

Koyo®

Ball, Needle & Roller Bearing *NOMENCLATURE GUIDE*

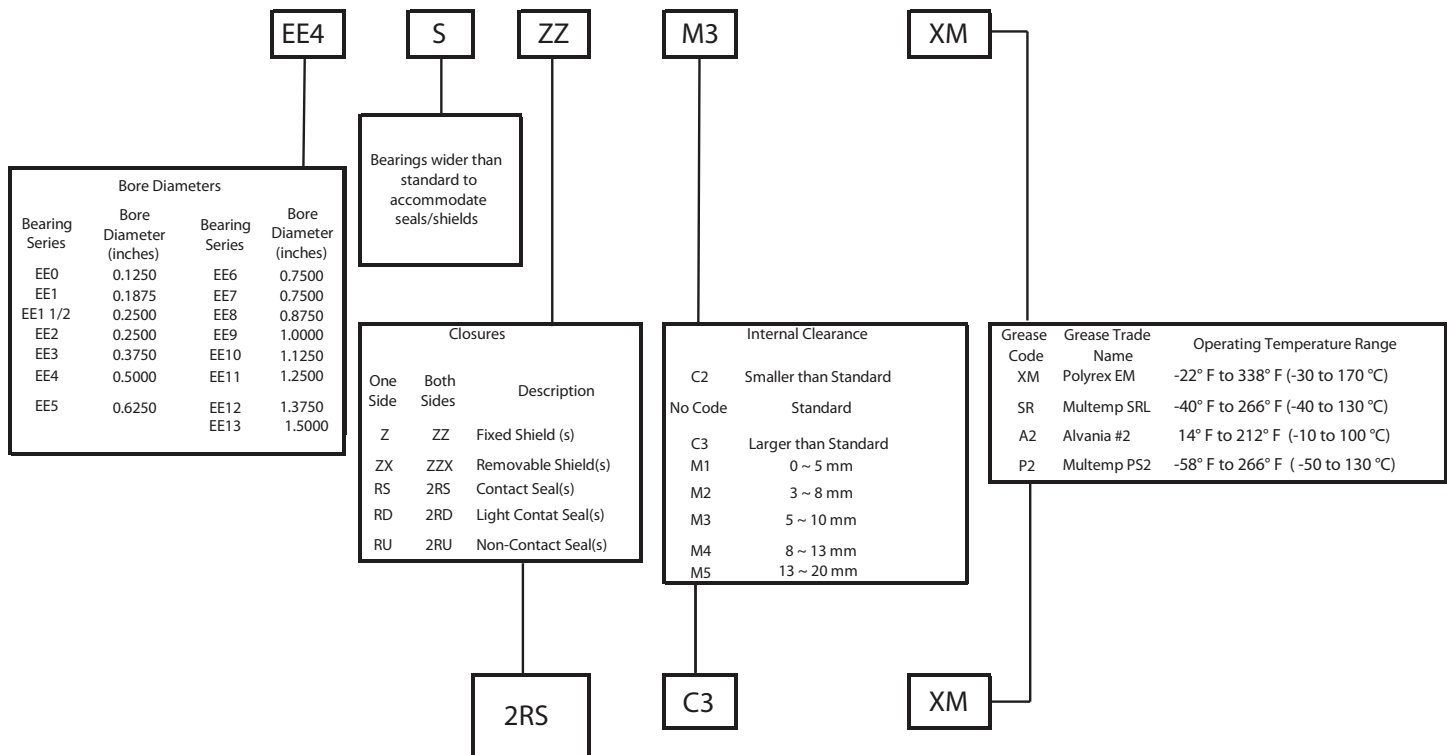
Rev. December 2021



JTEKT

NOMENCLATURE

EE Extra Light Inch Series/Miniature Ball Bearings



Koyo Interchange for EE Series Bearings

"R" Series #	Koyo Bearing #	Koyo Sealed	Koyo Shielded
R-2	EE0	EE0 2RS	EE0 ZZ
R-3	EE1	EE1S 2RS	EE1S ZZ
R-4	EE1-1/2	EE1-1/2 2RS	EE1-1/2 ZZ
R-4A	EE2	EE2S 2RS	EE2S ZZ
R-6	EE3	EE3S 2RS	EE3S ZZ
R-8	EE4	EE4S 2RS	EE4S ZZ
R-10	EE5	EE5S 2RS	EE5S ZZ
R-12	EE6	EE6S 2RS	EE6S ZZ
R-14	EE8	EE8S 2RS	EE8S ZZ
R-16	EE9	EE9S 2RS	EE9S ZZ
R-18	EE10	EE10S 2RS	EE10S ZZ
R-20	EE11	EE11S 2RS	EE11S ZZ
R-22	EE12	EE12S 2RS	EE12S ZZ
R-24	EE13	EE13S 2RS	EE13S ZZ

NOMENCLATURE

Ball Bearings

Basic Type & Series	
1200:	Metric, Self-aligning Light Series
1300:	Metric, Self-aligning Medium Series
3200:	Metric, 32° Double Row Angular Contact Light Series
3300:	Metric, 32° Double Row Angular Contact Medium Series
5200:	Metric, 24° Double Row Angular Contact Light Series
5300:	Metric, 24° Double Row Angular Contact Medium Series
6800:	Metric, Single Row Ultra Light Series
6900:	Metric, Single Row Extremely Light Series
6000:	Metric, Single Row Extra Light Series
6200:	Metric, Single Row Light Series
6300:	Metric, Single Row Medium Series
6400:	Metric, Single Row Heavy Series
3NC:	Ceramic Rolling Elements

Internal Clearance	
C1:	Smaller than C2
C2:	Smaller than Standard
No code:	Standard
C3:	Greater than Standard
C4:	Greater than C3
CD2:	Smaller than Standard (Double Row BB)
No code:	Standard (Double Row BB)
CD3:	Greater than Standard (Double Row BB)

