# Reference insert page 1-1 for Koyo Ball & Roller Bearings Catalogue
## (comparison between JIS B 1514-1:2006 and JIS B 1514-1:2017)

### Table 1-1 Comparison table between GPS symbols with descriptions and previous terms for radial bearings.

| Nominal dimension [1] | Symbol for characteristic [1] | GPS symbol and specification modifier [2] | Description [3] | Conventional term [4] |
|---|---|---|---|---|
| $B$ | | | Nominal inner ring width | Nominal inner ring width |
| | VBs | LP SR | **Symmetrical rings:** range of two point sizes of inner ring width | Variation of inner ring width |
| | | | **Asymmetrical rings:** range of minimum circumscribed sizes of inner ring width, between two opposite lines, obtained from any longitudinal section which includes the inner ring bore axis | |
| | ΔBs | LP | **Symmetrical rings:** deviation of a two-point size of inner ring width from its nominal size | Deviation of single inner ring width |
| | | GN ALS ⧅ | **Asymmetrical rings, upper limit:** deviation of a minimum circumscribed size of inner ring width, between two opposite lines, in any longitudinal section which includes the inner ring bore axis, from its nominal size | |
| | | LP | **Asymmetrical rings, lower limit:** deviation of a two-point size of inner ring width from its nominal size | |
| $C$ | | | Nominal outer ring width | Nominal outer ring width |
| | VCs | LP SR | **Symmetrical rings:** range of two point sizes of outer ring width | Variation of outer ring width |
| | | | **Asymmetrical rings:** range of minimum circumscribed sizes of outer ring width, between two opposite lines, obtained from any longitudinal section which includes the outer ring outside axis | |
| | ΔCs | LP | **Symmetrical rings:** deviation of a two-point size of outer ring width from its nominal size | Deviation of single outer ring width |
| | | GN ALS ⧅ | **Asymmetrical rings, upper limit:** deviation of a minimum circumscribed size of outer ring width, between two opposite lines, in any longitudinal section which includes the outer ring outside axis, from its nominal size | |
| | | LP | **Asymmetrical rings, lower limit:** deviation of a two-point size of outer ring width from its nominal size | |
| $C_1$ | | | Nominal outer ring flange width | Nominal outer ring flange width |
| | VC1s | LP SR | Range of two point sizes of outer ring flange width | Variation of outer ring flange width |
| | ΔC1s | LP | Deviation of a two-point size of outer ring flange width from its nominal size | Deviation of single outer ring flange width |
| $d$ | | | Nominal bore diameter of a cylindrical bore or at the theoretical small end of a tapered bore | Nominal bore diameter |
| | Vdmp | LP SR | Range of mid-range sizes (out of two-point sizes) of bore diameter obtained from any cross-section of a cylindrical bore | Variation of mean bore diameter |
| | Δdmp | LP | **Cylindrical bore:** deviation of a mid-range size (out of two-point sizes) of bore diameter in any cross-section from its nominal size | Deviation of mean bore diameter (at the theoretical small end) in a single plane |
| | | LP SD SCS | **Tapered bore:** single plane deviation of a mid-range size (out of two-point sizes) of bore diameter at the theoretical small end from its nominal size | |
| | Vdsp | | Range of two-point sizes of bore diameter in any cross-section of a cylindrical or tapered bore | Variation of single bore diameter in a single plane |
| | Δds | LP | Deviation of a two-point size of the bore diameter from its nominal size | Deviation of a single bore diameter |
| $d_1$ | | | Nominal diameter at the theoretical large end of a tapered bore | Nominal diameter at the theoretical large end of a basically tapered bore |
| | Δd1mp | LP SD SCS | Deviation of a mid-range size (out of two-point sizes) of bore diameter at the theoretical large end of a tapered bore from its nominal size | Deviation of mean bore diameter in a single plane at the theoretical large end of a basically tapered bore |

Note 1) Symbols as defined in **JIS B 0124** except for the format used.
Tolerance values associated to characteristics are symbolized by "$t$" followed by the symbols for the characteristics, for example "$t_{VBs}$".
2) Symbols as defined in **JIS B 0420-1** and **ISO 1101**. See **JIS B 1514-1**:2017 **Annex D**.
3) Description based on **JIS B 0022**

