>22320RHR</b>	<b>22320RHRK</b>	114	201	2.5	0.35	1.95	2.90	1.91	14.7	14.4	H2320X
110	200	53	2.1	491	642	1700	2200	<b>22222RHR</b>	<b>22222RHRK</b>	122	188	2	0.26	2.64	3.93	2.58	8.37	8.22	H322X
	240	80	3	828	1040	1400	1900	<b>22322RHR</b>	<b>22322RHRK</b>	124	226	2.5	0.33	2.03	3.02	1.98	20.2	19.8	H2321X
120	215	58	2.1	565	764	1500	2000	<b>22224RHR</b>	<b>22224RHRK</b>	132	203	2	0.26	2.60	3.87	2.54	10.6	10.4	H3124
	260	86	3	896	1130	1300	1800	<b>22324RHR</b>	<b>22324RHRK</b>	134	246	2.5	0.33	2.03	3.02	1.98	24.1	23.6	H2324
130	230	64	3	658	914	1400	1900	<b>22226RHR</b>	<b>22226RHRK</b>	144	216	2.5	0.26	2.55	3.80	2.50	13.3	13.0	H3126
	280	93	4	1040	1340	1200	1600	<b>22326RHR</b>	<b>22326RHRK</b>	148	262	3	0.33	2.03	3.02	1.98	30.3	29.7	H2326
140	250	68	3	759	1030	1300	1700	<b>22228RHR</b>	<b>22228RHRK</b>	154	236	2.5	0.26	2.60	3.87	2.54	16.4	16.1	H3128
150	270	73	3	865	1200	1200	1600	<b>22230RHR</b>	<b>22230RHRK</b>	164	256	2.5	0.25	2.69	4.00	2.63	20.6	20.2	H3130

■ Recommended shaft fits

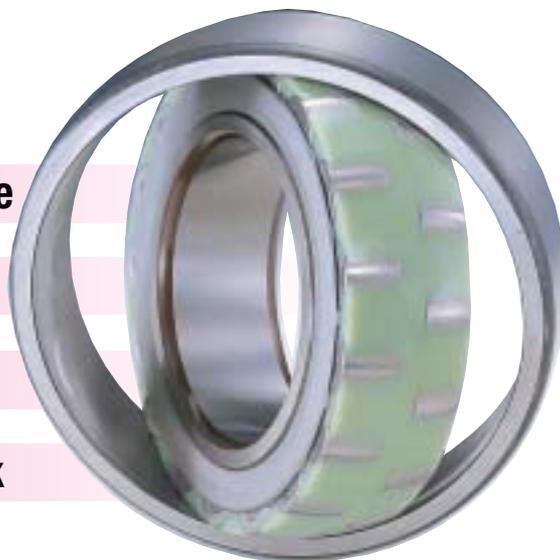
Normal Load ( $0.02C_0 < Pr \leq 0.12C$ )			Heavy Load ( $0.12C < Pr$ )			All Loads	
Cylindrical bore, mm		Fit	Cylindrical bore, mm		Fit	Tapered bore	Fit
Over	Up to		Over	Up to			
—	40	k 5	50	100	n 6	All shafts	h 9 / I T 5  ( For transmission shafts ) h 10 / I T 7
40	65	m 5	100	140	p 6		
65	100	m 6	140	150	r 6		
100	140	n 6					
140	150	p 6					

# SOLPACK BEARINGS®

Koyo SOLPACK Bearings are new bearings in which the internal space is filled with solid polymeric lubricant. High performance is expected under most severe conditions such as water splash.

## Features

- Longer life and maintenance-free
- Low torque
- Prevent emulsifying of lubricant
- Keep clean the work shop from oil leak



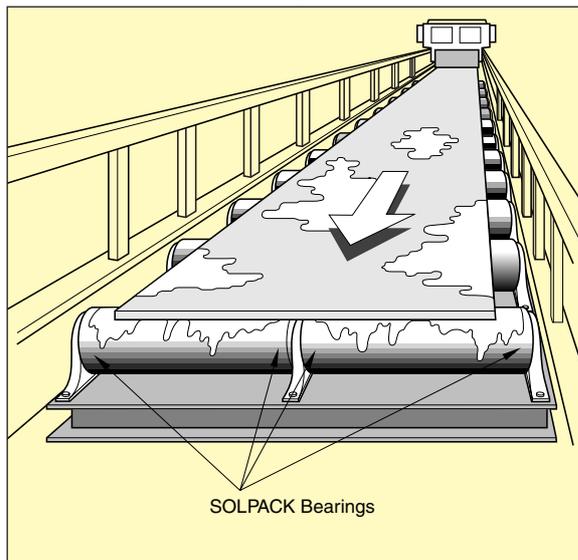
## Performance

- Manufacturing range: Bearing outside dia. - up to 250 mm
- Operating temperature: -15 to 80°C (60°C or less on outer ring)
- Limiting speed: 50000 (value of dmn)  
 $dmn = (d + D)/2 \text{ (mm)} \times \text{rotational speed (min}^{-1}\text{)}$

## Applications

Washing facilities, plating lines, canning lines, food processing lines and out door equipment etc.  
 SOLPACK Bearings include spherical roller bearings, deep groove ball bearings and cylindrical roller bearings.

■ Carrier rollers for pickling line



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