Technical Information

TI No. WL 43-1191E January 1995

FAG
Rolling Bearings

FAG Rolling Bearing Codes

Bearing Series · Prefixes · Suffixes

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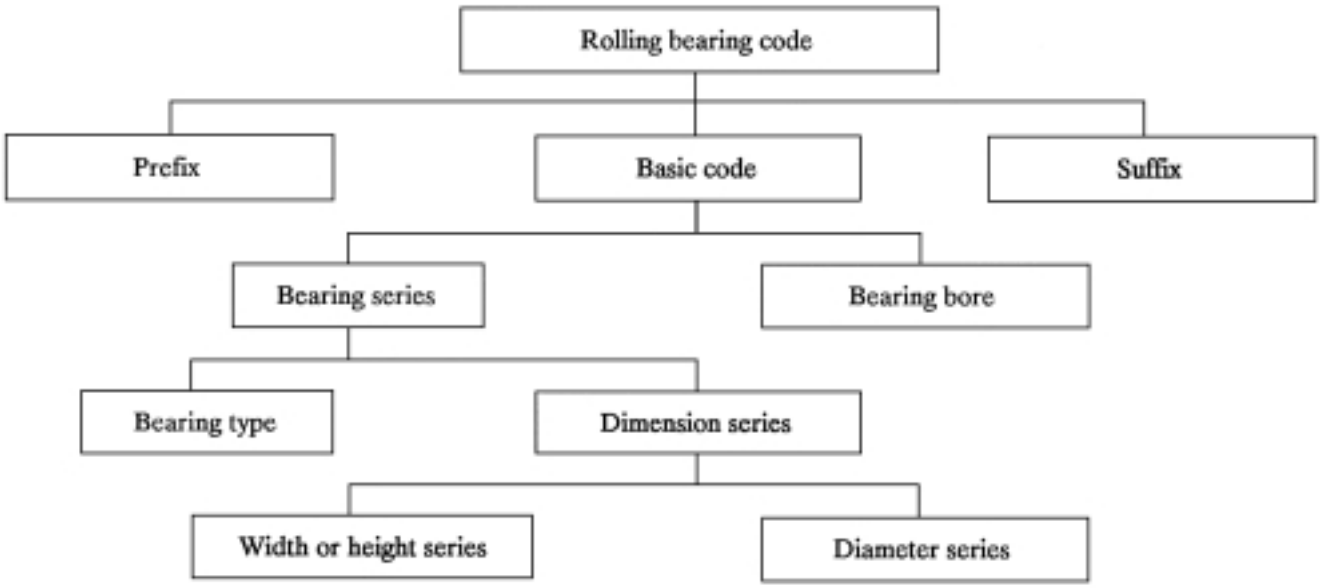
Every rolling bearing is identified by a code which specifies its type, dimensions, tolerances, clearance and, in some cases, further essential characteristics. Rolling bearings of different manufacturers which have the same standardized code in accordance with DIN 623 are interchangeable. The interchangeability of individual parts of separable rolling bearings is not guaranteed.

The basic structure of the rolling bearing codes is discussed in this Technical Information. The basic code is formed by the series and bearing bore codes. Prefixes normally indicate rolling bearing components while suffixes identify special designs and characteristics.

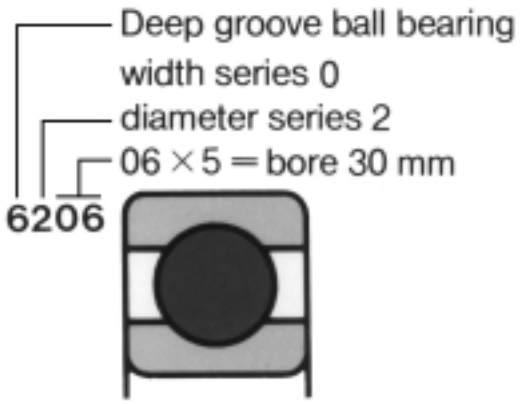
Structure of rolling bearing codes

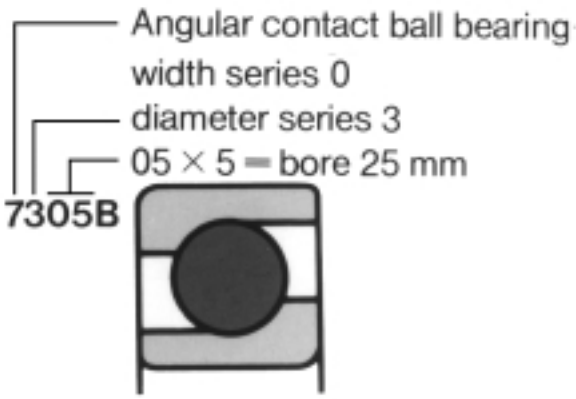


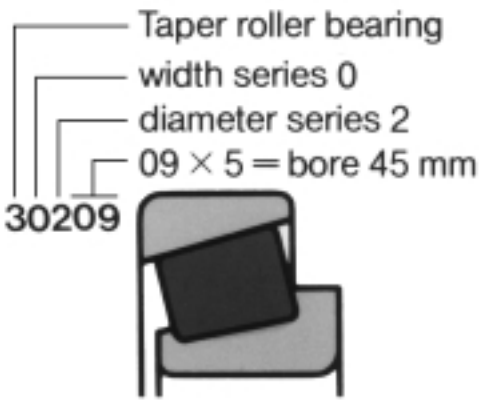
Structure of the rolling bearing code: DIN 623
The diction of the basic code is standardized in DIN 623.

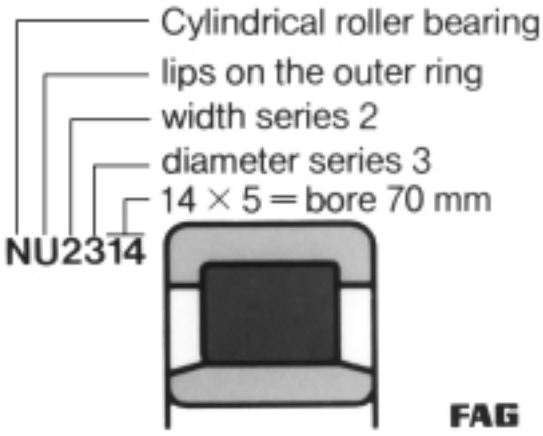
Dimension series from dimension plans: DIN 616
The code for the width series is not included in the code of some bearing series, for details see DIN 623.

