



# BEARING AND LINEAR REFERENCE GUIDE

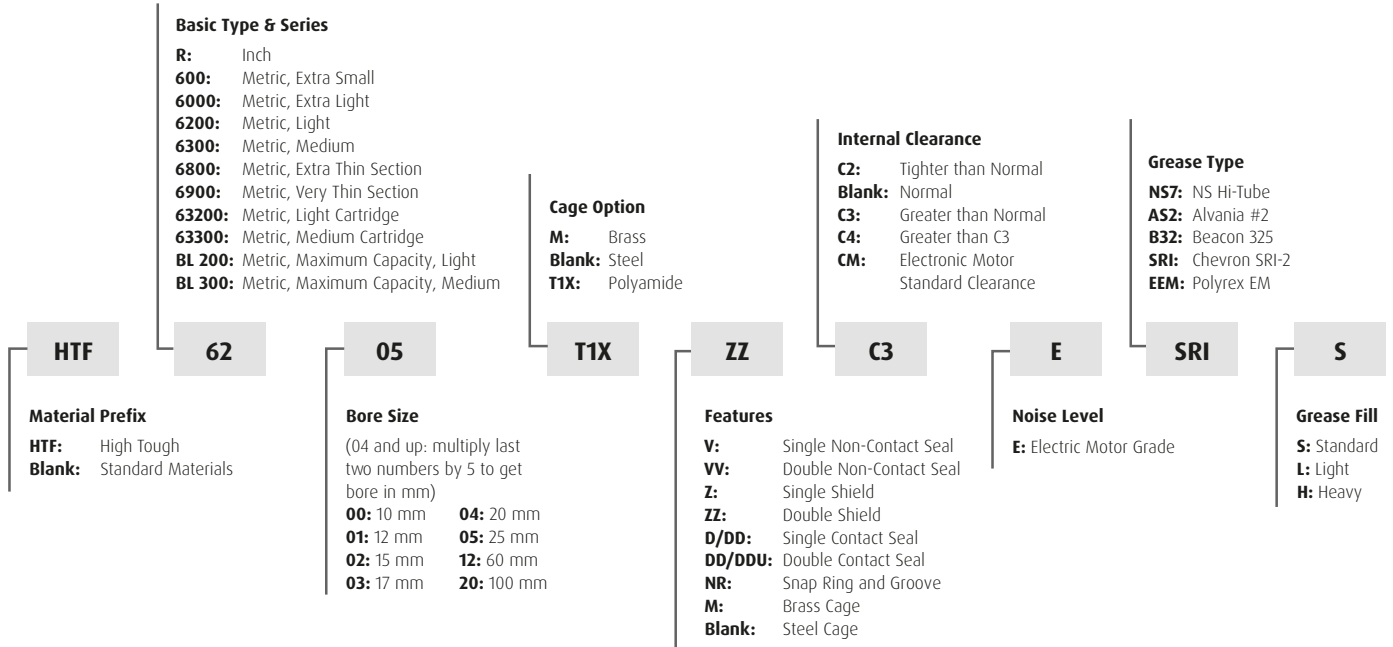


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# SINGLE ROW DEEP GROOVE BALL BEARINGS

## NOMENCLATURE



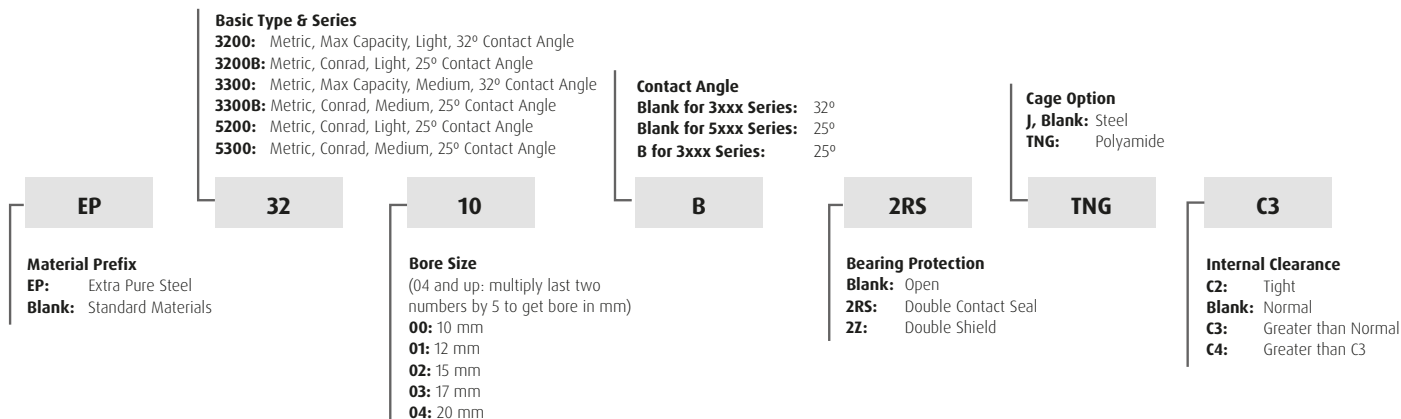
## INTERCHANGE

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
	ExtraThin 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	ZZ	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	J	BLANK or STL	BLANK
	Polyamide Cage	T1X	TN9	PRB	TNH or TVH	TN9	T2
	Brass Cage	M	M	MBR	Y	BRS	L1
	Heat Stabilized 200°C	X28	S1	--	S1	HT	PREFIX TS3
	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	--	

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.

# DOUBLE ROW ANGULAR CONTACT BALL BEARINGS

## NOMENCLATURE



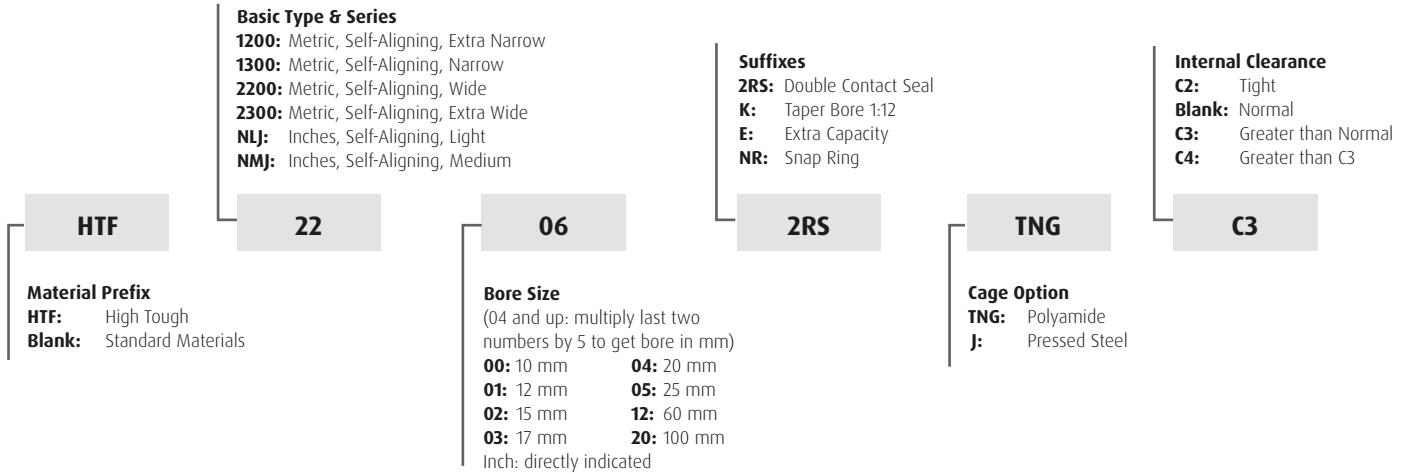
## INTERCHANGE

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	Z	Z	ZR	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



