

Cylindrical Roller Bearings **EM Series**

NSK has developed a higher load-carrying capacity machined cage with low noise and superior cage strength. Our EM series is a standard cylindrical roller bearing that facilitates interchangeability across the globe, while offering better performance for every application.

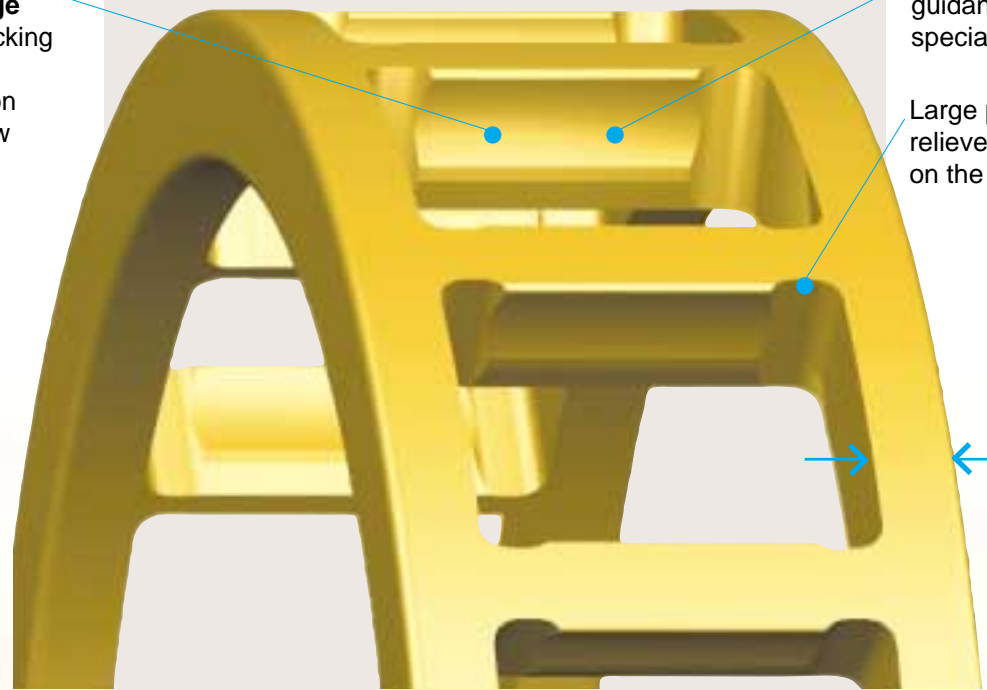


Cylindrical Roller Bearing

EM Series

A newly developed standard bearing

- Advantages of a roller-guided cage**
- Trouble-free packing of grease
 - Quieter operation
 - Improved oil flow

