



The ULTAGE™ series sealed spherical roller bearings [WA type] are designed to meet the demands of "long operating life", "improved reliability", and "improved handling" which are required for various types of industrial machinery.

1. Features

1) Long operating life

Increasing the roller diameter, maximizing the number of rollers, and industry leading load ratings have led to higher load capacities and longer operating lives. Internal specifications are the same as the EA type.

2) Improved reliability

The standard seal design is a "contact type" dust resistant seal designed to minimize the volume of the seal within the bearing.

- (1) Foreign matter intrusion is prevented by the adoption of the specially designed contact type rubber seal.
- (2) Consistent dust resistance is achieved without changing the contact surface pressure of the seal with respect to the bearing alignment.

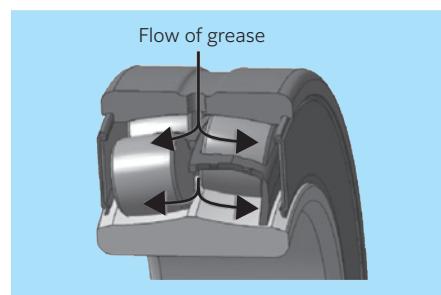
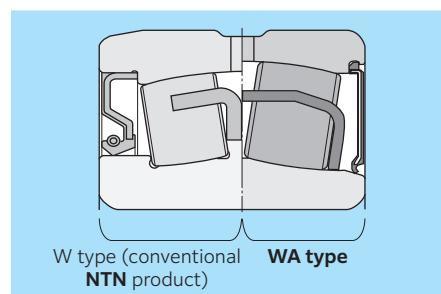
3) Improved handling

This bearing is filled with an ample amount of long-life grease to avoid the need for cleaning or filling the bearing with grease before assembling into the application.

- (1) Grease brand: Alvania EP Grease 2 (8A) with extreme-pressure additive for heavy loads
- (2) Grease amount: Space volume ratio 15 to 25 %

4) Standard adoption of oil inlet and groove

The bearing is able to be re-greased due to the oil inlet and oil groove that are standard in the outer ring.



2. Allowable speed

When grease is supplied: dn value $\leq 6 \times 10^4$
When no grease is supplied: dn value $\leq 8 \times 10^4$

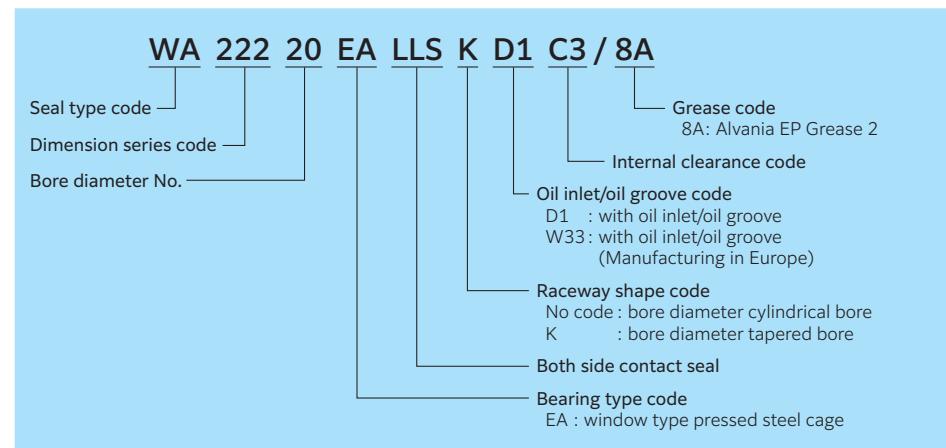
* dn value:

[dn = bearing bore diameter d (mm) × rotational speed n (min^{-1})]

3. Allowable temperature range

Bearing temperature: -20 to 110 °C

4. Part number



5. Allowable misalignment angle

1/115 (mm/mm)

6. Allowable axial load

$$F_a / F_r \leq e$$

F_a : Axial load

F_r : Radial load

e : Constant (see dimension table)

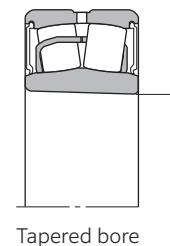
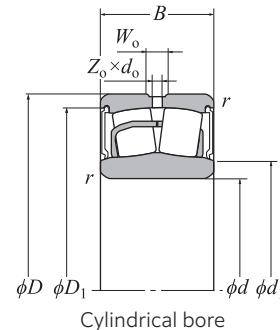
If this bearing type is used for a vertical shaft or under a large axial load, the load on the rollers of the row that is not subject to the axial load can become small. This small load on the rollers can result in skidding of the rollers, which can cause bearing damage. If the ratio of the radial load exceeds the factor e in the dimension table ($F_a / F_r > e$), consult **NTN** Engineering.

7. Handling precautions

- 1) The radial internal clearance on an sealed spherical roller bearing cannot be measured with a clearance (thickness) gauge. Please manage the clearance after assembly by measuring the movement in the axial direction shown in **Table 15.1** (A-159) in section "15. Bearing handling".
- 2) When the bearing misalignment exceeds the allowable misalignment (1/115), the rollers may come in contact with seal and cause seal deformation. It should be noted that the seal may come off when a large force is applied in this state.
- 3) Use Li-based mineral grease when re-greasing. Consult with **NTN** Engineering when using other types of grease.
- 4) When temperature mounting for assembly, the bearing temperature must be 100 °C or below. The method of immersing bearings in hot oil cannot be used for this bearing type.

