NSK

BEARING AND LINEAR REFERENCE GUIDE

SINGLE ROW DEEP GROOVE BALL BEARINGS

NOMENCLATURE

Basic Type & Series

R: Inch
600: Metric, Extra Small
6000: Metric, Extra Light
6200: Metric, Light
6300: Metric, Medium
6800: Metric, Extra Thin Section
6900: Metric, Very Thin Section
63200: Metric, Light Cartridge
63300: Metric, Medium Cartridge
BL 200: Metric, Maximum Capacity, Light
BL 300: Metric, Maximum Capacity, Medium

62

Bore Size

(04 and up: multiply last two numbers by 5 to get bore in mm)

00: 10 mm **04:** 20 mm
01: 12 mm **05:** 25 mm
02: 15 mm **12:** 60 mm
03: 17 mm **20:** 100 mm

05

Cage Option

M: Brass
Blank: Steel
T1X: Polyamide
MR: Brass Ball Guided

T1X

Features

DW: Light contact seal
DDW: Double light contact seal
DU: Single Contact Seal
DDU: Double Contact Seal
V: Single Non-Contact Seal
VV: Double Non-Contact Seal
Z: Single Shield
ZZ: Double Shield
NR: Snap Ring and Groove
ZS: Removeable shield held via snap ring

ZZ

Internal Clearance

C2: Tighter than Normal
Blank: Normal
C3: Greater than Normal
C4: Greater than C3
CM: Electric Motor Standard Clearance

C3

Noise Level

E: Electric Motor Grade

E

Heat Treatment

Blank: Normal 120°C
X26: Heat stabilized to 150°C
X28: Heat stabilized to 200°C
X29: Heat stabilized to 250°C

X28

Grease Type

NS7: NS Hi-Lube (Multemp SRL)
AS2: Alvania #2
B32: Beacon 325
SRI: Chevron SRI-2
EEM: Polyrex EM

SRI

Grease Fill

S: Standard
L: Light
H: Heavy

S

INTERCHANGE

Description		Interchange					
		NSK	SKF	FAF/TIMKEN	FAG	MRC	NTN
Part Number	Inch	Rxx	Rxx	SxxK	Rxx	Rxx	Rxx
	Extra Small	6xx	6xx	3xK	6xx	3x	6xx
	Extra Light	60xx	60xx	91xxK	60xx	1xxK	60xx
	Light	62xx	62xx	2xxK	62xx	2xxS	62xx
	Medium	63xx	63xx	3xxK	63xx	3xxS	63xx
	Extra Thin Section	68xx	618xx	--	618xx	18xxS	--
	Very Thin Section	69xx	619xx	93xxK	619xx	19xxS	69xx
	Thin Section	16xxx	16xxx	--	16xxx	--	--
	Maximum Capacity, Light	BL2xx	2xx	2xxW	2xx	2xxM	BL2xx
	Maximum Capacity, Medium	BL3xx	3xx	3xxW	3xx	3xxM	BL3xx
	Cartridge Type	632xx	4622xx	W2xx	335xx	2xxC	632xx
		633xx	4623xx	W3xx	336xx	3xxC	633xx
Part Number Suffix	Two Seals (Non Contact)	VV	--	--	2RSD	--	LLB
	Two Seals (Contact)	DDU	2RS	PP	2RSR	ZZ	LLU
	One Seals (Contact)	DU	RS	P	RSR	Z	LU
	Two Shield	ZZ	2Z	DD	2ZR	FF	ZZ
	One Shield	Z	Z	D	ZR	F	Z
	Snap Ring	NR	NR	G	NR	G	NR
	Steel Cage	BLANK	J or BLANK	BLANK	BLANK	BLANK or STL	BLANK
	Polyamide Cage	T1X	TN9	PRB	TVH	TN9	T2
	Brass Cage	M	MA	MBR	M	BRS	L1
	Heat Stabilized to 200°C	X28	S1	--	S1	HT	TS3 (prefix)
	Tight Clearance	C2	C2	H	C2	C2	C2
	Normal Clearance	BLANK	BLANK	R	BLANK	C0	BLANK
	Greater than Normal Clearance	C3	C3	P	C3	C3	C3
	Greater than C3 Clearance	C4	C4	J	C4	C4	C4
	Radial Clearance in Microns	CGXX	RLXX	--	RXX	--	--
	Electric Motor Grade	E	EM (C3)	--	--	EMQ	--

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DOUBLE ROW ANGULAR CONTACT BALL BEARINGS

NOMENCLATURE

Basic Type & Series
3200: Metric, Max Capacity, Light, 32° Contact Angle
3200B: Metric, Conrad, Light, 25° Contact Angle
3300: Metric, Max Capacity, Medium, 32° Contact Angle
3300B: Metric, Conrad, Medium, 25° Contact Angle
5200: Metric, Conrad, Light, 25° Contact Angle
5300: Metric, Conrad, Medium, 25° Contact Angle

Contact Angle
Blank for 3xxx Series: 32°
Blank for 5xxx Series: 25°
B for 3xxx Series: 25°

Cage Option
J, Blank: Steel
TNG: Polyamide

EP **32** **10** **B** **2RS** **TNG** **C3**

Material Prefix
EP: Extra Pure Steel
Blank: Standard Materials

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
00: 10 mm
01: 12 mm
02: 15 mm
03: 17 mm
04: 20 mm

Bearing Protection
Blank: Open
2RS: Double Contact Seal
2Z: Double Shield

Internal Clearance
C2: Tight
Blank: Normal
C3: Greater than Normal
C4: Greater than C3

INTERCHANGE

Description		Interchange				
		NSK	SKF	FAG	NTN	FAF/TIMKEN
Part Number	Maximum Capacity, Light	32xx, 32xxJ	52xxE, 32xx	32xx, 32xxC	32xx	52xx, 52xxW
	Maximum Capacity, Medium	33xx, 33xxJ	53xxE, 33xx	33xx, 33xxC	33xx	53xx, 53xxW
	Conrad, Light	32xxB, 52xx	52xxA, 32xxA	32xxB, 32xxBC	52xx	52xxK
	Conrad, Medium	33xxB, 53xx	53xxA, 33xxA	33xxB, 33xxBC	53xx	53xxK
Part Number Suffix	Polyamide Cage	TNG/TNH	TN9	TVP, TVH	--	PRB
	Steel Cage	Blank	Blank	Blank	Blank	Blank
	2 Contact Seals	2RS	2RS1	2RSR	LLU	PP
	2 Shields	2Z	2Z	2ZR	ZZ	FF
	Tight Clearance	C2	C2	C2	C2	H
	Normal Clearance	Blank	Blank	Blank	Blank	R
	Greater than Normal Clearance	C3	C3	C3	C3	P

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SELF-ALIGNING BALL BEARINGS

NOMENCLATURE

Basic Type & Series
1200: Metric, Self-Aligning, Extra Narrow
1300: Metric, Self-Aligning, Narrow
2200: Metric, Self-Aligning, Wide
2300: Metric, Self-Aligning, Extra Wide

22 **06** **2RS** **TNG** **C3**

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
00: 10 mm **04:** 20 mm
01: 12 mm **05:** 25 mm
02: 15 mm **12:** 60 mm
03: 17 mm **20:** 100 mm
Inch: directly indicated

Suffixes
2RS: Double Contact Seal
K: Taper Bore 1:12
E: Extra Capacity
NR: Snap Ring

Cage Option
TNG: Polyamide
J: Pressed Steel

Internal Clearance
C2: Tight
Blank: Normal
C3: Greater than Normal
C4: Greater than C3