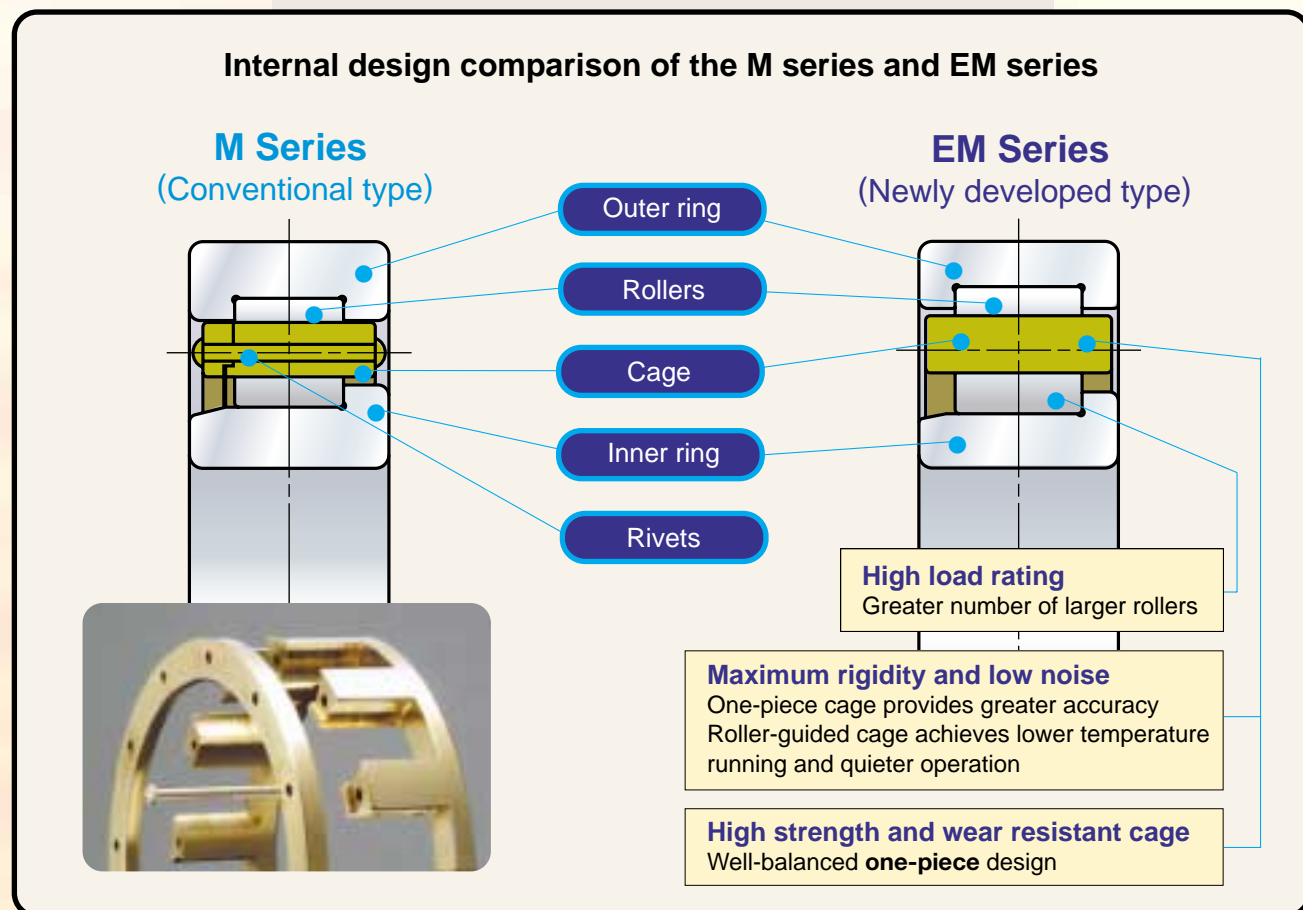


Greater accuracy of the roller guidance achieved through special pocket profiling

Large pocket corner radii relieve stress concentrations on the cage

Improved lubricant dispersion within the cage pockets dampens noise

Design concept of our newly developed standard bearing—the EM series



NSK has been supplying a standard cage for single row cylindrical roller bearings as indicated here:

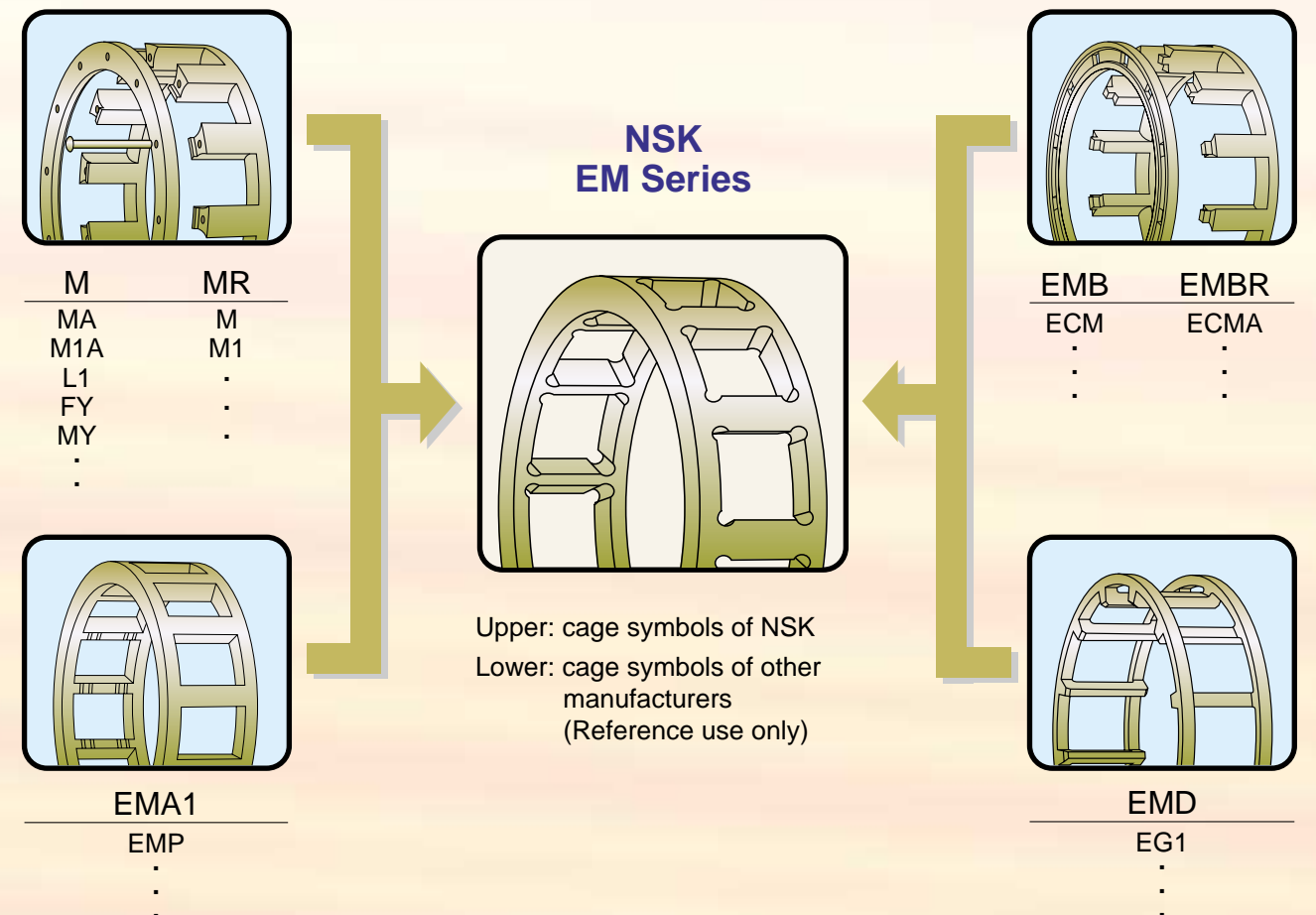
Standard machined cage — M type (Riveted-type two-piece brass land-riding cage)

High load-carrying E type — MA1 type (One-piece brass land-riding cage)

In the 21st century, you can now take advantage of NSK's newly developed cylindrical roller bearing, the EM series, which combines the strengths and technologies of both previous cages into a one-piece brass roller-guided cage.

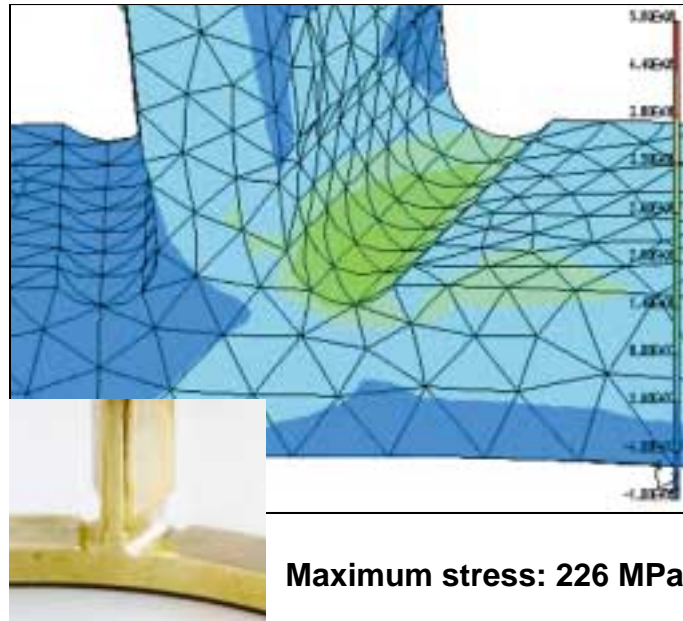
NSK has achieved a new design involving even newer concepts, while maintaining excellence in function and service life. Our EM Series can meet your high load-carrying capacity needs for the new era.