Tolerance Code	
No Code:	ABEC 1 Precision
P6:	ABEC 3 Precision
P5:	ABEC 5 Precision

62

05

RSH2

ZZ

C3

FY

P5

XM

Bore Size	
For bore series 04 and above, Bore Diameter = Bore Series X 5	
Bore Series	Bore Diameter
00:	10 mm
01:	12 mm
02:	15 mm
03:	17 mm
04:	20 mm
05:	25 mm
10:	50 mm
12:	60 mm
18:	90 mm

Internal Design Material Code	
R	Increased Capacity
SH2	Special Heat Treatment on Inner Ring

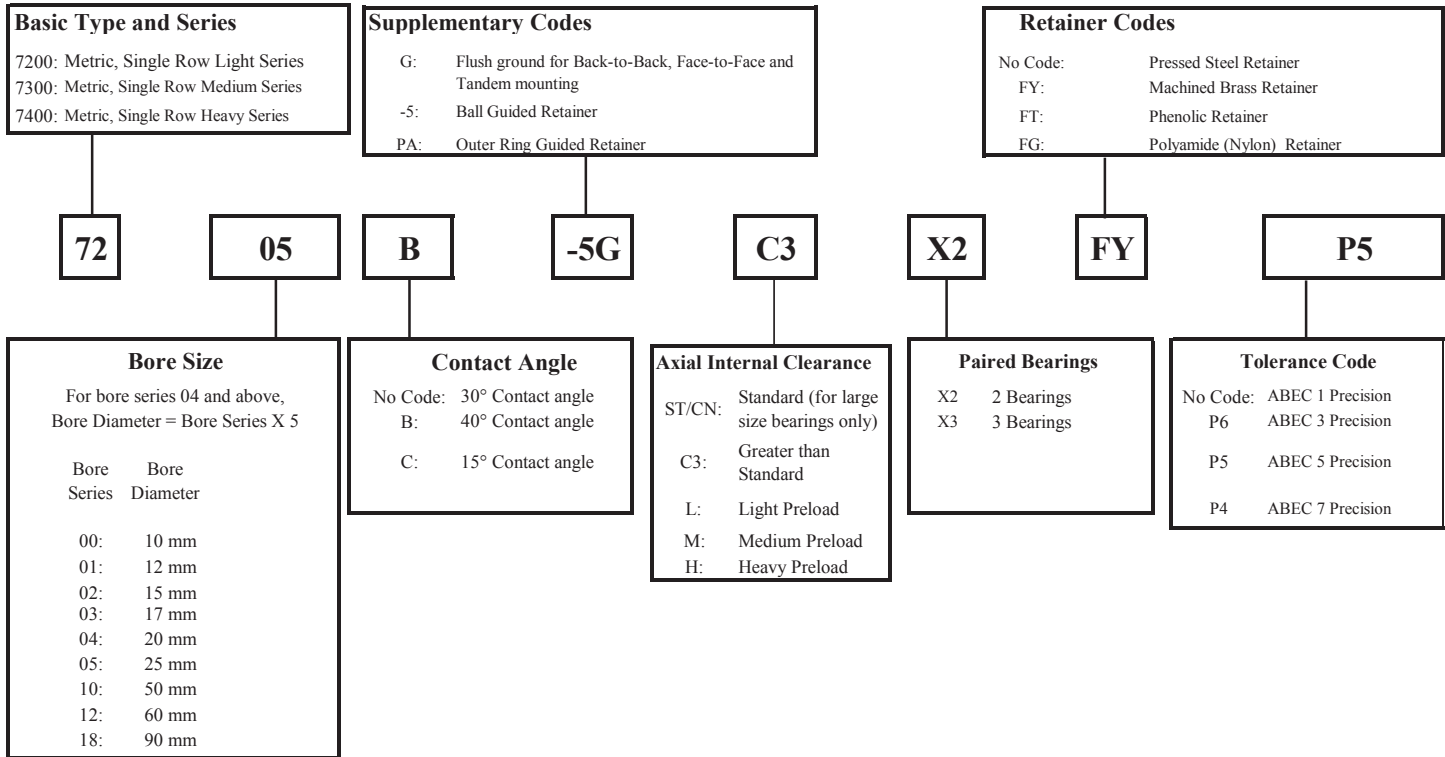
Retainer Codes	
No Code:	Pressed Steel Retainer
FY:	Machined Brass Retainer
FG:	Polyamide (Nylon) Retainer

Grease Code	Grease Trade Name	Operating Temperature Range
XM	Polyrex EM	-22° F to 338° F (-30 to 170 °C)
SR	Multemp SRL	-40° F to 266° F (-40 to 130 °C)
A2	Alvania #2	14° F to 212° F (-10 to 100 °C)
P2	Multemp PS2	-58° F to 266° F (-50 to 130 °C)

Shield / Seal/ Snap Ring Codes			Interchange							
One Side	Both Sides	Description	FAG	MRC	Nachi	NSK	NTN	SNR	SKF	Torrington/ Fafnir
Z	ZZ	Fixed Shield(s)	Z/ZZ	F/FF	Z/ZZ	Z/ZZ	Z/ZZ	Z/ZZ	Z/ZZ	D/DD
ZX	ZZX	Removable Shield(s)	N/A	L/LL	ZS/ZZS	ZS/ZZS	ZA/ZZA	N/A	N/A	N/A
RU	2RU	Non-contact Seal(s)	RSD/2RSD	N/A	NKE/2NKE	V/VV	LB/LLB	N/A	RZ/2RZ	PL/PPL
RS	2RS	Contact Seal(s)	RS/2RS	Z/ZZ	NSL/2NSL	DU/DDU	LU/LLU	E/EE	RS/2RS	P/PP
RK	2RK	DbI lip Contact Seal(s)	N/A	N/A	N/A	N/A	LC/LLC	E10/EE10	N/A	Y/YY
RD	2RD	Extremely Light Contact Seal(s)	N/A	N/A	NSE/2NSE	N/A	LH/LLH	N/A	N/A	V/VV
RDT	2RDT	Same as 2RD - for Large Size Ball Bearings	N/A	N/A	NSE/2NSE	N/A	LH/LLH	N/A	N/A	V/VV
NR:		Snap Ring on Outer Ring O.D.	NR	G	NR	NR	NR	NR	NR	G