Examples:

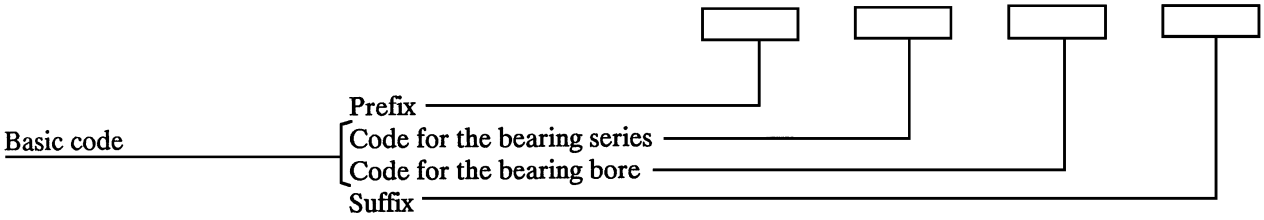








Rolling bearing codes



Brief overview

FAG code number **63** **09** **.2RSR** **.C3**

Codes for components and materials

GS.	Housing washer (wide washer) of a thrust bearing
K.	Cage with rolling elements, already assembled
L	Separable bearing ring of separable roller bearings
R	Bearing ring with rolling elements and cage assembly of separable roller bearings
S	Bearing of stainless steel
WS.	Shaft washer (narrow washer) of a thrust bearing

Codes for special design characteristics

A	New, modified
B	internal design
DA	Split inner ring
E	Bearing of reinforced design
K	Tapered bore 1:12
K30	Tapered bore 1:30
N	Circular groove in the outer ring for snap ring
RSR	With one seal
.2RSR	With two seals
S	Lubricating groove and bores in the outer ring
ZR	With one dust shield
.2ZR	With two dust shields

Codes for accuracy and bearing clearance

without suffix	normal tolerance PN (P0) and normal bearing clearance CN (C0)
P6 [2])	Tolerance < PN (P0)
P5	Tolerance < P6
P4	Tolerance < P5
P4S	reduced P4 tolerance
P2	Tolerance < P4
SP	Special precision
UP	Ultra precision
C1	Bearing clearance < C2
C2	Bearing clearance < CN (C0)
C3	Bearing clearance > CN (C0)
C4	Bearing clearance > C3
C5	Bearing clearance > C4

2) P6 will in the future be the standard tolerance and will no longer be included in the code.

Data of precision and bearing clearance are combined, e.g.:
P52 Precision P5 and bearing clearance C2

Code for the bearing series
(see page 5)

Code for the bearing bore

Bore reference number	Bore diameter mm
3 to 9	3 to 9
00	10
01	12
02	15
03	17
04	20
.	.
.	.
.	.
96	480
/500	500
/530	530

Reference number x 5 = bore

Suffix for the cage design

Material

F	Machined steel cage
L	Machined light metal cage
M	Machined brass cage
T [1])	Machined cage of textile laminated phenolic
TV	Cage of polyamide PA66
J	Pressed steel cage
Y	Pressed brass cage

[1]) or short form for polyamide cages

The cage suffixes are added to the material code

P	Window-type cage
H	Snap-type cage
A	Outer lip riding
B	Inner lip riding

Special Codes, e.g. for heat treatment

S1-S4	Special heat treatment dimensionally stable above 150 °C

Technical specifications (special specifications) see **TI No. **WL 43-1200**

The most important standardized prefixes and suffixes and those specified by FAG are briefly described on pages 8...14.

Bearing series - radial bearings

Bearing series	Bearing type							Dimension series	
	Deep groove ball bearing	Angular contact ball bearing	Self-aligning ball bearing	Cylindrical and needle roller bearing	Tapered roller bearing	Barrel roller bearing	Spherical roller bearing	Width series DIN 616	Diameter series DIN 616
618 160 60 62 622 63 623 64								1 0 1 0 2 0 2 0	8 0 0 2 2 3 3 4
42..B 43..B								2 2	2 3
162 362..B 562 762..B								0*) 0*) 0*)	2 2 2 2
72..B 73..B								0 0	2 3
32, 32..B 33, 33..B								3 3	2 3
B719 B70 B72 HC719, HCS719 HC70, HCS70 HS719, HSS719 HS70, HSS70		1)						1 1 0 1 1 1 1	9 0 2 9 0 9 0
QJ2 QJ3								0 0	2 3
12**), 112*) 13, 113*) 22 23								0 0 2 2	2 3 2 3
N19 N10 N2, N2..E N3, N3..E N4								1 1 0 0 0	9 0 2 3 4
NJ2, NJ2..E NJ22, NJ22..E NJ3, NJ3..E NJ23, NJ23..E NJ23..VH NJ4								0 2 0 2 2 0	2 2 3 3 3 4
NU10 NU2, NU2..E NU22, NU22..E NU3, NU3..E NU23, NU23..E NU4								1 0 2 0 2 0	0 2 2 3 3 4

1) The bearing types HCS and HSS are sealed at both ends
*) Width series 0 applies only to the outer ring
**) Width series 0 applies up to d = 110 mm

Bearing series - thrust bearings

Bering series	Bearing type				Dimension series	
	Deep groove ball bearing	Angular contact ball bearing	Cylindrical roller bearing	Spherical roller bearing	Width series DIN 616	Diameter series DIN 616
511 512 513 514					1 1 1 1	1 2 3 4
532 533 534						2 3 4
522 523 524					2 2 2	2 3 4
542 543 544						2 3 4
7602*) 7603*)					0 0	2 3
2344 2347						
811 812					1 1	1 2
292..E 293..E 294..E					9 9 9	2 3 4

*) Height series (width series) and diameter series are in accordance with dimension plan DIN 616 for radial bearings.

FAG Prefixes · FAG Suffixes

The description of the prefixes and suffixes listed in the following is in no way a comprehensive definition. In case of doubt please inquire at OHE-T-6. The entire FAG code number may amount to a maximum of 30 digits. If these are exceeded, remove the dots beginning at the right (exception: with uncoded clearance or preload such as "R10.30" the dot has to be maintained) until the 30-figures limit is reached."

- **FAG prefixes (page 8)**
- **FAG suffixes (page 9)**
- **FAG prefixes and suffixes in alphabetical order (page 15)**

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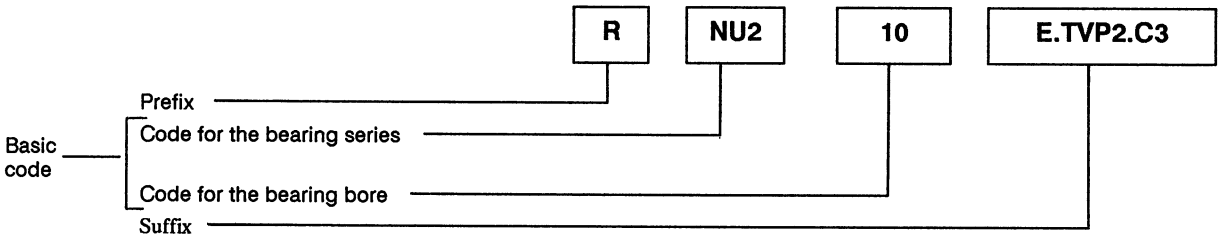

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	Deep groove ball bearing	Angular contact ball bearing	Cylindrical roller bearing	Spherical roller bearing	Width series DIN 616	Diameter series DIN 616
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532 533 534						2 3 4
522 523 524					2 2 2	2 3 4
542 543 544						2 3 4
7602*) 7603*)					0 0	2 3
2344 2347						
811 812					1 1	1 2
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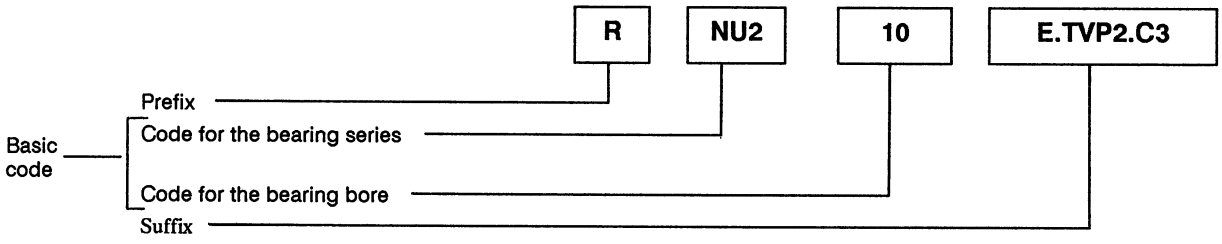

