

NTN[®]

[KIZEI][®]

**ISO SPHERICAL ROLLER
BEARING WITH SHIELDS**



CAT. C-4105/E

NTN 

[KIZEI][®]

A UNIQUE INNOVATION ON THE MARKET

The ISO spherical roller bearing with metallic shields by NTN-SNR.

The NTN-SNR R&D department developed an **unprecedented solution** for the market to extend spherical roller bearing service lifetime.

This **exclusive product** improves your equipment output.

ON THE MARKET TODAY:

FIELD SITUATION ANALYSIS WITH AN OPEN SPHERICAL ROLLER BEARING

Based on NTN-SNR lab internal analysis

21%

of failures
due to solid pollution

13%

of failures
due to lubrication issues

With KIZEI[®], change the game!

- **Protection** against external solid contamination
- Improvement of **grease retention** inside the bearing
- **ISO dimensions** to easily replace existing open spherical roller bearings

[KIZEI]



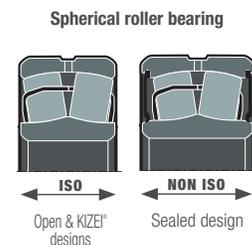
[KIZEI] Technical features

ULTAGE[®] LOAD RATINGS AND SPEEDS

- Designed and manufactured in accordance with **NTN premium class specifications**
- **100% European production**
- Satisfies **the most stringent quality** requirements

ISO DIMENSIONS

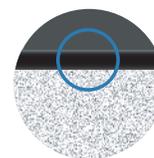
- **Same width** as open spherical roller bearing
- **100% interchangeable** with open spherical roller bearing
- Operational even in tight housings



Open spherical roller bearing

HIGH QUALITY NITRIDED STEEL CAGE AND SHIELDS

- **Maximized shock resistance**
- Optimized corrosion resistance



WIDE WORKING TEMPERATURE RANGE

- **Same temperature range** as open spherical roller bearing (from -40°C up to +200°C)
- **Dimensional stability** up to +200°C



EASY LUBRICATION

- Delivered without grease
- Initial **lubrication process similar** to open spherical roller bearing
- Lubrication in service possible thanks to dedicated holes and groove on outer ring



OPTIMAL MISALIGNMENT

- **Similar** to open spherical roller bearing
- **Possible internal inspection** to facilitate maintenance



SIMPLE MOUNTING

- **No special tool required:** standard sleeves, nuts and washers can be used
- Possibility to **check clearance after mounting**





CUSTOMER BENEFITS:

- Optimized production output due to longer service life
- Reduced maintenance costs
- Easy to use



Optimized production output

▶ INCREASE YOUR MACHINE RELIABILITY

EXPERIENCE DRIVEN IN A QUARRY

Application: Quarry conveyor

INITIAL BEARING 1100 hours of service

[KIZEI] 2200 hours of service

Less bearing deterioration after twice service lifetime

Reduced maintenance costs

▶ MAXIMIZE YOUR PROFITS

EXPERIENCE DRIVEN IN A CEMENT PLANT

Application: Bucket elevator

	Open spherical roller bearing	[KIZEI]
Life time	1 month	3 months
Production stops	12 times/year	4 times/year
Maintenance costs	100	30

A 70% reduction in maintenance costs

Easy to use

► ISO DIMENSIONS

► HOW TO MOUNT KIZEI®:

Mounting and dismounting conditions are, in every aspect, **similar** to an open spherical roller bearing.

- Standard accessories
- Possible measurement of clearance for K bores

► HOW TO GREASE KIZEI®:

KIZEI® is sold ungreased.

- For initial greasing, 30% of the free volume has to be filled with adapted grease. (More information p 6-7).
- Regreasing frequency is **divided by 3** compared to an open spherical roller bearing. (More details in "Spherical roller bearings Ultage" catalog).



