

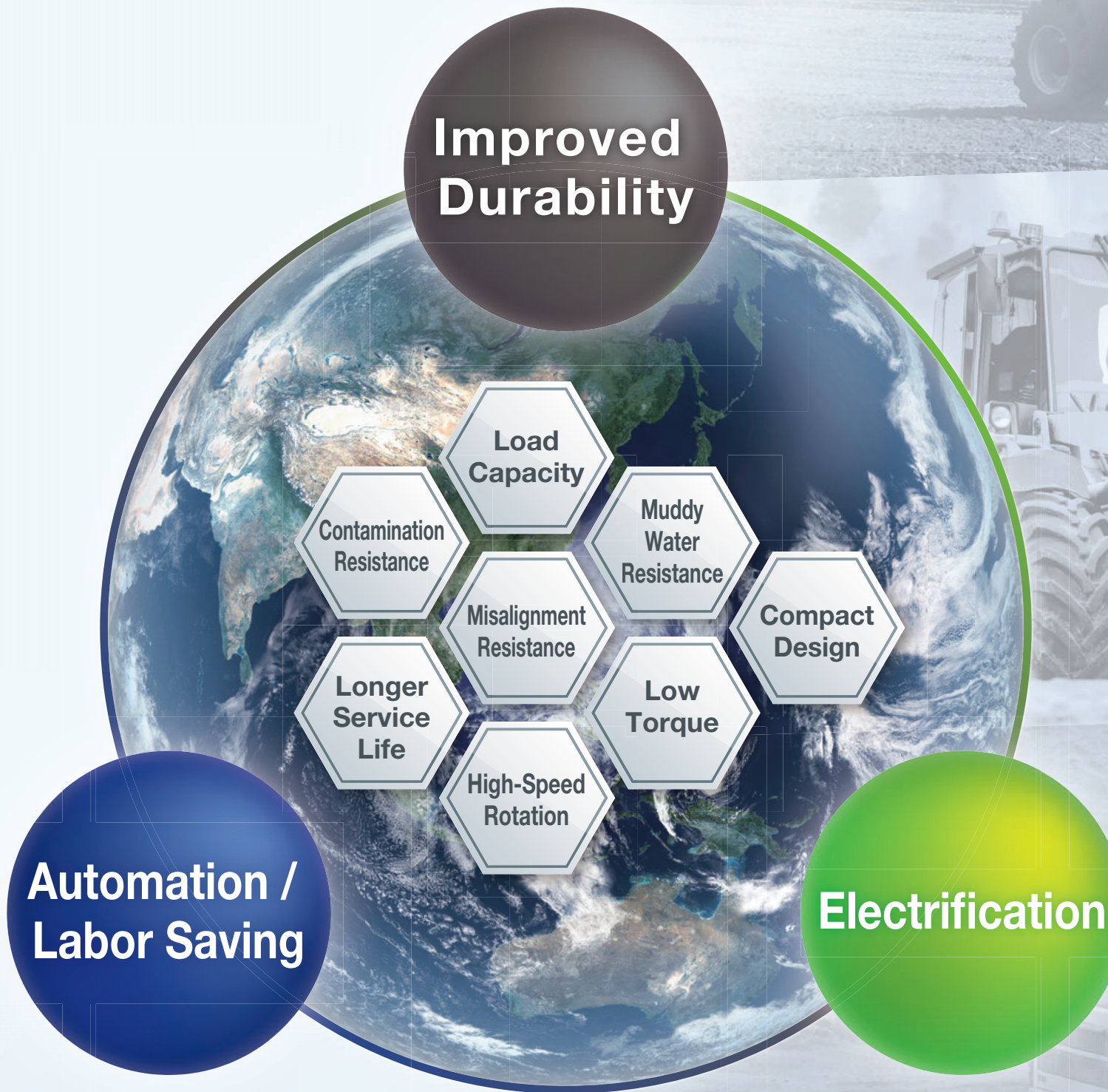
Products for Agricultural and Construction Machinery



JTEKT's No. 1 & Only One Technologies

Refined over JTEKT's long history, our No. 1 & Only One technologies have supported unwavering performance even in the severe environments faced by agricultural and construction equipment. JTEKT will continue to contribute to improved vehicle reliability through manufacturing that delivers superior durability and long service life.