FAG PREFIXES

1. Codes for rolling bearing components

ABO.
Loose lip of the outer ring if there are one or several loose lips each at the inner and outer rings of abnormal cylindrical roller bearings.
Example: ABO.500000

AR.
Outer ring of a rolling bearing which cannot be defined by the prefix L (as a rule non-separable bearings).
Example: AR.QJ208 (four-point bearing QJ208)

ARK.
Outer ring with rolling element and cage assembly if the prefix R cannot be used (as a rule non-separable bearings).
Example: ARK.QJ208 (four-point bearing QJ208)

BO.
Loose lip of a cylindrical roller bearing with one or several loose lips at either its inner or outer ring.
Examples:
BO.NUP210E
BO.NP210E
Loose lip of the inner ring if the abnormal cylindrical roller bearing has one or several loose lips both at its inner and outer ring.
Example: BO.500000

GS.
Housing washer for thrust bearings.
Examples:
GS.234428 (angular contact thrust ball bearing, double direction 234428)
GS.29420E (spherical roller thrust bearing 29420E)
GS.500000 ((housing washer of an abnormal thrust bearing)

H.
Abnormal adapter sleeve, withdrawal sleeve, clamping or wedge sleeve (with neither nuts nor locking device), according to drawing number.
Example: H.500000

JR.
Inner ring of a rolling bearing which cannot be defined by the prefix L (as a rule non-separable bearings).
The single ring of a bearing with a split inner ring, e.g. four-point bearings and double-row angular contact ball bearings.
Example: JR.QJ208 (four-point bearing QJ208)

JRK.
Inner ring with rolling element and cage assembly if the prefix R cannot be used (as a rule non-separable bearings).
Example: JRK.M20 (magneto bearing M20)

K.
Rolling element and cage assembly.
Example: K.51114 (thrust ball bearing 51114)
For cylindrical roller bearings: as a rule, the rolling element riding or inner ring riding roller and cage assembly is defined by N. Exception: cylindrical roller bearings with JP1 cage are defined by NU (since suitable for NU design only).
Examples:
K.N336M (cylindrical roller bearing N336M)
K.NU306E.JP1 (cylindrical roller bearing NU306E.JP1)
Outer ring riding roller and cage assemblies are always identified by NU.
Example: K.NU1036M1A (cylindrical roller bearing NU1036M1A)
In multirow bearings, all rolling element and cage assemblies contained in the bearing.

KF.
Cage without rolling elements.
Example: KF.NU210E.TVP2 (cage of a cylindrical roller bearing)

L [1)]
Separable bearing ring, including possible loose lips of separable roller bearings.
Examples:
LNU207E (cylindrical roller bearing, inner ring)
LNUP207 (cylindrical roller bearing, inner ring with loose lip)
L30312A (tapered roller bearing, cup)
L29420E (spherical roller thrust bearing, housing washer)
Also, separable bearing rings which consist of several parts. If the prefix L does not suffice for clearly identifying a bearing ring of the listed bearing types or if individual rings of other bearing types have to be described, the prefixes AR. or JR. have to be used.

R [1)]
Bearing ring with rolling element and cage assembly of separable roller bearings and needle roller bearings.
Examples:
RNU207E.TVP2 (cylindrical roller bearing, outer ring with roller and cage assembly)
R30312A (tapered roller bearing, inner ring with roller and cage assembly)
R29420E (spherical roller thrust bearing, shaft washer with roller and cage assembly)
Also, all bearing rings with roller and cage assemblies of double row and multirow roller bearings. If the prefix R does not suffice for clearly identifying the bearing ring with rolling element and cage assembly of the listed bearing types or if bearing rings with rolling element and cage assemblies of ball bearings have to be described, the prefixes ARK. or JRK. have to be used.

REP.
Repair bearing - customer owned products (remachining or replacing of bearing components after periodic check of the bearing for reusability, upon customer request).
Examples:
REP.230/710BK.MB (spherical roller bearing)
REP.544027 (abnormal bearing)

U.
Spherical seating ring for abnormal thrust bearings.
Example: U.500000

WS.
Shaft washer for thrust bearings.
Example:
WS.51210 (thrust ball bearing)

2. Codes for bearing materials

C
Rolling bearings made of ceramic material (rings and rolling elements made of ceramic mamterial)
Example: C6210

HC, HCS
Ceramic hybrid rolling bearings (rings made of steel, rolling elements made of ceramic material). The HCS design is sealed on both sides with RSD seals.
Example:
HC7008C.T.P4S.DBL (ceramic hybrid spindle bearing set, two bearings in O-arrangement, slightly preloaded before mounting)

S
Corrosion resistant steel rolling bearing (*see* **TI No. WL 43-1178**)
Examples:
S6208.W203B (bearing rings of X65Cr13, balls of X102CrMo17)
S6306ZR (produced in accordance with former specification Z20)
S6301.2ZR.W203A (produced in accordance with former specification Z15)

[1)] Only permitted as an order designation, not as a parts designation in the parts list.

FAG SUFFIXES [2)]

Suffixes identify special bearing design features such as: internal design, outside dimensions and external form, seals, cages, tolerances, bearing clearances, heat treatment etc. In addition, they serve for indicating special FAG regulations. Suffixes can consist of several parts. Various suffixes include a dot to improve the legibility of the code.
A dot put in parentheses (.) means that, if identical characters appear in succession - number on number or letter on letter - , a dot is to be included, in the case of different characters it is to be omitted.
Examples: 6210.RSR.T.C3.L12; 6205TVH.C3

Internal design

A,B,C,D,E
The meaning of these characters attached to the basic code is not specifically fixed. They are used in accordance with requirements for identifying modifications of the bearing design and certain design features. They can also be combined with each other (max. 3 without dots).