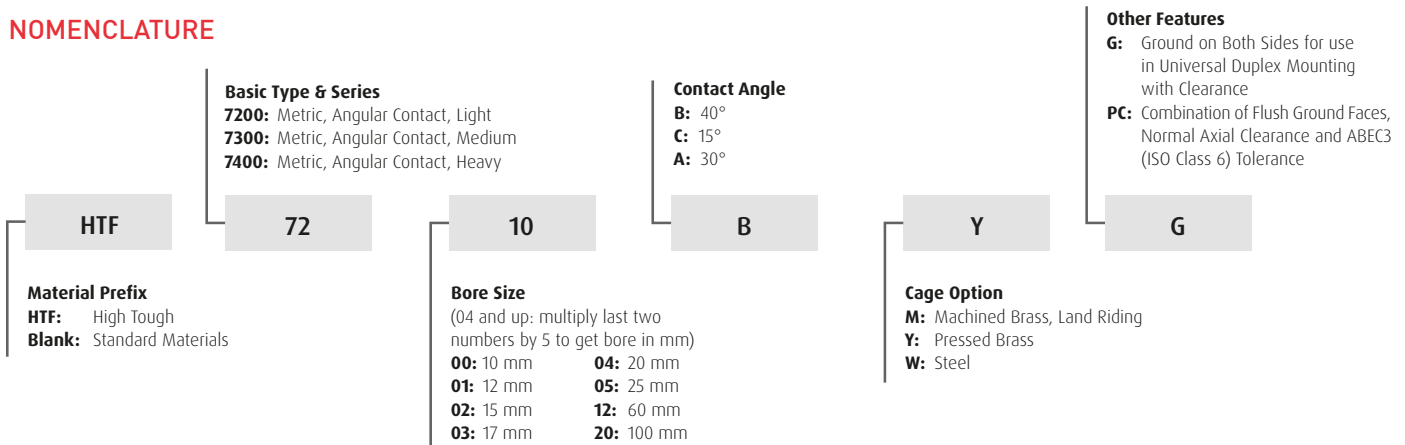
## INTERCHANGE

Description	Interchange				
	NSK	SKF	FAG	NTN	
<b>Part Number</b>	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
<b>Part Number Suffix</b>	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	

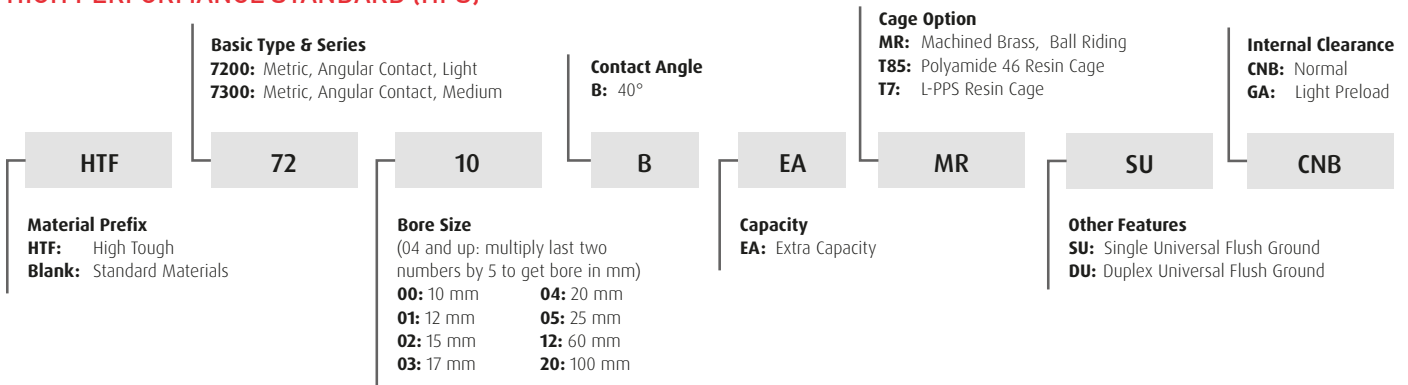
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# ANGULAR CONTACT BALL BEARINGS

## NOMENCLATURE



## HIGH PERFORMANCE STANDARD (HPS)



## 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
Petrochemical	BMPC	BECBM	--	--	PumpPac*	--	

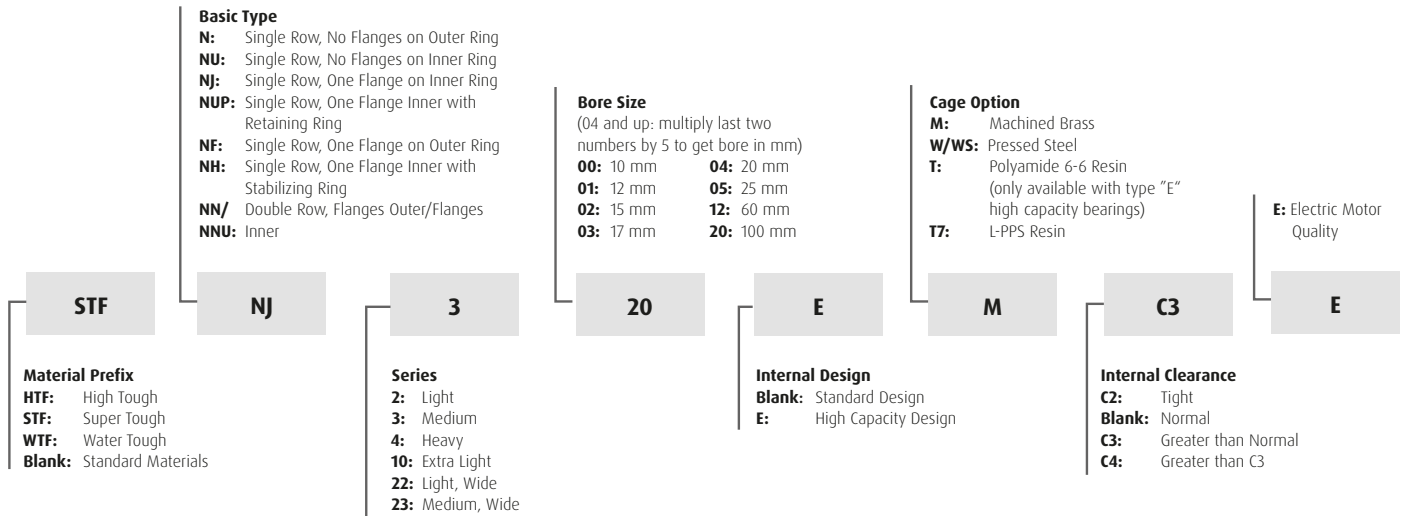
The competitive manufacturers are provided for a convenient source of unit substitution. They can be considered interchangeable in most instances, but for special applications, please contact NSK. NSK assumes no liability with respect to errors or omissions. \*PumpPac is a registered trademark of SKF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

