

Designation

ZVL-ZKL rolling bearings are designated according to CSN 02 4608. The designation consists of numerical and letter symbols indicating the bearing type, size, and design, as shown in the schematic.

Basic Designation

Rolling bearings manufactured in the basic design are given a "basic designation," which consists of the bearing type and size designation.

The type designation is formed by a symbol indicating the bearing design (see 3 in the schematic) and by a symbol indicating the dimension series or the diameter series (see 4 and 5 in the schematic), e.g. types 223, 302, NJ22, 511, 62, 12, etc.

The bearing size designation is formed by symbols indicating the nominal bore diameter d (see 6 in the schematic).

Bearings with the bore diameter $d < 10$ mm:

The digit separated by a slash or the last digit directly indicates the bore diameter in mm, e.g. 619/2, 624.

Bearings with the bore diameter $d = 10$ up to 17 mm:

The two digit number 00 indicates the bore $d = 10$ mm, e.g. 1200

The two digit number 01 indicates the bore $d = 12$ mm, e.g. 51101A

The two digit number 02 indicates the bore $d = 15$ mm, e.g. 3202

The two digit number 03 indicates the bore $d = 17$ mm, e.g. 6303

EXCEPTION: Separable single row ball bearing type E. The two digit number directly indicates the bore diameter in mm, e.g. E17.

Bearings with the bore diameter $d = 20$ mm up to 480 mm:

The bore diameter is five times the last two digit number, e.g. the bore diameter is $d = 20 \times 5 = 100$ mm for the bearing 1320.

EXCEPTION: Bearings with the bore $d = 22, 28$ and 32 mm. The two digit number separated by a slash directly indicates the bore diameter in mm, e.g. 320/32AX.

Bearings with the bore diameter $d \geq 500$ mm:

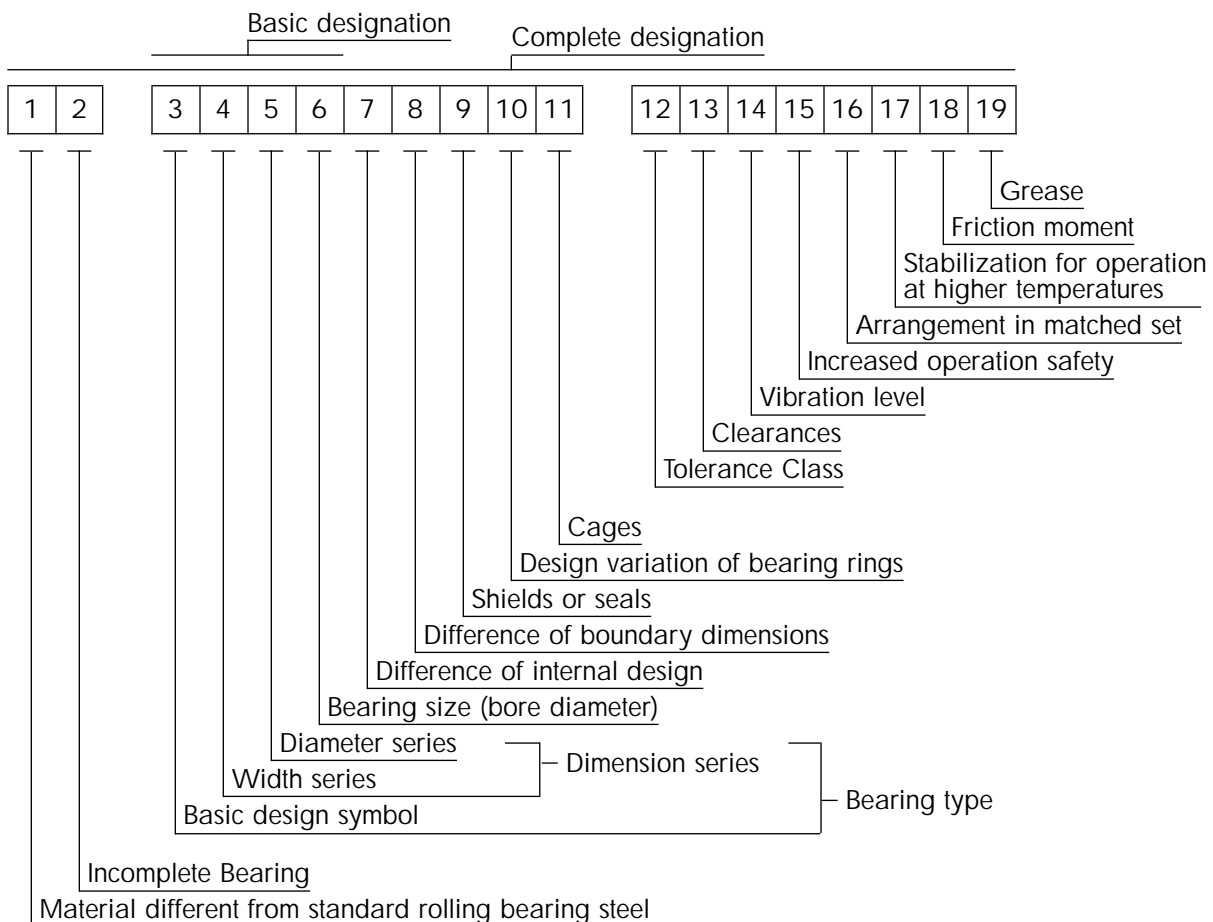
The last three or four digit number separated by a slash directly indicates the bore diameter in mm, e.g. 230/530M, NU 29/1060.