EM Series Bearing Interchange Guide

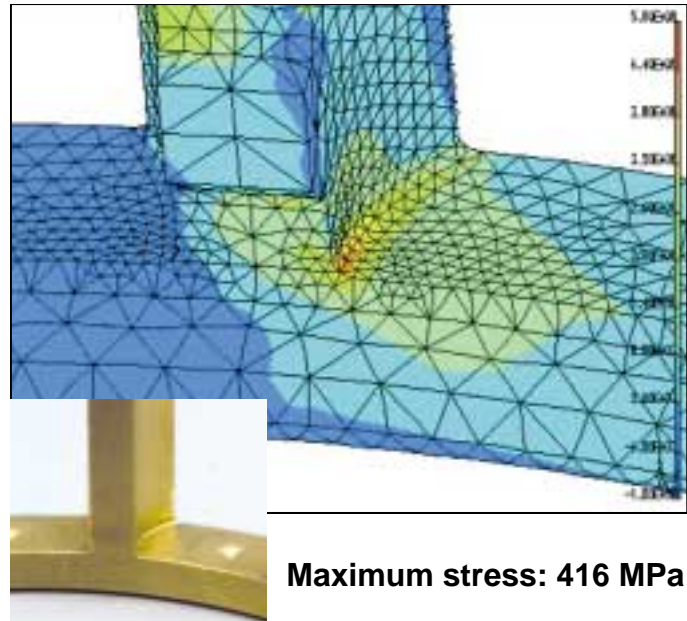


Results of FEM analysis

EM Series

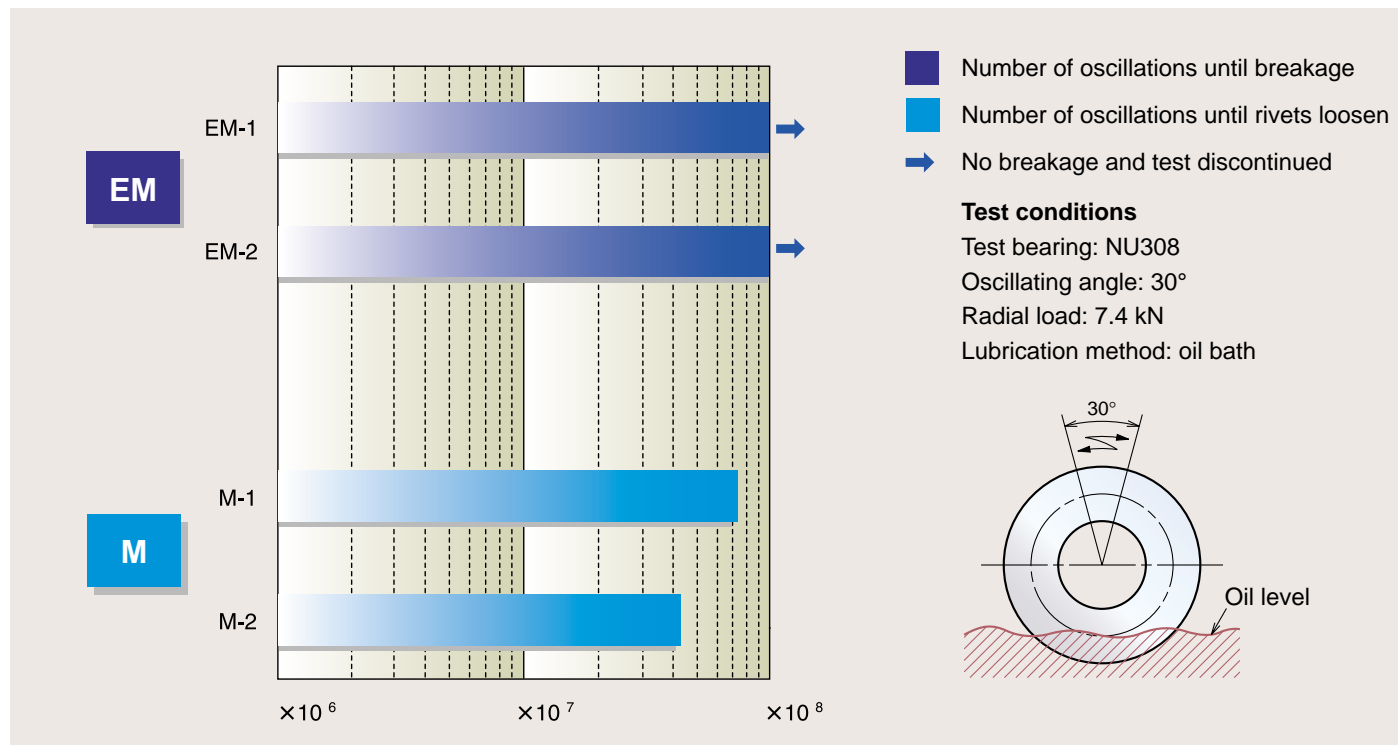


Major competitor's M Series