## INTERCHANGE - HPS

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

# CYLINDRICAL ROLLER BEARINGS

## NOMENCLATURE



## 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

<p><b>Material Prefix</b></p> <p><b>TL:</b> Tough and Long Life</p> <p><b>HTF:</b> High Tough</p> <p><b>STF:</b> Super Tough</p> <p><b>WTF:</b> Water Tough</p> <p><b>Blank:</b> Standard Materials</p>	<p><b>Bore Size</b> (multiply last two numbers by 5 to get bore in mm)</p> <p><b>20:</b> 100 mm    <b>48:</b> 240 mm</p> <p><b>32:</b> 160 mm    <b>96:</b> 480 mm</p> <p>500 millimeters and larger written as:</p> <p><b>/500:</b> 500 mm    <b>/710:</b> 710 mm</p> <p><b>/630:</b> 630 mm    <b>/1000:</b> 1000 mm</p>	<p><b>Bore Type</b></p> <p><b>Blank:</b> Cylindrical Bore</p> <p><b>K:</b> 1:12 Tapered Bore</p> <p><b>K30:</b> 1:30 Tapered Bore</p>	<p><b>Lubrication Features</b></p> <p><b>E3:</b> Holes Only, Outer</p> <p><b>E4:</b> Groove &amp; Holes, Outer</p> <p><b>E7:</b> Groove &amp; Holes, Outer &amp; Inner</p> <p><b>E8:</b> Outer Ring with Tapped Holes in both Faces for Lifting</p> <p><b>Blank:</b> No Relubrication Feature</p>	<p><b>Other Features</b></p> <p><b>P52:</b> Outer Ring Accuracy</p> <p><b>P53:</b> Inner Ring Accuracy</p> <p><b>P55:</b> Both Ring Accuracy</p> <p><b>U22:</b> Special Inspection Measure</p> <p><b>S11:</b> Inner and Outer Ring Heat Stabilized to 200°C</p> <p><b>VE:</b> Vibrating Equipment</p> <p><b>W507:</b> S11, E4, W31</p> <p><b>W509:</b> S11, E7, W31</p>				
<b>TL</b>	<b>230</b>	<b>72</b>	<b>CAM</b>	<b>K</b>	<b>G3</b>	<b>E4</b>	<b>C3</b>	<b>P55S11</b>
	<p><b>Basic Type</b></p> <p><b>213xx:</b> Spherical Roller, Extra Heavy</p> <p><b>222xx:</b> Spherical Roller, Heavy</p> <p><b>223xx:</b> Spherical Roller, Extra Heavy, Wide</p> <p><b>230xx:</b> Spherical Roller, Light</p> <p><b>231xx:</b> Spherical Roller, Medium</p> <p><b>232xx:</b> Spherical Roller, Heavy, Wide</p> <p><b>239xx:</b> Spherical Roller, Extra Light</p> <p><b>240xx:</b> Spherical Roller, Light, Wide</p> <p><b>241xx:</b> Spherical Roller, Medium, Wide</p>		<p><b>Cage Options</b></p> <p><b>CAM:</b> One Piece Brass, Guide Ring</p> <p><b>C,CD:</b> Two Piece Steel, Guide Ring</p> <p><b>EA:</b> High Capacity Steel</p> <p><b>H:</b> Two Piece Polyamide</p> <p><b>M:</b> Two Piece Brass, Integral Guide Flange</p>		<p><b>Material Code</b></p> <p><b>G:</b> Carburized, inner and outer ring rolling element</p> <p><b>G2:</b> Carburized, outer ring only</p> <p><b>G3:</b> Carburized, inner ring only</p> <p><b>G5:</b> Carburized, inner and outer rings</p> <p><b>Blank:</b> Thru Hardened Bearing Steel</p>		<p><b>Internal Clearance</b></p> <p><b>C2:</b> Tight</p> <p><b>Blank:</b> Normal</p> <p><b>C3:</b> Greater than Normal Clearance</p> <p><b>C4:</b> Greater than C3 Clearance</p>	

## INTERCHANGE

Description		Interchange			
		NSK	SKF	TORR/TIMKEN	FAG
Part Number	Extra Light	239xx*	239xx	239xx	239xx
	Light	230xx*	230xx	230xx	230xx
	Light, Wide	240xx*	240xx	240xx	240xx
	Medium	231xx*	231xx	231xx	231xx
	Medium, Wide	241xx*	241xx	241xx	241xx
	Heavy	222xx*	222xx	222xx	222xx
	Heavy, Wide	232xx*	232xx	232xx	232xx
	Extra Heavy	213xx*	213xx	213xx	213xx
	Extra Heavy, Wide	223xx*	223xx	223xx	223xx
Part Number Suffix	Brass Cage, One Piece, Guide Ring	CAM, AM	CA, CACM	YM	M, MB, MA
	Brass Cage, Two Piece, Guide Flange	M	MC	BR	--
	Steel Cage, Two Piece, Guide Ring	C, CD	CJ, CC	CJ, VJ	BLANK
	High Capacity Steel Cage	EA	--	--	--
	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 Ring, and Inner Ring	E7	W513	W33W94	SH40AB
	Outer Ring, Tapped Holes One Face for Lifting	--	W56	W45A	--
	Outer Ring, Tapped Holes Both Face for Lifting + E4 Feature	E8	--	--	--
	Holes Only Outer Ring	E3	W20	W20	SY
	Inner Ring Lube Groove and Holes	E5	W26	W94	H40AB
	No Relube Features	BLANK	BLANK	BLANK	--
	Plugs Provided for Outer Ring Holes	E42	W77	W84	H40
	Combination S11, E4 & W31	W507	W507	W33W4W31	--
	Combination W33, W31	E4U22	W506	W33W31	--
	Combination S11, E7 & W31	W509	W509	W33W94W31	SH40A
	Outer Ring with Extra Close Running Accuracy	P52	C04	C04	T52BN
	Inner Ring with Extra Close Running Accuracy	P53	C02	C02	T52BE
	Inner and Outer Ring with Extra Close Running Accuracy	P55	C08	C08	T52BW
	Special Inspection Measures	W31	W31	W31	--
	Inner Ring and Outer Ring Heat Stabilized to 200°C	S11	S1	--	--
	Tight Clearance	C2	C2	C2	C2
	Normal Clearance	BLANK	BLANK	BLANK	BLANK
Greater than Normal Clearance	C3	C3	C3	C3	
Greater than C3 Clearance	C4	C4	C4	C4	

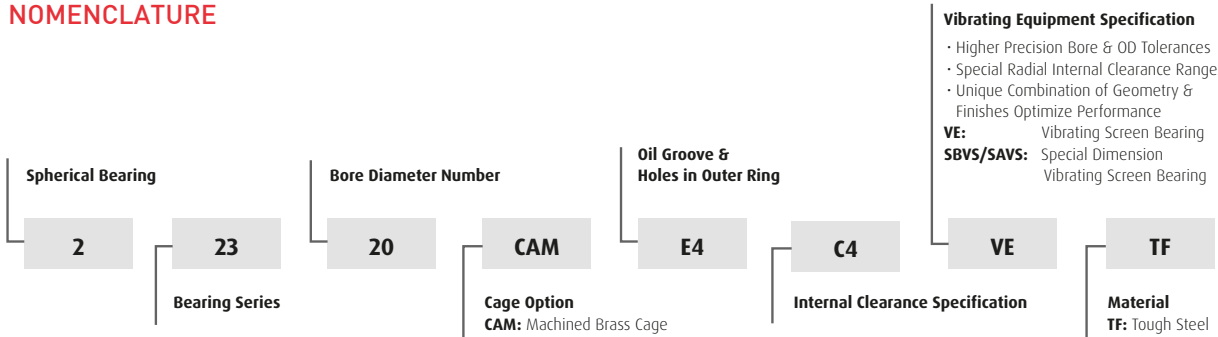
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\* Indicates NSK **HPS** High Performance Standard Bearing



# SHAKER SCREEN BEARINGS

## NOMENCLATURE



## INTERCHANGE

	NSK	TORR/TIMKEN	SKF	FAG*
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	22340YMBW33W45AW800C4	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	-