In addition, by providing products that meet the growing needs for electrification and automation, we will work together with our customers to create a sustainable society.



JTEKT Products — Responding to Customer Needs

Bearing

Long-life bearings:

SH bearings, KE bearings
and NK bearings

▶ P.03



Low-friction torque tapered roller bearing (LFT)

▶ P.04



High muddy water resistant sealed ball bearing with Low-friction torque

▶ P.04



JHS Series Spherical roller bearings

▶ P.05



Steering

Intermediate type Electric Power Steering (I-EPS)

▶ P.05



Oil seal

Low-torque seals

▶ P.06



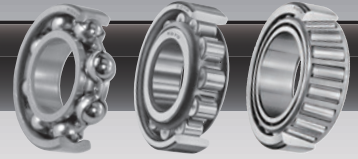
Muddy water resistant seals for agricultural and construction machinery

▶ P.06



Bearing

Long-life bearings: SH bearings, KE bearings and NK bearings



• SH bearings / KE bearings

Special heat treatment increases surface hardness and optimizes retained austenite content to achieve longer bearing life. These bearings offer superior performance, particularly under the severe operating conditions encountered by agricultural and construction machinery.

Features

- Increased raceway surface hardness suppresses brinelling caused by entrapped foreign matter
- Improved microstructure suppresses material buildup around brinelling

SH bearings: Applied to bearing steel (ball bearings and cylindrical roller bearings)

KE bearings: Applied to case-hardened steel (tapered roller bearings)

• NK bearings

A next-generation long-life bearing designed to meet the growing needs for longer bearing life and higher robustness as vehicle operation becomes increasingly automated.

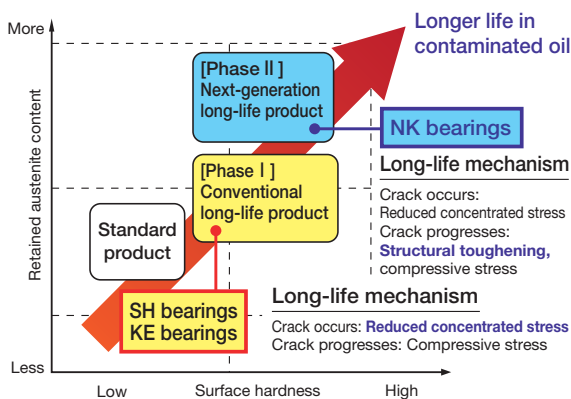
Optimization of the material and heat-treatment conditions provides even longer bearing life than SH and KE bearings.

Features

- Optimized material and heat-treatment conditions for a tougher microstructure
- Fine carbonitride precipitation for increased raceway surface hardness
- Optimal retained austenite content for improved fatigue strength

* See pp. 9–10 for bearing dimension tables.

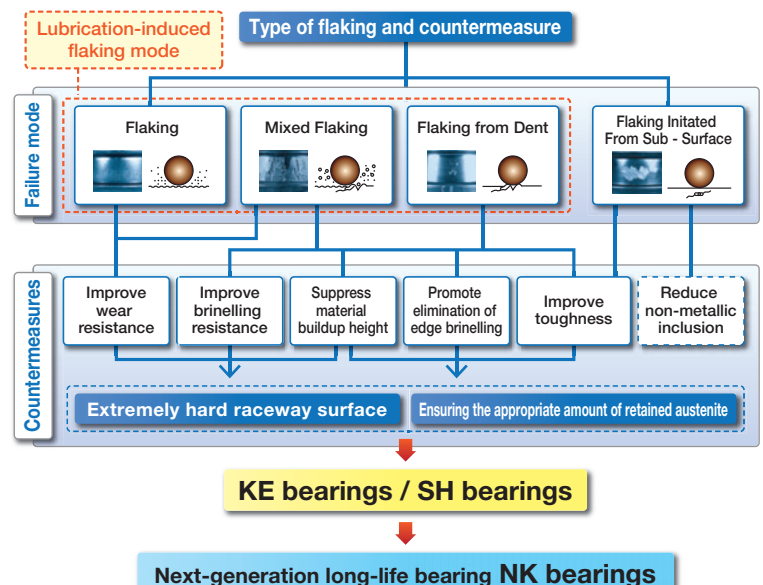
• Development concept of long life bearing material