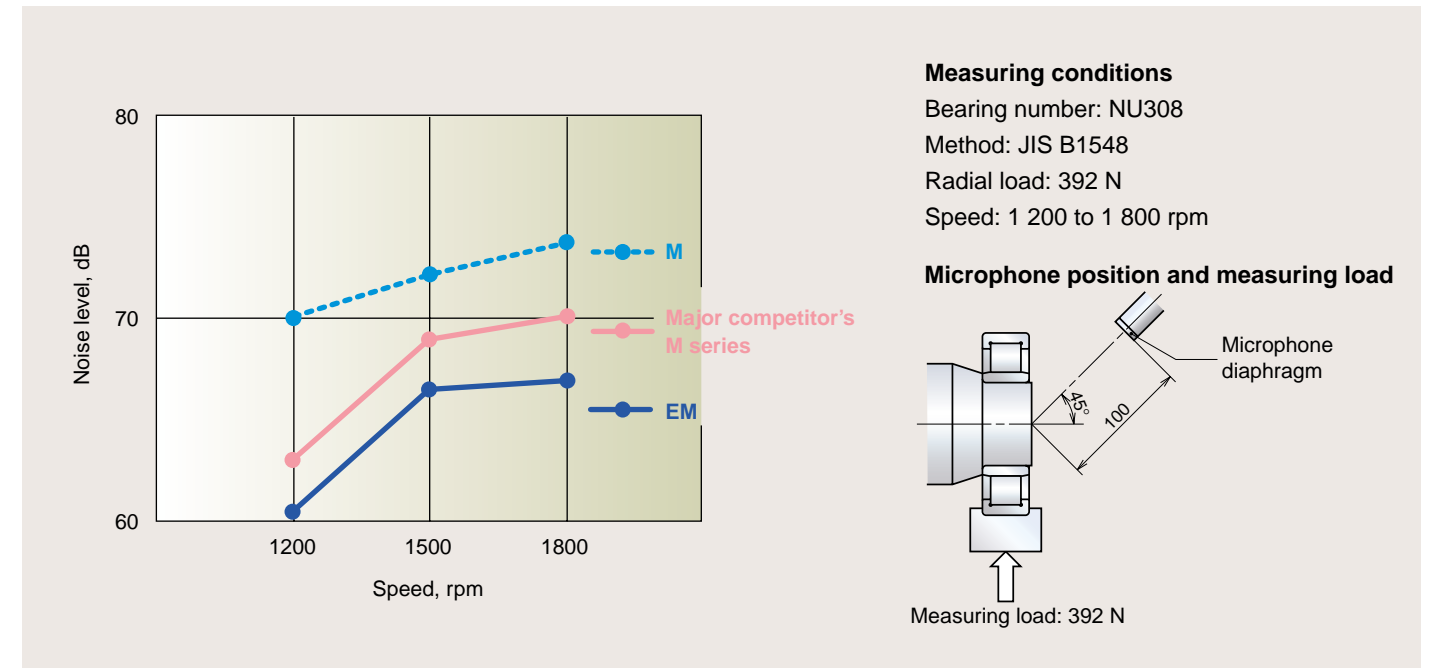
Tests confirm that stress levels are reduced by 50% for the NSK EM series cage compared to major competitor's M series.