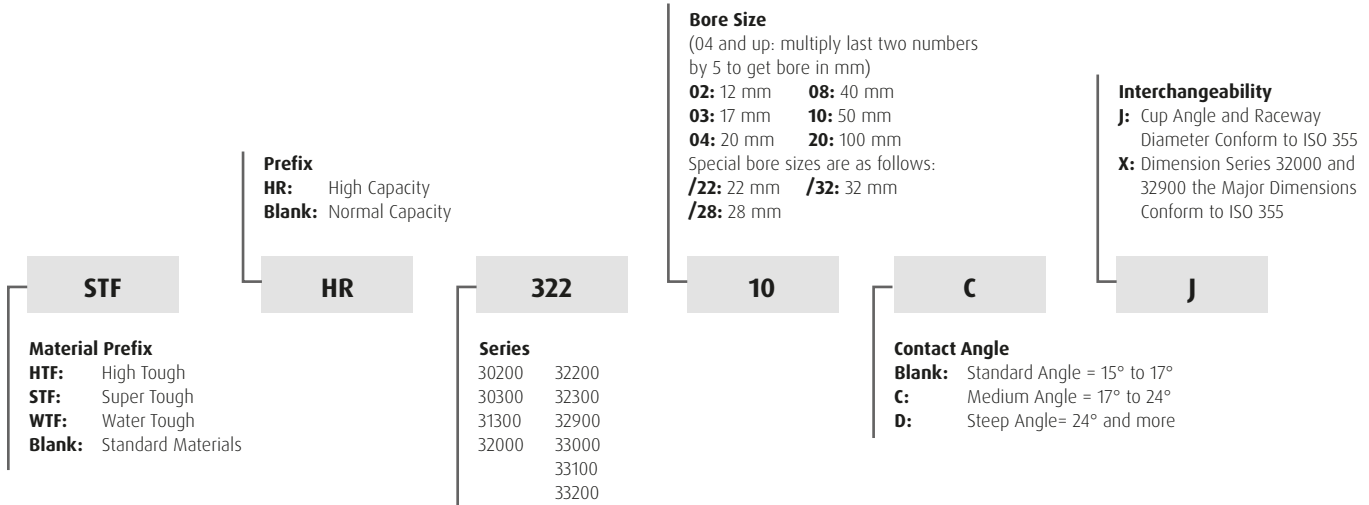
Nomenclature Interchange	Shaker Screen Specification	VE	W800	VA405	T41A	
	Durotect Bore Coating	-	-	-	T41D	
	Standard Series	223	223	223 or 452	223	
	Wide Series	233	233	453	233	
	Allis Chalmers Oversized Bore	Sa, Sb	W47	VA414	T41B	
	PTFE Coating On Bore	-	-	VA406	-	
	Cedar Rapids Undersized Bore	See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

\* NSK bearings with "CAME4C4VE" suffix may also be used in place of bearings with FAG suffix "T41A" and "T41".

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# METRIC TAPERED ROLLER BEARINGS

## NOMENCLATURE



## INTERCHANGE

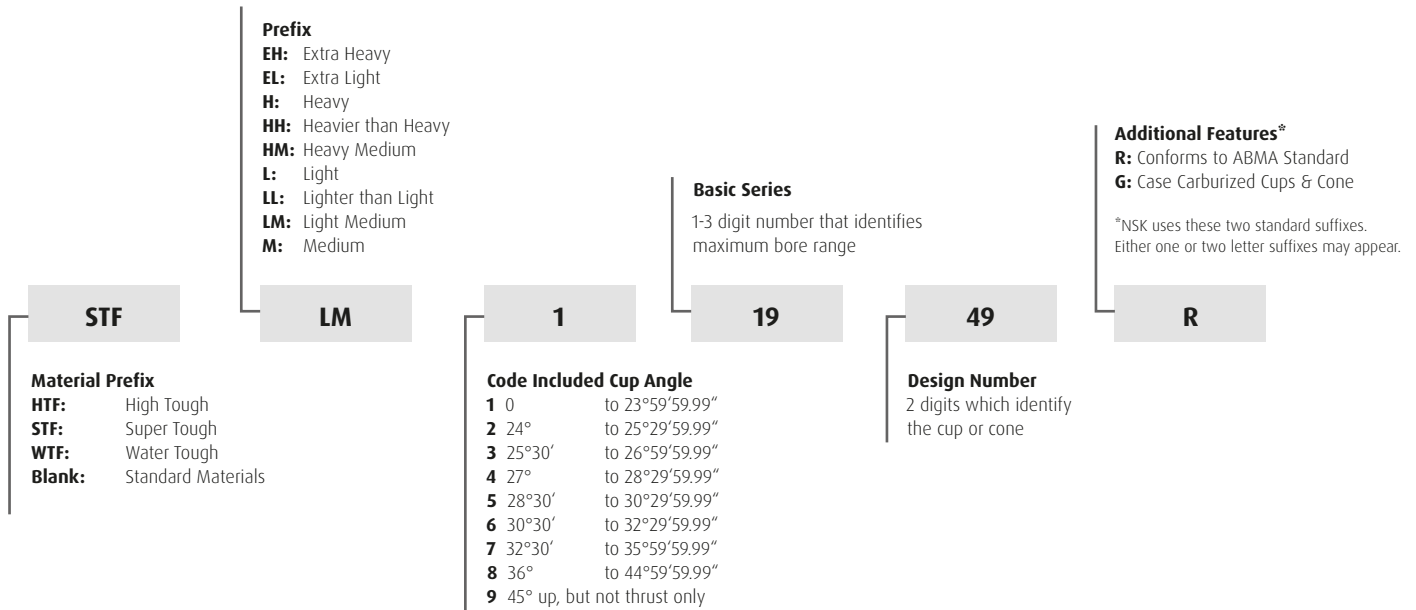
Description		Interchange			
		NSK	SKF	Timken	FAG
Part Number	High Capacity Design	HR	--	--	--
	Light	HR302xx	302xx	302xx	302xx
	Medium	HR303xx	303xx	303xx	303xx
	Medium, Steep Angle	HR313xx	313xx	313xx	313xx
	Extra Light, Wide	HR329xx	329xx	329xx	329xx
	Very Light, Wide	HR320xx	320xx	320xx	320xx
	Light, 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

\*HR313xx is directly equal to HR303xxD.

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# INCH TAPERED ROLLER BEARINGS

## NOMENCLATURE



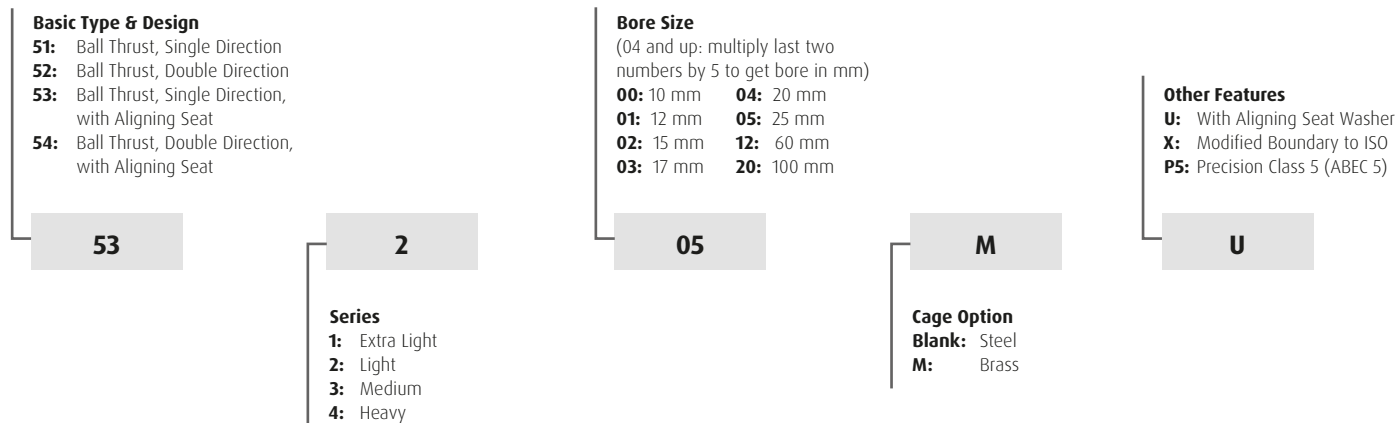
## INTERCHANGE

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
Cup Angle	Extra Light	EL	E	L EL	KEL
	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	--	

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.