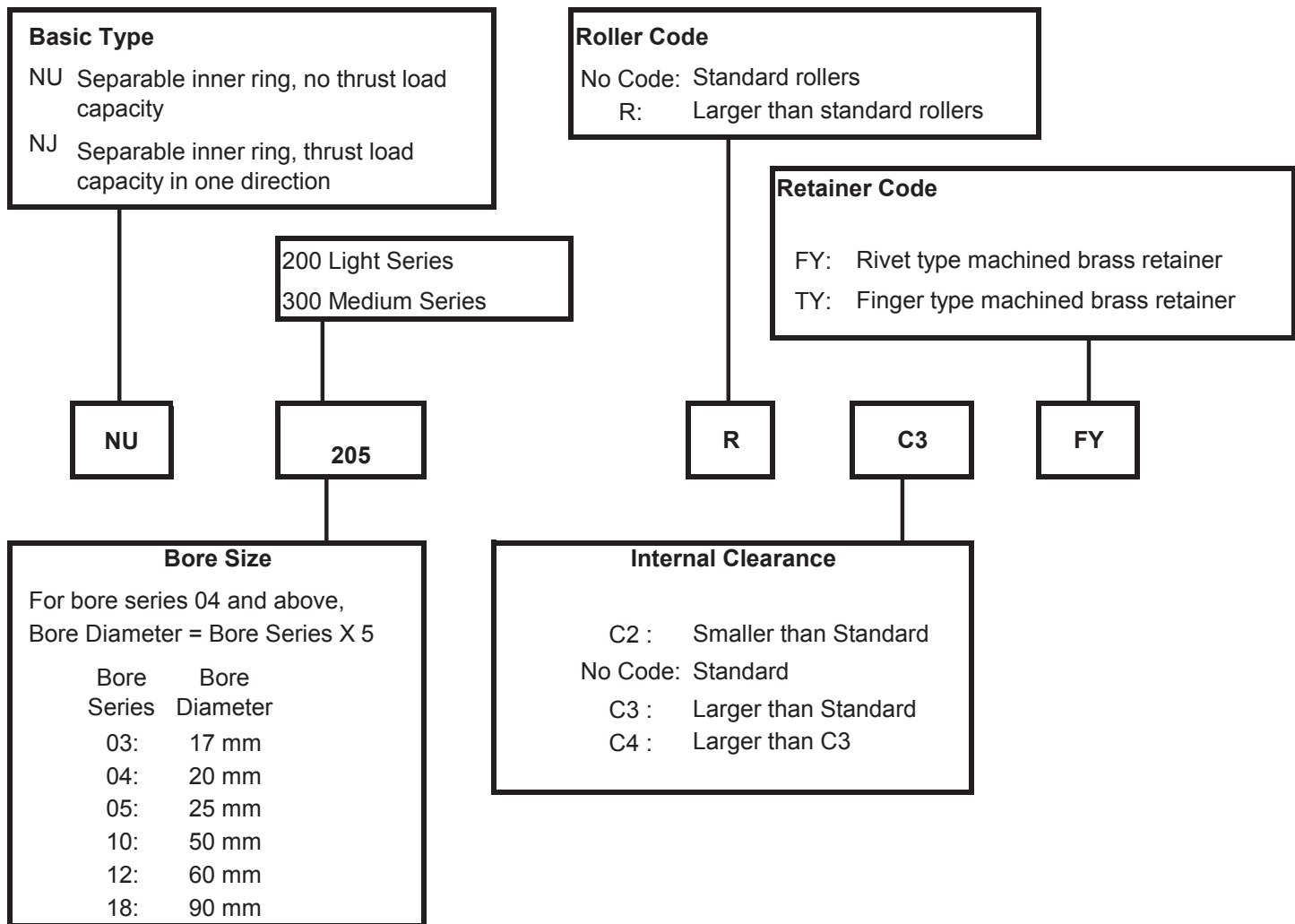
NOMENCLATURE

Angular Contact Ball Bearings



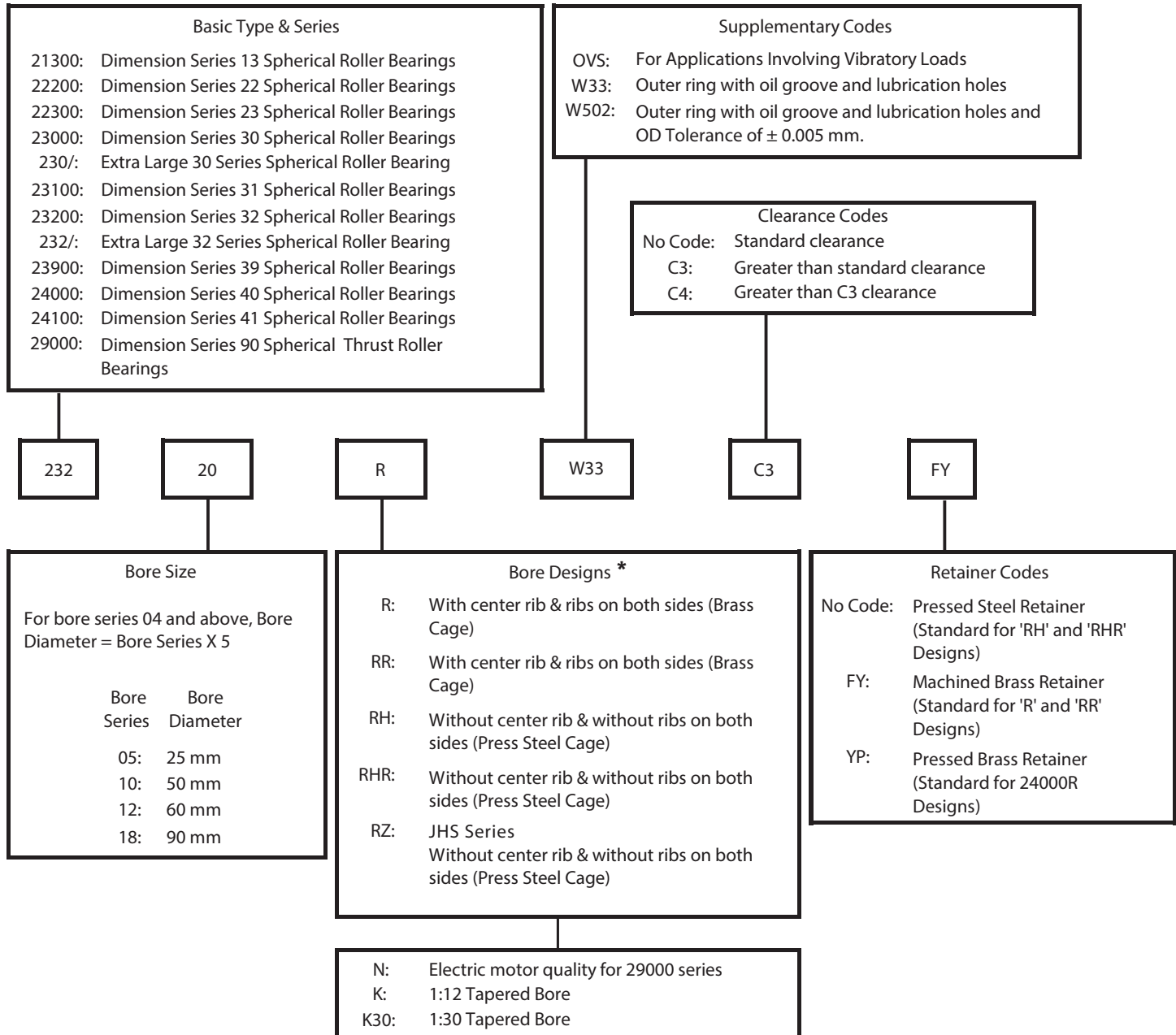
NOMENCLATURE

Cylindrical Roller Bearings



NOMENCLATURE

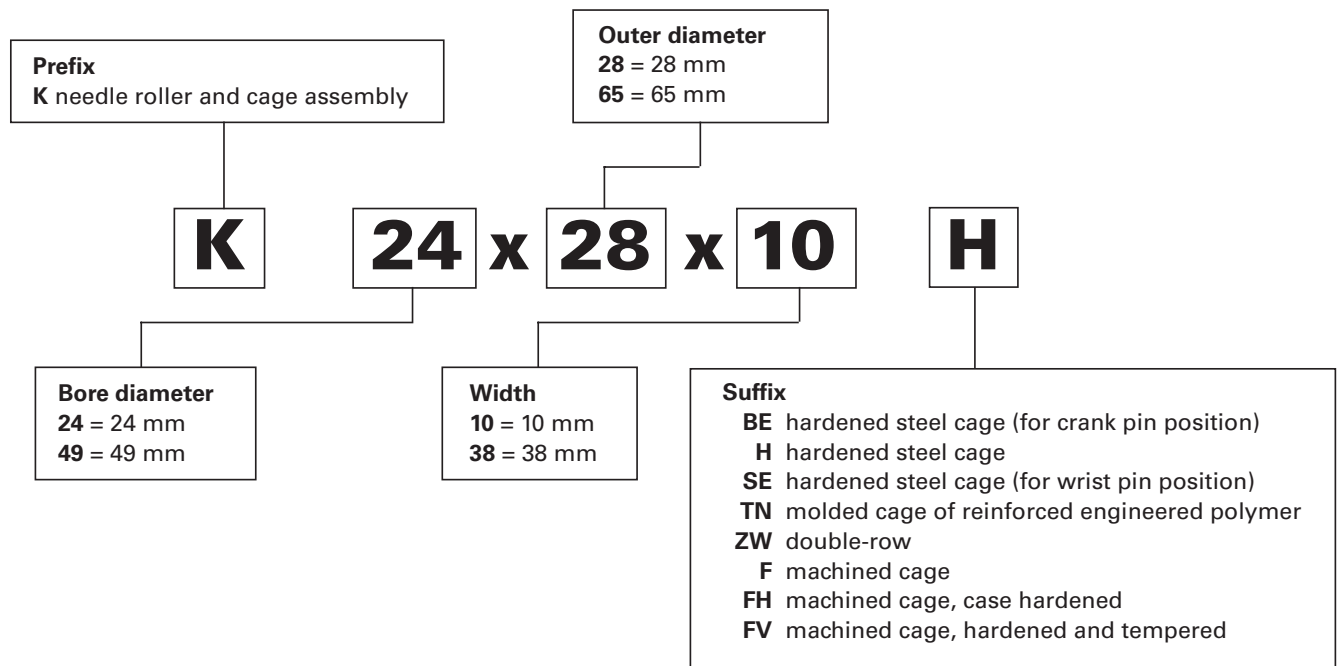
Spherical Roller Bearings



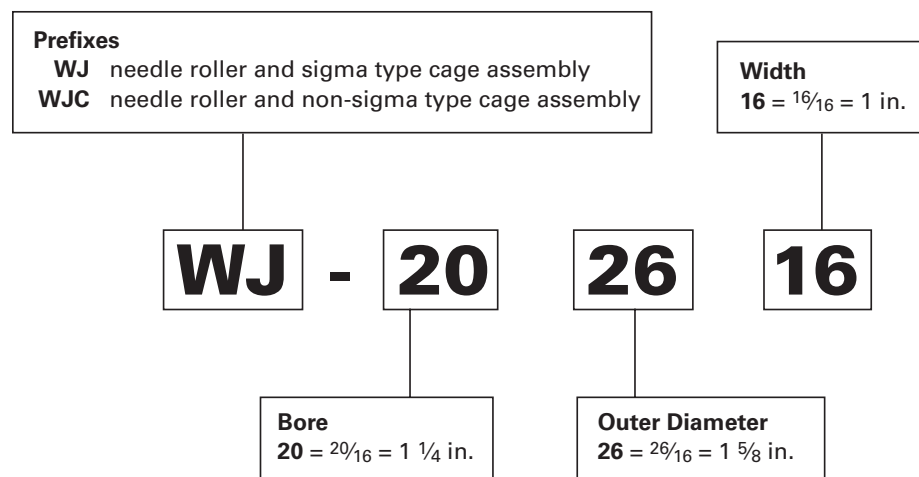
NOMENCLATURE

Needle Roller & Cage Assemblies

Radial Needle Roller and Cage Assemblies – Metric Nominal Dimensions



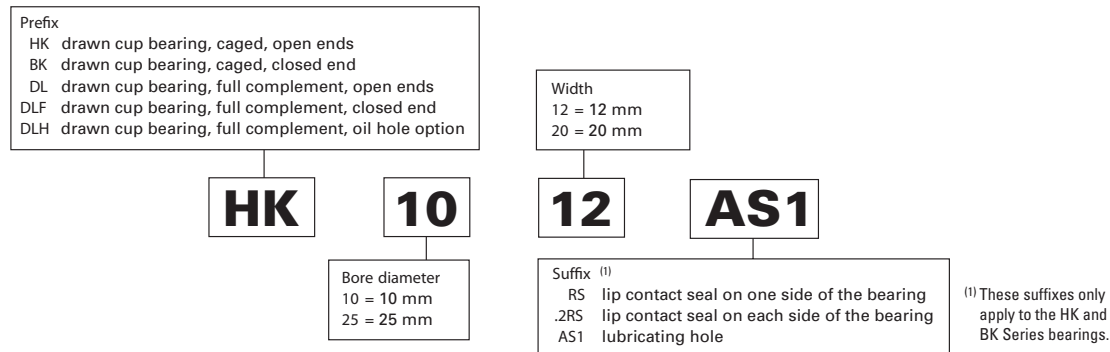