Complete Designation

Rolling bearings manufactured in a different design from the basic design are designated by a "complete designation." This consists of the basic designation and symbols that indicate a difference from the basic design. The symbols indicating a variation are added to the basic designation as prefixes or suffixes and may also be formed by several letters or figures.

The most frequently used symbols indicating bearing variations from the basic design are shown in the schematic.

The number in parentheses for individual groups corresponds to the position number in the schematic.



PREFIXES

Material different from Standard Rolling Bearing Steel (1)

- X — Corrosion resisting steel, e.g. X 623
- T — Case hardened steel, e.g. T 32248

Incomplete Bearing (2)

- K — Rolling elements and cage assembly, e.g. K NU320
- L — Removable ring of separate bearing, e.g. L NU206, for thrust ball bearings — bearing without shaft washer, e.g. L 51215
- R — Separate bearing without removable ring, e.g. R NA4905
- E — Single shaft washer of thrust ball bearing, e.g. E 51314
- W — Single housing washer of thrust ball bearing, e.g. W 51411

SUFFIXES

Difference of Internal Design (7)

- A — Single row ball bearing with higher load rating, e.g. 6020A. Used only until the bearings of this designation are completely exhausted
 - Single row angular contact ball bearing with contact angle $\alpha = 25^\circ$, e.g. B7205ATB P5
 - Single row tapered roller bearing with higher load rating and higher limiting speed, e.g. 30206A, 32309BA
 - Thrust ball bearing with higher limiting speed, e.g. 51105A
- AA — Single row angular contact ball bearing with contact angle $\alpha = 26^\circ$, e.g. B72010AATB P4
- B — Single row angular contact ball bearing with contact angle $\alpha = 40^\circ$, e.g. 7304B
 - Single row tapered roller bearing with contact angle $\alpha = 17^\circ$, e.g. 32315B
- BE — Single row angular contact ball bearing contact angle $\alpha = 40^\circ$, in new design, e.g. 7210BETNG
- C — Single row angular contact ball bearing with contact angle $\alpha = 15^\circ$, e.g. B7202CTB P4
 - Double row spherical roller bearing with higher load rating, e.g. 22216C
- CA — Single row angular contact ball bearing with contact angle $\alpha = 12^\circ$, e.g. B7202CATB P5
- CB — Single row angular contact ball bearing with contact angle $\alpha = 10^\circ$, e.g. B7206CBTB P4
- D — Single row ball bearing, type 160 with higher load rating, e.g. 16004D
- E — Single row cylindrical roller bearing with higher load rating, e.g. NU209E
 - Double row spherical roller bearing with higher load rating, e.g. 22216E
 - Spherical roller thrust bearing with higher load rating, e.g. 29416EJ

Difference of Boundary Dimensions (8)

- X — Altered boundary dimensions introduced by revised international standards, e.g. 32028AX

Shields or Seals (9)

- RS — Seal on one side, e.g. 6304RS
- 2RS — Seals on both sides, e.g. 6204-2RS
- RSR — Seal on one side adhering to flat surface of the inner ring, e.g. 624RSR
- 2RSR — Seals on both sides adhering to flat surface of the inner ring, e.g. 624-2RSR
- Z — Metal shield on one side, e.g. 6206Z
- 2Z — Metal shields on both sides, e.g. 6206-2Z
- ZN — Metal shield on one side and snap ring groove in outer ring opposite to metal shield, e.g. 6208ZN
- 2ZN — Metal shields on both sides and snap ring groove in outer ring, e.g. 6208-2ZN
- ZR — Metal shield on one side adhering to flat surface of the inner ring, e.g. 608ZR
- 2ZR — Metal shields on both sides adhering to flat surface of the inner ring, e.g. 608-2ZR