# BALL THRUST BEARINGS

## NOMENCLATURE



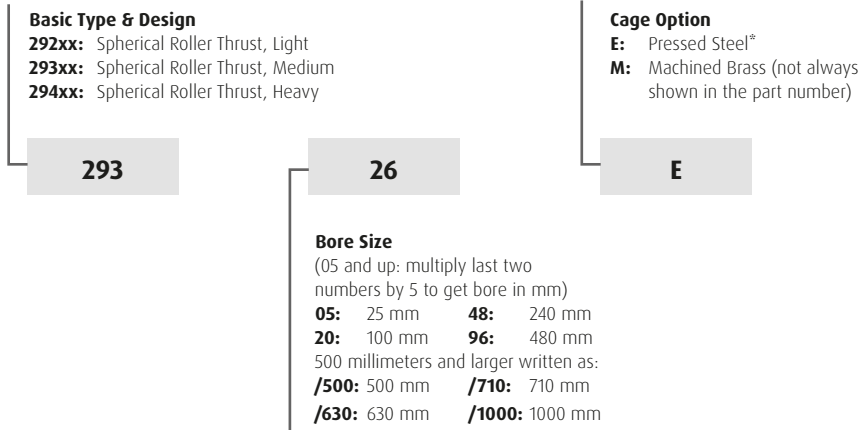
## INTERCHANGE

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
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

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.

# SPHERICAL ROLLER THRUST BEARINGS

## NOMENCLATURE



\*The "E" designation has replaced the "H." This is nomenclature change only, not a design change.

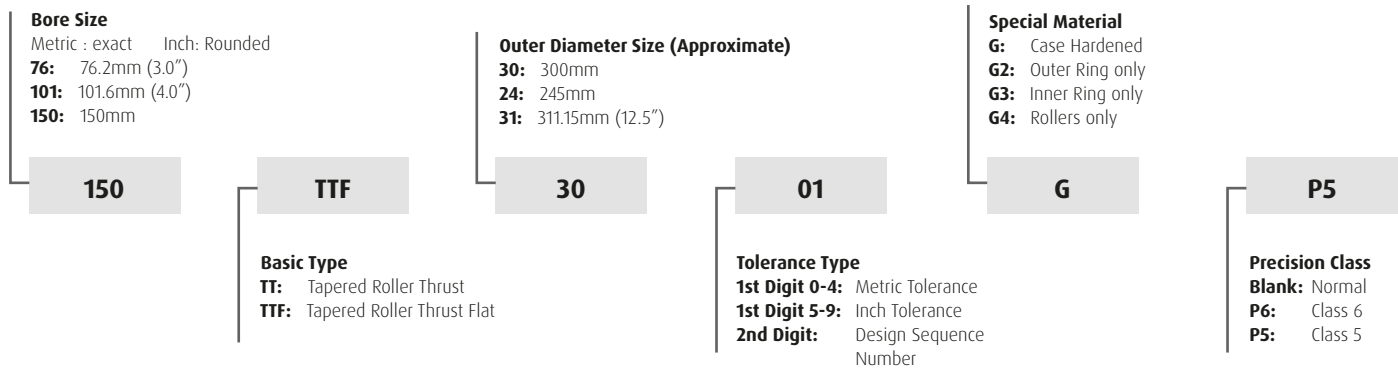
## INTERCHANGE

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

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.

