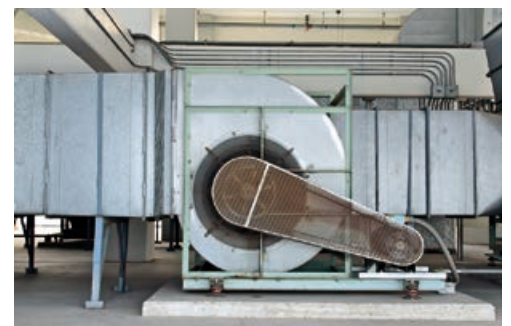


Spherical Roller Bearing with Machined Solid Brass Cage For General Industries Machinery

New Series With Patented Cage Technology
Superb Reliability and Performance



NEW SPHERICAL ROLLER BEARINGS WITH PATENTED CAGE DESIGN

Optimized design and advanced NSK technology to deliver a new level in performance and high load capacity across all applications.

- › Features next-generation precision machined solid brass cage with contoured roller pockets
- › Contoured roller pockets significantly reduce unnecessary roller motion during rotation.
- › NSK design advancement packs in more rollers of larger size for world-top-class load capacity
- › High cage strength (no loss in strength) with highly optimized geometry and roller guided cage design
- › Higher limiting speeds compared with EA type
- › High-temperature dimensional stability
- › Upgrade conventional SRB to NSK's new SRB to help achieve a reduction in total maintenance costs



CURRENT VERSUS NEW DESIGN

Current

Guide ring

New

$a < a'$
 $b < b'$

Optimized Cage Design
New design reduces cage internal stress and eliminates guide ring

Higher Load Capacity
Advanced internal design delivers increased roller size

High Temperature Operation
High temperature dimensional stability treatment is now standard for inner and outer ring.

1. Special pocket design
› Controls roller movement with “roller hugging” shape

2. Reduced stress
› Design balances form fitting shape and cage bar strength
› “R-shape” groove in cage bar corners

3. Improved cage & roller design
› Retainer “clasp” (overlap allowance) on tip of cage bar prevents roller slip off (roller protrusion)

FEATURES

Performance increases over conventional CA type except special notes.

Dynamic Load Rating
47% up
(Maximum)

Static Load Rating
22% up
(Maximum)

Limiting speed
+20% (*)
(Maximum)

Working Temp. up to
200°C

(*) compared with EA type

IDEAL FOR WIDE RANGE OF INDUSTRIAL APPLICATIONS

- | | | | |
|-----------------|------------------|-------------------------|-------------------|
| › Agriculture | › Gearbox | › Petrochemical | › Steel & Metal |
| › Cement | › Industrial Fan | › Material Handling | › Sugar Cane |
| › Elevator | › Palm Oil | › Mining & Construction | › Timber Industry |
| › Fish Industry | › Papermaking | | |

DESIGN OPTIMIZATIONS AND ADVANCEMENTS

Conventional CA Type

Newly Developed ECA Type

Optimized Cage Design

Results of FEM analysis
Load F: Energy at roller collision with 5G acceleration

Position of maximum generated stress

Maximum generated stress of ECA is not greater than that of CA.

AVAILABLE RANGE

With New Machined Brass Cage

222	08	E	CA	M	K	E4
Series	Bore	Extra capacity	Internal design	Cage	Tapered bore	Oil groove /holes

Bearing Numbers		Boundary Dimensions (mm)				Basic Load Rating (N)		Bearing Numbers		Boundary Dimensions (mm)				Basic Load Rating (N)	
Cylindrical bore	Tapered bore	d	D	B	r _{min.}	C _r	C _{0r}	Cylindrical bore	Tapered bore	d	D	B	r _{min.}	C _r	C _{0r}
22208ECAME4	22208ECAMKE4	40	80	23	1.1	108 000	93 000	22216ECAME4	22216ECAMKE4	80	140	33	2	264 000	275 000
22308ECAME4	22308ECAMKE4		90	33	1.5	161 000	142 000	22316ECAME4	22316ECAMKE4		170	58	2.1	540 000	565 000
22209ECAME4	22209ECAMKE4	45	85	23	1.1	113 000	105 000	21316ECAME4	21316ECAMKE4	85	170	39	2.1	355 000	375 000
22309ECAME4	22309ECAMKE4		100	36	1.5	197 000	182 000	22217ECAME4	22217ECAMKE4		150	36	2	310 000	325 000
22210ECAME4	22210ECAMKE4	50	90	23	1.1	119 000	113 000	22317ECAME4	22317ECAMKE4	85	180	60	3	600 000	630 000
22310ECAME4	22310ECAMKE4		110	40	2	233 000	219 000	22218ECAME4	22218ECAMKE4		160	40	2	360 000	395 000
22211ECAME4	22211ECAMKE4	55	100	25	1.5	143 000	136 000	22318ECAME4	22318ECAMKE4	90	190	64	3	665 000	705 000
22311ECAME4	22311ECAMKE4		120	43	2	278 000	274 000	21318ECAME4	21318ECAMKE4		190	43	3	415 000	450 000
22212ECAME4	22212ECAMKE4	60	110	28	1.5	171 000	165 000	22219ECAME4	22219ECAMKE4	95	170	43	2.1	415 000	450 000
22312ECAME4	22312ECAMKE4		130	46	2.1	320 000	320 000	22319ECAME4	22319ECAMKE4		200	67	3	735 000	780 000
22213ECAME4	22213ECAMKE4	65	120	31	1.5	212 000	219 000	22220ECAME4	22220ECAMKE4	100	180	46	2.1	455 000	490 000
22313ECAME4	22313ECAMKE4		140	48	2.1	375 000	380 000	22320ECAME4	22320ECAMKE4		215	73	3	860 000	930 000
22214ECAME4	22214ECAMKE4	70	125	31	1.5	216 000	220 000	22222ECAME4	22222ECAMKE4	110	200	53	2.1	605 000	645 000
22314ECAME4	22314ECAMKE4		150	51	2.1	425 000	435 000	22322ECAME4	22322ECAMKE4		240	80	3	1030 000	1120 000
22215ECAME4	22215ECAMKE4	75	130	31	1.5	229 000	232 000	22224ECAME4	22224ECAMKE4	120	180	46	2	685 000	765 000
22315ECAME4	22315ECAMKE4		160	55	2.1	485 000	505 000	22324ECAME4	22324ECAMKE4		260	86	3	1190 000	1320 000
								22226ECAME4	22226ECAMKE4	130	230	64	3	820 000	940 000

d: Bore, D: Outside, B: Width, r: Chamfer, C_r: Basic dynamic load rating, C_{0r}: Basic static load rating

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www.nsk.com

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