Main applications

Axle, Transmission, Differential

• Bearing failure modes and countermeasures



Low-friction torque tapered roller bearing (LFT)



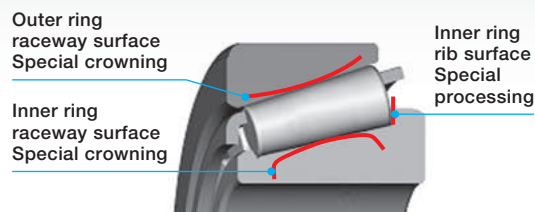
These bearings reduce torque loss and improve robustness through optimized rib and roller surface roughness and a special crowning profile. In addition to improving durability against shaft misalignment and reducing problems under severe vehicle operating conditions, these bearings also contribute to improved fuel efficiency.

Features

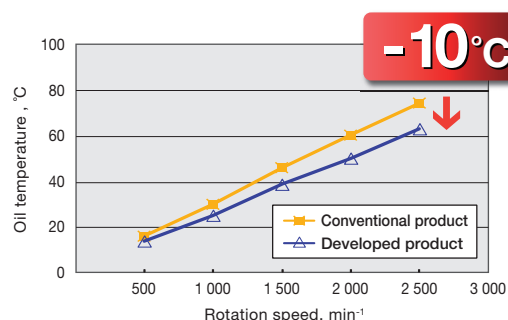
- Reduced torque loss lowers temperature rise and improves fuel efficiency
- Special crowning improves durability against shaft misalignment

Main applications

Transmission, Differential

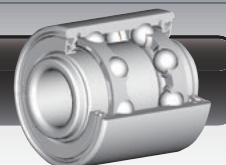


Temperature rise evaluation results



* LFT is an abbreviation for Low-Friction Torque and is a registered trademark or trademark of JTEKT Corporation.

High muddy water resistant sealed ball bearing with Low-friction torque



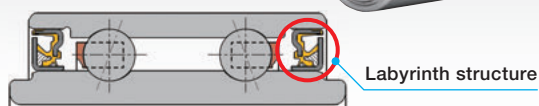
This bearing combines muddy water ingress resistance with low torque through a complex labyrinth structure that applies hub unit technology to a conventional seal design. It contributes to stable operation of agricultural equipment and reduced maintenance frequency.

Features

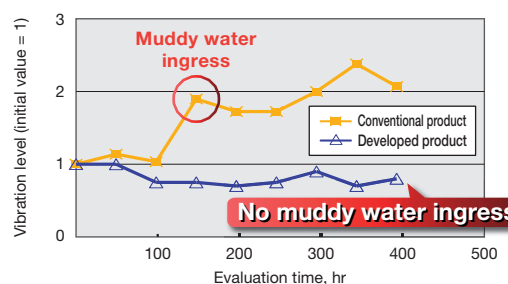
- Addition of a sleeve and axial lip creates a labyrinth structure
- Optimized lip design reduces lip interference force, lowering starting torque by 40% compared with the conventional product

Main applications

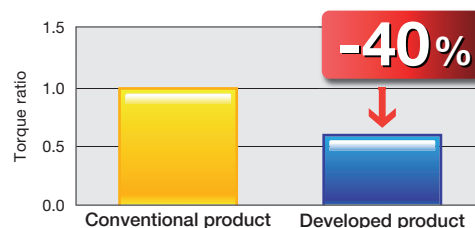
Planter



Muddy water resistance evaluation results



Starting torque evaluation results



Bearing

JHS Series Spherical roller bearings

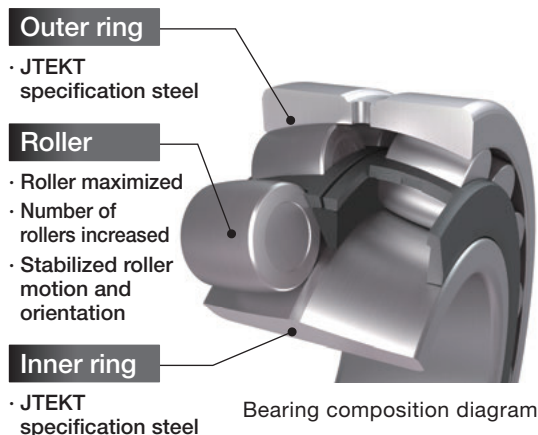
These high-durability bearings achieve longer service life, higher-speed operation, and high-temperature capability through optimized bearing materials and internal design, together with standardized dimensional stabilization treatment.