INTERCHANGE

	Description	Interchange			
		NSK	SKF	FAG	NTN
Part Number	Metric, Self-Aligning, Extra Narrow	12xx	12xx	12xx	12xx
	Metric, Self-Aligning, Narrow	13xx	13xx	13xx	13xx
	Metric, Self-Aligning, Wide	22xx	22xx	22xx	22xx
	Metric, Self-Aligning, Extra Wide	23xx	23xx	23xx	23xx
Part Number Suffix	Polyamide Cage	TNG	TN9	TV	--
	Steel Cage	Blank, J	Blank	Blank	Blank
	2 Contact Seals	2RS	2RS1	2RSR	LLU
	Tight Clearance	C2	C2	C2	C2
	Normal Clearance	Blank	Blank	Blank	Blank
	Greater than Normal Clearance	C3	C3	C3	C3
	Tapered Bore 1:12	K	K	K	K

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ANGULAR CONTACT BALL BEARINGS

NOMENCLATURE

Basic Type & Series
7200: Metric, Angular Contact, Light
7300: Metric, Angular Contact, Medium
7400: Metric, Angular Contact, Heavy

72

10

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)

00: 10 mm	**04:** 20 mm
01: 12 mm	**05:** 25 mm
02: 15 mm	**12:** 60 mm
03: 17 mm	**20:** 100 mm

Contact Angle
B: 40°
C: 15°
A: 30°

B

Y

Cage Option
M: Machined Brass, Land Riding
Y: Pressed Brass
W: Steel

Other Features
G: Ground on Both Sides for use in Universal Duplex Mounting with Clearance
PC: Combination of Flush Ground Faces, Normal Axial Clearance and ABEC3 (ISO Class 6) Tolerance

G

HIGH PERFORMANCE STANDARD (HPS)

Basic Type & Series
7200: Metric, Angular Contact, Light
7300: Metric, Angular Contact, Medium

72

10

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)

00: 10 mm	**04:** 20 mm
01: 12 mm	**05:** 25 mm
02: 15 mm	**12:** 60 mm
03: 17 mm	**20:** 100 mm

Contact Angle
B: 40°

B

EA

Capacity
EA: Extra Capacity

Cage Option
MR: Machined Brass, Ball Riding
T85: Polyamide 46 Resin
T7: L-PPS Resin

MR

SU

Other Features
SU: Single Universal Flush Ground
DU: Duplex Universal Flush Ground

Internal Clearance
CNB: Normal
GA: Light Preload

CNB

INTERCHANGE

Description		Interchange					
		NSK	SKF	FAF/TIMKEN	FAG	MRC	NTN
Part No.	Light	72xx	72xx	72xx	72xx	72xx	72xx
	Medium	73xx	73xx	73xx	73xx	73xx	73xx
	Heavy	74xx	74xx	74xx	74xx	74xx	74xx
Part Number Suffix	40° Contact	B	B	WN	B	P	B
	30° Contact	A	A	--	--	BLANK	BLANK
	25° Contact	A5	ACD, AC	--	E	--	--
	15° Contact	C	CD	--	C	R	C
	Machined Brass Cage	M	M	MBR	MP	BRZ	L1
	Pressed Brass Cage	Y	Y	BLANK	YP	--	--
	Polyamide Cage	TY	P	PRC	TVP	BKE	T2
	Steel Cage	W	J	--	JP	BLANK	J
	Universal Ground Faces	G	CA, CB	SU	UA	DE	G
	Pump Specification	BMPC	BECBM	--	--	PumpPac*	--

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions. *PumpPac is a registered trademark of SKF USA.

INTERCHANGE - HPS (EXTRA-CAPACITY PUMP SPECIFICATION)

Interchange				
Series	Clearance	NSK	SKF	FAG
72xx, 73xx	Normal	BEAMRSUCNB	BECBY BECBM	BMPUA BMPUO
	Light	BEAMRSUGA	BEGAM	BMPUL

NOMENCLATURE

Basic Type
- **N:** Single Row, No Flanges on Outer Ring
- **NU:** Single Row, No Flanges on Inner Ring
- **NJ:** Single Row, One Flange on Inner Ring
- **NUP:** Single Row, One Flange Inner with Retaining Ring
- **NF:** Single Row, One Flange on Outer Ring
- **NH:** Single Row, One Flange Inner with Stabilizing Ring
- **NN/NNU:** Double Row, Flanges Outer/Flanges Inner

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
- **00:** 10 mm
- **01:** 12 mm
- **02:** 15 mm
- **03:** 17 mm
- **04:** 20 mm
- **05:** 25 mm
- **12:** 60 mm
- **20:** 100 mm

Cage Option
- **M:** Machined Brass
- **W/WS:** Pressed Steel
- **T:** Polyamide 6-6 Resin (only available with type "E" high capacity bearings)
- **T7:** L-PPS Resin

- **E:** Electric Motor Quality

NJ **3** **20** **E** **M** **C3** **E**

Series
- **2:** Light
- **3:** Medium
- **4:** Heavy
- **10:** Extra Light
- **22:** Light, Wide
- **23:** Medium, Wide

Internal Design
- **Blank:** Standard Design
- **E:** High Capacity Design

Internal Clearance
- **C2:** Tight
- **Blank:** Normal
- **C3:** Greater than Normal
- **C4:** Greater than C3

INTERCHANGE

	Description	Interchange		
		NSK	SKF	FAG
Part Number Prefix	Single Row, No Flanges on Outer Ring	N	N	N
	Single Row, No Flanges on Inner Ring	NU	NU	NU
	Single Row, 1 Flange Inner	NJ	NJ	NJ
	Single Row, 1 Flange Outer	NF	NF	--
	Single Row, 1 Flange Inner with Retaining Ring	NUP	NUP	NUP
	Single Row, 1 Flange Inner with Stabilizing Ring	NH	NH	NH
	Stabilizing Ring	HJ	HJ	HJ
	Double Row, Flanges Outer/Flanges Inner	NNU/NN	NNU/NN	NNU/NN
Part Number	Light	2xx	2xx	2xx
	Medium	3xx	3xx	3xx
	Heavy	4xx	4xx	4xx
	Extra Light	10xx	10xx	10xx
	Light, Wide	22xx	22xx	22xx
	Medium, Wide	23xx	23xx	23xx
Part Number Suffix	Polyamide Cage	T	P	TVP2
	Composite High Temp Cage	T7	--	--
	Machined Brass Cage	M	M	M, M1
	Pressed Steel Cage	W,WS	J	JP1
	High Capacity Design	E	EC	E
	Full Complement (No Cage)	V	V	V
	Tight Clearance	C2	C2	C2
	Normal Clearance	BLANK	BLANK	BLANK
	Greater than Normal Clearance	C3	C3	C3
	Greater than C3 Clearance	C4	C4	C4

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SPHERICAL ROLLER BEARINGS

NOMENCLATURE

230 — **Basic Type**
- **213xx:** Spherical roller, extra heavy
- **222xx:** Spherical roller, heavy
- **223xx:** Spherical roller, extra heavy, wide
- **230xx:** Spherical roller, light
- **231xx:** Spherical roller, medium
- **232xx:** Spherical roller, heavy, wide
- **239xx:** Spherical roller, extra light
- **240xx:** Spherical roller, light, wide
- **241xx:** Spherical roller, medium, wide

72 — **Bore Size**
(multiply last two numbers by 5 to get bore in mm)
20: 100 mm **48:** 240 mm
32: 160 mm **96:** 480 mm

500 millimeters and larger written as:
/500: 500 mm **/710:** 710 mm
/630: 630 mm **/1000:** 1000 mm

EA — **Cage Option**
- **CA+M:** High capacity brass with guide ring
- **C,CD:** Pressed steel with guide ring
- **EA:** High capacity, pressed steel
- **H:** Two piece polyamide
- **M:** Two piece machined brass, guide ring
- **ECA+M:** Extra high capacity brass, no guide ring

K — **Bore Type**
- **Blank:** Cylindrical bore
- **K:** 1:12 tapered bore
- **K30:** 1:30 tapered bore

