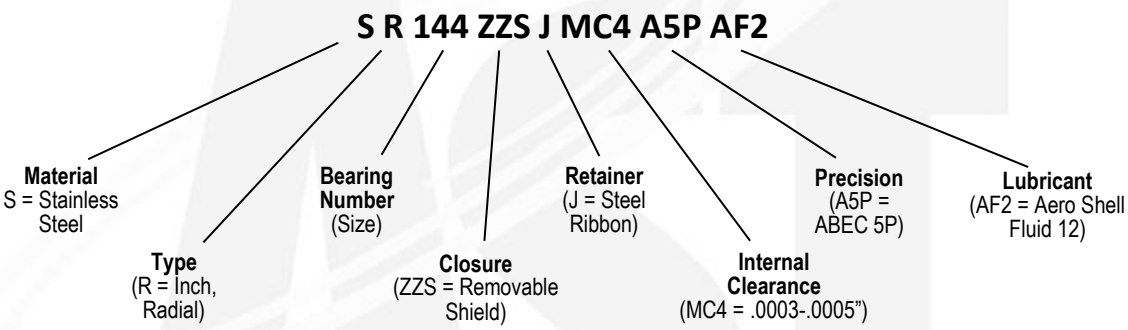
Radial Ball Bearing Nomenclature and Numbering System

There are many different numbering systems used in the bearing industry today. The boundary dimensions for certain series of bearings are defined in various standards, such as ABMA, JIS and ISO. In addition, most manufacturers have created their own numbering systems that are a combination of the actual part, or bearing, number and a series of codes that define additional specifications.

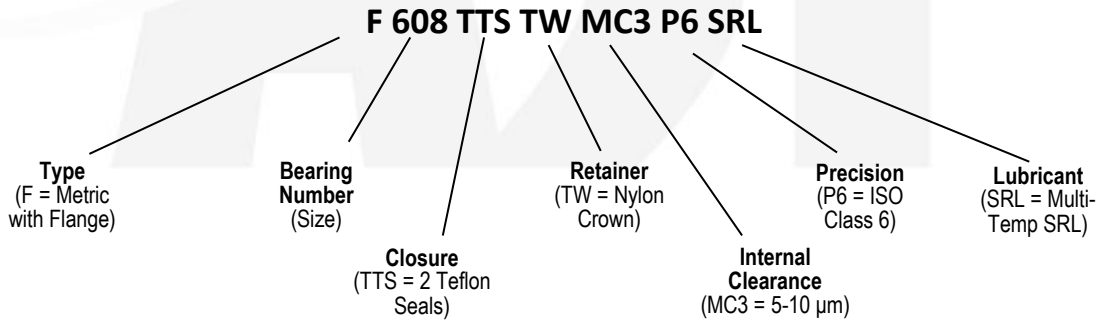
Interchanging bearing numbers between different numbering systems requires attention to detail and full knowledge of the codes that define the specifications. AST's Engineers and Sales reps are experts with all numbering systems and can assist you with breaking down any bearing part number.

To assist you in understanding AST Bearings' radial ball bearing nomenclature and numbering system, we offer the following examples and codes.

Numbering Example of AST Inch Series Miniature Ball Bearings:



Example of AST Standard Metric Series Ball Bearings:



Note: No symbol for material code = high carbon chromium steel SAE 52100

Material Codes for AST Ball Bearings:

Blank or no symbol =	High carbon chromium steel SAE 52100
S as prefix =	Inch Series Martensitic stainless steel, AISI 440C, KS440 (ACD34), X65Cr13
H as suffix =	Metric Series Martensitic stainless steel, AISI 440C, KS440 (ACD34), X65Cr13
SV as prefix =	SV30 Martensitic stainless steel, X30CrMoN15-1
HY as prefix =	Ceramic balls (prefix will appear before material code)

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Ball Bearing Type Codes:

R = Inch
FR = Inch with flange
RW = Inch with extended inner ring
FRW = Inch with extended inner ring and flange
No symbol = Metric standard
F = Metric with flange
MR = Special metric
MF = Special metric with flange
NR = Snap ring groove in OD (this code appears after the bearing number)

Ball Bearings Closure (seals and shields) Codes:

TTS = Teflon seals
ZZS = Removable steel shields, ZS = single shield
ZZ = Pressed steel shields (non-removable), Z= single shield
2RS = Contact rubber (buna-N) seals, RS = single seal
2RU = Non-contact rubber (buna-N) seals, RU = single seal
2VS = Contact Viton seals, VS = single seal
Seal and shield combinations are also available

Ball Bearings Retainer (ball separator) Codes:

J = Steel ribbon
W = Steel crown
TW = Nylon crown
RJ = Riveted steel ribbon
V = Full complement
THB = Phenolic resin crown, inner ring guided
THA = Phenolic resin crown, outer ring guided
TB = Phenolic resin full machined, inner ring guided
TA = Phenolic resin full machined, outer ring guided
THB, THA, TB, **TA** retainers are also available in other materials

Radial (Internal) Clearance Codes for Ball Bearings:

MC1 = 0-5 µM
MC2 = 3-8 µM
MC3 = 5-10 µM
MC4 = 8-13 µM
MC5 = 13-20 µM
MC6 = 20-28 µM
K13 (or P13) = .0001-.0003”
K25 (or P25) = .0002-.0005”
K58 (or P58) = .0005-.0008”
K811 (or P811) = .0008-.0011”
For bearings with bore diameter greater than 10 mm, codes are: C2, C0, C3, C4, C5 per ABMA Std. 20

Ball Bearing Lubrication:

Standard Greases for Ball Bearings

SRL =	Kyodo Yushi Multi Temp SRL
AV2 =	Shell Alvania No.2
B32 =	Exxon Mobil Beacon 325
SRI2 =	Chevron SRI-2
M4M =	Dow Corning Molykote 44M
K24 =	Dupont Krytox 240 AC
SL8 =	Kluber Isoflex LDS 18

Standard Oils for Ball Bearings

AF2 =	Aero Shell Fluid No.12
WL2 =	Windsor Lube L-245X
002 =	Rust preservative only (Antirust p2100)

There are hundreds of lubricants, both oils and greases, used in rolling element bearings. Different lubricants are available that are designed to operate in various conditions, such as high or low temperatures, high speeds, vacuum, extreme loads, and high moisture or humidity to name a few. In addition certain greases should not be used in miniature or instrument bearings due to increased noise levels. There are lubricants that are approved for use in the food industry and others that are qualified to US military specifications for use in the defense industry. Consult with an AST Applications Engineer to ensure the proper lubricant is specified.

Typically, the last code in a bearing part number identifies the lubricant. Aside from the codes for the standard lubricants listed above, the following system is used to identify the lubricant.

Ball Bearings Greases

G343 where G indicates grease, and the next 3 numerical digits 340 identifies the particular grease, in this case 343 is equal to Mobil 28 grease.

Ball Bearings Oils

L105 where L indicates oil, and the next 3 numerical digits 105 identifies the particular oil, in this case 105 is equal to Castrol Brayco Micronic 814.

Other Codes for Ball Bearings:

There are additional codes that may appear in various positions within a bearing part number. These include codes that indicate types of functional testing performed, such as noise or torque, type of packaging, paired duplex arrangements, special dimensions, and bore or OD calibration.

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