NTN-SNR SPHERICAL ROLLER BEARINGS: the most complete range on the market

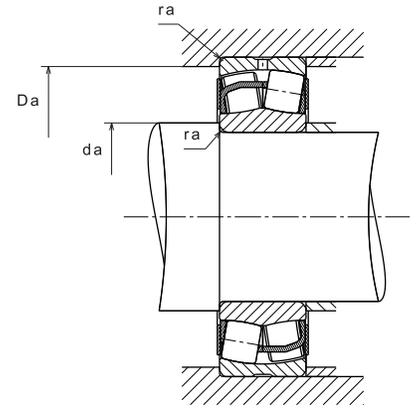
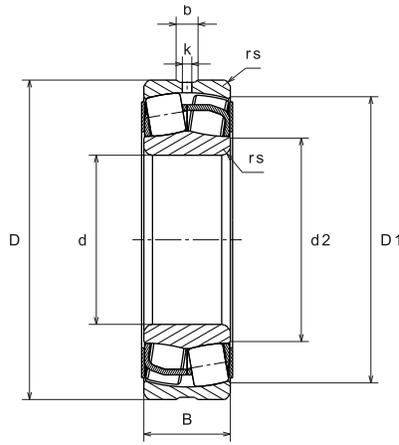
KIZEI®, the **viable alternative** for dirty environments.

	OPEN 	[KIZEI] 	SEALED 
Dimensions	ISO	ISO	Special
Protection	0	+*	++
Grease retention	0	+	++
Temperature range	-40°C to +200°C	-40°C to +200°C	-10°C to +120°C
Speed limit	++	++	+
Load rating	Ultage	Ultage	Ultage
Clearance check	Yes	Yes	No
Internal check	Yes	Yes	No
Sleeve & Nut	Standard	Standard	Special
Delivered with grease	No	No	Yes

* Suitable for solid dust proofing – no liquids.

ULTAGE®

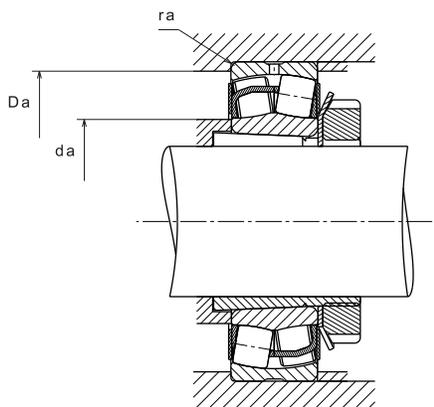
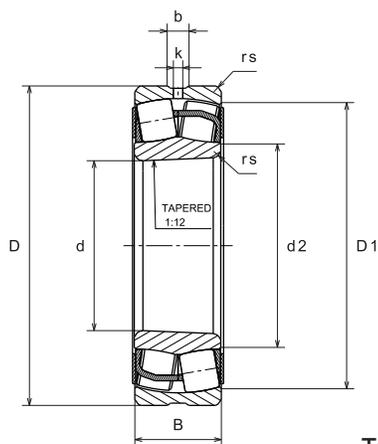
[KIZEI]® RANGE



Cylindrical Bore

Bearing Number ¹		Adapter Sleeve for Tapered Bore	Dimensions mm								Abutment dimensions mm		
Cylindrical Bore	Tapered Bore		d	D	B	rs	D1	d2	b	k	da min	Da max	ra max
22208EAW33ZZ 22208EAW33ZC3	22208EAKW33ZZ 22208EAKW33ZC3	H308	40	80	23	1.1	70.8	50.2	5.40	2.5	47	73	1.0
22209EAW33ZZ 22209EAW33ZC3	22209EAKW33ZZ 22209EAKW33ZC3	H309	45	85	23	1.1	75.6	54.9	5.80	2.5	52	78	1.0
22210EAW33ZZ 22210EAW33ZC3	22210EAKW33ZZ 22210EAKW33ZC3	H310	50	90	23	1.1	80.7	59.5	5.80	2.5	57	83	1.0
22211EAW33ZZ 22211EAW33ZC3	22211EAKW33ZZ 22211EAKW33ZC3	H311	55	100	25	1.5	89.7	66.0	6.40	3.0	64	91	1.5
22212EAW33ZZ 22212EAW33ZC3	22212EAKW33ZZ 22212EAKW33ZC3	H312	60	110	28	1.5	98.5	71.9	6.90	3.0	69	101	1.5
22213EAW33ZZ 22213EAW33ZC3	22213EAKW33ZZ 22213EAKW33ZC3	H313	65	120	31	1.5	107.0	78.2	7.80	3.5	74	111	1.5
22215EAW33ZZ 22215EAW33ZC3	22215EAKW33ZZ 22215EAKW33ZC3	H315	75	130	31	1.5	117.8	88.4	7.40	3.5	84	121	1.5
22216EAW33ZZ 22216EAW33ZC3	22216EAKW33ZZ 22216EAKW33ZC3	H316	80	140	33	2.0	127.0	94.0	7.87	3.5	91	129	2.0
22217EAW33ZZ 22217EAW33ZC3	22217EAKW33ZZ 22217EAKW33ZC3	H317	85	150	36	2.0	136.5	100.7	7.90	3.5	96	139	2.0
22218EAW33ZZ 22218EAW33ZC3	22218EAKW33ZZ 22218EAKW33ZC3	H318	90	160	40	2.0	143.2	105.3	10.20	4.5	101	149	2.0
22220EAW33ZZ 22220EAW33ZC3	22220EAKW33ZZ 22220EAKW33ZC3	H320	100	180	46	2.1	160.8	118.2	11.20	5.0	112	168	2.0