Features

- Longer service life: Use of JTEKT specification steel with improved material cleanliness provides up to 2 times longer service life
- Higher-speed operation: Optimized internal design and improved lubrication performance provide up to 25% higher speed capability
- High-temperature capability: Dimensional stabilization treatment enables use at temperatures up to 200°C

Main applications

Reduction gear



* JHS is a registered trademark or trademark of JTEKT Corporation.
* See pp. 9–10 for bearing dimension tables.

Steering

Intermediate type Electric Power Steering (I-EPS)

To meet growing needs for electrification and automation toward achieving carbon neutrality, JTEKT has developed I-EPS (Intermediate type Electric Power Steering).

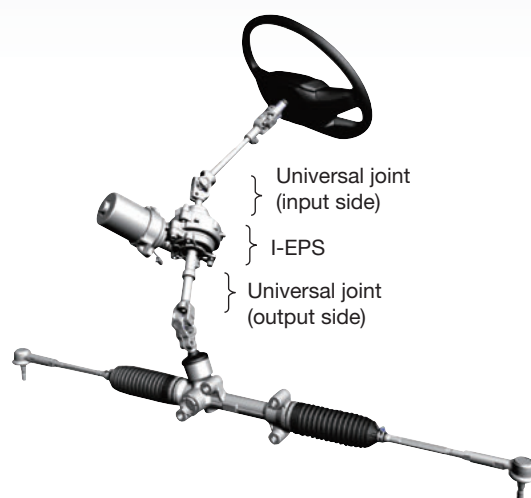
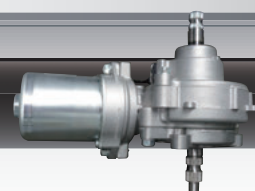
This technology contributes to reducing the environmental impact of vehicles and saving labor through automated operation.

Features

- High reliability backed by JTEKT's experience in the automotive field
- Flexible installation in compact vehicles where space is limited
- Simple construction that allows replacement of hydraulic power steering or manual steering systems, as well as add-on installation to hydraulic power steering systems

Main applications

Rice transplanter, UTV (Utility Task Vehicle)



I-EPS installation example

Oil seal

Low-torque seals

This oil seal is designed for low torque. The optimized lip design reduces torque to help improve fuel efficiency, while suppressing friction and wear to enhance durability.

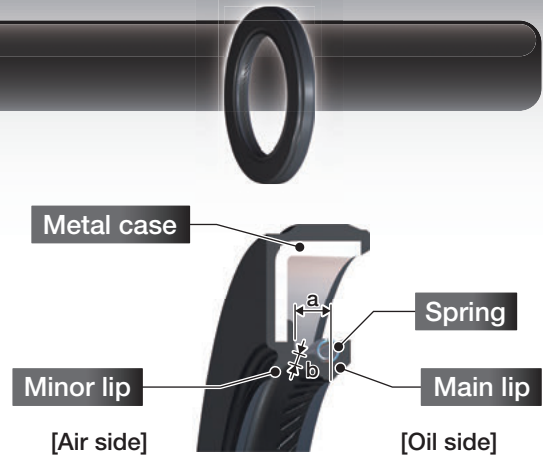
Features

Optimization of the lip length (a) and lip base thickness (b) reduces radial load and friction.

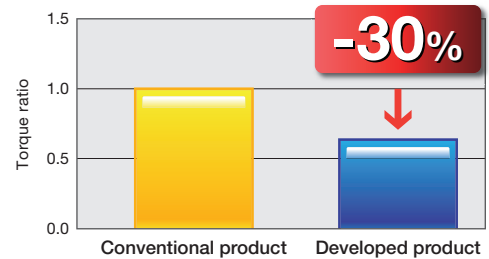
- Rotational torque reduced by 30% compared with the conventional product
- Durability improved by 30% compared with the conventional product

Main applications

Engine, Transmission



• Rotational torque evaluation results



Muddy water resistant seals for agricultural and construction machinery

This oil seal is designed for superior muddy water resistance. The addition of a side lip and sleeve suppresses muddy water ingress and oil leakage, helping improve sealing performance under severe operating conditions.