A
Modified internal design.
Example: 32310A (tapered roller bearing)

B
Modified internal design.
Examples:
7230B (angular contact ball bearing with a contact angle of 40°),
32207B (tapered roller bearing with an enlarged contact angle)
NNF5011B.2LS.V (full complement cylindrical roller bearing, double row)

C
Modified internal design.
Examples:
B7216C (spindle bearing with a contact angle of 15°)
NNF5012C.2LS.V (full complement cylindrical roller bearing, double row with a modified boundary circle diameter, dimensions E and F adapted to NCF3012V)

DA
Double row angular contact ball bearing with split separable inner ring.
Example: 3306DA

E
Modified internal design. Series bearings: usually reinforced design.
Examples:
NU207E.TVP2 (cylindrical roller bearing),
22208ES (spherical roller bearing),
29420E (spherical roller thrust bearing)

Outside dimensions and external form

.B...
With spacers for multirow tapered roller bearings the figure following the suffix .B gives the width in millimeters .
Example: ZWR.500000.B20,6

EK
Thrust ball bearing without housing washer.
Example: 51210EK

K
Tapered bearing bore, taper 1:12.
Example: 2218K.C3 (self-aligning ball bearing)

K30
Tapered bearing bore, taper 1:30.
Example: 24156BK30 (spherical roller bearing)

N
Circular groove for snap ring in the outer ring (at the open end of deep groove ball bearings with one seal). N applies only to radial bearings.
Example: 6210ZRN (deep groove ball bearing)

NR
Circular groove in the outer ring with an inserted snap ring; at the open end of deep groove ball bearings with one seal. NR applies only to radial bearings.
Example: 6307RSRNR (deep groove ball bearing)

N2
Two locating slots at one end of the outer ring or in the housing washer.
Example: QJ220N2MPA (four-point bearing)

.OB
Cylindrical roller bearing without loose lip (does not apply to designs NUP and NP).
Example: NJP310E.OB

.OSR
S-type bearing without locating device.
Example: 16206.OSR

.OZWR
Tapered roller bearing, double row, without spacer.
Example: 500000.OZWR

R
Radial bearing with flange at the outer ring. Only valid for products for which the dimensional design is defined in drawings, tables, guidelines etc.(e.g. deep groove ball bearings in accordance with DIN 625, Part 4)
Example: 6205R

S
Lubricating groove and three lubricating holes in the outer ring.
Example: 22205ES (spherical roller bearing)

Exception: double-row cylindrical roller bearing of series NNU49 ≥ 500 mm outside diameter normally have one lubricating groove and six lubricating holes in the outer ring.
Example: NNU4976S.M.P53 (double-row cylindrical roller bearing)

Upon request, bearings with lubricating groove and lubricating holes can also be ordered without groove and holes with suffix H40.
Example: 22208EAS.M.C3.H40 (spherical roller bearing without lubricating groove and lubricating holes)

Bearings with/or without lubricating groove and a different number of lubricating holes can be ordered with H40*.
Examples:
22305EAS.M.H40AC (spherical roller bearing with lubricating groove an 3 lubricating holes in the outer ring and a additional lubricating groove and 6 lubricating holes in the inner ring)
NNU4940S.M.P53.H40CA (double-row cylindrical roller bearing, wit lubricating groove and 6 lubricating holes in the outer ring)

SY
Bearing without lubricating groove, but with three lubricating holes in the outer ring.
Example: 22314ESY (spherical roller bearing)

[2)] The suffixes are arranged in the order valid for the bearings codes.

X
Bearings the outside dimensions of which were adapted to international standards.

.2GS
Thrust bearing with two housing washers.
Example: 51112.2GS (thrust ball bearing)

.2WS
Thrust bearing with two shaft washers.
Example: 51112.2WS (thrust ball bearing)

/..
Standardized rolling bearings with uncoded bore diameters.
Examples:
62/28 (deep groove ball bearing)
230/530MB (spherical roller bearing)

Modified bore of adapter sleeves and withdrawal sleeves (bore altered to the value (in mm) indicated following the slant).
Example: H3032/150.2 (adapter sleeve)

. ...
Rolling bearings, adapter sleeves and withdrawal sleeves with an inch-size bore. The type designation is separated from the bore reference number by a dot. The first figure after the dot indicates the whole inches, and the last two figures indicate the 16th parts of inches.
Examples:
16206.102 (S-type bearing)
222S.207 (split spherical roller bearing)
H313.204 (adapter sleeve)

Sealing

LS
Seal at one end of cylindrical roller bearing, double row, full complement.
Example: NNF5009BLS.V (full complement cylindrical roller bearing)

RSD
Non-rubbing seal at one end.
Example: 6203RSD (deep groove ball bearing)

RSR
Seal at one end.
Example: 6207RSR (deep groove ball bearing)

RSRN
Seal at one end; circular groove for snap ring at the other end.
Example: 6207RSRN (deep groove ball bearing)

RSRNR
Seal at one end; circular groove with snap ring at the other end.
Example: 6207RSRNR (deep groove ball bearing)

ZR
Dust shield at one end.
Example: 6207ZR (deep groove ball bearing)

ZRN
Dust shield at one end; circular groove for snap ring at the other end.
Example: 6207ZRN (deep groove ball bearing)

ZRNR
Dust shield at one end; circular groove with snap ring at the other end.
Example: 6207ZRNR (deep groove ball bearing)

.2LS
Seals at both ends of cylindrical roller bearings, double row, full complement.
Example: NNF5030B.2LS.V (full complement cylindrical roller bearing)

.2RS
Seals at both ends.
Example: 2205.2RS.TV (self-aligning ball bearing)

.2RSD
Non-rubbing seals at both ends.
Example: 6203.2RSD (deep groove ball bearing)

.2RSR
Seals at both ends.
Example: 6207.2RSR (deep groove ball bearing)

.2ZR
Dust shields at both ends.
Example: 6207.2ZR

Sealing materials:
(Temperature range, see **TI No. WL 43-1180***)*

RSR,RSD	acrylonitrile-butadiene rubber (NBR)
HSR,HSD	acrylate rubber (ACM)
SSR,SSD	silicone rubber (VMQ)
VSR,VSD	fluoric rubber (FKM)

Cage

Observe (.)rule [3]

The cage type and other additional codes are indicated after the material without a dot inbetween.
Example: KF.NU208E.TVP2

Cage allocation and illustrations, see **TI No. WL 95-4**

Material:

F	machined steel cage
J	pressed steel cage
L	machined light-metal cage
M	machined brass cage
SE	machined sinter iron cage
T	machined textile laminated phenolic cage; short form: moulded cage of glass-fibre reinforced polyamide
TV	moulded cage of glass-fibre reinforced polyamide
Y	pressed brass or bronze cage

Type:

P	window-type cage
H	snap-type cage
A	outer-ring riding (housing washer, housing)
B	inner-ring riding (shaft washer, shaft)
S	with lubricating grooves

Additional code elements indicating the cage type:

1	cage with integral crosspiece rivets (M1, SE1) or cage with retaining beads (JP1, MP1)
2	cage with retaining beads (TVP2)
3	cage with retaining beads (TVP3)
N	riveted pressed steel cage (JN)

Full complement bearings

Observe (.)rule [3]

V
Full complement ball, roller and needle roller bearings.
Example: 51120V (thrust ball bearing)

VH
Full complement cylindrical roller bearing with self-retained roller complement.
Example: NJ2308VH
Self-retained roller complement:
The pitch circle diameter of the rollers is specified such that the cylindrical rollers support each other and do not drop inwards after the inner ring was removed.

[3] (.) means: if identical characters appear in succession - number on number or letter on letter - a dot is to be included; in the case of differing characters it is to be omitted.