G3 — **Material Code**
- **G:** Carburized, inner & outer rings + rollers
- **G2:** Carburized, outer ring only
- **G3:** Carburized, inner ring only
- **G5:** Carburized, inner & outer rings
- **Blank:** Thru hardened bearing steel

E4 — **Lubrication Features**
- **E2:** Oil holes, groove & anti-rotation hole in outer ring
- **E3:** Holes only, outer
- **E4:** Groove & holes, outer ring
- **E7:** Groove & holes, outer & inner
- **E8:** Outer ring with tapped holes in both faces for lifting
- **E42:** Plugs in outer ring lube holes
- **E52:** Plugs in inner ring lube holes
- **E72:** Plugs in both inner & outer ring lube holes
- **Blank:** No relubrication feature

C3 — **Internal Clearance**
- **C2:** Tighter than normal clearance
- **Blank:** Normal clearance (CN)
- **C3:** Greater than normal clearance
- **C4:** Greater than C3 clearance
- **-VS4:** Special C4 clearance range + special raceway finish & upgraded packaging

P55S11 — **Running Accuracy**
- **P52:** Extra-close accuracy, outer ring
- **P53:** Extra-close accuracy, inner ring
- **P55:** Extra-close accuracy, inner & outer ring

W31 — **Special Features**
- **U22:** Special inspection measure
- **S11:** Inner & outer ring heat stabilized to 200°C
- **VE:** Vibrating equipment
- **W31:** Special inspection measure of superior raceway finish + upgraded packaging
- **W507:** E4 +W31 + dimensionally stabilized to 200°C
- **W509:** E7+ W31 + dimensionally stabilized to 200°C

INTERCHANGE

	Description	Interchange			
		NSK	SKF	TORR/TIMKEN	FAG
Part Number	Extra light	239xx[1]	239xx	239xx	239xx
	Light	230xx[1]	230xx	230xx	230xx
	Light, wide	240xx[1]	240xx	240xx	240xx
	Medium	231xx[1]	231xx	231xx	231xx
	Medium, wide	241xx[1]	241xx	241xx	241xx
	Heavy	222xx[1]	222xx	222xx	222xx
	Heavy, wide	232xx[1]	232xx	232xx	232xx
	Extra heavy	213xx[1]	213xx	213xx	213xx
	Extra heavy, wide	223xx[1]	223xx	223xx	223xx
Part Number Suffix	High capacity brass cage with guide ring	CA+M, AM	CA, CACM	YM	M
	Brass cage, two piece, guide ring	M	MC	BR	--
	Pressed steel cage with guide ring	C ,CD	CJ, CC	CJ, VJ	BLANK
	High capacity pressed steel cage	EA	--	--	E1
	Extra high capacity brass cage, no guide ring	ECA+M	--	--	--
	Polyamide cage, two piece	H	--	VCF	TVPB
	Tapered bore 1:12	K	K	K	K
	Tapered bore 1:30	K30	K30	K	K30
	Carburized steel, complete bearing	g	ECD	W40	W209
	Carburized steel, inner ring only	g3	ECB	W40I	W209B
	Lube groove & holes outer ring	E4	W33	W33	S
	Lube groove & holes outer & inner ring	E7	W513	W33W94	SH40AB
	Outer ring, tapped holes one face for lifting	--	W56	W45A	--
	Outer ring, tapped holes both faces for lifting + E4 feature	E8	--	--	--
	Holes only outer ring	E3	W20	W20	SY
	Inner ring lube groove & holes	E5	W26	W94	H40AB
	No relube features	BLANK	BLANK	BLANK	--
	Plugs provided for outer ring holes	E42	W77	W84	H40
	Combination E4 + W31 + dimensionally stabilized to 200°C	W507	W507	W33W4W31	--
	Combination E4 & W31	E4U22	W506	W33W31	--
	Combination E7 + W31 + dimensionally stabilized to 200°C	W509	W509	W33W94W31	SH40A
	Extra close accuracy, outer ring	P52	C04	C04	T52BN
	Extra close accuracy, inner ring	P53	C02	C02	T52BE
	Extra close accuracy, inner & outer ring	P55	C08	C08	T52BW
	Special inspection measures	W31	W31	W31	--
	Inner ring and outer ring heat stabilized to 200°C	S11	S1	--	--
	Tighter than normal clearance	C2	C2	C2	C2
	Normal clearance (CN)	BLANK	BLANK	BLANK	BLANK
	Greater than normal clearance	C3	C3	C3	C3
	Greater than C3 clearance	C4	C4	C4	C4

[1] Indicates NSK **HPS** High Performance Standard Bearing.

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SHAKER SCREEN BEARINGS

NOMENCLATURE

Vibrating Equipment Specification
- Higher Precision Bore & OD Tolerances
- Special Radial Internal Clearance Range
- Unique Combination of Geometry & Finishes Optimize Performance

VE: Vibrating Screen Bearing
SBVS/SAVS: Special Dimension Vibrating Screen Bearing

Spherical Bearing — **2**

23 — **Bearing Series**

Bore Diameter Number — **20**

CAM — **Cage Option**
CAM: Machined Brass

Oil Groove & Holes in Outer Ring — **E4**

C4 — **Internal Clearance Specification**

VE

INTERCHANGE

	NSK	TORR/TIMKEN	SKF	FAG[1]
Part Number Interchange	22308CAME4C4VE	22308YMW33W800C4	22308 E/VA405	22308 EAS.MA.T41A
	22309CAME4C4VE	22309YMW33W800C4	22309 E/VA405	22309 EAS.MA.T41A
	22310CAME4C4VE	22310YMW33W800C4	22310 E/VA405	22310 EAS.MA.T41A
	22311CAME4C4VE	22311YMW33W800C4	22311 E/VA405	22311 EAS.MA.T41A
	22312CAME4C4VE	22312YMW33W800C4	22312 E/VA405	22312 EAS.MA.T41A
	22313CAME4C4VE	22313YMW33W800C4	22313 E/VA405	22313 EAS.MA.T41A
	22314CAME4C4VE	22314YMW33W800C4	22314 E/VA405	22314 EAS.MA.T41A
	22315CAME4C4VE	22315YMW33W800C4	22315 EJA/VA405	22315 EAS.MA.T41A
	22316CAME4C4VE	22316YMW33W800C4	22316 EJA/VA405	22316 EAS.MA.T41A
	22317CAME4C4VE	22317YMW33W800C4	22317 EJA/VA405	22317 EAS.MA.T41A
	22318CAME4C4VE	22318YMW33W800C4	22318 EJA/VA405	22318 EAS.MA.T41A
	22319CAME4C4VE	22319YMW33W800C4	22319 EJA/VA405	22319 EAS.MA.T41A
	22319CAMC4VE	22319YMW800C4	-	-
	22320CAME4C4VE	22320YMW33W800C4	22320 EJA/VA405	22320 EAS.MA.T41A
	22322CAME4C4VE	22322YMW33W800C4	22322 EJA/VA405	22322 EAS.MA.T41A
	22322CAME4CG195SBVS	22322YMW47W22C3	22322 EJA/VA414	22322 EAS.MA.T41B
	22324CAME4C4VE	22324YMW33W800C4	22324 CCJA/W33VA405	22324 EAS.MA.T41A
	22326CAME4C4VE	22326YMW33W800C4	22326 CCJA/W33VA405	22326 EAS.MA.T41A
	22328CAME4C4VE	22328YMW33W800C4	22328 CCJA/W33VA405	22328 EAS.MA.T41A
	22330CAME4C4VE	22330YMW33W800C4	22330 CCJA/W33VA405	22330 EAS.MA.T41A
	22332CAME4C4VE	22332YMW33W800C4	22332 CCJA/W33VA405	22332 A.MA.T41A
	22334CAME4C4VE	22334YMBW33W800C4	22334 CCJA/W33VA405	22334 A.MA.T41A
	22336CAME4C4VE	22336YMBW33W800C4	22336 CCJA/W33VA405	22336 A.MA.T41A
	22338CAME4C4VE	22338YMBW33W800C4	22338 CCJA/W33VA405	22338 A.MA.T41A
	22340CAME4C4VE	22340 YMBW33W45AW800C4	22340 CCJA/W33VA405	22340 A.MA.T41A
	23322CAME4C4VE	23322W33W800C4	453322 EJA/VA405	23322 AS.MA.T41A
	23322CAMC4VE	23322 YM W800 C4	-	532689.C3.F80
	23324CAME4C4VE	23324YMW33W800C4	453324 CCJA/W33VA405	23324 AS.MA.T41A
	23324CAMC4VE	23324YMW800C4	-	-
	23326CAME4C4VE	23326YMW33W800C4	453326 CCJA/W33VA405	23326 AS.MA.T41A
	23328CAME4C4VE	23328YMW33W800C4	453328 CCJA/W33VA405	23328 AS.MA.T41A
	23328CAMC4VE	23328YMW800C4	-	-
	23330CAME4C4VE	23330YMBW33W800C4	453330 CCJA/W33VA405	23330 A.MA.T41A
	23332CAME4C4VE	23332YMBW33W800C4	453332 CCJA/W33VA405	23332 A.MA.T41A
	23332CAMC4VE	23332YMBW800C4	-	-
	23332CAME4C4SBVS	23332YMBW33W47W22C4	453332 CCJA/W33VA414	23332 EAS.MA.T41B
	23338CAME4C4VE	23338YMBW33W22BRC4	453338 CCJA/W33VA405	23338ASMAC4F80
	23340CAME4C4VE	-	453340 CCJA/W33VA405	-