Radial Needle Roller and Cage Assemblies – Inch Nominal Dimensions



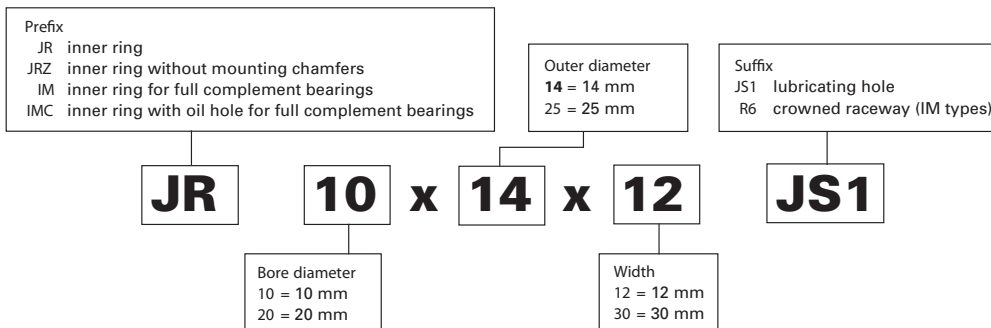
NOMENCLATURE

Drawn Cup Needle Roller Bearings

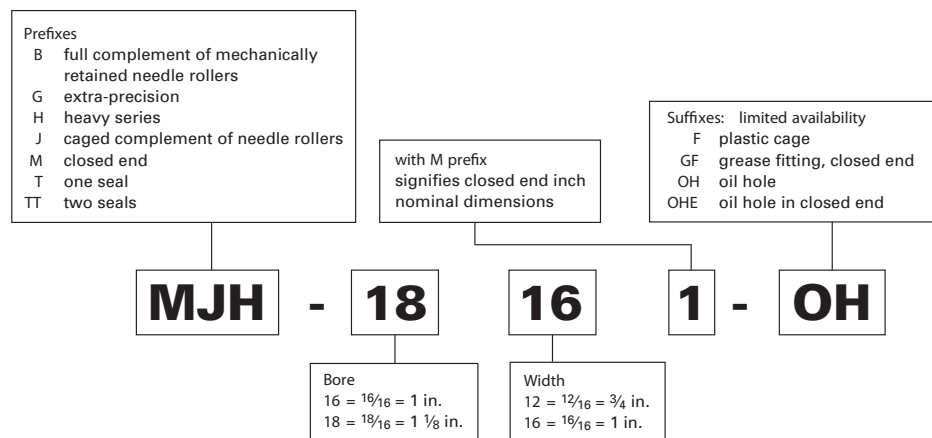
Drawn Cup Needle Roller Bearings – Metric Nominal Dimensions



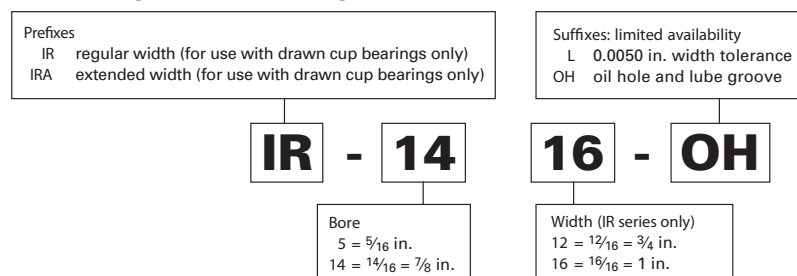
Inner Rings – Metric Nominal Dimensions



Drawn Cup Needle Roller Bearings – Inch Nominal Dimensions



Inner Rings (with four-digit number) Inch Nominal Dimensions



NOMENCLATURE

Drawn Cup Roller Clutches

Drawn Cup Roller Clutches

Metric Series	
FCS, FC-K	regular clutch, single roller per stainless steel spring
FC	regular clutch, multi-roller per stainless steel spring
FCL-K	light series clutch, single roller per stainless steel spring
FCB	regular clutch and bearing assembly, multi-roller per stainless steel spring
FCBL-K, FCBN-K	light series clutch and bearing assembly, single roller per stainless steel spring

