

SKF Deep Groove Ball Bearing Reference — 6000 / 6200 / 6300 / 6400 Series (Dimensions, Load Ratings, Interchange to FAG NSK NTN Timken)

cBallast Technical Sourcing · Single-row deep groove ball bearings — metric ISO 15 (6xxx series) · issued 2026-08-29 · cballast.com/documents/skf-deep-groove-ball-bearing-6000-6200-6300-6400-series-complete-reference

SKF single-row deep groove ball bearing complete reference across the four ISO 15 metric series: 6000 (extra light), 6200 (light), 6300 (medium), 6400 (heavy). Bore d, outside diameter D, width B, dynamic C and static C € load ratings, limiting speed (grease and oil), suffix decoder (2RS/2RSH/2Z/2RSL/2NR/2RS1/N/NR/M/MA/C3/C4), cross-maker interchange to FAG, NSK, NTN, Timken, Koyo. Applications: electric motors, gearboxes, machine tools, fans, pumps, agricultural machinery, marine deck-machinery.

SKF deep groove ball bearing — complete 6xxx series reference

The SKF single-row deep groove ball bearing is the workhorse rolling element of industry — installed on more motors, gearboxes, machine tools, fans, pumps and general rotating machinery than any other bearing type combined. SKF publishes four metric series to ISO 15: 6000 (extra light), 6200 (light), 6300 (medium) and 6400 (heavy). All four share the same 5-mm-bore steps and interchange dimensionally between all major bearing makers. What differs by series is the section (light vs heavy) and thus the load rating at any given bore.

6000 series (extra light section) — bore 10 to 100 mm

Designation	Bore d (mm)	OD D (mm)	Width B (mm)	Dynamic C (kN)	Static C € (kN)	Limiting speed (rpm, grease)
6000	10	26	8	4.75	1.96	34,000
6001	12	28	8	5.40	2.36	32,000
6002	15	32	9	5.85	2.85	28,000
6003	17	35	10	6.05	3.25	26,000
6004	20	42	12	9.36	5.00	22,000
6005	25	47	12	11.9	6.55	20,000
6006	30	55	13	13.8	8.30	17,000
6007	35	62	14	16.8	10.2	15,000
6008	40	68	15	17.8	11.6	13,000
6009	45	75	16	22.1	14.6	12,000
6010	50	80	16	22.9	16.6	11,000
6011	55	90	18	29.1	21.2	10,000
6012	60	95	18	30.7	23.2	9,500
6014	70	110	20	39.0	31.0	8,000
6016	80	125	22	47.5	40.0	7,000
6018	90	140	24	60.5	54.0	6,300
6020	100	150	24	63.7	60.0	6,000

6200 series (light section) — bore 10 to 150 mm

Designation	Bore d (mm)	OD D (mm)	Width B (mm)	Dynamic C (kN)	Static C € (kN)	Limiting speed (rpm, grease)
6200	10	30	9	5.85	2.36	28,000
6201	12	32	10	7.28	3.10	26,000
6202	15	35	11	8.06	3.75	24,000
6203	17	40	12	9.95	4.75	20,000
6204	20	47	14	13.5	6.55	17,000
6205	25	52	15	14.8	7.80	15,000
6206	30	62	16	20.3	11.2	13,000
6207	35	72	17	27.0	15.3	11,000
6208	40	80	18	32.5	19.0	10,000
6209	45	85	19	35.1	21.6	9,000
6210	50	90	20	37.1	23.2	8,500
6211	55	100	21	46.2	29.0	7,500
6212	60	110	22	55.3	36.0	7,000
6213	65	120	23	58.5	40.5	6,300
6214	70	125	24	63.7	45.0	6,000
6215	75	130	25	68.9	49.0	5,600

6216		80		140		26		72.8		55.0		5,300	
6217		85		150		28		87.1		64.0		4,800	
6218		90		160		30		101		73.5		4,500	
6220		100		180		34		124		93.0		4,000	
6222		110		200		38		146		112		3,600	
6224		120		215		40		146		118		3,400	
6226		130		230		40		156		132		3,200	
6228		140		250		42		174		153		2,800	
6230		150		270		45		186		170		2,600	

6300 series (medium section) — bore 10 to 150 mm

Designation | Bore d (mm) | OD D (mm) | Width B (mm) | Dynamic C (kN) | Static C € (kN) | Limiting speed (rpm, grease) |