ULTAGE Sealed Spherical Roller Bearings [WA Type]

NTN



Number of oil inlets on outer ring

Z ₀	D1	W33
4	3	

Boundary dimensions				Basic load rating	Fatigue load limit	Bearing number ²⁾			
d	D	B	r _{s min} ¹⁾	dynamic kN	static kN	C _r C _{0r} C _u	Cylindrical bore	Tapered bore ³⁾	
25	52	23	1	3 1.5	57.3	46.1	3.23	WA22205EALLSW33/8A	—
30	62	25	1	4 2	75.7	64.5	4.58	WA22206EALLSW33/8A	—
35	72	28	1.1	5 2	100	92.0	6.11	WA22207EALLSW33/8A	WA22207EALLSKW33/8A
40	80	28	1.1	5 2.5	116	105	7.78	WA22208EALLSD1/8A	WA22208EALLSKD1/8A
45	85	28	1.1	6 2.5	121	113	8.76	WA22209EALLSD1/8A	WA22209EALLSKD1/8A
50	90	28	1.1	6 2.5	130	124	10.1	WA22210EALLSD1/8A	WA22210EALLSKD1/8A
55	100	31	1.5	6 3	155	148	12.6	WA22211EALLSD1/8A	WA22211EALLSKD1/8A
60	110	34	1.5	7 3	187	181	15.4	WA22212EALLSD1/8A	WA22212EALLSKD1/8A
65	120	38	1.5	8 3.5	226	224	18.2	WA22213EALLSD1/8A	WA22213EALLSKD1/8A
70	125	38	1.5	7 3.5	235	240	20.1	WA22214EALLSD1/8A	WA22214EALLSKD1/8A
75	130	38	1.5	7 3.5	244	249	21.1	WA22215EALLSD1/8A	WA22215EALLSKD1/8A
80	140	40	2	8 3.5	278	287	24.0	WA22216EALLSD1/8A	WA22216EALLSKD1/8A
85	150	44	2	8 3.5	324	330	27.1	WA22217EALLSD1/8A	WA22217EALLSKD1/8A
90	160	48	2	10 4.5	384	398	30.2	WA22218EALLSD1/8A	WA22218EALLSKD1/8A
95	170	51	2.1	10 4.5	416	417	33.4	WA22219EALLSD1/8A	WA22219EALLSKD1/8A
100	180	55	2.1	11 5	472	495	36.9	WA22220EALLSD1/8A	WA22220EALLSKD1/8A
110	200	63	2.1	12 6	602	643	45.0	WA22222EALLSD1/8A	WA22222EALLSKD1/8A
120	215	69	2.1	12 6	688	753	49.9	WA22224EALLSD1/8A	WA22224EALLSKD1/8A
130	230	75	3	13 6	808	898	56.6	WA22226EALLSD1/8A	WA22226EALLSKD1/8A

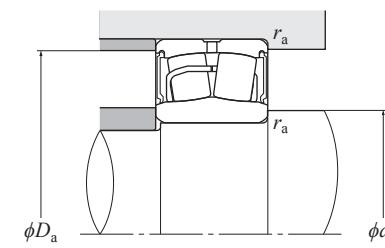
1) Smallest allowable dimension for chamfer dimension r.

2) "W33" indicates manufacturing in Europe.

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

ULTAGE Sealed Spherical Roller Bearings [WA Type]

NTN



Dynamic equivalent radial load

$\frac{F_a}{F_r} \leq e$	$\frac{F_a}{F_r} > e$		
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 of e , Y_1 , Y_2 and Y_0 see the table below.

Installation-related dimensions				Constant	Axial load factors			Mass (approx.) kg		Amount of grease filled in (approx.) g	
d ₁	d _a Min.	d _a Max.	D ₁	r _{as} Max.	e	Y ₁	Y ₂	Cylindrical bore	Tapered bore	—	—
29	29	47	47	1	0.34	2.00	2.98	1.96	0.19	—	1.4– 2.4
36	36	56	56	1	0.31	2.15	3.20	2.10	0.31	—	2.0– 3.3
43	42	65	65	1.1	0.31	2.21	3.29	2.16	0.51	0.50	2.3– 3.9
48	47	73	73	1.1	0.27	2.47	3.67	2.41	0.60	0.59	3.1– 5.2
53	52	78	78	1.1	0.26	2.64	3.93	2.58	0.65	0.63	3.4– 5.7
58	57	83	83	1.1	0.24	2.84	4.23	2.78	0.72	0.70	3.4– 5.6
64	64	93	93	1.5	0.23	2.95	4.40	2.89	0.97	0.94	4.7– 7.9
70	69	102	102	1.5	0.24	2.84	4.23	2.78	1.29	1.26	6.6– 11.0
76	74	111	110	1.5	0.24	2.79	4.15	2.73	1.73	1.68	8.5– 14.2
82	79	116	116	1.5	0.22	3.01	4.48	2.94	1.86	1.81	9.6– 16.0
86	84	121	121	1.5	0.22	3.14	4.67	3.07	1.93	1.88	9.9– 16.4
93	91	131	131	2	0.22	3.14	4.67	3.07	2.38	2.32	12.0– 20.0
98	96	140	140	2	0.22	3.07	4.57	3.00	2.97	2.89	16.9– 28.1
103	101	149	147	2	0.23	2.90	4.31	2.83	3.75	3.66	20.0– 34.0
108	107	158	157	2.1	0.23	2.95	4.40	2.89	4.44	4.32	25.9– 43.2
115	112	168	165	2.1	0.24	2.84	4.23	2.78	5.53	5.39	28.8– 48.0
127	122	188	183	2.1	0.25	2.69	4.00	2.63	7.98	7.76	41.6– 69.3
138	132	203	197	2.1	0.25	2.74	4.08	2.68	9.96	9.67	52.8– 88.0
148	144	216	211	3	0.25	2.69	4.00	2.63	12.2	11.8	62.6– 104.4