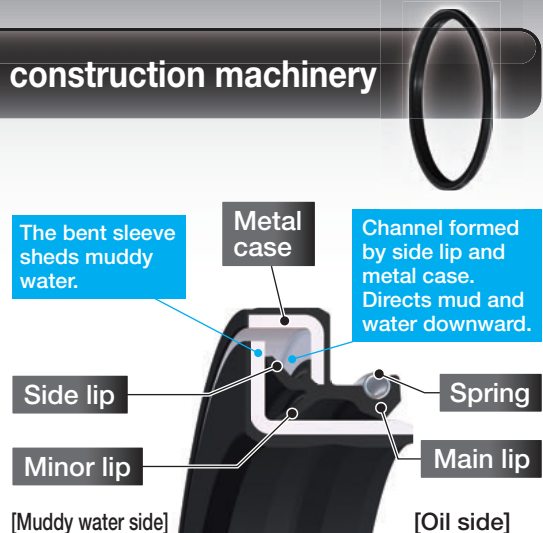
Features

A multi-lip structure and sleeve provide high sealing performance and durability.

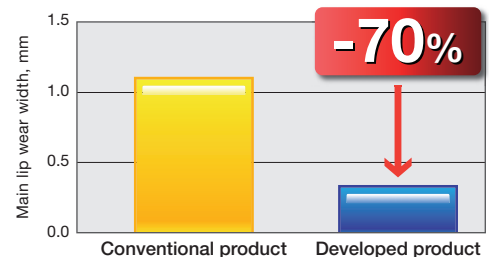
- Improved muddy water resistance and oil sealing performance
- Main lip wear reduced by 70% compared with the conventional product
- The addition of a sleeve helps prevent shaft wear and contributes to improved maintainability

Main applications

Axle



• Muddy water resistance evaluation results



Recommended Applications

A Proven Track Record and Trusted Engineering Expertise

For many years, JTEKT products have been selected by agricultural and construction equipment manufacturers in Japan and around the world, earning trust across a wide range of applications. As vehicles continues to evolve, JTEKT will continue to provide even greater value.

Application examples



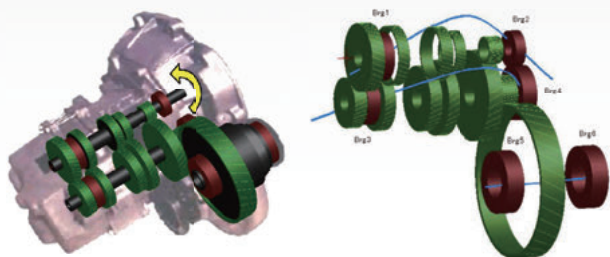
JTEKT offers a wide range of products for use in various locations throughout the vehicle.

Analysis technologies

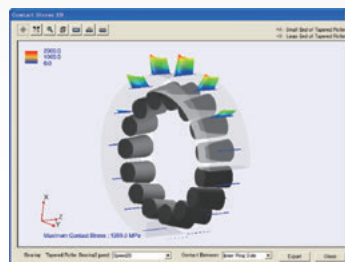
Verify validity of optimum design

(1) In-house developed shaft system analysis software "SSAP (Shaft System Analysis Program)" and (2) CAE analysis software, this combination realizes the optimum design considering the rigidity of peripheral parts. Validity is verified through benchmark evaluation tests (including simulation), and X-ray and ultrasound analysis.

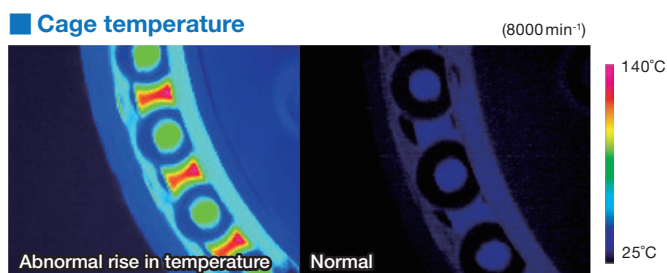
[Shaft system rigidity analysis]



[Contact stress analysis]



[Inner temperature measurement results]



Large-sized Bearing Technology Development Center

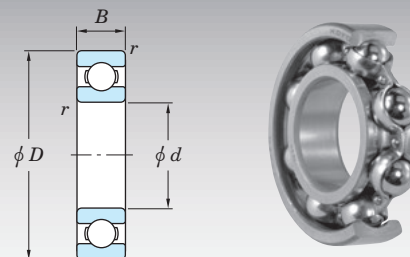
In the past, medium- and large-sized bearings used in industrial machinery were often introduced into actual equipment after design studies and basic evaluations, with further evaluation carried out by customers.