Nomenclature Interchange	Shaker Screen Specification	VE	W800	VA405	T41A
	Durotect Bore Coating	-	-	-	T41D
	Standard Series	223	223	223 or 452	223
	Wide Series	233	233	453	233
	Allis Chalmers Oversized Bore	Sa, Sb	W47	VA414	T41B
	PTFE Coating On Bore	-	-	VA406	-
	Cedar Rapids Undersized Bore	See tables on pages D-41 thru D-42 in Bearing & Linear Replacement Guide	W810	-	5XXX.F80

[1] NSK bearings with "CAME4C4VE" suffix may also be used in place of bearings with FAG suffix "T41A" and "T41".

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please consult NSK Engineering. NSK assumes no liability with respect to errors or omissions.

METRIC TAPERED ROLLER BEARINGS

NOMENCLATURE

Prefix
HR: High Capacity
Blank: Normal Capacity

HR

322

Series
30200 32200
30300 32300
31300 32900
32000 33000
33100
33200

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
02: 15 mm **08:** 40 mm
03: 17 mm **10:** 50 mm
04: 20 mm **20:** 100 mm
Special bore sizes are as follows:
/22: 22 mm **/32:** 32 mm
/28: 28 mm

10

C

Contact Angle
Blank: Standard Angle = 15° to 17°
C: Medium Angle = 17° to 24°
D: Steep Angle= 24° and more

Interchangeability
J: Cup Angle and Raceway Diameter Conform to ISO 355
X: Dimension Series 32000 and 32900 the Major Dimensions Conform to ISO 355

J

INTERCHANGE

Description		Interchange			
		NSK	SKF	Timken	FAG
Part Number	High Capacity Design	HR	--	--	--
	Light	HR302xx	302xx	302xx	302xx
	Medium	HR303xx	303xx	303xx	303xx
	Medium, Steep Angle	HR313xx	313xx	313xx	313xx
	Extra Light, Wide	HR329xx	329xx	329xx	329xx
	Very Light, Wide	HR320xx	320xx	320xx	320xx
	Light, Wide	HR322xx	322xx	322xx	322xx
	Medium, Wide	HR323xx	323xx	323xx	323xx
	Very Light, Extra Wide	HR330xx	330xx	330xx	330xx
	Light, Extra Wide	HR331xx	331xx	331xx	331xx
	Medium, Extra Wide	HR332xx	332xx	332xx	332xx
Suffix	Medium Contact Angle	C	B	B	B
	Steep Contact Angle	D	--	--	--
	Boundary Dimensions Conform to ISO 355	X	X	X	X
	Conforms to ISO 355	J	--	--	A

[1]HR313xx is directly equal to HR303xxD.

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INCH TAPERED ROLLER BEARINGS

NOMENCLATURE

Prefix
EH: Extra Heavy
EL: Extra Light
H: Heavy
HH: Heavier than Heavy
HM: Heavy Medium
L: Light
LL: Lighter than Light
LM: Light Medium
M: Medium

LM

1

Code Included Cup Angle
1 0 to 23°59′59.99″
2 24° to 25°29′59.99″
3 25°30′ to 26°59′59.99″
4 27° to 28°29′59.99″
5 28°30′ to 30°29′59.99″
6 30°30′ to 32°29′59.99″
7 32°30′ to 35°59′59.99″
8 36° to 44°59′59.99″
9 45° up, but not thrust only

Basic Series
1-3 digit number that identifies maximum bore range

19

49

Design Number
2 digits which identify the cup or cone

Additional Features*
R: Conforms to ABMA Standard
G: Case Carburized Cups & Cone

*NSK uses these two standard suffixes. Either one or two letter suffixes may appear.

R

INTERCHANGE

Description		Interchange			
		NSK	SKF	Timken	FAG
Prefix	Extra Heavy	EH	EH	EH	KEH
	Heavier Than Heavy	HH	HH	HH	KHH
	Heavy	H	H	H	KH
	Heavy Medium	HM	HM	HM	KHM
	Medium	M	M	M	KM
	Light Medium	LM	LM	LM	KLM
	Light	L	L	L	KL
	Lighter Than Light	LL	LL	LL	KLL
	Extra Light	EL	E	L EL	KEL
Cup Angle	0° To 23°59′59.99	1xxxx	1xxxx	1xxxx	1xxxx
	24° To 25°29′59.99	2xxxx	2xxxx	2xxxx	2xxxx
	25°30′ To 26°59′59.99	3xxxx	3xxxx	3xxxx	3xxxx
	27° To 28°29′59.99	4xxxx	4xxxx	4xxxx	4xxxx
	28°30′ To 30°29′59.99	5xxxx	5xxxx	5xxxx	5xxxx
	30°30′ To 32°29′59.99	6xxxx	6xxxx	6xxxx	6xxxx
	32°30′ To 35°59′59.99	7xxxx	7xxxx	7xxxx	7xxxx
	36° To 44°59′59.99	8xxxx	8xxxx	8xxxx	8xxxx
	45° Up, But Not Thrust Only	9xxxx	9xxxx	9xxxx	9xxxx
	Conforms To ABMA Standard	R	--	blank	--
	Case Carburized Cup & Cone	G	--	blank	--

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BALL THRUST BEARINGS

NOMENCLATURE

Basic Type & Design
51: Ball Thrust, Single Direction
52: Ball Thrust, Double Direction
53: Ball Thrust, Single Direction, with Aligning Seat
54: Ball Thrust, Double Direction, with Aligning Seat

53

2

Series
1: Extra Light
2: Light
3: Medium
4: Heavy

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
00: 10 mm **04:** 20 mm
01: 12 mm **05:** 25 mm
02: 15 mm **12:** 60 mm
03: 17 mm **20:** 100 mm

05

M

Cage Option
Blank: Steel
M: Brass

Other Features
U: With Aligning Seat Washer
X: Modified Boundary to ISO
P5: Precision Class 5 (ABEC 5)