Cage strength test results



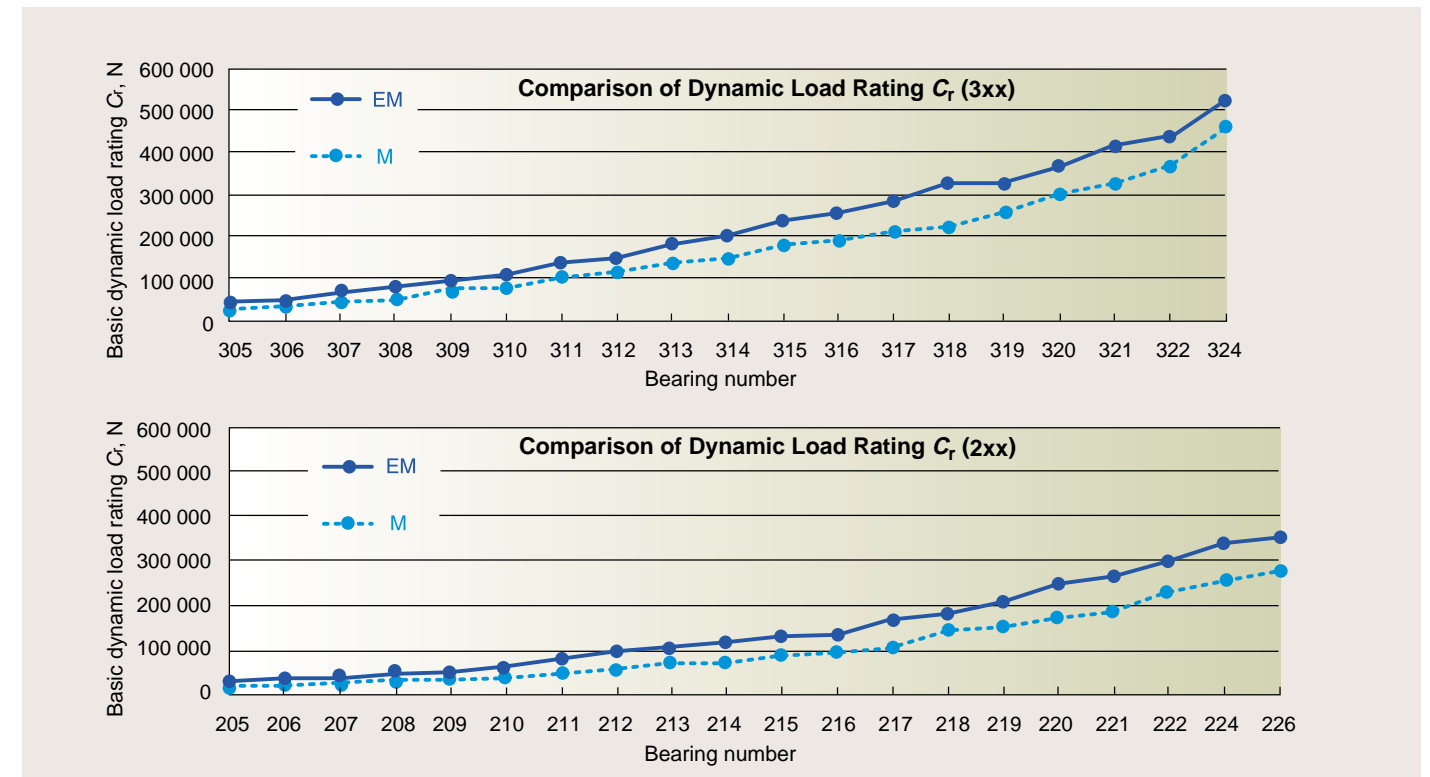
Test results show that the NSK EM series has greater cage strength performance than that of conventional M-type cages.

Noise measurement test results



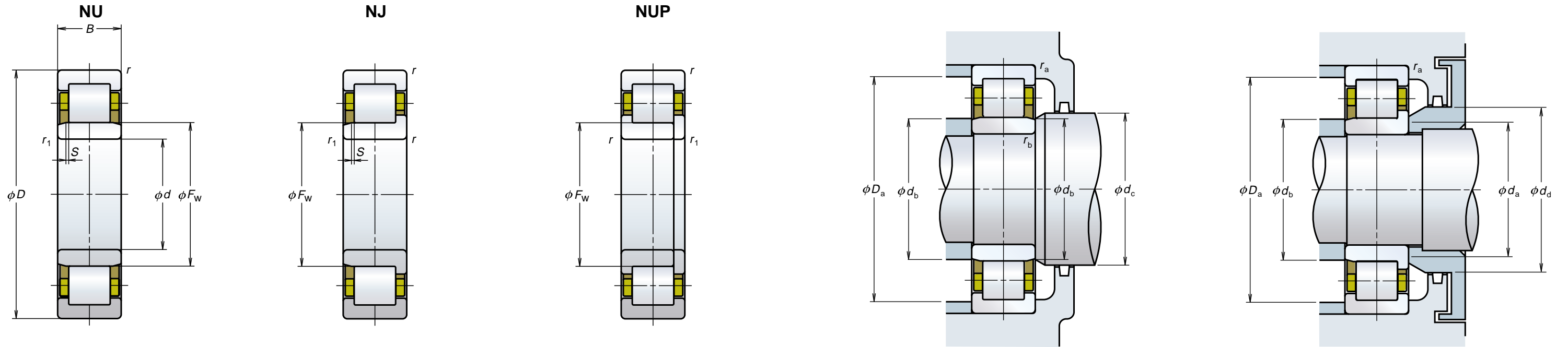
The EM series exhibited noise levels 5 dB lower than competitive two-piece cage designs.