At JTEKT's Large-sized Bearing Technology Development Center, evaluations can be conducted under conditions that closely reproduce actual operating environments. From durability evaluation and analysis of the causes of problems to optimal design studies aimed at improving performance, these capabilities support the development of bearings with even greater reliability.



Bearing Dimension Tables

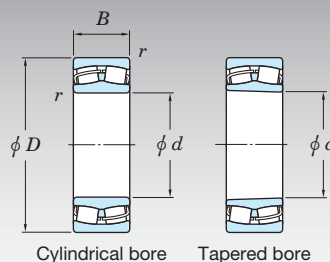
SH bearings / NK bearings



Boundary dimensions (mm)				Basic load ratings (kN)		Bearing No.
<i>d</i>	<i>D</i>	<i>B</i>	<i>r</i> min.	<i>C_r</i>	<i>C_{0r}</i>	
12	28	8	0.3	6.40	2.40	6001SH2
	32	10	0.6	8.50	3.05	6201SH2
	37	12	1.0	12.1	4.20	6301SH2
15	32	9	0.3	7.00	2.85	6002SH2
	35	11	0.6	9.55	3.75	6202SH2
	42	13	1.0	14.3	5.45	6302SH2
	42	13	1.0	16.6	5.90	6302RSH2
17	35	8	0.3	7.50	3.25	16003SH2
	35	10	0.3	7.50	3.25	6003SH2
	40	12	0.6	12.0	4.80	6203SH2
	40	12	0.6	14.1	5.35	6203RSH2
	47	14	1.0	17.0	6.65	6303SH2
	47	14	1.0	19.6	7.60	6303RSH2
20	42	8	0.3	9.90	4.50	16004SH2
	42	12	0.6	11.7	5.05	6004SH2
	42	12	0.6	14.4	5.85	6004RSH2
	47	14	1.0	16.0	6.65	6204SH2
	47	14	1.0	19.6	7.60	6204RSH2
	52	15	1.1	19.9	7.85	6304SH2
	52	15	1.1	19.9	7.85	NK6304
	52	15	1.1	22.6	8.95	6304RSH2
22	44	12	0.6	11.7	5.15	60/22SH2
	50	14	1.0	16.0	6.65	62/22SH2
	56	16	1.1	23.1	9.40	63/22SH2
25	47	12	0.6	12.6	5.85	6005SH2
	47	12	0.6	15.8	6.96	6005RSH2
	52	15	1.0	17.5	7.85	6205SH2
	52	15	1.0	22.1	9.30	6205RSH2
	62	17	1.1	25.7	11.3	6305SH2
	62	17	1.1	32.7	13.4	6305RSH2
28	58	16	1.0	22.4	9.75	62/28SH2
	68	18	1.1	29.4	13.1	63/28SH2
30	55	13	1.0	16.5	8.25	6006SH2
	55	13	1.0	20.8	9.50	6006RSH2
	62	16	1.0	24.3	11.3	6206SH2
	62	16	1.0	24.3	11.3	NK6206
	62	16	1.0	29.2	12.8	6206RSH2
	72	19	1.1	33.3	15.0	6306SH2
	72	19	1.1	41.7	17.7	6306RSH2
32	58	13	1.0	18.8	9.15	60/32SH2
	58	13	1.0	22.4	10.8	60/32R-1SH2
	65	17	1.0	29.4	13.1	62/32SH2