Tolerances

Bearings with normal tolerances (tolerance class PN (P0)) are not especially marked. Exception: abnormal bearings with reduced tolerances; in normal tolerance, they are marked PN (P0).
Example: 500000.PN

.HG Tolerance class (FAG), for spindle bearings (similar to P2).
.P2 Tolerance class (DIN 620), higher precision than P4.
.P4 Tolerance class (DIN 620), higher precision than P5.
.P4S Tolerance class (FAG) for spindle bearings: dimensional and form tolerance in accordance with P4, running tolerance in accordance with P2
.P5 Tolerance class (DIN 620), higher precision than P6.
.P6 [2] Tolerance class (DIN 620), higher precision than PN.
.P6X Tolerance class (DIN 620), for tapered roller bearings (reduced width tolerances).
.PN (P0) Tolerance class "normal" (DIN 620), formerly P0.
.Q3 Tolerance class (FAG) for tapered roller bearings in inch dimensions; corresponds to CLASS 3 (AFBMA) and is better than CLASS 4 (AFBMA).
.SP Tolerance class (FAG) for cylindrical roller bearings, tapered roller bearings and angular contact thrust ball bearings
.UP Tolerance class (FAG) for cylindrical roller bearings and angular contact thrust ball bearings.
.T1 Tolerance class (FAG Canada); corresponds to ABEC1.
.T3 Tolerance class (FAG Canada); corresponds to ABEC3.
.T5 Tolerance class (FAG Canada); corresponds to ABEC5.
.T7 Tolerance class (FAG Canada); corresponds to ABEC7.
.T9 Tolerance class (FAG Canada); corresponds to ABEC9.

Tolerances according to ABMA standard

(American Bearing Manufacturers Association)

ABEC1 approximated to tolerance class PN (P0) (DIN 620).
ABEC3 approximated to tolerance class P6 (DIN 620).
ABEC5 approximated to tolerance class P5 (DIN 620).
ABEC7 approximated to tolerance class P4 (DIN 620).
ABEC9 approximated to tolerance class P2 (DIN 620).

Tolerances and bearing clearance for thin section bearings

.PL1 Normal tolerance and normal radial clearance (FAG).
.PL3 Reduced tolerance and radial clearance (FAG), higher precision than PL1.
.PL4 Reduced tolerance and radial clearance (FAG), higher precision than PL3.
.PL6 Reduced tolerance and radial clearance (FAG), higher precision than PL4.

Bearing clearance

Bearings of the clearance group CN (normal, formerly C0) are not especially marked. Exception: bearings with 500000 number if a normal clearance is demanded instead of the bearing clearance specified there (in accordance with C1, C2, C3, C4, C5 or abnormal). In such cases, the clearance group has to be identified by CN (formerly C0).
Example: 500000.CN

.C1 Clearance group C1, bearing clearance smaller than C2.
.C2 Clearance group C2, bearing clearance smaller than CN C0).
.C3 Clearance group C3, bearing clearance greater than CN (C0).
.C4 Clearance group C4, bearing clearance greater than C3.
.C5 Clearance group C5, bearing clearance greater than C4.
...NA Valid only in connection with C1 bearing clearance in cylindrical roller bearings for machine tools.
The bearing rings may not be interchanged.
Examples:
NU1009M.C1NA
NN3015ASK.M.P51NA

Note: C1NA is not included in the code for cylindrical roller bearings supplied in precision SP or UP. In exceptional cases, NA may also be demanded with other clearance groups; then the bearing rings may not be interchanged either.

Combining the suffixes for tolerances and bearing clearance

For bearings with reduced tolerances and an increased or reduced bearing clearance, both suffixes can be combined and referred to as one suffix.

Suffixes for tolerances and bearing clearance:

	Tolerance class		
Clearance group	P5 Suffix	P4	P2
C1	P51	P41	P21
C2	P52	P42	P22
C3	P53	P43	P23
C4	P54		

In the same manner the T tolerance groups can be combined with the bearing clearance groups.

.A...
Axial clearance in µm.
Example: 31316.A100.140.N11CA (tapered roller bearing with an axial clearance of 100...140 µm for mounting in pairs, X-arrangement)

.R...
Radial clearance in µm.
Example: 6210.R10.30 (deep groove ball bearing with a radial clearance of 10...30 µm)

.VA...
Axial reload in µm.
Example:
L18RA800YH.VA0.15 (thin-section four point bearing)

.VR...
Radial preload in µm.
Example:
L10SA1000YH.VR13.25 (thin-section deep groove ball bearing)

Note: if the uncoded radial clearance or preload is immediately preceded by a precision code, the dot between precision and clearance or preload is omitted.
Example: 6210.P5R10.20.N13CA
However, this rule does not apply if the uncoded radial clearance or preload is preceded by a tolerance-clearance combination.
Example: 6210.P53.A100.150.N13CA

[2] P6 will in the future be normal tolerance PN and is no longer included in the bearing code.

Heat treatment

FAG rolling bearings are heat treated in such a way that they are dimensionally stable for operating temperatures of up to +150 °C. Thus the suffixes

.SN (.S00) for operating temperatures of up to +120 °C and
.S0 for operating temperatures of up to +150 °C are no longer needed.

.S1 Dimensionally stable for operating temperatures of up to +200 °C.

.S2 Dimensionally stable for operating temperatures of up to +250 °C.

.S3 Dimensionally stable for operating temperatures of up to +300 °C.

.S4 Dimensionally stable for operating temperatures of up to +350 °C.

Example: 6212ZR.C3.S1 (deep groove ball bearing dimensionally stable up to +200 °C)

...A
Outer ring (housing washer) dimensionally stabilized, inner ring not.
Example: 6212.C3.S1A (deep groove ball bearing)

...B
Inner ring (shaft washer) dimensionally stabilized, outer ring not.
Example: 6212.C3.S1B (deep groove ball bearing)

Special designs

.BL
(replaced by .QP3 and .QP5 as of 1.7.90)
Cylindrical roller bearings with crowned raceway of the inner or outer ring. Tapered roller bearings with crowned inner ring raceway.
Note: all cylindrical rollers and tapered rollers have slightly curved generatrices.

.QP**
Cross profiles for roller bearing raceways in accordance with corresponding specifications:

Examples:
32220A.QP21 (tapered roller bearing with a cone with a logarithmic profile and a straight cup),
31310A.QP35 (tapered roller bearing with cone which has a more pronounced logarithmic profile and a cup which has a more pronounced crowned profile; especially suitable for major loads or tiltings)

Special regulations and technical specifications

For a list of the special regulations Z, F, K, U and 700000 numbers as well as for technical specifications *see TI No.** WL 43-1200.*
Special regulations will be replaced, one by one, by technical specifications. As of 01.07.94, no 700000 numbers will be used for new orders.