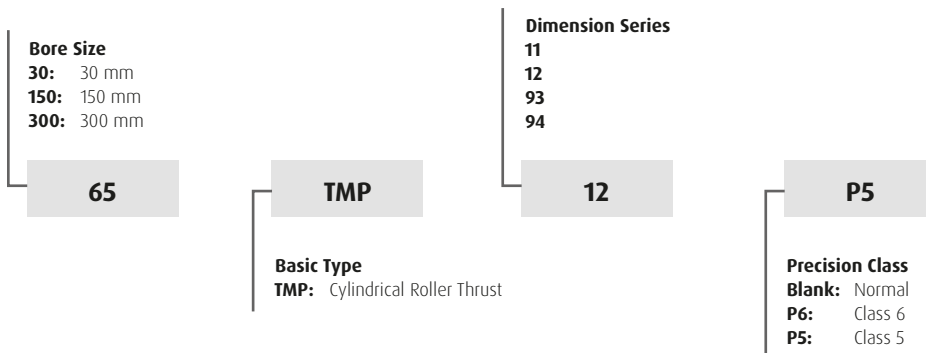
# TAPERED ROLLER THRUST BEARINGS

## NOMENCLATURE



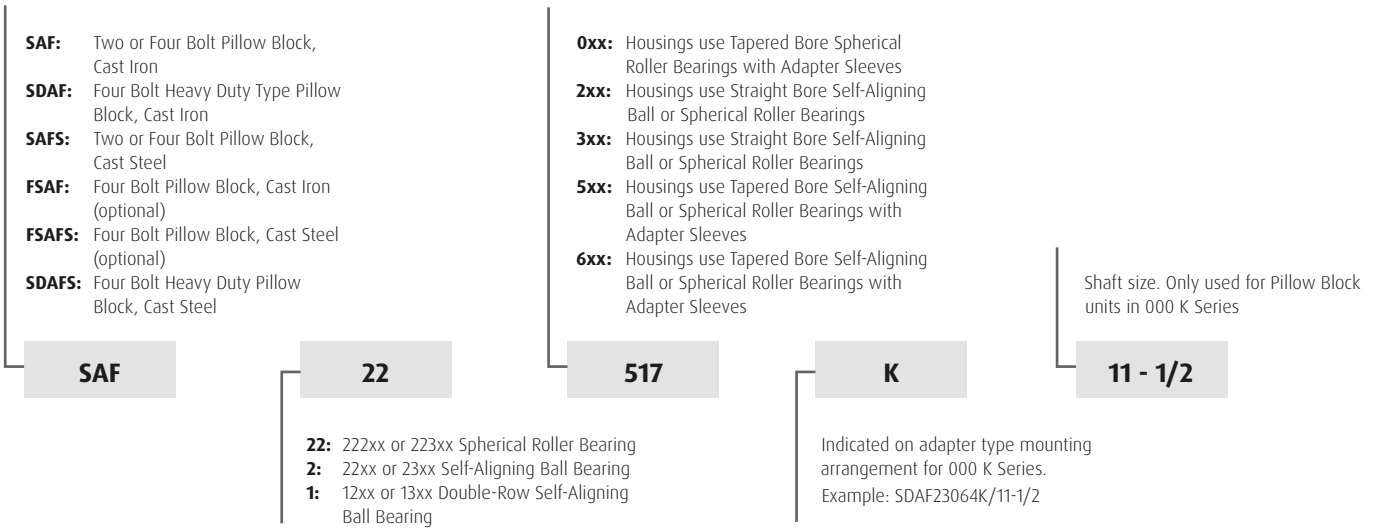
# CYLINDRICAL ROLLER THRUST BEARINGS

## NOMENCLATURE



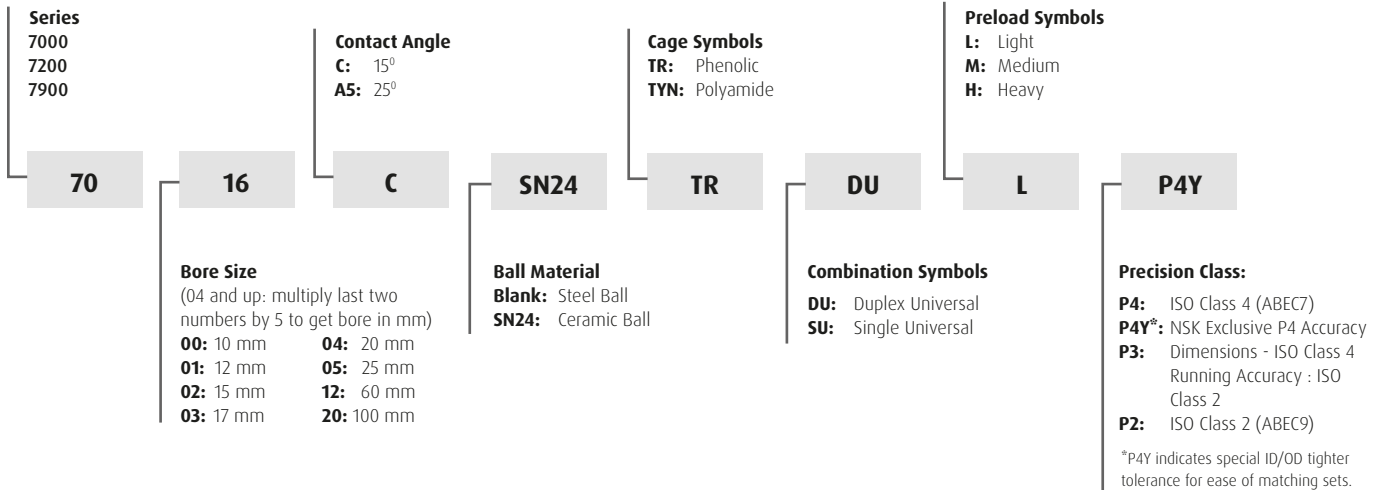
# SPLIT PILLOW BLOCKS

## NOMENCLATURE



# SUPER PRECISION ANGULAR CONTACT BALL BEARINGS

## NOMENCLATURE



## INTERCHANGE

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

\*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.

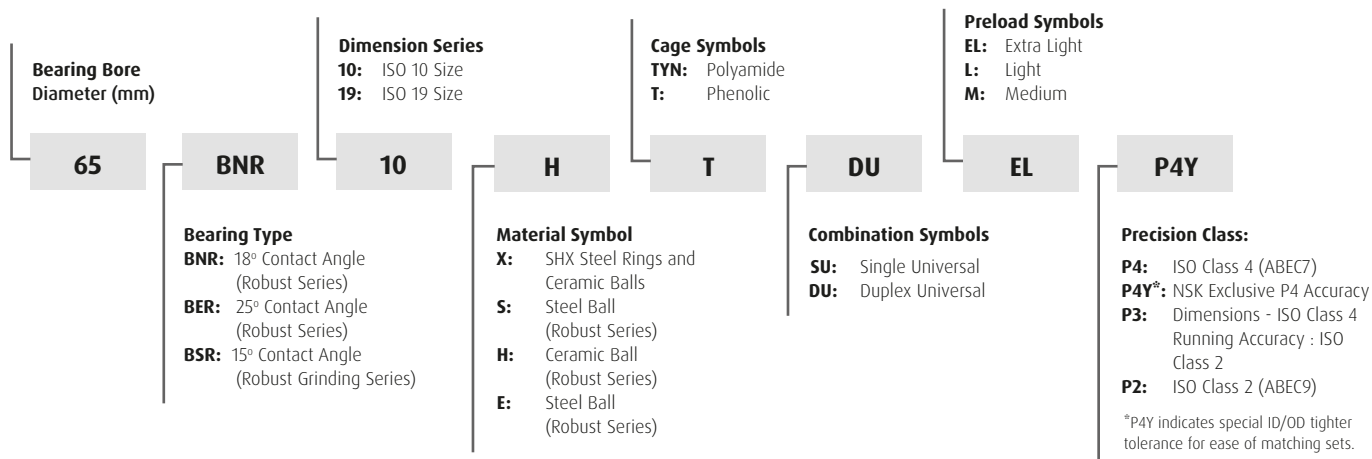
\*\*Indicates prefix not suffix.

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# HIGH SPEED SUPER PRECISION ANGULAR CONTACT BALL BEARINGS

## NOMENCLATURE



## INTERCHANGE

Description	Interchange							
	NSK	*OLD NSK	SKF	BARDEN	FAF/TIMKEN	SNFA	NTN	
<b>Part No.</b>	Ultra Light Robust High Speed Series	XXBNR19	XXBNC19	719XXCE	ZSB19XX	93XXWO,WN,HX	VEBXX	HSB9XX
	Extra Light Robust High Speed Series	XXBNR10	XXBNC10	70XXCE	ZSB1XX	91XXWO,WN,HX	VEBXX	HSB0XX
	Ultra Light Robust High Speed Series for Grinding Spindles	XXBSR19	XXBNT19	-	-	-	-	BNT9XX
	Extra Light Robust High Speed Series for Grinding Spindles	XXBSR10	XXBNT10	-	XXBX48	-	-	BNT0XX
<b>Part Number Suffix</b>	Polyamide Cage	TYN	TY	BLANK, TNH	TMT	PRC	P	T2
	Phenolic Cage	TR	T	-	T, TA	CR	C	T1
	Duplex Universal	DU	DU	DG	DU	DU	DU	D
	Single Universal	SU	SU	G	U	SU	U	BLANK
	Extra Light Preload	EL	EL	A	-	X	-	GL
	Light Preload	L	L	B	L	L	L	GN
	Ceramic Balls	H	SN24	HC	C**	C**	/NS	5S**
	Steel Balls	S/E	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
	ABEC 7 Precision	P4Y	P4	P4	BLANK	MM/MMV**	7	P4
ABEC 9 Precision	P2	P2	P2	ABEC 9	MMX**	9	P2	

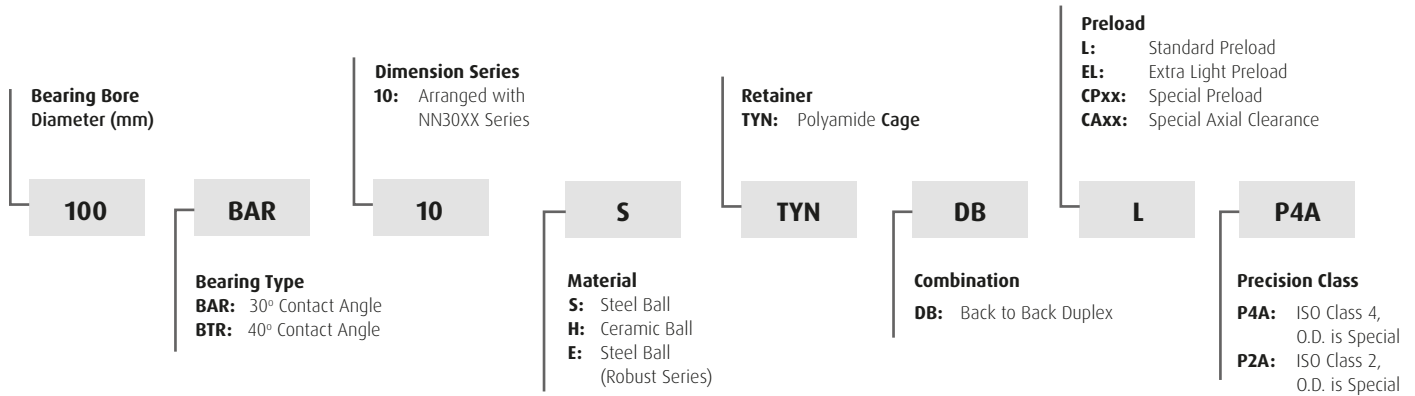
\*BNR has replaced BNC series. P4Y tolerance specification replaces P4. P4Y tolerance specification has tighter bore and OD control than ABEC 7 (class 4 or P4). NSK supplies the following bearing series with P4Y tolerance: 7000; 7200; 7900; and BNR.