FCL - 10 - K

Bore, in millimeters

Inch Series	
RC	regular clutch, single roller per integral spring
RC-FS	regular clutch, single roller per stainless steel spring
RCB	regular clutch and bearing assembly, single roller per integral spring
RCB-FS	regular clutch and bearing assembly, single roller per stainless steel spring

Outer Diameter
14 = $\frac{14}{16} = \frac{7}{8}$ in.

RC - 10 14 10 - FS

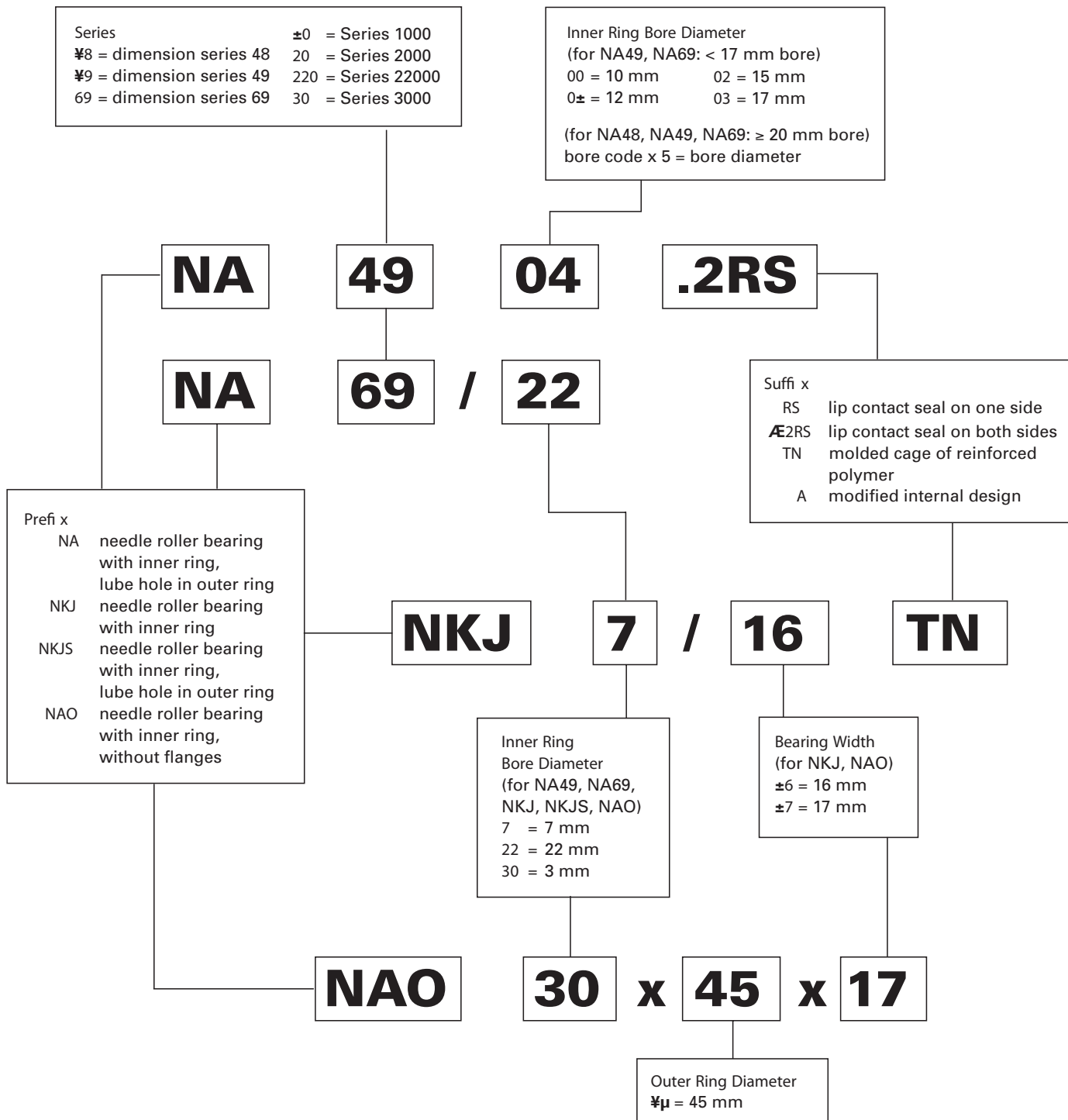
Bore
10 = $\frac{10}{16} = \frac{5}{8}$ in.

Width
10 = $\frac{10}{16} = \frac{5}{8}$ in.