U

INTERCHANGE

Description		Interchange		
		NSK	SKF	FAG
Part Number	Single Direction	511xx	511xx	511xx
	Single Direction	512xx	512xx	512xx
	Single Direction	513xx	513xx	513xx
	Single Direction	514xx	514xx	514xx
	Single Direction with Aligning Seat	532xx	532xx	532xx
	Single Direction with Aligning Seat	533xx	533xx	533xx
	Single Direction with Aligning Seat	534xx	534xx	534xx
	Double Direction	522xx	522xx	522xx
	Double Direction	523xx	523xx	523xx
	Double Direction	524xx	524xx	524xx
	Double Direction with Aligning Seat	542xx	542xx	542xx
	Double Direction with Aligning Seat	543xx	543xx	543xx
	Double Direction with Aligning Seat	544xx	544xx	544xx
Suffix	Steel Cage	BLANK	J	FP
	Brass Cage	M	M	MP
	Boundary Dimensions Adopted to ISO	X	--	X
	With Self-Aligning Seat Washer	U	U	U
	ABEC 5 Precision Class	P5	P5	P5

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SPHERICAL ROLLER THRUST BEARINGS

NOMENCLATURE

Basic Type & Design
292xx: Spherical Roller Thrust, Light
293xx: Spherical Roller Thrust, Medium
294xx: Spherical Roller Thrust, Heavy

293

26

Bore Size
(05 and up: multiply last two numbers by 5 to get bore in mm)
05: 25 mm **48:** 240 mm
20: 100 mm **96:** 480 mm
500 millimeters and larger written as:
/500: 500 mm **/710:** 710 mm
/630: 630 mm **/1000:** 1000 mm

Cage Option
E: Pressed Steel[1]
M: Machined Brass (not always shown in the part number)

E

[1]The "E" designation has replaced the "H." This is nomenclature change only, not a design change.

INTERCHANGE

Description		Interchange			
		NSK	SKF	FAG	TORR/TIMKEN
Part Number	Light	292xx	292xx	292xx	292xx
	Medium	293xx	293xx	293xx	293xx
	Heavy	294xx	294xx	294xx	294xx
Suffix	Steel Cage	E	EJ	E	EJ
	Brass Cage	M	M	EMB	EM

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TAPERED ROLLER THRUST BEARINGS

NOMENCLATURE

Bore Size
Metric : exact Inch: Rounded
76: 76.2mm (3.0")
101: 101.6mm (4.0")
150: 150mm

150

TTF

Basic Type
TT: Tapered Roller Thrust
TTF: Tapered Roller Thrust Flat

Outer Diameter Size (Approximate)
30: 300mm
24: 245mm
31: 311.15mm (12.5")

30

01

Tolerance Type
1st Digit 0-4: Metric Tolerance
1st Digit 5-9: Inch Tolerance
2nd Digit: Design Sequence Number

Special Material
G: Case Hardened
G2: Outer Ring only
G3: Inner Ring only
G4: Rollers only

G

P5

Precision Class
Blank: Normal
P6: Class 6
P5: Class 5

CYLINDRICAL ROLLER THRUST BEARINGS

NOMENCLATURE

Bore Size
30: 30 mm
150: 150 mm
300: 300 mm

65

TMP

Basic Type
TMP: Cylindrical Roller Thrust

Dimension Series
11
12
93
94

12

P5

Precision Class
Blank: Normal
P6: Class 6
P5: Class 5

NOMENCLATURE

Housing Type

SAF: Two or Four Bolt Pillow Block, Cast Iron
SDAF: Four Bolt Heavy Duty Type Pillow Block, Cast Iron
SAFS: Two or Four Bolt Pillow Block, Cast Steel
FSAF: Four Bolt Pillow Block, Cast Iron (optional)
FSAFS: Four Bolt Pillow Block, Cast Steel (optional)
SDAFS: Four Bolt Heavy Duty Pillow Block, Cast Steel

SAF

517

Housing Series

2xx: Housings using straight bore 222XX, 22XX and 12XX series bearings
3xx: Housings using straight bore 223XX, 213XX, 23XX and 13XX series bearings
5xx: Housings using tapered bore 222XX, 12XX and 22XX bearings
6xx: Housings using tapered bore 223XX, 213XX, 23XX and 13XX bearings

For other housing styles and series (SD, SN, etc.) contact NSK.

SUPER PRECISION ANGULAR CONTACT BALL BEARINGS

NOMENCLATURE

Series
7000
7200
7900

70

16

Bore Size
(04 and up: multiply last two numbers by 5 to get bore in mm)
00: 10 mm **04:** 20 mm
01: 12 mm **05:** 25 mm
02: 15 mm **12:** 60 mm
03: 17 mm **20:** 100 mm

Contact Angle
C: 15°
A5: 25°

C

SN24

Ball Material
Blank: Steel Ball
SN24: Ceramic Ball

Cage Option
TR: Phenolic
TYN: Polyamide

TR

DU

Combination Symbols
DU: Duplex Universal
SU: Single Universal

Preload Symbols
L: Light
M: Medium
H: Heavy

L

P4Y

Precision Class:
P4: ISO Class 4 (ABEC7)
P4Y[1]: NSK Exclusive P4 Accuracy
P3: Dimensions: ISO Class 4, Running Accuracy: ISO Class 2
P2: ISO Class 2 (ABEC9)

[1]P4Y indicates special ID/OD tighter tolerance for ease of matching sets.

INTERCHANGE

	Description	Interchange							
		NSK	SKF	FAG	BARDEN	OLD BARDEN	FAF/TIMKEN	SNFA	NTN
Part No.	Ultra Light Series	79XX	719XX	719XX	19XX	-	93XXWI	EB/ESP	79XX
	Extra Light Series	70XX	70XX	70XX	1XX	1XX	91XXWI	EX/ESX	70XX
	Light Series	72XX	72XX	72XX	2XX	2XX	2XXWI	E2/ES2	72XX
Part Number Suffix	15° Contact Angle	C	CD	C	C	BLANK	2[2]	1	C
	25° Contact Angle	A5	ACD	E	E	2[2]	3[2]	3	AD
	Polyamide Cage	TYN	-	-	TMT	-	PRC	P	T2
	Phenolic Cage	TR	BLANK	T	T, TA	BLANK	CR	C	T1
	Seals	V1V	S[2]	2RSD OR S[2]	RR	VV, PP	-	/S	-
	Duplex Universal	DU	DG	DU	DU	D	DU	DU	GD2
	Single Universal	SU	G	U	U	-	SU	U	G
	Extra Light Preload	EL	-	-	-	-	X	-	GL
	Light Preload	L	A	L	L	L	L	L	GN
	Medium Preload	M	B	M	M	M	M	M	GM
	Heavy Preload	H	C	H	H	H	H	H	-
	Ceramic Balls	SN24	HC	HCB[2]	C[2]	-	C[2]	/NS	5S[2]
	ABEC 7 Precision	P4Y	P4A	P4S	BLANK	BLANK	MM/MMV[2]	7	P4
	ABEC 9 Precision	P2	PA9A, P9	-	ABEC 9	ABEC 9	MMX[2]	9	P2

[1]TYN cage replaces TY, TR cage replaces T. Sealed (V1V) versions are a new option and P4Y tolerance specification replaces P4. P4Y tolerance specification has tighter bore and OD control than ABEC 7 (class 4 or P4). NSK supplies the following bearing series with P4Y tolerance: 7000; 7200.

[2]Indicates prefix not suffix.