Boundary dimensions (mm)				Basic load ratings (kN)		Bearing No.
<i>d</i>	<i>D</i>	<i>B</i>	<i>r</i> min.	<i>C_r</i>	<i>C_{0r}</i>	
35	62	14	1.0	19.9	10.3	6007SH2
	62	14	1.0	24.4	11.5	6007RSH2
	72	17	1.1	32.1	15.4	6207SH2
	72	17	1.1	38.7	17.5	6207RSH2
	80	21	1.5	41.7	19.3	6307SH2
	80	21	1.5	41.7	19.3	NK6307
	80	21	1.5	50.0	21.7	6307RSH2
40	68	15	1.0	20.9	11.5	6008SH2
	68	15	1.0	26.1	13.2	6008RSH2
	80	18	1.1	36.4	17.8	6208SH2
	80	18	1.1	46.0	21.3	6208RSH2
	90	23	1.5	50.9	24.0	6308SH2
	90	23	1.5	59.1	26.3	6308RSH2
45	75	16	1.0	26.2	15.1	6009SH2
	75	16	1.0	32.1	17.1	6009RSH2
	85	19	1.1	40.9	20.3	6209SH2
	85	19	1.1	43.9	27.8	6209RSH2
	100	25	1.5	61.1	29.5	6309SH2
	100	25	1.5	69.5	31.7	6309RSH2
50	80	16	1.0	27.3	16.6	6010SH2
	90	20	1.1	43.9	23.3	6210SH2
	90	20	1.1	50.5	25.5	6210RSH2
	110	27	2.0	77.5	38.3	6310SH2
	110	27	2.0	85.5	39.7	6310RSH2
55	90	18	1.1	35.3	21.2	6011SH2
	100	21	1.5	54.2	29.4	6211SH2
	100	21	1.5	61.9	31.8	6211RSH2
	120	29	2.0	89.5	45.0	6311SH2
60	95	18	1.1	36.8	23.2	6012SH2
	95	18	1.1	43.7	25.6	6012R-1SH2
	110	22	1.5	65.6	36.2	6212SH2
	110	22	1.5	72.4	37.9	6212RSH2
65	100	11	0.6	21.4	16.0	16013SH2
	100	18	1.1	38.1	25.2	6013SH2
	120	23	1.5	71.5	40.1	6213SH2
	140	33	2.1	116	59.9	6313SH2
70	110	13	0.6	37.6	25.6	16014SH2
	110	20	1.1	47.6	30.9	6014SH2
	125	24	1.5	77.8	44.1	6214SH2
	150	35	2.1	130	68.2	6314SH2
75	115	13	0.6	34.4	25.3	16015SH2
	115	20	1.1	49.4	33.5	6015SH2
	130	25	1.5	84.3	48.3	6215SH2

JHS Series Spherical roller bearings



Cylindrical bore Tapered bore

Boundary dimensions (mm)				Basic load ratings (kN)		Bearing No.	
d	D	B	$r_{min.}$	C_r	C_{0r}	Cylindrical bore	Tapered bore
25	52	18	1	56.8	48.1	22205RZ	22205RZK
30	62	20	1	76.6	65.9	22206RZ	22206RZK
	72	19	1.1	74.2	62.7	21306RZ	21306RZK
35	72	23	1.1	100	88.7	22207RZ	22207RZK
	80	21	1.5	86.8	75.8	21307RZ	21307RZK
40	80	23	1.1	114	102	22208RZ	22208RZK
	90	23	1.5	105	95.5	21308RZ	21308RZK
	90	33	1.5	170	152	22308RZ	22308RZK
45	85	23	1.1	119	110	22209RZ	22209RZK
	100	25	1.5	132	124	21309RZ	21309RZK
	100	36	1.5	208	183	22309RZ	22309RZK
50	90	23	1.1	128	122	22210RZ	22210RZK
	110	27	2	157	151	21310RZ	21310RZK
	110	40	2	255	237	22310RZ	22310RZK
55	100	25	1.5	154	144	22211RZ	22211RZK
	120	29	2	180	165	21311RZ	21311RZK
	120	43	2	296	264	22311RZ	22311RZK
60	110	28	1.5	190	181	22212RZ	22212RZK
	130	31	2.1	210	193	21312RZ	21312RZK
	130	46	2.1	354	334	22312RZ	22312RZK
65	120	31	1.5	222	211	22213RZ	22213RZK
	140	33	2.1	242	232	21313RZ	21313RZK
	140	48	2.1	382	360	22313RZ	22313RZK
70	125	31	1.5	233	222	22214RZ	22214RZK
	150	35	2.1	268	260	21314RZ	21314RZK
	150	51	2.1	435	413	22314RZ	22314RZK
75	130	31	1.5	241	236	22215RZ	22215RZK
	160	37	2.1	306	298	21315RZ	21315RZK
	160	55	2.1	492	473	22315RZ	22315RZK
80	140	33	2	271	271	22216RZ	22216RZK
	140	44.4	2	305	342	23216RZ	23216RZK
	170	39	2.1	344	339	21316RZ	21316RZK
	170	58	2.1	539	521	22316RZ	22316RZK
85	150	36	2	322	324	22217RZ	22217RZK
	150	49.2	2	358	410	23217RZ	23217RZK
	180	41	3	374	372	21317RZ	21317RZK
	180	60	3	601	586	22317RZ	22317RZK
90	160	40	2	372	381	22218RZ	22218RZK
	160	52.4	2	421	482	23218RZ	23218RZK
	190	43	3	413	416	21318RZ	21318RZK
	190	64	3	672	662	22318RZ	22318RZK
95	170	43	2.1	417	422	22219RZ	22219RZK
	170	55.6	2.1	457	516	23219RZ	23219RZK
	200	45	3	452	461	21319RZ	21319RZK
	200	67	3	733	726	22319RZ	22319RZK