\*\* Indicates prefix not suffix

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# SUPER PRECISION ANGULAR CONTACT THRUST BALL BEARINGS

## NOMENCLATURE



## INTERCHANGE

Description		Interchange			
		NSK	*OLD NSK	SKF	NTN
Part No.	30° Angular Contact Thrust Bearings	XXBAR10	XXBA10	BTMXXA	HTA0XXA
	40° Angular Contact Thrust Bearings	XXBTR10	XXBT10	BTMXXB	HTA0XX
Part Number Suffix	Polyamide Cage	TYN	TY	BLANK	T2
	Phenolic Cage	TR	T	-	BLANK
	Duplex Universal	DU	DU	DB	GD2
	Single Universal	SU	SU	-	G
	Extra Light Preload	EL	EL	-	-
	Light Preload	L	L	A	GN
	Ceramic Balls	H	SN24	HC	5S**
	Steel Balls	S/E	BLANK	BLANK	BLANK
	ABEC 7 Precision	P4A	P4A	PC	P4
	ABEC 9 Precision	P2A	P2A	PA9A	P2

\*BAR and BTR series have replaced BA and BT series.

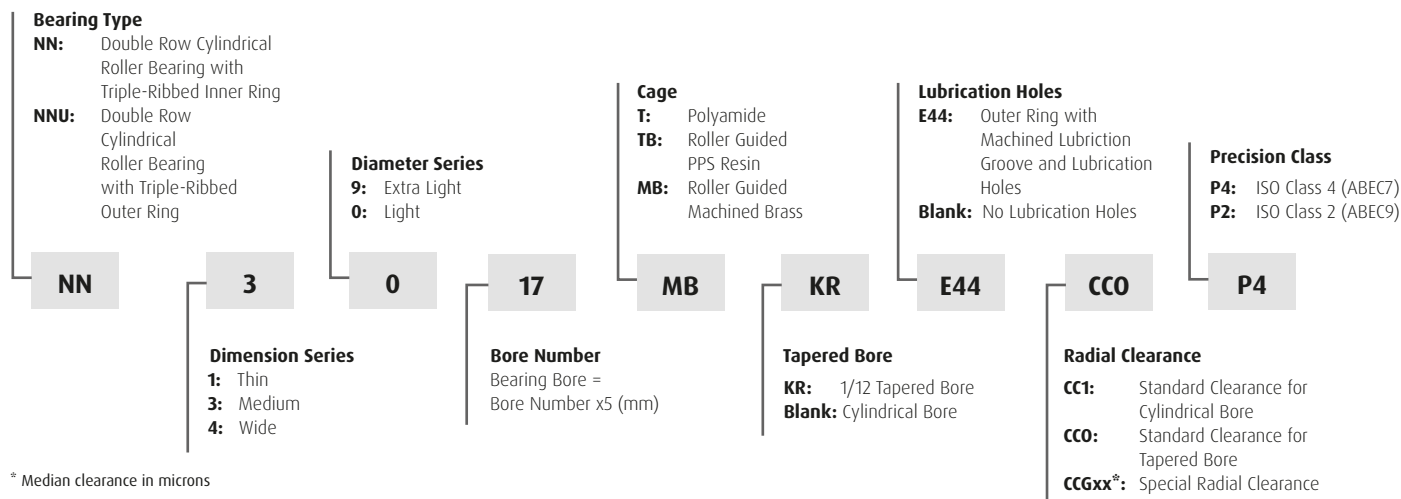
\*\* Indicates prefix not suffix

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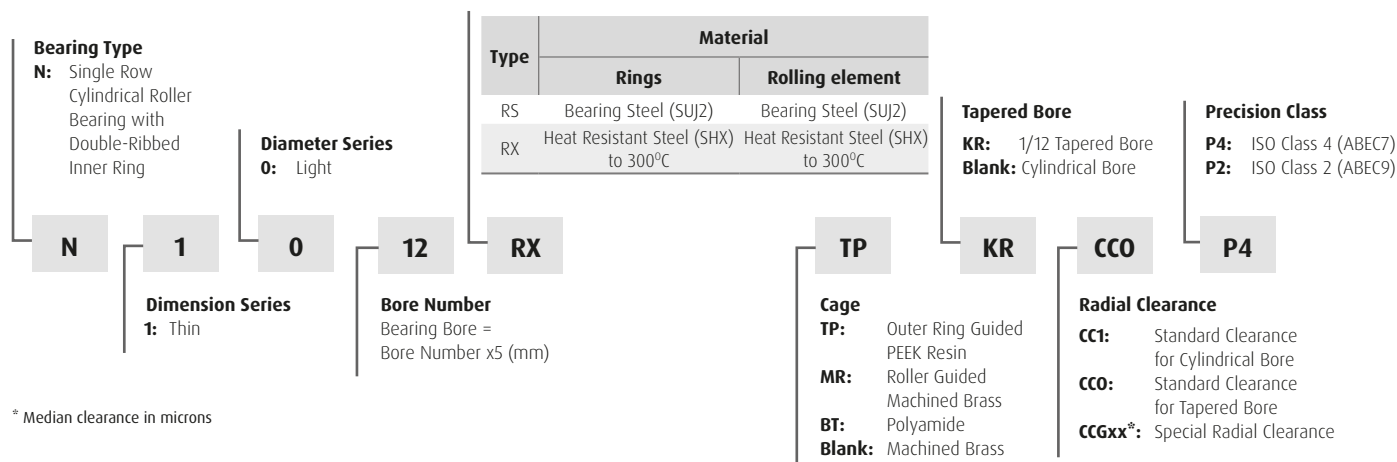
# SUPER PRECISION CYLINDRICAL ROLLER BEARINGS

## NOMENCLATURE

### DOUBLE ROW



### SINGLE ROW



## INTERCHANGE

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

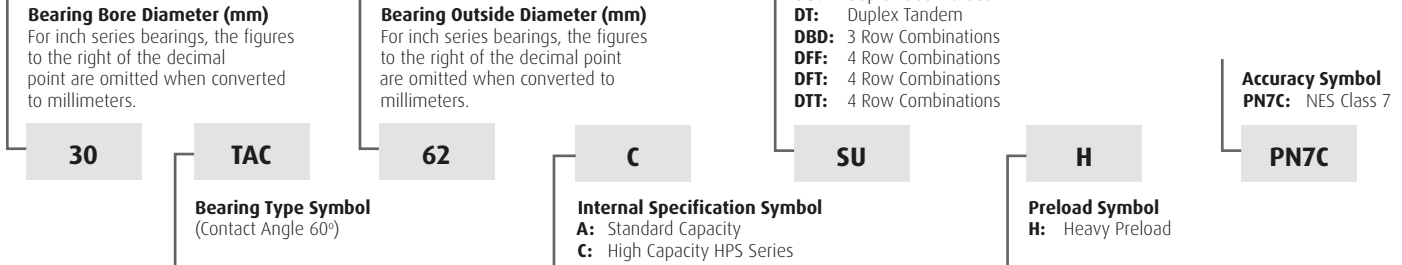
\*The outer ring machined lubrication groove and holes (E44) is now a standard feature. TB cage replaces T cage, MB replaces M and KR replaces K.