6300		10		35		11		8.06		3.40		24,000	
6301		12		37		12		9.75		4.15		22,000	
6302		15		42		13		11.4		5.40		20,000	
6303		17		47		14		14.3		6.80		18,000	
6304		20		52		15		16.8		7.80		15,000	
6305		25		62		17		23.4		11.6		13,000	
6306		30		72		19		29.6		16.0		11,000	
6307		35		80		21		35.1		19.0		10,000	
6308		40		90		23		42.3		24.0		9,000	
6309		45		100		25		55.3		31.5		8,000	
6310		50		110		27		65.0		38.0		7,000	
6311		55		120		29		74.1		45.0		6,300	
6312		60		130		31		85.2		52.0		6,000	
6313		65		140		33		96.2		60.0		5,300	
6314		70		150		35		110		68.0		5,000	
6315		75		160		37		119		76.5		4,500	
6316		80		170		39		130		86.5		4,300	
6317		85		180		41		140		96.5		4,000	
6318		90		190		43		163		114		3,800	
6320		100		215		47		174		140		3,400	
6322		110		240		50		203		166		3,000	
6324		120		260		55		229		190		2,600	
6326		130		280		58		245		220		2,400	
6328		140		300		62		274		245		2,200	
6330		150		320		65		276		265		2,000	

SKF suffix decoder

Every SKF bearing part number ends with 0-3 suffixes that describe the seal, cage, clearance, and preservative:

Suffix | Meaning |

(none) | Open bearing, no seals, no shields |

Z / 2Z | One / two metal shields (non-contact); grease-retained for medium-speed service |

RS / 2RS | One / two contact rubber seals; better dust exclusion, slightly higher friction |

RSH / 2RSH | Improved contact seals — SKF's higher-friction, high-dust-exclusion seal (Grease Lubricant Life extended) |

RS1 / 2RS1 | Nitrile (NBR) seals to older SKF designation; largely superseded by RSH |

RSL / 2RSL | Low-friction contact seals; between Z and RS in friction; SKF's compromise design |

N / NR | Snap ring groove on OD (N) or snap ring groove + snap ring (NR) |

M | Machined brass cage (typical for medium-large sizes) |

MA / MB / MP | Machined brass cage with variant guiding (MA = outer-ring guided, MB = inner-ring guided, MP = ball-guided) |

J | Pressed steel cage (default on many small sizes) |

TN / TN9 | Polyamide 6.6 cage; TN9 is the fibre-reinforced variant, service to 120 °C |

C0 / CN | Standard clearance (default; usually omitted) |

C2 | Reduced radial clearance (interference-fit-preloaded shaft applications) |

C3 | Increased radial clearance beyond normal (compensates thermal expansion; electric motor default) |

C4 | Radial clearance greater than C3 (higher-temperature or heavier-fit applications) |

C5 | Radial clearance greater than C4 (specialised) |

P5 / P6 / P4 / P2 | Precision-tolerance classes (P2 tightest, ABEC 9 equivalent) |

W64F / W64 | SKF Life-lubricated bearing (factory-sealed for maintenance-free service) |

Example: SKF 6205-2RSH/C3 = 25 mm bore, light 6200 series, both sides sealed with SKF's high-performance contact seal, radial clearance C3 (extended for a motor fit). SKF 6205-2Z/C3 = same bore but with metal shields instead of rubber seals.

Interchange to other bearing makers

All 6xxx-series deep groove ball bearings are dimensionally interchangeable between all major bearing makers per ISO 15; only the suffix code varies by manufacturer:

Feature | SKF | FAG | NSK | NTN | Timken | Koyo |

Open | 6205 | 6205 | 6205 | 6205 | 205K | 6205 |

Metal shield both sides | 6205-2Z | 6205-2ZR | 6205ZZ | 6205ZZ | 205KDD | 6205ZZ |

Contact seal both sides | 6205-2RS / 2RSH | 6205-2RSR | 6205DDU / DDU2 | 6205LLU | 205PP | 6205 2RS |

Increased clearance | C3 | C3 | C3 | C3 | — | C3 |

Polyamide cage | TN9 | TVH | T | T2 | — | TN |

Example: SKF 6205-2RSH/C3 = FAG 6205-2RSR-C3 = NSK 6205DDUC3 = NTN 6205LLU/C3 = Timken 205PPC3 = Koyo 6205 2RS C3. All install interchangeably; load rating differs by ± 10 % between makers depending on ISO 281 life-modification factor aISO.