Technical specifications (special regulations)

.E... Packaging
Example: KU.15,875G28.E11
(special packing for balls)

.G... Housing design
Example: SD540AF.G902V (tapped hole R 1/4" for relubrication in housings)

.H... Several specifications, requirements that relate to more than one field of application or customer-specific requirements.
Example: HM3144.H11C (locknuts with tapped hole for locking clamps)

.J... Preservation, surface treatment, lubrication, product marking.
Example: 626.C3.J11.KSE (deep groove ball bearing with special preservation)

.M... Measuring, testing, documentation.
Example: 6020.C3.M15AA (measuring report)

.N... Matching, combining.
Example: Matching of two tapered roller bearings 32222A.A230.280.N11CA in X-arrangement, in accordance with N11CA (formerly K11), with axial clearance.
The number of individual bearings is to be given as the order quantity. Marking of package:
2 = 1 set S
32222A.A230.280.N11CA

.T... Dimensional, form, position and running tolerances.
Example: NU220E.TVP2.C3.T11 (cylindrical roller bearing with reduced tolerances)

.W... Material, heat treatment.
Example: S6008.2RSD.W203B (deep groove ball bearing of stainless steel)

Universal designs

.UA, .UA...
Angular contact ball bearings of the series 70, 72B, 73B and 74B for mounting in X arrangement, O arrangement or tandem arrangement; in X and O arrangement the bearing pair has an axial clearance.
Examples:
7206B.UA (universal angular contact ball bearing),
7308B.UA45 (universal angular contact ball bearing for X and O arrangement with an axial clearance of 45 µm).

.UO
Angular contact ball bearings of the series 70, 72B, 73B and 74B for mounting in X arrangement, O arrangement or tandem arrangement; in X and O arrangement the bearing pair has zero-clearance.
Example: 7206B.UO (universal angular contact ball bearing)

.UL
Angular contact ball bearings of the series 70, 72B, 73B and 74B as well as all spindle bearings for mounting in X arrangement, O arrangement or tandem arrangement; in X and O arrangement the bearing pair is slightly preloaded.
Example: B7215C.TPA.P4S.UL (universal spindle bearing)

.UM
Angular contact ball bearings of the series 70, 72B, 73B and 74B as well as all spindle bearings for mounting in X arrangement, O arrangement or tandem arrangement; in X and O arrangement the bearing pair has a medium preload.
Example: B7215E.TPA.P4S.UM (universal spindle bearing)

.UH (replaces .US)
Angular contact ball bearings of the series 70, 72B, 73B and 74B as well as all spindle bearings for mounting in X arrangement, O arrangement or tandem arrangement; in X and O arrangement the bearing pair is heavily preloaded .
Example: B7010E.TPA.P4S.UH (universal spindle bearing)

Spindle bearings as ready-to-mount sets

see TI No.** WL 43-1202

The previously used designations for spindle bearing sets (N14*) is no longer valid. The new designation consists of two to three letters.

First letter: Number of bearings in a set

.D	2 bearings	(duplex)
.T	3 bearings	(triplex)
.Q	4 bearings	(quadroplex)
.P	5 bearings	(pentaplex)
.S	6 bearings	(sestuplex)

Second and third letters: arrangement of the bearings of a set

B	O-arrangement (back to back)
F	X-arrangement (face to face)
T	tandem arrangement
BT	O-arrangement against a tandem set comprising 2, 3 or 4 bearings
FT	X-arrangement against a tandem set comprising 2, 3 or 4 bearings
BC	O-arrangement; tandem pair against a tandem set comprising 2, 3 or 4 bearings
FC	X-arrangement; tandem pair against a tandem set comprising 2, 3 or 4 bearings

This combination of letters is followed, without a dot inbetween, by the letter indicating the preload, i.e.

L	slight preload
M	medium preload
H	heavy preload

For pure tandem sets the preload is not indicated in the code. Spindle bearings are marked with the actual values measured for bores and O.D.s. An arrow symbol on the O.D. indicates the position of the pressure cone apex to facilitate mounting.

Marking of package

In addition to the order designation for the bearing set the following actual values are indicated on the package in the order: bearing bore/O.D.:

- smallest actual value measured for the bearing bore in the set, preceded by an *
- largest actual value measured for the O.D. in the set, followed by an *

Example: HS7030C.T.P4S.DBL
-6/-4

When placing an order, the total number of bearing sets is now indicated instead of the number of individual bearings.
Examples:
1-HSS7012C.T.P4S.DBL (1 set of high-speed spindle bearings HSS7012, sealed, contact angle 15°, textile laminated phenolic cage, tolerance class P4S, two bearings in O-arrangement, slight preload before mounting)

1-HC7014E.T.P4S.TT (1 set of ceramic hybrid spindle bearings HC7014, contact angle 25°, textile laminated phenolic cage, tolerance class P4S, three bearings in tandem arrangement)

Specifications for grease types and quantities

Grease types

FAG rolling bearings which are sealed at both ends (in exceptional cases also open bearings) are for-life lubricated with FAG greases. The grease type is usually determined by the bearing O.D.
D ≤ 62 mm: FAG L85
D > 62 mm: FAG L71

Examples: 6206.2RSR (sealed deep groove ball bearing with grease L85)
6207.2ZR (sealed deep groove ball bearing with grease L71).
This applies also to stainless steel bearings sealed at both ends (e.g. series S60.., S62.., S63..).

Spindle bearings of types HSS and HC, which are sealed at both ends by RSD seals, are filled during production with FAG L74.
If FAG bearings sealed at both ends are demanded with a different grease, this grease type is to be indicated in the product number.
Example: 6004.2ZR.L12 (deep groove ball bearing with high-temperature grease FAG L12)

Grease quantities (filling rate)

(Any filling quantities deviating from the standard are to be specified in the product number.)

.L...M	e.g. dispersion lubrication with a filling rate of approx. 5%.
.L...T	e.g. greasing with a filling rate of approx. 15...25 %.
.L...TA	e.g. greasing with a filling rate of approx. 15...20 %.
.L...	e.g. greasing with a filling rate of approx. 25...40 %.
.L...H	e.g. greasing with a filling rate of approx. 40...65 %.
.L...F	e.g. greasing with a filling rate of approx. 65...100 %.
.L...FS	e.g. greasing with a filling rate of approx. 75...100 % (grease fling lubrication).

Example:
6004.2ZR.L12H (deep groove ball bearing with high-temperature grease FAG L12 and with a filling rate of approx. 40...65 %)

Preservation specifications

Examples:

.L902	Preserved with Aeroshell Fluid 12.
.L918	Preserved with Shell Tellus C5.
.L946	Preserved with anti-corrosion oil (Normal preservation instead of the production grease filling). Example: 4208B.TVH.L946

Codes for rolling elements

rolling element type

KIKU.	Balls which are delivered according to weight (applies to grades G600 and G700).
KU.	Ball
ZRO.	Cylindrical roller
KERO.	Tapered roller
TORO.	Barrel roller

Suffixes for rolling elements

Note for the sequence:
If the suffixes for profile (.QP, .QPA) and precision have to be included, the suffix for the profile always precedes the precision code.
Please note: all cylindrical and tapered rollers have slightly curved generatrices.

G...
Ball of grade class (quality G3...G200 in accordance with ISO 3290).
Examples:
KU.6,5G20
KIKU.6G600 (FAG definition)

.QP, .QPA
Cross profile of roller O.D. in accordance with corresponding specifications (logarithmic O.D. profiles).
Example: ZRO.6,5x9.QP.KL1

KL1
Cylindrical and tapered roller of class 1 (quality better than standard)

Rolling elements of corrosion resistant steel

Rolling element of stainless steel, hardness > 58HRC (Mat. 1.3453)
Same tolerance values as for rolling elements of rolling bearing steel, hardened.
Example: KU.S12,7G20
KERO.S32006X.QP

Marking of package for rolling elements

On the packaging the gauge is always specified below the line.
Example:

6000	N	number of items, packing unit design (ball
KU.7,938G40		diameter and grade), medium gauge tolerance
P4		(tolerance towards plus).