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HIGH SPEED SUPER PRECISION ANGULAR CONTACT BALL BEARINGS

NOMENCLATURE

Bearing Bore Diameter (mm)

65

BNR

Bearing Type
BNR: 18° contact angle (Robust Series)
BER: 25° contact angle (Robust Series)
BSR: 15° contact angle (Robust Grinding Series)

Dimension Series
10: ISO 10 size
19: ISO 19 size

10

H

Material Code
X: SHX steel rings and ceramic balls
S: Steel ball (Robust Series)
H: Ceramic ball (Robust Series)
E: Ultra long life steel ball (Robust Series)

Cage Option
TYN: Polyamide
T: Phenolic
TSR: SURSAVE

T

DU

Combination Symbols
SU: Single universal
DU: Duplex universal

Preload Symbols
EL: Extra light
L: Light
M: Medium

EL

P4Y

Precision Class:
P4: ISO class 4 (ABEC7)
P4Y[1]: NSK exclusive P4 accuracy
P3: Dimensions: ISO class 4, Running accuracy: ISO class 2
P2: ISO class 2 (ABEC9)

[1]P4Y indicates special ID/OD tighter tolerance for ease of matching sets.

INTERCHANGE

Description		Interchange						
		NSK	SKF	BARDEN	FAF/TIMKEN	SNFA	NTN	FAG
Part No.	Ultra light robust high speed series	XXXXX19	719XXCE	ZSB19XX	93XXWO,WN,HX	VEBXX	HSE9XX	XX719
	Extra light robust high speed series	XXXXX10	70XXCE	ZSB1XX	91XXWO,WN,HX	VEXXX	HSE0XX	XX70
	15° contact angle	XXBSRXX[4]	CE, CB	C	2[2]	0[5], 1	C	C
	18° contact angle	XXBNRXX	FE, FB, FW	-	-	2	BLANK	-
	25° contact angle	XXBERXX	ACE	E	3[2]	3	AD	E
Part Number Suffix	Polyamide cage	TYN	BLANK, TNH	TMT	PRC	P	T2	TVP
	Phenolic cage (L-PPS)	TR, T (TSR)[3]	-	T, TA	CR	C	T1	T, TPA, TX
	Duplex universal	DU	DG	DU	DU	DU	D	DU
	Single universal	SU	G	U	SU	U	BLANK	U
	Extra light preload	EL	A	-	X	-	GL	L
	Light preload	L	B	L	L	L	GN	M
	Ceramic balls	H	HC	C[2]	C[2]	/NS	5S[2]	HC[2], HCS[2]
	Steel balls	S, E	BLANK	BLANK	BLANK	BLANK	BLANK	HS[2], HSS[2]
	High speed steel	X	-	CS/CM	-	/XN	2LA	XC[2], XCS[2]
	ABEC 7 precision	P4Y	P4	BLANK	MM/MMV[2]	7	P4	P4S
	ABEC 9 precision	P2	P2	ABEC 9	MMX[2]	9	P2	P2

[1]BNR has replaced BNC series. P4Y tolerance specification replaces P4. P4Y tolerance specification has tighter bore and OD control than ABEC 7 (class 4 or P4). NSK supplies the following bearing series with P4Y tolerance: 7000; 7200; 7900; and BNR.
[2] Indicates prefix not suffix.
[3]TSR cage may replace TR phenolic cage in some types and sizes.
[4] NSK BSR series applies to bore size of 25mm and less, when bore size is 30mm or less, use NSK BNR series.
[5] SNFA contact angle is 12 degrees, use NSK BSR or BNR series.

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SUPER PRECISION ANGULAR CONTACT THRUST BALL BEARINGS

NOMENCLATURE

100 — **Bearing Bore Diameter (mm)**

BAR — **Bearing Type**
BAR: 30° Contact Angle
BTR: 40° Contact Angle

10 — **Dimension Series**
10: Arranged with NN30XX Series

S — **Material**
S: Steel Ball
H: Ceramic Ball
E: Steel Ball (Robust Series)

TYN — **Cage Option**
TYN: Polyamide

DB — **Combination**
DB: Back to Back Duplex

L — **Preload**
L: Standard Preload
EL: Extra Light Preload
CPxx: Special Preload
CAxx: Special Axial Clearance

P4A — **Precision Class**
P4A: ISO Class 4, O.D. is Special
P2A: ISO Class 2, O.D. is Special

INTERCHANGE

Description		Interchange		
		NSK	SKF	NTN
Part No.	30° Angular Contact Thrust Bearings	XXBAR10	BTMXXA	HTA0XXA
	40° Angular Contact Thrust Bearings	XXBTR10	BTMXXB	HTA0XX
Part Number Suffix	Polyamide Cage	TYN	BLANK	T2
	Phenolic Cage	TR	-	BLANK
	Duplex Universal	DU	DB	GD2
	Single Universal	SU	-	G
	Extra Light Preload	EL	-	-
	Light Preload	L	A	GN
	Ceramic Balls	H	HC	5S[2]
	Steel Balls	S/E	BLANK	BLANK
	ABEC 7 Precision	P4A	PC	P4
	ABEC 9 Precision	P2A	PA9A	P2

[1]BAR and BTR series have replaced BA and BT series.
[2] Indicates prefix not suffix

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NOMENCLATURE

DOUBLE ROW

Bearing Type
NN: Double Row Cylindrical Roller Bearing with Triple-Ribbed Inner Ring
NNU: Double Row Cylindrical Roller Bearing with Triple-Ribbed Outer Ring

Diameter Series
9: Extra Light
0: Light

Cage Option
T: Polyamide
TB: Roller Guided PPS Resin
MB: Roller Guided Machined Brass

Lubrication Holes
E44: Outer Ring with Machined Lubrication Groove and Lubrication Holes
Blank: No Lubrication Holes

Precision Class
P4: ISO Class 4 (ABEC7)
P2: ISO Class 2 (ABEC9)

NN **3** **0** **17** **MB** **KR** **E44** **CCO** **P4**

Dimension Series
1: Thin
3: Medium
4: Wide

Bore Number
Bearing Bore = Bore Number x5 (mm)

Tapered Bore
KR: 1/12 Tapered Bore
Blank: Cylindrical Bore

Radial Clearance
CC1: Standard Clearance for Cylindrical Bore
CCO: Standard Clearance for Tapered Bore
CCGxx[1]: Special Radial Clearance

* Median clearance in microns

SINGLE ROW

Bearing Type
N: Single Row Cylindrical Roller Bearing with Double-Ribbed Inner Ring

Diameter Series
0: Light

Material
RS: Bearing steel (SUJ2) rings and rolling elements
RX: Heat resistant steel (SHX) to 300°C rings and rolling elements

Tapered Bore
KR: 1/12 Tapered Bore
Blank: Cylindrical Bore

Precision Class
P4: ISO Class 4 (ABEC7)
P2: ISO Class 2 (ABEC9)

N **1** **0** **12** **RX** **TP** **KR** **CCO** **P4**

Dimension Series
1: Thin

Bore Number
Bearing Bore = Bore Number x5 (mm)

Cage Option
TP: Outer Ring Guided PEEK Resin
MR: Roller Guided Machined Brass
BT: Polyamide
Blank: Machined Brass

Radial Clearance
CC1: Standard Clearance for Cylindrical Bore
CCO: Standard Clearance for Tapered Bore
CCGxx[1]: Special Radial Clearance

* Median clearance in microns

INTERCHANGE

	Description	Interchange			
		NSK	SKF	FAG	NTN
Part No.	Ultra Light Double Row Cylindrical Series	NN39XX	-	-	-
	Extra Light Double Row Cylindrical Series	NN30XX	NN30XX	NN30XX	NN30XX
	Extra Light Single Row Cylindrical Series	N10XX	N10XX	N10XX	N10XX
Part Number Suffix	Non-Metallic Cage	TB	TN,TN9, TNHA	-	T6
	Brass Cage	MB	BLANK	M, MI	BLANK
	Tapered Bore	KR	UPK	K	K
	Lube Groove And Holes On Outer Ring	E44	W33, U33X	AS	-
	Matched Clearance, Rings Not To Be Mixed	CCX	CX	CX	CXNA
	ABEC 7 Precision	P4	SP	SP	P4

[1]The outer ring machined lubrication groove and holes (E44) is now a standard feature. TB cage replaces T cage, MB replaces M and KR replaces K.