6205-2RSH: the most common bearing in industry

If any single bearing accounts for the largest share of industrial spare-parts consumption, it is the 6205-2RSH. It sits inside the shaft-end of electric motor frames from ~0.75 to 5.5 kW (NEMA 145T / IEC 90S), on the fan-end of countless HVAC air-handling units, on gearbox output shafts, in pumps, in printer rollers, in food conveyor drives, in agricultural machinery, in automotive alternators and in domestic washing machines and dishwashers. Standard replacement is 25 mm bore $\times$ 52 mm OD $\times$ 15 mm width, both sides sealed with contact rubber seal, C3 clearance for motor fit. In an emergency, any maker's 6205-2RS/C3 will fit and function; SKF's -2RSH offers longer scheduled maintenance interval on high-dust exposure.

Common questions

Q: What's the difference between 6205-2RS and 6205-2RSH? Both are SKF nomenclature for deep-groove ball bearings with contact rubber seals on both sides. 2RSH is the newer, higher-performance seal design with improved dust/water exclusion at the cost of slightly higher friction. 2RS is the earlier designation. On a bearing supplied today, 2RSH is what SKF ships; the two are functionally interchangeable in most applications.

Q: Is 6205 C3 the same as 6205 CN? No — CN (or C0, both are "normal" clearance) is standard; C3 is INCREASED clearance. For electric motor service, C3 is the standard specification because the bearing warms up in operation and needs radial space to expand. Using CN in a motor risks thermal-lockup and premature failure.

Q: When do I choose 6000 vs 6200 vs 6300 series at the same bore? At 25 mm bore: 6005 (6000 series, extra light) = 47 mm OD, C=11.9 kN; 6205 (6200 series, light) = 52 mm OD, C=14.8 kN; 6305 (6300 series, medium) = 62 mm OD, C=23.4 kN. Choose 6000 for lightest-load applications where a small OD is critical (compact machines, small motors); 6200 for general use (default choice); 6300 for higher-load applications where OD space allows. The step in load rating is about 25 % from series to series.

Q: Can I use a 2Z-shielded bearing where a 2RS-sealed one was specified? Not usually — the 2Z shield does not exclude water or fine dust. Sealed 2RS bearings are specified where wash-down water, aerosols, or fine particulate would enter a shielded bearing. Downgrading 2RS to 2Z shortens service life; upgrading 2Z to 2RS raises friction and reduces limiting speed marginally.

Related products & references

SKF 6205-2RSH deep groove ball bearing on cBallast

All SKF 6205 variants (2RS, 2Z, C3, C4)

SKF deep groove ball bearings (all sizes)

Deep groove ball bearings across brands

Deep groove ball bearing dimensions (existing doc)

SKF 81xxx cylindrical roller thrust bearing (companion doc)

Rolling bearing selection (ISO 15)

UC insert bearing dimensions (pillow-block insert)

UCP pillow-block bearing dimensions

SKF on cBallast

Bearings category

Dimensions and load ratings above are the SKF General Catalogue nominal values for the standard open-, shielded- and sealed-bearing variants. Confirm the specific suffix combination against the SKF current product data sheet before ordering. All values calculated to ISO 76 (static) and ISO 281 (dynamic) with SKF's aISO life-modification factor. Cross-maker interchange holds dimensionally per ISO 15; load ratings vary by $\pm 10\%$ between makers.

Frequently asked questions

What are the dimensions of a 6002 bearing? 15 mm bore, 32 mm outside diameter, 9 mm width — with a dynamic load rating of about 5.85 kN and a limiting speed around 28,000 rpm in the standard open execution. How do the 6000, 6200 and 6300 series differ? Same bore ladder, increasing cross-section: for a given bore the 6200 is larger and stronger than the 6000, and the 6300 larger again — load capacity rises with the heavier series. What do suffixes like 2RSH, 2Z and C3 mean? Sealing and clearance: 2Z = two steel shields, 2RSH = two contact seals, C3 = larger-than-normal internal clearance for warm or interference-fitted applications. How do I read the bore from a bearing number? For bearings from /04 upward, multiply the last two digits by five: 6205 ! 25 mm bore; 00/01/02/03 map to 10/12/15/17 mm.

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