NOMENCLATURE

Solid Race Needle Roller Bearings

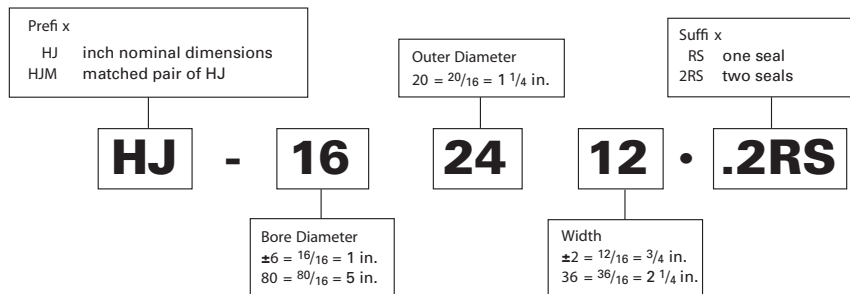
Needle Roller Bearings with Inner Rings – Metric Nominal Dimensions



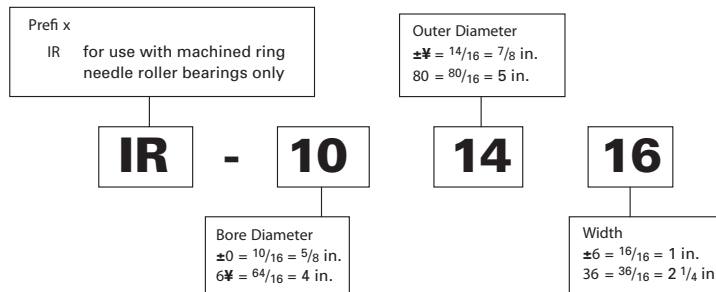
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Solid Race Needle Roller Bearings

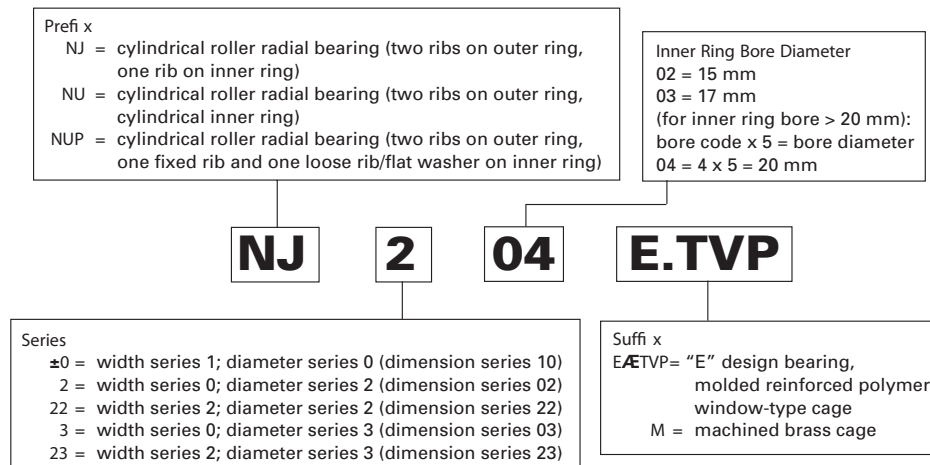
Needle Roller Bearings – Inch Nominal Dimensions



Inner Rings (six-digit number) – Inch Nominal Dimensions



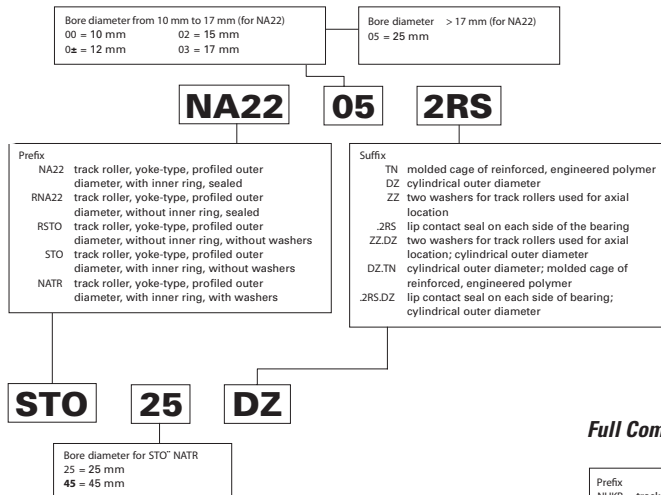
Cylindrical Roller Radial Bearings - Metric Nominal Dimensions



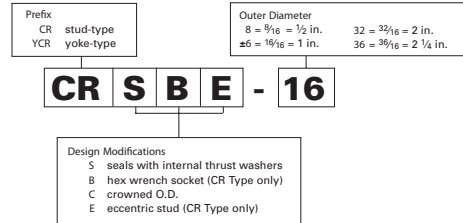
NOMENCLATURE

Track Rollers / Cam Followers

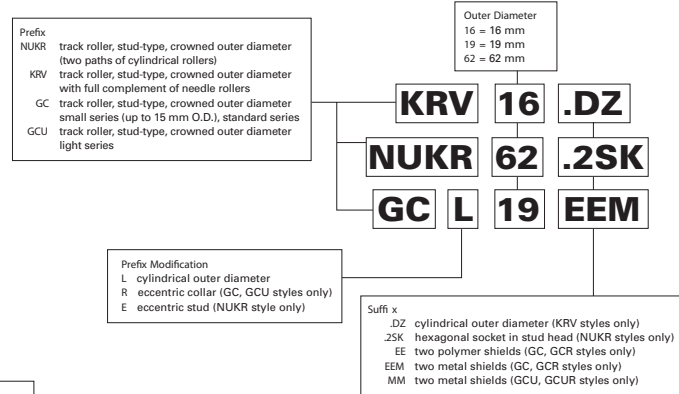
Caged Yoke-Type Track Rollers – Metric Nominal Dimensions



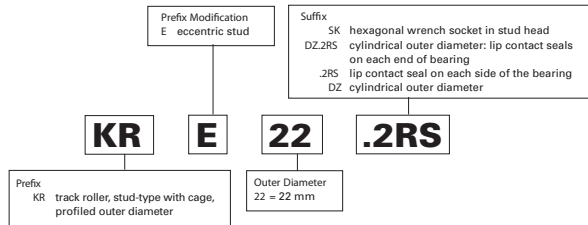
Full Complement Track Rollers – Inch Nominal Dimensions