Higher Load Rating



The EM series benefits from a 30% higher load-carrying capacity than the conventional M series.

EM Series Bearing Table



EM series 305-324 and 205-226 of NU, NJ, NUP.

d	Boundary Dimensions (mm)					Basic Load Ratings				Limiting Speeds [rpm]		Bearing Numbers			Abutment and Fillet Dimensions (mm)							Permissible Axial Movement S (mm)	
	D	B	r min	r ₁ min	F _w	C _r [N]	C _{or}	C _r [kgf]	C _{or}	Grease	Oil	NU	NJ	NUP	d _a min	d _b min	d _b max	d _c min	d _d min	D _a max	r _a max		r _b max
25	52	15	1	0.6	31.5	29 300	27 700	2 990	2 830	13 000	16 000	NU205EM	NJ	NUP	30	29	30	34	37	47	1	0.6	1.2
	62	17	1.1	1.1	34	41 500	37 500	4 250	3 800	10 000	13 000	NU305EM	NJ	NUP	31.5	31.5	32	37	40	55.5	1	1	1.2
30	62	16	1	0.6	37.5	39 000	37 500	4 000	3 800	11 000	13 000	NU206EM	NJ	NUP	35	34	36	40	44	57	1	0.6	1.2
	72	19	1.1	1.1	40.5	53 000	50 000	5 400	5 100	8 500	11 000	NU306EM	NJ	NUP	36.5	36.5	39	44	48	65.5	1	1	1.2
35	72	17	1.1	0.6	44	50 500	50 000	5 150	5 100	9 500	11 000	NU207EM	NJ	NUP	41.5	39	42	46	50	65.5	1	0.6	1.2
	80	21	1.5	1.1	46.2	66 500	65 500	6 800	6 650	8 000	9 500	NU307EM	NJ	NUP	43	41.5	44	48	53	72	1.5	1	1.2
40	80	18	1.1	1.1	49.5	55 500	55 500	5 700	5 650	8 500	10 000	NU208EM	NJ	NUP	46.5	46.5	48	52	56	73.5	1	1	1.2
	90	23	1.5	1.5	52	83 000	81 500	8 500	8 300	6 700	8 500	NU308EM	NJ	NUP	48	48	50	55	60	82	1.5	1.5	1.2
45	85	19	1.1	1.1	54.5	63 000	66 500	6 450	6 800	7 500	9 000	NU209EM	NJ	NUP	51.5	51.5	52	57	61	78.5	1	1	1.2
	100	25	1.5	1.5	58.5	97 500	98 500	9 950	10 000	6 300	7 500	NU309EM	NJ	NUP	53	53	56	60	66	92	1.5	1.5	1.4
50	90	20	1.1	1.1	59.5	69 000	76 500	7 050	7 800	7 100	8 500	NU210EM	NJ	NUP	56.5	56.5	57	62	67	83.5	1	1	1.7
	110	27	2	2	65	110 000	113 000	11 200	11 500	5 600	6 700	NU310EM	NJ	NUP	59	59	63	67	73	101	2	2	1.4
55	100	21	1.5	1.1	66	86 500	98 500	8 800	10 100	6 300	7 500	NU211EM	NJ	NUP	63	61.5	64	68	73	92	1.5	1	1.2
	120	29	2	2	70.5	137 000	143 000	14 000	14 600	5 000	6 300	NU311EM	NJ	NUP	64	64	68	72	80	111	2	2	1.4
60	110	22	1.5	1.5	72	97 500	107 000	9 950	10 900	6 000	7 100	NU212EM	NJ	NUP	68	68	70	75	80	102	1.5	1.5	1.2
	130	31	2.1	2.1	77	150 000	157 000	15 200	16 000	4 800	5 600	NU312EM	NJ	NUP	71	71	75	79	86	119	2	2	1.5
65	120	23	1.5	1.5	78.5	108 000	119 000	11 000	12 100	5 300	6 300	NU213EM	NJ	NUP	73	73	76	81	87	112	1.5	1.5	1.4