Boundary dimensions (mm)				Basic load ratings (kN)		Bearing No.	
d	D	B	$r_{min.}$	C_r	C_{0r}	Cylindrical bore	Tapered bore
100	150	37	1.5	262	332	23020RZ	23020RZK
	165	52	2	412	510	23120RZ	23120RZK
	180	46	2.1	470	481	22220RZ	22220RZK
	180	60.3	2.1	533	629	23220RZ	23220RZK
	215	47	3	519	524	21320RZ	21320RZK
	215	73	3	875	877	22320RZ	22320RZK
110	170	45	2	377	486	23022RZ	23022RZK
	170	60	2	472	647	24022RZ	24022RZK30
	180	56	2	484	605	23122RZ	23122RZK
	180	69	2	569	778	24122RZ	24122RZK30
	200	53	2.1	612	642	22222RZ	22222RZK
	200	69.8	2.1	672	792	23222RZ	23222RZK
	240	50	3	604	616	21322RZ	21322RZK
	240	80	3	1 040	1 040	22322RZ	22322RZK
120	180	46	2	394	524	23024RZ	23024RZK
	180	60	2	484	709	24024RZ	24024RZK30
	200	62	2	571	714	23124RZ	23124RZK
	200	80	2	733	1 020	24124RZ	24124RZK30
	215	58	2.1	706	764	22224RZ	22224RZK
	215	76	2.1	772	956	23224RZ	23224RZK
	260	86	3	1 120	1 130	22324RZ	22324RZK
130	200	52	2	509	674	23026RZ	23026RZK
	200	69	2	625	914	24026RZ	24026RZK30
	210	64	2	621	799	23126RZ	23126RZK
	210	80	2	754	1 080	24126RZ	24126RZK30
	230	64	3	821	914	22226RZ	22226RZK
	230	80	3	880	1 090	23226RZ	23226RZK
	280	93	4	1 310	1 340	22326RZ	22326RZK
140	210	53	2	530	723	23028RZ	23028RZK
	210	69	2	640	957	24028RZ	24028RZK30
	225	68	2.1	710	940	23128RZ	23128RZK
	225	85	2.1	853	1 170	24128RZ	24128RZK30
	250	68	3	947	1 030	22228RZ	22228RZK
	250	88	3	1 020	1 290	23228RZ	23228RZK
	300	102	4	1 470	1 570	22328RZ	22328RZK
150	225	56	2.1	579	797	23030RZ	23030RZK
	225	75	2.1	724	1 100	24030RZ	24030RZK30
	250	80	2.1	902	1 230	23130RZ	23130RZK
	250	100	2.1	1 110	1 590	24130RZ	24130RZK30
	270	73	3	1 080	1 200	22230RZ	22230RZK
	270	96	3	1 200	1 540	23230RZ	23230RZK
	320	108	4	1 620	1 740	22330RHA	22330RHAK
160	240	60	2.1	667	924	23032RZ	23032RZK
	240	80	2.1	829	1 270	24032RZ	24032RZK30
	270	86	2.1	1 070	1 430	23132RZ	23132RZK

Note: Please contact JTEKT for inventory status (or stock availability) and lead times, for bearings not listed in the dimension tables.

JTEKT Corporation Website

<https://www.jtekt.co.jp/e/>



JTEKT Bearing Website

<https://koyo.jtekt.co.jp/en/>



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