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BALL SCREW SUPPORT BEARINGS

TAC SERIES

NOMENCLATURE

Bearing Bore Diameter (mm)
For inch series bearings, the figures to the right of the decimal point are omitted when converted to millimeters.

30

TAC

Bearing Type Symbol
(Contact Angle 60°)

Bearing Outside Diameter (mm)
For inch series bearings, the figures to the right of the decimal point are omitted when converted to millimeters.

62

C

Internal Specification Symbol
A: Standard Capacity
C: High Capacity HPS Series

Combination Symbols
SU: Single Universal
DF: Duplex Face to Face
DB: Duplex Back to Back
DT: Duplex Tandem
DBD: 3 Row Combinations
DFF: 4 Row Combinations
DFT: 4 Row Combinations
DTT: 4 Row Combinations

SU

H

Preload Symbol
H: Heavy Preload

Accuracy Symbol
PN7C: NES Class 7

PN7C

INTERCHANGE

	Description	Interchange				
		NSK	SKF	FAF/TIMKEN	MRC	NTN
Part No.	Metric Type	xxTACxxx	BDAB6342xx	MMxxBSxxx	--	BSTxxXxx
	Inch Type	xxTACxxx	BDAB6342xx	MM93xxWI xH	Jxxx	--
Part Number Suffix	Internal Specifications (Standard Capacity)	A	--	--	--	X
	Internal Specifications (High Capacity HPS Series)	C	C	--	--	-1B
	Single Universal	SU	G	SU	DS	G
	Duplex Universal	DU	DG	DU	DU	GD2
	Duplex Face to Face	DF	DF	DU	DF	DF
	Duplex Back to Back	DB	DB	DU	DB	DB
	Duplex Tandem	DT	DT	DU	DT	DT
	Quad Set \\ //	DFF	QFC	QU	--	DTFT
	Quad Set \ ///	DFT	QFT	QU	DFDT	--
	Quad Set // \\	DBB	QBC	QU	--	--
	Quad Set / \\\	DBT	QBT	QU	--	DTBT
	Quad Set ////	DTT	QT	QU	--	--
	NES Class 7	PN7C	P4(PA7)	MM	BLANK	P4/UP
	Heavy Preload	H	BLANK	H	BLANK	BLANK

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BSBD SERIES

NOMENCLATURE

Bearing Series
BS: Double row angular contact thrust ball bearing

BS

F

Bearing Type
F: Flange type
N: No flange

Bore Diameter
From 12 to 60mm (matched pairs 17 to 50mm)

30

80

Outer Diameter
From 55 to 145mm (matched pairs 62 to 140mm)

Seals
DDU: Contact triple lip seal

DDU

H

Preload
H: Heavy preload, standard in HPS series

Accuracy
P2B: Running accuracy is ISO class 2, otherwise NSK-specific

P2B

DT

Arrangement
Blank: Single bearing
DT: Matched pair

INTERCHANGE

	Description	Interchange	
		NSK	INA
Part No.	Double row thrust angular contact ball bearing	BS	ZKL
Part Number Suffix	Flanged bearing type	F	F
	Nonflanged bearing type	N	N
	DDU contact type triple lip seals	DDU	-2RS
	ISO class 2 running accuracy	P2B	BLANK/-PE
	Single bearing	BLANK	BLANK
	Matched pair	DT	-2AP

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PRECISION DEEP GROOVE BALL BEARINGS

NOMENCLATURE

Type
6: Single Row Radial Ball Bearing

Bore Code
(04 upwards, multiply by 5 to obtain bore size in mm)
00: 10 mm **02:** 15 mm
01: 12 mm **03:** 17 mm

Cage Option
T: Phenolic Resin
M: Brass
TN/TNH: Polyamide

Radial Internal Clearance
Standard R.I.C.: C1, C2, CN, C3, C4
Special R.I.C.: R[1]
Special Axial fit: A[1]

6	0	10		T	B	CN	P4

Dimension Series			
RHP	ISO	RHP	ISO
		2	02
0	10	3	03

Construction
Blank: Normal Type
S: Ceramic Ball Type

Location
B: Inner Ring Guided
A: Outer Ring Guided
BH: Inner Ring Guided

Precision Grade		
RHP	ISO	ABEC
P5	5	5
P4	4	7
P3	Dimensional Accuracy P4	Running Accuracy P2
P2	2	9

[1] Denotes mean figure given in µm

INTERCHANGE

Description		Interchange		
		NSK	FAF/TIMKEN	Barden
Part Number	ISO 19	69xx	---	---
	ISO 10	60xx	91xxK	1xx
	ISO 02	62xx	2xxK	2xx
	ISO 03	63xx	3xxK	---
Prefixes / Suffixes	Polyamide Cage	T1X	PRB	TMT
	High Speed Polyamide Cage	TYA	---	---
	Phenolic Cage	T	CR	T
	Shield	Z	---	S
	Non-contact Seal	V	V	A
	Contact Seal	(D)DU	---	Y
	Radial Clearance (Loose)	C3	P	(K)5
	ABEC 7 Precision	P4	MM	---

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions.

LINEAR GUIDES INTERCHANGE

Description	Interchange																																							
	NSK								THK								THOMSON								SKF								BOSCH - REXROTH (STAR)								INA							
Slider Part Number	NAH		20		AN		Z		HSR		20		R		C1		511	H	20	C	1		LLRHC		20		A-		T1		R1651	-	8	1	4	-	10		KWVE	20	-	B-H	G4	V2			
	1		2		3		7		1		2		3		7		1	6	2	3	7		1		2		3		7		1,3		2	7	6		8		1	2		3	7	8			
Rail Part Number	N1H		20		XXXX		Z		HSR		20+		XXXXL			6	521	H	20	A	+XXXX		LLRHR		20x		XXXX		P5		R1605	-	4	0	4	-	XXXX		TKVD	20	-	G4	/	XXXX			
	1		2		4		7		1		2		4			6	1	6	2		4		1		2		4		6		1,4		2	X	6		4		1								
Assembly Part Number	NH	25	XXXX	AN	C	X	PC	Z	HSR	20	R	2	SS	C1	+XXXXL		N/A						LLRHS		20	A	2	T1	XXXX	P5	N/A								KUVE	20	-	B-H	W2	G4	V2	/	XXXX
	1	2	3	4	5	6	7	8	1	2	3	5	8	7	4	6							1		2	3	5	7	4	6									1	2		3	6	7	8		4

The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please consult NSK Engineering. NSK assumes no liability with respect to errors or omissions.

1 - LINEAR GUIDE SERIES

NSK	THK	THOMSON		SKF	BOSCH - REXROTH (STAR)	INA
		Old	New			
NH	HSR (SHS)	CG	511	LLRHS/LLTHS	R16[1]	KUVE##/KWVE##/TKVD##[2]
NS	SR (SSR)			LLRHS	R161	KUVE##/KWVE##/TKVD##[2]
LW	HRW				R1671	KUVE##-WKWVE##-W/TKVD##-W
PU	RSR	CD	TSR-Z	LLMHS	R0442/R0444	KUEM##/KWEM##/TKDM##
PE	RSR W	LLMWS	TSR-WZ	LLMWS	R0441/R0443	KUEM##-W/KWEM##-W/TKDM##-W

[1] See Slider Section for Exact Series for Bosch - Rexroth (STAR)
[2] See Slider and Rail Section for Exact Series for INA

2 - LINEAR GUIDE SERIES (RAIL WIDTH)

NSK	THK	THOMSON	SKF	BOSCH - REXROTH (STAR)	INA
Number indicated rail width	Same as NSK	Same as NSK with the exception of the CD series	Same as NSK	See Table	Same as NSK