JIS B 1514-1 and JIS B 1514-2 were revised to introduce geometrical product specifications (GPS) in 2017.
So this reference insert page is provided in order to compare the GPS symbols, descriptions and conventional terms.

| Nominal dimension [1] | Symbol for characte-ristic [1] | GPS symbol and specification modifier [2] | Description [3] | Conventional term [4] |
|---|---|---|---|---|
| $D$ | | | Nominal outside diameter | Nominal outside diameter |
| | VDmp |  | Range of mid-range sizes (out of two-point sizes) of outside diameter obtained from any cross-section | Variation of mean outside diameter |
| | ΔDmp |  | Deviation of a mid-range size (out of two-point sizes) of outside diameter in any cross-section from its nominal size | Deviation of mean outside diameter in a single plane |
| | VDsp |  | Range of two-point sizes of outside diameter in any cross-section | Variation of outside diameter in a single plane |
| | ΔDs | (LP) | Deviation of a two-point size of outside diameter from its nominal size | Deviation of a single outside diameter |
| $D_1$ | | | Nominal outside diameter of outer ring flange | Nominal outside diameter of outer ring flange |
| | ΔD1s | (LP) | Deviation of a two-point size of outside diameter of outer ring flange from its nominal size | Deviation of a single outside diameter of outer ring flange |
| | Kea |  [5] | Circular radial run-out of outer ring outside surface of assembled bearing with respect to datum, i.e. axis, established from the inner ring bore surface | Radial run-out of outer ring of assembled bearing |
| | Kia |  [5] | Circular radial run-out of inner ring bore of assembled bearing with respect to datum, i.e. axis, established from the outer ring outside surface | Radial run-out of inner ring of assembled bearing |
| | Sd |  [5] | Circular axial run-out of inner ring face with respect to datum, i.e. axis, established from the inner ring bore surface | Perpendicularity of inner ring face with respect to the bore |
| | SD [6] | ⊥ | Perpendicularity of outer ring outside surface axis with respect to datum established from the outer ring face | Perpendicularity of outer ring outside surface with respect to the face |
| | SD1 [6] | ⊥ | Perpendicularity of outer ring outside surface axis with respect to datum established from the outer ring flange back face | Perpendicularity of outer ring outside surface with respect to the flange back face |
| | Sea |  [5] | Circular axial run-out of outer ring face of assembled bearing with respect to datum, i.e. axis, established from the inner ring bore surface | Axial run-out of outer ring of assembled bearing |
| | Sea1 |  [5] | Circular axial run-out of outer ring flange back face of assembled bearing with respect to datum, i.e. axis, established from the inner ring bore surface | Axial run-out of outer ring flange back face of assembled bearing |
| | Sia |  [5] | Circular axial run-out of inner ring face of assembled bearing with respect to datum, i.e. axis, established from the outer ring outside surface | Axial run-out of inner ring of assembled bearing |
| $SL$ | | | Taper slope: Taper slope is the difference between nominal diameters at the theoretical large end and small end of a tapered bore ($d_1 - d$) | – |
| | ΔSL | | Deviation of taper slope of a tapered inner ring bore from its nominal size | – |
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| Nominal dimension [1] | Symbol for characte-ristic [1] | GPS symbol and specification modifier [2] | Description [3] | Conventional term [4] |
|---|---|---|---|---|
| $d$ | | | Nominal bore diameter of shaft washer, single-direction bearing | Nominal bore diameter of shaft washer, single-direction bearing |
| | $\Delta dmp$ |  | Deviation of a mid-range size (out of two-point sizes) of shaft washer bore diameter in any cross-section from its nominal size | Deviation of mean bore diameter in a single plane of shaft washer, single-direction bearing |
| | $Vdsp$ |  | Range of two-point sizes of shaft washer bore diameter in any cross-section | Variation of bore diameter in a single plane of shaft washer, single-direction bearing |
| $d_2$ | | | Nominal bore diameter of c039Tf8.5gle plane | |
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