1) "K" indicates bearings have tapered bore with a taper ratio of 1:12.



Tapered Bore

Dynamic equivalent radial load

$$Pr = XF_r + YFa$$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	Y_1	0.67	Y_2

Static equivalent radial load

$$P_{0r} = F_r + Y_0 F_a$$

For values e, Y_1, Y_2 and Y_0 see the following table.

	Load Ratings kN			Calculation factors				Speed rpm		Cyl. Bore Internal clearance μm		Tap. Bore Internal clearance μm		Initial grease addition mm^3	Weight kg	
	Dynamic C_r	Static C_{0r}	Fatigue C_u	e	Y_1	Y_2	Y_0	Reference	Limit	min.	max.	min.	max.		cyl. Bore	tap. Bore
116	105	11.0	0.27	2.47	3.68	2.41	8 200	11 000	30	45	35	50	5 486	0.54	0.52	
121	113	12.6	0.26	2.64	3.94	2.58	7 400	9 800	35	55	45	60	6 194	0.59	0.58	
130	124	14.5	0.24	2.84	4.23	2.78	6 700	9 100	35	55	45	60	6 699	0.63	0.62	
155	148	17.9	0.23	2.95	4.39	2.89	6 100	8 200	40	65	55	75	8 511	0.85	0.83	
187	181	22.0	0.24	2.84	4.23	2.78	5 600	7 500	40	65	55	75	12 026	1.18	1.17	
226	224	26.0	0.24	2.79	4.15	2.73	5 300	6 900	40	65	55	75	15 317	1.57	1.54	
244	249	30.2	0.22	3.13	4.67	3.06	4 600	6 200	50	80	70	95	17 458	1.72	1.68	
278	287	33.4	0.22	3.14	4.67	3.07	4 300	5 800	50	80	70	95	21 410	2.15	2.10	
324	330	38.7	0.22	3.07	4.58	3.01	4 100	5 400	60	100	80	110	28 934	2.64	2.63	
384	398	43.1	0.23	2.9	4.31	2.83	3 900	5 100	60	100	80	110	34 677	3.39	3.32	
472	495	52.6	0.24	2.84	4.23	2.78	3 600	4 600	60	100	80	110	53 150	4.99	4.93	

Beyond Bearings

Training. Installation Support.
Trouble-shooting. And more.

When you choose NTN, your team is equipped with all the necessary tools and resources to get the job done right. From installation to problem-solving, we'll be there with the hands-on support you need to take on your toughest challenges. This includes extra services such as:



Technical Training Unit

On-site, mobile training unit offering specialized, hands-on instruction from NTN engineers



Maintenance Training School

An intensive three day course on the design, application and maintenance of anti-friction bearings with hands-on workshops



eKnowledge

WEB-BASED TRAINING PROGRAM

Six online product training modules covering different bearing types and nomenclature (www.ntnamericas.com/eknowledge)



NTN Bearing Finder

Customizable search tool featuring exhaustive data sets, comprehensive part interchanges and interactive CAD drawings (www.bearingfinder.ntnamericas.com)



[KIZEI]™ ARMoured TO FACE THE DIRT

For all your on-site service and support needs with proper product selection, installation training and trouble-shooting/problem solving, contact your local NTN Sales Representative or call **1-888-412-4122**.

For additional technical questions, email techsupport@ntn.ca.

NTN®

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