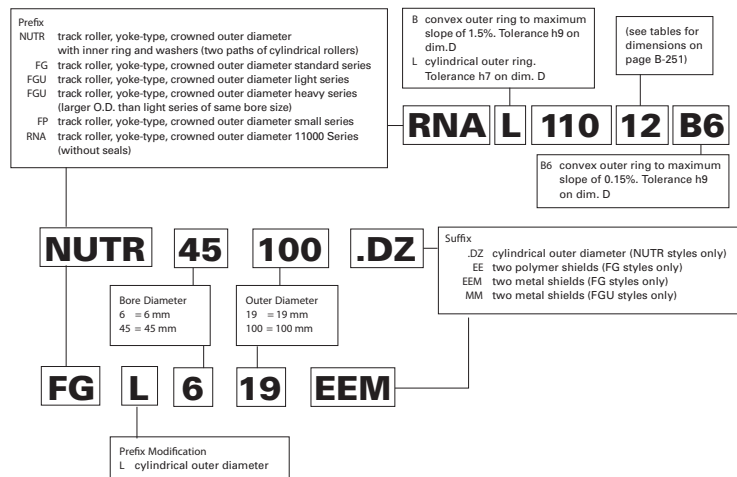
Full Complement Stud-Type Track Rollers – Metric Nominal Dimensions



Caged Stud-Type Track Rollers – Metric Nominal Dimensions



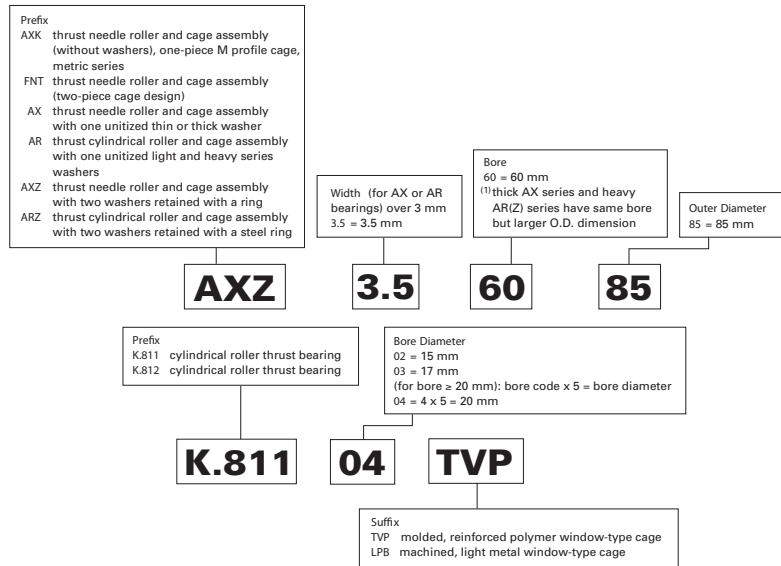
Full Complement Yoke-Type Track Rollers – Metric Nominal Dimensions



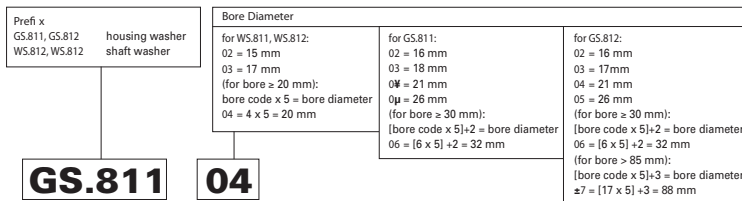
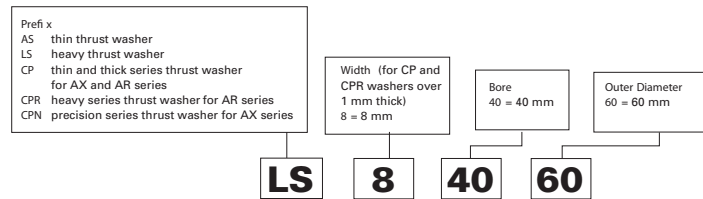
NOMENCLATURE

Thrust Needle Roller Bearings & Washers

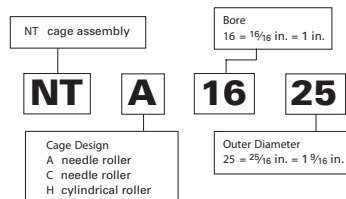
Needle Roller Thrust Bearings – Metric Nominal Dimensions



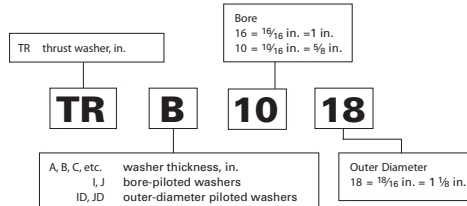
Thrust Washers – Metric Nominal Dimensions



Thrust Bearings – Inch Nominal Dimensions



Thrust Washers – Inch Nominal Dimensions





PARTS MANUFACTURED BY KOYO
ARRIVED ON

MARS
2020
PERSEVERANCE

MARS
FEB
2021



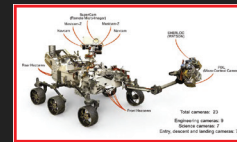
ON THE NASA PERSEVERANCE ROVER

MISSION FACTS

- MISSION NAME:** Mars 2020
- ROVER NAME:** Perseverance
- MISSION:** Seek out signs of ancient life and collect rock and soil samples for future return to Earth.
- LAUNCH DATE:** July 30, 2020 7:50 a.m. EDT
- LAUNCH LOCATION:** Cape Canaveral, FL
- LANDING DATE:** February 18, 2021
- LANDING SITE:** Jezero Crater, Mars
- MISSION DURATION:** 1 Mars year (687 days)

KOYO FACTS

- PARTS SUPPLIED:**
- CAIRO, GA PLANT:** Silver-plated Cage & Roller Assemblies on the decent brake mechanism.
- SYLVANIA, GA PLANT:** Precision Needle Rollers on the robotic arm.



Solutions For Demanding Applications