	140	33	2.1	2.1	82.5	181 000	191 000	18 400	19 500	4 300	5 300	NU313EM	NJ	NUP	76	76	80	85	93	129	2	2	1.5
70	125	24	1.5	1.5	83.5	119 000	137 000	12 100	14 000	5 000	6 300	NU214EM	NJ	NUP	78	78	81	86	92	117	1.5	1.5	1.4
	150	35	2.1	2.1	89	205 000	222 000	20 900	22 600	4 000	5 000	NU314EM	NJ	NUP	81	81	86	92	100	139	2	2	1.5
75	130	25	1.5	1.5	88.5	130 000	156 000	13 300	16 000	4 800	6 000	NU215EM	NJ	NUP	83	83	86	90	96	122	1.5	1.5	1.4
	160	37	2.1	2.1	95	240 000	263 000	24 500	26 800	3 800	4 800	NU315EM	NJ	NUP	86	86	92	97	106	149	2	2	1.4
80	140	26	2	2	95.3	139 000	167 000	14 200	17 000	4 500	5 300	NU216EM	NJ	NUP	89	89	92	97	104	131	2	2	1.4
	170	39	2.1	2.1	101	256 000	282 000	26 100	28 800	3 600	4 300	NU316EM	NJ	NUP	91	91	98	105	114	159	2	2	1.5
85	150	28	2	2	100.5	167 000	199 000	17 000	20 300	4 300	5 000	NU217EM	NJ	NUP	94	94	98	104	110	141	2	2	1.3
	180	41	3	3	108	291 000	330 000	29 700	33 500	3 400	4 000	NU317EM	NJ	NUP	98	98	105	110	119	167	2.5	2.5	2
90	160	30	2	2	107	182 000	217 000	18 500	22 200	4 000	4 800	NU218EM	NJ	NUP	99	99	104	109	116	151	2	2	1.4
	190	43	3	3	113.5	315 000	355 000	32 000	36 000	3 200	3 800	NU318EM	NJ	NUP	103	103	111	117	127	177	2.5	2.5	1.5
95	170	32	2.1	2.1	112.5	220 000	265 000	22 500	27 000	3 800	4 500	NU219EM	NJ	NUP	106	106	110	116	123	159	2	2	1.4
	200	45	3	3	121.5	335 000	385 000	34 000	39 500	3 000	3 600	NU319EM	NJ	NUP	108	108	118	124	134	187	2.5	2.5	1.5
100	180	34	2.1	2.1	119	249 000	305 000	25 400	31 000	3 600	4 300	NU220EM	NJ	NUP	111	111	116	122	130	169	2	2	1.4
	215	47	3	3	127.5	380 000	425 000	38 500	43 500	2 800	3 400	NU320EM	NJ	NUP	113	113	124	132	143	202	2.5	2.5	1.8
105	190	36	2.1	2.1	125	262 000	310 000	26 700	32 000	3 400	4 000	NU221EM	NJ	NUP	116	116	121	129	137	179	2	2	1.4
	225	49	3	3	133	425 000	480 000	43 500	49 000	2 600	3 200	NU321EM	NJ	NUP	118	118	131	137	149	212	2.5	2.5	1.8
110	200	38	2.1	2.1	132.5	293 000	365 000	29 800	37 000	3 200	3 800	NU222EM	NJ	NUP	121	121	129	135	144	189	2	2	1.4
	240	50	3	3	143	450 000	525 000	46 000	53 500	2 600	3 000	NU322EM	NJ	NUP	123	123	139	145	158	227	2.5	2.5	3.8
120	215	40	2.1	2.1	143.5	335 000	420 000	34 000	43 000	3 000	3 400	NU224EM	NJ	NUP	131	131	140	146	156	204	2	2	1.5
	260	55	3	3	154	530 000	610 000	54 000	62 000	2 200	2 800	NU324EM	NJ	NUP	133	133	150	156	171	247	2.5	2.5	1.8
130	230	40	3	3	153.5	365 000	455 000	37 000	46 000	2 600	3 200	NU226EM	NJ	NUP	143	143	150	158	168	217	2.5	2.5	1.5