BOSCH - REXROTH (STAR)		
Series	BOSCH Size	NSK Size
R16##	1	15
R16##	8	20
R16##	2	25
R16##	7	30
R16##	3	35
R16##	4	45
R16##	5	55
R16##	6	65
R1671	5	27
R1671	2	35
R1671	3	50
R044#	7	07
R044#	8	09
R044#	2	12
R044#	5	15

3 - LINEAR GUIDE SLIDER STYLES ## = SIZE (RAIL WIDTH)

NSK	THK		THOMSON		SKF	BOSCH - REXROTH (STAR)	INA
	Common	Less Common	Old	New			
NAH##AN	HSR##R (SHS##R/V)	HSR##TR/TRX/CR	CG##CE	511H##E	LLRHC##R/U (20,45)	R1621	KWVE##-B-H
NAH##BN	HSR##LR (SHS##LR/LN)	HSR##HTR/HR	CG##DE	511H##F	LLRHC##LR	R1624	KWVE##-B-HL
NAH##EM	HSR##A/B/CA/CB (SHS##C)	HSR##TA	CG##AA	511H##A	LLRHC##A	R1651	KWVE##-B
NAH##GM	HSR##HA/LA/HB/LB (SHS##LC)	HSR##HTA/HTB	CG##BA	511H##B	LLRHC##LA	R1653	KWVE##-BL
NAH##AL	(SHS##V)			511H##C (25,30,35)	LLRHC##U (25,30,35)	R1622 (except R1622-1)	KWVE##-B-S
NAH##BL	(SHS##LV)			511H##D (25,30,35)		R1623	KWVE##-B-SL
NAS##EM	SR##TB (SSR##XTB)					R1693	
NAS##AL	SR##W (SSR##XW)	SR##TX/WY (SSR##XWY)			LLRHC15U	R1694/R1622-1	
NAS##CL	SR##V (SSR##XV)	SR##SX/VY (SSR##XVY)			LLRHC##SU (15,30,35)	R1662/R1666/R1664	KWVE##-B-ESC
NAS##JM	SR##SB				LLRHC##SA	R1663	KWVE##-B-EC
LAW##EL	HRW##CA/CR					R1671	KWVE##-W
PAU##AR	RSR07M/RSR07N				LLMHC##TA		KWEM##-
PAU##TR	RSR05M/##N (5,9)	RSR09KM/RSR12VM			LLMHC##TA	R0442	KWEM##-
PAU##UR	RSR12N					R0444	KWEM##-L
PAU##AL	RSR15VM						KWEM##-
PAE##AR	RSR05WM/##WN (5,12,15)	RSR12WVM/RSR15WVN			LLMWC##TA	R0443	KWEM##-W
PAE##TR	RSR07WM/##WN (7,9)	RSR09WVM			LLMWC##TA	R0441	KWEM##-WL

4 - LINEAR GUIDE RAIL LENGTH (MM) ## = SIZE (RAIL WIDTH) XXXX = LENGTH

NSK	THK	THOMSON		SKF	BOSCH - REXROTH (STAR)	INA
		Old	New			
N1H##XXXXZ	HSR##+XXXXL	RG##NLXXXX	521H##A+XXXX	LLRHR##xXXXXP5	R1605-###-XXXX[1]	TKVD##-##/XXXX[2]
N1S##XXXXZ	SR##+XXXXL			LLRHR##xXXXXP5	R1605-###-XXXX[1]	TKVD##-##/XXXX[2]
L1W##XXXXZ	HRW##+XXXXL				R1605-###-XXXX	TKVD##-W-##/XXXX
P1U##XXXXZ	RSR##+XXXXL	RD##HLXXXX	TSR##Z+XXXX	LLMHR##xXXXXP5	R0445-###-XXXX	TKDM##-##/XXX
P1E##XXXXZ	RSR##W+XXXXL		TSR##WZ+XXXX	LLMWR##xXXXXP5	R0455-###-XXXX	

[1] See Slider Section for Exact Series for Bosch - Rexroth (STAR)
[2] See Slider and Rail Section for Exact Series for INA

5 - SLIDERS

The number following the carriage style equals the number of carriages per rail.

6 - ACCURACY CLASS

NSK	THK	THOMSON	SKF	BOSCH - REXROTH (STAR)	INA
PC (interchangeable)	BLANK	N	P5	4- (N)	G3
P6	H	H	P3	3- (H)	
P5	P	P	P1	2- (P)	G2
P4	SP	S	P01	1- (XP/SP)	G1
P3	UP	U	P001	9- (UP)	

7 - PRELOAD

NSK (Matched Assembly)	THK	THOMSON		SKF	BOSCH - REXROTH (STAR)	INA
		Old	New			
T or Z0	BLANK	A	0	T0	-#9#	
Z or Z1	C1	B	1	T1	-#1#	V1
Z2	C1	B	1	T1	-#2#	V2
H or Z3	C0	C	2	T2	-#3#	V3
Z4	C0	C	3	T3		V4

8 - SEALS

NSK	THK	THOMSON		SKF	BOSCH - REXROTH (STAR)	INA
		Old	New			
Standard (End Seals)	UU-End Seals		Standard	Standard	-10 or -20 or -22	
Standard (Side Seals)	SS-Side Seals+End Seals	LDS	Standard	Standard	-10 or -20 or -22	
-P (Protector)	ZZ-End, Side, Inner Seals and Scraper	ZZ	Z	S1	None	Separate Part Numbers
-D (Double End Seals)	DD-Double End, Side, and Inner Seals	DD	W	S2	None	
-DP (Double End Seals, Protector)	KK-Double End, Side, Inner Seals and Scraper	KK	WZ	S3	None	

LUBRICATION SYSTEMS

NSK	THK	THOMSON	SKF
-K1™ or K1-L	QZ	LL	Standard
External to the Slider	External to the Slider	External to the Slider	Internal Foam Insert

PART NUMBER EXAMPLE FOR SLIDE ONLY

Interchangeable Slide
NAH: Ball slide NH series
NAS: Ball slide NS series
PAU: Ball slide PU series
PAE: Ball slide PE series
LAW: Ball slide LW series
RAA: Roller slide RA series

NAH — **30** (Size) — **Slide Shape Code** **AN** — **S** — **Z** — **-K1**

Material Code
S: Stainless steel
No code: Special high carbon steel

Preload
Z: Slight preload
H: Medium preload
No Code: Fine clearance

Option Code
K1: Equipped with NSK K1™
K2: Two K1™ lubrication units
L1: Equipped with NSK K1-L
L2: Two K1-L lubrication units
D: Double seals
P: Protector plate

REFERENCE PART NUMBER FOR RAIL ONLY

Interchangeable Rail
N1H: NH series interchangeable rail
N1S: NS series interchangeable rail
P1U: PU series interchangeable rail
P1E: PE series interchangeable rail
L1W: LW series interchangeable rail
R1A: RA series interchangeable rail

N1H — **30** (Size) — **Rail Length (mm)** **1200** — **S** — **Z**

Material Code
No Code: Special high carbon steel (NSK Standard)
S: Stainless steel
V: Bottom tapped mounting holes

Preload
Z: Slight preload
-01Z: Buttable rail

REFERENCE PART NUMBER FOR INTERCHANGEABLE ASSEMBLY (SLIDE + RAIL)

Series
NH: NH series
NS: NS series
PU: PU series
PE: PE series
LW: LW series
RA: RA series

NH — **25** (Size) — **Rail Length (mm)** **1000** — **AN** (Shape / Height) — **Material Code** — **2** (Number of Slides Per Rail) — ******* — **PC** — **Z**

Material Code
Blank: Standard carbon steel
S: Stainless steel
A: Carbon Steel + Armoloy
B: Stainless Steel + Armoloy
V: Bottom tapped mounting holes

NSK Control Number
(*** is required when making inquiries)

Accuracy
PC: Only PC grade is available
KC: With NSK K1™
LC: With NSK K1-L

Preload
Z: Slight preload (standard)
No Code: Slight clearance

NOTES

NOTES

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