-gauges with permissible maximum dimension are identified by the letter P,
-gauges with permissible minimum dimension are identified by the letter M,
-gauges with zero deviation from the nominal dimension are identified by the letters P0.
After P or M the mean tolerance of the gauge or the gauge limits are defined, without space, in µm.
The gauge codes for diameter and length, e.g. of cylindrical rollers, are separated by a slant.

Examples:
ZRO.6,5 x 9 cylindrical rollers
M4/M12 (mean tolerance of the diameter grade/length gauge)

KERO.30305A.QP.KL1 tapered roller
M2 (diameter tolerance)

TORO.240/560B barrel roller
M10 (diameter tolerance)

Codes for Arcanol sales programme greases

Physico-chemical data with application hints and available quantities, see **WL 81116/2**

Examples:

L12V	Polyurea thickener
L71V	Lithium soap base grease
L74V	Barium complex soap base grease
L78V	Lithium soap base grease
L79V	Synthetic grease
L135V	Lithium soap base grease with an EP additive
L186V	Lithium soap base grease with an EP additive
L223V	Lithium soap base grease with an EP additive

Example: 1KG.DOSE.L71V

Suffixes for FAG sleeves and grooved nuts

A
Changed thread diameter of withdrawal sleeves.
Example: AH30/600A

A
Changed thickness of the sheet metal of lock washers (deviating from DIN 5406).
Example: MB20A

D
Adapter sleeve, split. Does not apply to hydraulic mounting.
Example: H207D

G
Modified thread diameter of withdrawal sleeve in accordance with ISO 113/I (draft).
Example: AH3040G

H
Withdrawal sleeve for hydraulic mounting, oil grooves on the tapered O.D. and in the sleeve bore; pump connection at the thread end.
Example: AH3064H

H
Locknut with tapped holes for mounting screws.
Examples:
HM3064H
KM40H
HM52TH

HG
Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and pump connection at the thread end. Nuts with locking devices and tapped holes for mounting screws.
Example: H3064HG

HGJ
Adapter sleeve for hydraulic mounting with oil grooves on the tapered O.D. and in the sleeve bore, pump connection at the thread end. Nuts with mounting screws.
Example: H3064HGJ

HK
Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and pump connection at the large O.D. end. Nuts with locking device and tapped holes for mounting screws.
Example: H3064HK

HKJ
Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and in the sleeve bore; pump connection at the large O.D. end. Nuts with locking device and tapped holes for mounting screws.
Example: H3064HKJ

HP
Locknut for hydraulic mounting, with tapped holes for mounting screws and bores for pump connection.
Example: HM3064HP

LH
Sleeves and nuts with left-hand thread.
Example: KM20LH

.OM
Adapter sleeve without nut, but with locking device.

.OMS
Adapter sleeve with neither nut nor locking device.

.OS
Adapter sleeve without locking device, but with nut.

T
Grooved nut with a trapezoidal thread
Example: HM52T

X
Outside dimensions changed. In the codes for withdrawal sleeves the X is positioned follows the AH.
Examples:
AHX3028 (Withdrawal sleeve)
H2344XHG (Adapter sleeve)

/...
Standardized sleeves with a changed bore: The larger bore diameter (in mm) is indicated following the slant. The chamfer of the original type is maintained.
Example: H3032/150,2

.•••
Standardized sleeves with an inch-size bore: the larger bore diameter (in inch) is indicated following the dot; the first figure following the dot gives the whole inches, the last two figures give the 16th parts of inches.
Example: H218.304
(.304 = 3 4/16" = 4 1/4 inch)

FAG Prefixes and suffixes in alphabetical order

Prefix	Suffix	Meaning
	.A...	Axial clearance in µm (uncoded).
	A	Changed thread diameter of withdrawal sleeves.
	A	Modified internal design.
	A	Changed thickness of the sheet metal of lock washers (deviating from DIN 5406).
	A	Cage guidance at the outer ring.
	.ABEC1 .ABEC3 .ABEC5 .ABEC7 .ABEC9	Tolerance classes ABEC1...ABEC9. in accordance with ABMA standard.
ABO.		Loose lip of the outer ring of abnormal cylindrical roller bearings.
AR.		Outer ring of a rolling bearing if the prefix L cannot be used.
ARK.		Outer ring with rolling element and cage assembly if the prefix R cannot be used.
	.B	Spacer width (in mm) with multirow tapered roller bearings.
	B	Modified internal design.
	B	Cage guidance at the inner ring.
	.BL	Replaced by QP3* and QP5*.
BO.		Loose lip of a cylindrical roller bearing.
C		Rolling bearing of ceramic material.
	C	Modified internal design.
	.CN (C0)	Normal bearing clearance in accordance with DIN 620 (uncoded only in exceptional cases).
	.C1 .C2 .C3 .C4 .C5	Clearance group C1...C5 in accordance with DIN 620.
	D	Split adapter sleeve or split withdrawal sleeve.
	DA	Double row angular contact ball bearing with split separable inner ring.
	.D.. .DB [1] .DF [1] .DT	Spindle bearing set with 2 bearings (duplex) in O-arrangement (duplex) in X-arrangement (duplex) in tandem-arrangement (duplex)
	.E...	Packaging specifications (technical specifications).
	E	Modified internal design (reinforced design).
	EK	Thrust ball bearing without housing washer.
	.F...	Production specifications (will in the future one by one be replaced by "TS".
	F	Machined steel cages.
	.G...	Housing specifications (technical specifications TS).
	G...	Grade class of balls (ISO 3290).
GS.		Housing washer für thrust bearings.
HC, HCS		Ceramic hybrid rolling bearing.
	.H...	Technical specifications (TS) for a number of combined specifications, requirements that relate to more than one field of application or customer-specific requirements.
	H	Snap-type cage.
	H	Withdrawal sleeve for hydraulic mounting.
	H	Grooved nut with tapped holes for mounting screws.
H.		Clamping sleeve for self-aligning ball bearings of series 115 and 116.
	.HG	FAG tolerance class for spindle bearings.
	HG	Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and pump connection at the thread end.
	HGJ	Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and in the sleeve bore, pump connection at the thread end.
	HK	Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and pump connection at the large O.D. end.
	HKJ	Adapter sleeve for hydraulic mounting, with oil grooves on the tapered O.D. and in the sleeve bore, pump connection at the large O.D. end.
	HP	Grooved nut for hydraulic mounting, with tapped holes and bore(s) for pump connection; without mounting screws.
	J...	Technical specifications for preservation, surface treatment and lubrication.
	J	Pressed steel cages.
JR.		Inner ring of a rolling bearing if the prefix L cannot be used.
JRK.		Inner ring with rolling element and cage assembly if the prefix R cannot be used.
K.		Rolling element and cage assembly (cage with rolling elements).
	.K...	Inspection specifications (will one by one be replaced by "TS").

1) These combinations of letters are followed, without a dot inbetween, by the letter indicating the preload (L, M or H).