Design Variation of Bearing Rings (10)

- K — Tapered bore, taper 1:12, e.g. 1207K
- K30 — Tapered bore, taper 1:30, e.g. 23164K30M
- N — Snap ring groove in outer ring, e.g. 6310N
- NR — Snap ring groove in outer ring and inserted snap ring, e.g. 6310NR

- D — Split inner ring of double row bearing, e.g. 3309D
- W33 — Lubrication groove and holes in outer ring, e.g. 23148W33M

Cages (11)

- Cage material (for bearings in standard design, as a rule are not indicated):
- J — Pressed steel cage, rolling element centered, e.g. 6034J
- J1 — Pressed steel cage, rolling element centered, new design for single row tapered roller bearings, e.g. 30206AJ1
- Y — Pressed brass cage, rolling element centered, e.g. 6001Y
- F — Machined steel cage, rolling element centered, e.g. 6418F
- L — Machined light alloy cage, rolling element centered, e.g. NG180L C3SO
- M — Machined brass or bronze cage, rolling element centered, e.g. NU330M
- T — Solid cage made of textile (fabric-reinforced phenolic resin), rolling element centered, e.g. 6005T P5
- TN — Solid cage made of polyamide or similar plastic, rolling element centered, e.g. 6207TN
- TNG — Solid cage made of polyamide or similar plastic with glass fibre, rolling element centered, e.g. 2305TNG
- TNGN — Solid cage made of polyamide or similar plastic with glass fibre, rolling element centered, applicable up to 100°C, e.g. 2305TNGN.

Cage design (the symbols are always used in connection with the symbols indicating cage material):

- A — Cage centered on outer ring, e.g. NU226MA
- B — Cage centered on inner ring, e.g. B7204CATB P5
- P — Machined window type cage, e.g. NU1060MAP
- H — One-piece open type cage, e.g. 629BTN
- S — Cage with lubrication grooves, e.g. NJ418MAS
- V — Bearing without cage, full complement bearing, e.g. NA4806V

Tolerance Class (12)

- P0 — Standard tolerance class (not indicated), e.g. 2205
- P6 — Higher tolerance class than standard, e.g. 6322 P6
- P5 — Higher tolerance class than P6, e.g. 6201 P5
- P4 — Higher tolerance class than P5, e.g. B7206CBTB P4
- P2 — Higher tolerance class than P4, e.g. B7200CBTB P2
- P6E — Higher tolerance class for rotating electric machines, e.g. 6204 P6E
- P6X — Higher tolerance class for single row tapered roller bearings, e.g. 30210A P6X
- SP — Higher tolerance class for cylindrical roller bearings with tapered bore, e.g. NN3022K SPC2NA
- UP — Higher tolerance class than SP for cylindrical roller bearings with tapered bore, e.g. N1016K UPC1NA

Clearances (13)

- C1 — Clearance less than C2, e.g. NN3010K SPC1
- C2 — Clearance less than normal, e.g. 608 C2
- C0 — Normal clearance, e.g. 6226 (not indicated)
- C3 — Clearance greater than normal, e.g. 6310 C3
- C4 — Clearance greater than C3, e.g. NU320M C4
- C5 — Clearance greater than C4, e.g. 22330M C5
- NA — Radial clearance for bearings with non-interchangeable rings (the symbol always follows the radial clearance symbol), e.g. NN3024K P41NA
- R..... — Radial clearance within non-standardized range (range in μm), e.g. 6210A R10-20
- A..... — Axial clearance within non-standardized range (range in μm), e.g. 3210 A20-30

Vibration Level (14)

- Normal vibration level of rolling bearings (not designated), e.g. 6203
- C6 — Reduced vibration level of rolling bearings, e.g. 6203 C6
- C06 — Reduced vibration level of rolling bearings lower than C6, e.g. 6205 C06
- C66 — Vibration level of rolling bearings lower than C06, e.g. 6205 C66

Increased Operation Safety (15)

- C7, C8, C9, — Bearings with increased operation safety designed primarily for aircraft industry, e.g. 16008 C8