FAG Prefixes and suffixes in alphabetical order

Prefix	Suffix	Meaning
	K	Tapered bearing bore, taper 1:12.
	K30	Tapered bearing bore, taper 1:30.
	KL1	Cylindrical or tapered roller of class 1.
KF.		Cage without rolling elements.
	.L..	FAG standard greases Arcanol.
	.L9..	Preservation specifications.
L		Separable bearing ring including possible loose lips of separable roller bearings.
	.L..M .L..T .L..TA .L..H .L..F .L..FS	FAG grease of a certain quantity (filling rate).
	L	Machined light metal cages.
	LH	Sleeves and nuts with left-hand thread.
	LS	Seal for cylindrical roller bearings, double row, full complement.
	.M...	Measurement and test specifications, specification for documentation (technical specification).
	M	Machined brass cages.
	M1	Machined brass cages with integral crosspiece rivets.
	.N...	Specifications for matched rolling bearings (technical specification).
	N	Circular groove for snap ring in the outer ring.
	N	Pressed steel cage, riveted.
	N2	Retaining grooves in the outer ring or in the housing washer.
	NA	Bearing rings not interchangeable; applies only in connection with C1 bearing clearance in single and double row cylindrical roller bearings.
	NR	Circular groove in the outer ring with snap ring.
	.OB	Cylindrical roller bearing (NJP,NFP) without loose lip.
	.OM	Adapter sleeve without grooved nut but with locking device.
	.OMS	Adapter sleeve with neither grooved nut nor locking device.
	.OS	Adapter sleeve without locking device but with grooved nut.
	.OSR	S-type bearing without retaining ring.
	.OZWR	Tapered roller bearings, double row, without spacer.
	P	Window-type cage.
	.P..	Spindle bearing set with 5 bearings (pentaplex).
	.PN (P0)	Normal tolerance classe in accordance with DIN 620 (coded).
	.P2,.P4 .P5,.P6, .P6X	Tolerance classes P2...P6X in accordance with DIN 620.
	.P4S	FAG tolerance class for spindle bearings.
	.PL1 .PL3 .PL4 .PL6	FAG tolerance and radial clearance classes PL1...PL6 for thin section bearings.
	.Q3	FAG tolerance class for tapered roller bearings in inch dimensions.
	.Q..	Spindle bearing set with 4 bearings (quadroplex)
	.QBC [1])	in O-arrangement (quadroplex)
	.QBT [1])	in tandem-O-arrangement (quadroplex)
	.QFC [1])	in X-arrangement (quadroplex)
	.QFT [1])	in tandem-X-arrangement (quadroplex)
	.QT	in tandem arrangement (quadroplex)
	.QP..	Cross profile of roller bearing raceway or roller O.D. in accordance with corresponding specifications.
	R	Tapered roller bearing and deep groove ball bearing with flange at the outer ring.
	.R...	Radial clearance in µm (uncoded).
R		Bearing ring with rolling element and cage assembly of separable roller bearings.
REP.		Repair bearing.
	RSD	Non-rubbing seal at one end.
	RSR	Seal at one end.
	RSRN	Seal at one end; circular groove for snap ring at the other end.
	RSRNR	Seal at one end; circular groove with snap ring at the opposite end.
S		Stainless steel rolling bearing.
	S	Lubricating groove and three lubricating holes in the outer ring.
	S	Cage with lubricating grooves.
	.SN (.S00)	Normal heat stabilization up to +120 °C (no marking).
	.S0	Dimensionally stable up to +150 °C (no marking).
	.S1	Dimensionally stable up to +200 °C.
	.S2	Dimensionally stable up to +250 °C.

1) These combinations of letters is followed, without a dot inbetween, by the letter indicating the preload (L, M or H).

FAG Prefixes and suffixes in alphabetical order

Prefix	Suffix	Meaning
	.S3	Dimensionally stable up to +300 °C.
	.S4	Dimensionally stable up to +350 °C.
	.S(*)A	Outer ring (housing washer), dimensionally stable, e.g. .S1A.
	.S(*)B	Inner ring (shaft washer), dimensionally stable, e.g. .S1B.
	.S..	Spindle bearing set with 6 bearings (sestuplex).
	SE	Machined sinter iron cages.
	.SP	FAG tolerance class for cylindrical roller bearings, tapered roller bearings and angular contact thrust ball bearings.
	SY	Bearing without lubricating groove, but with three lubricating holes in the outer ring.
	.T1 to .T9	Tolerance classes T1...T9 (FAG-Canada).
	.T..	Spindle bearing set with 3 bearings (triplex)
	.TBT [1]	in tandem-O-arrangement (triplex)
	.TFT [1]	in tandem-X-arrangement (triplex)
	.TT	in tandem arrangement (triplex).
	.T...	TS specifications for dimensional, form, position and running tolerances.
	T	Machined cages of textile laminated phenolic; short form: moulded cage of glass-fibre reinforced polyamide.
	T	Grooved nut with trapazoidal thread.
	TV	Moulded cages of glass-fibre reinforced polyamide.
	.U...	Design specifications (will one by one be replaced by "TS").
U.		Spherical seating ring for abnormal thrust bearings, according to drawing no.
	UA to UO	Universal designs for angular contact ball bearings and spindle bearings, bearing pair in O- or X-arrangement,
	.UA, .UA...	- with axial clearance
	.UH (.US)	- heavy preload
	.UL	- light preload
	.UM	- medium preload
	.UO	- zero-clearance
	.UP	FAG tolerance class for cylindrical roller bearings and angular contact thrust ball bearings.
	V	Full complement bearing.
	.VA...	Axial preload in µm (uncoded).
	VH	Full complement cylindrical roller bearing with self-retained roller complement.
	.VR...	Radial preload in µm (uncoded).
WS.		Shaft washer for thrust bearings.

Prefix	Suffix	Meaning
	.W...	Specifications for heat treatment and materials (technical specification).
	X	Modified boundary dimensions of bearings and sleeves (adaptation to international standards).
	Y	Pressed brass or bronze cages.
	.Z...	Production specifications (will one by one be replaced by technical specifications).
	ZR	Dust shield at one end.
	ZRN	Dust shield at one end and circular groove at the other end.
	ZRNR	Dust shield at one end and circular groove with snap ring at the opposite end.
	.2GS	Thrust bearing with two housing washers.
	.2LS	Seals at both ends of cylindrical roller bearings, double row, full complement.
	.2RS	Seals at both ends.
	.2RSD	Non-rubbing seals at both ends.
	.2RSR	Seals at both ends.
	.2WS	Thrust bearing with two shaft washers.
	.2ZR	Dust shields at both ends.
	.700...	Design specifications (will one by one be
	.780...	replaced by "TS").
	.790...	
	.795...	
	/..	Changed bore of rolling bearings, adapter and withdrawal sleeves (bores changed to the size (in mm) indicated after the slant).
	. ...	Rolling bearings, adapter and withdrawal sleeves with inch-size bores. The suffix is separated from the bore reference number by a dot. The 1st figure following the dot gives the whole inches, the last two figures give the 16th parts of inches.

1) These combinations of letters is followed, without a dot inbetween, by the letter indicating the preload (L, M or H).

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FAG Rolling Bearing Codes

Bearing Series • Prefixes • Suffixes

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