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# BALL SCREW SUPPORT BEARINGS

## TAC SERIES

### NOMENCLATURE



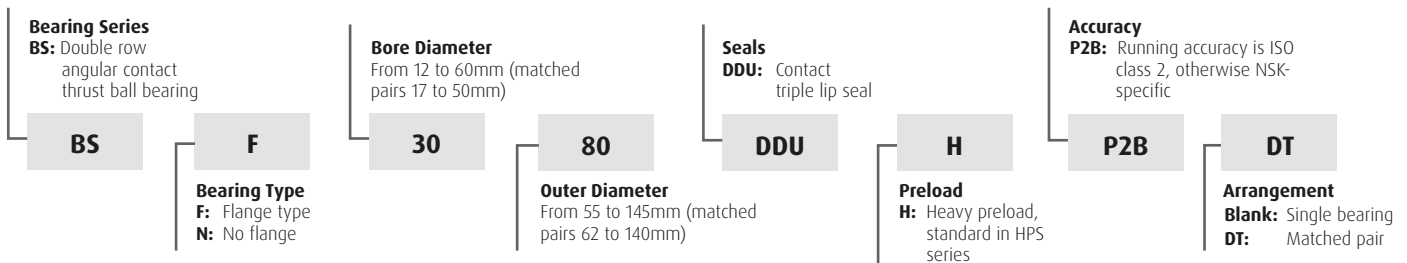
### INTERCHANGE

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 \ \ \ /	DFD	QFC	QU	--	DTFT
	Quad Set \ / / /	DFT	QFT	QU	DFDT	--
	Quad Set / / \ \	DBB	QBC	QU	--	--
	Quad Set / \ \ \	DBT	QBT	QU	--	DTBT
	Quad Set / / / /	DDT	QD	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



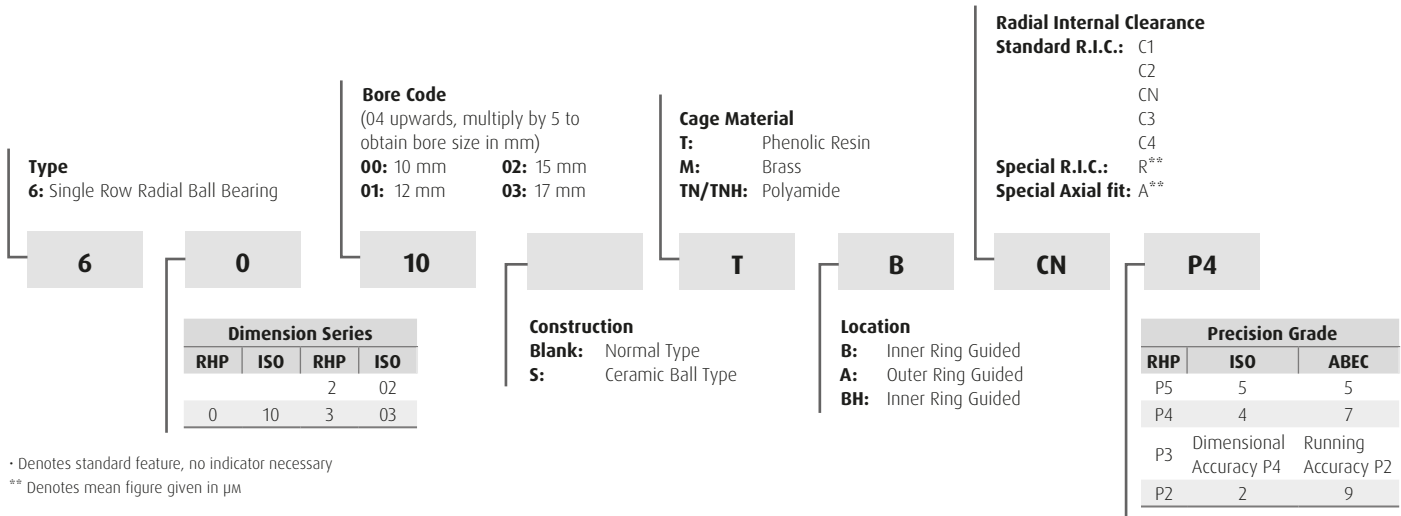
### INTERCHANGE

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



## INTERCHANGE

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

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 1	20 2	AN 3	Z 7	HSR 1	20 2	R 3	C1 7	511 1	H 6	20 2	C 3	1 7	LLRHC 1	20 2	A- 3	T1 7	R1651 1,3	- 2	8 7	1 6	4 8	- 10	KWVE 1	20 2	- 3	B-H 7	G4 8	V2				
Rail Part Number	N1H 1	20 2	XXXX 4	Z 7	HSR 1	20+ 2	XXXXL 4	6	521 1	H 6	20 2	A 4	+XXXX 4	LLRHR 1	20x 2	XXXX 4	P5 6	R1605 1,4	- 2	4 X	0 6	4 4	- 4	XXXX 1	TKVD 1	20 2	- /	G4 XXXX					
Assembly Part Number	NH 1	25 2	XXXX 3	AN 4	C 5	X 6	PC 7	Z 8	HSR 1	20 2	R 3	2 5	SS 8	C1 7	+XXXXL 4	6	N/A	LLRHS 1	20 2	A 3	2 5	T1 7	XXXX 4	P5 6	N/A	KUVE 1	20 2	- 3	B-H 6	W2 7	G4 8	V2 /	XXXX 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 <sup>1</sup>	KUVE##/KWVE##/TKVD## <sup>2</sup>
NS	SR (SSR)			LLRHS	R161	KUVE##/KWVE##/TKVD## <sup>2</sup>
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

<sup>1</sup> See Slider Section for Exact Series for Bosch - Rexroth (STAR)

<sup>2</sup> 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##HTA	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 <sup>1</sup>	TKVD##-##/XXXX <sup>2</sup>
N1S##XXXXZ	SR##+XXXXL			LLRHR##xXXXXP5	R1605-##-XXXX <sup>1</sup>	TKVD##-##/XXXX <sup>2</sup>
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	

<sup>1</sup> See Slider Section for Exact Series for Bosch - Rexroth (STAR)

<sup>2</sup> 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	

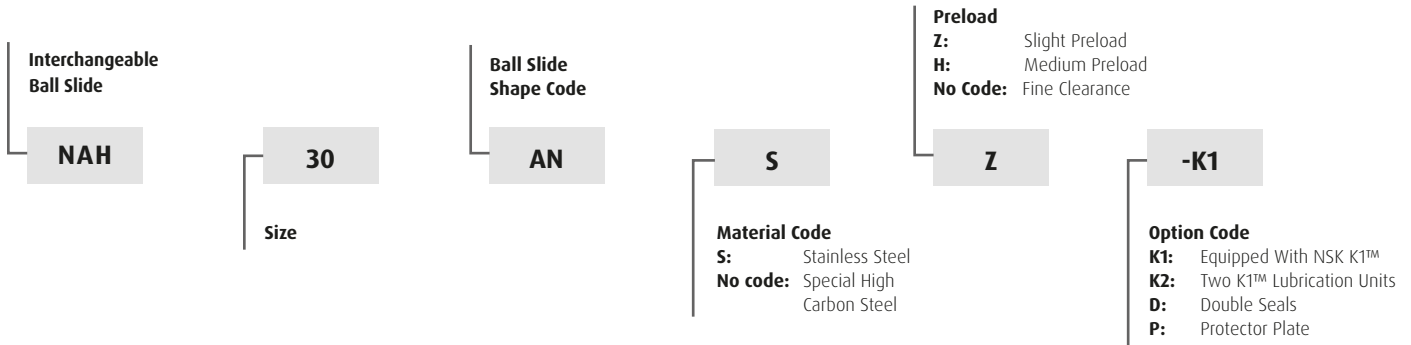
#### LUBRICATION SYSTEMS

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

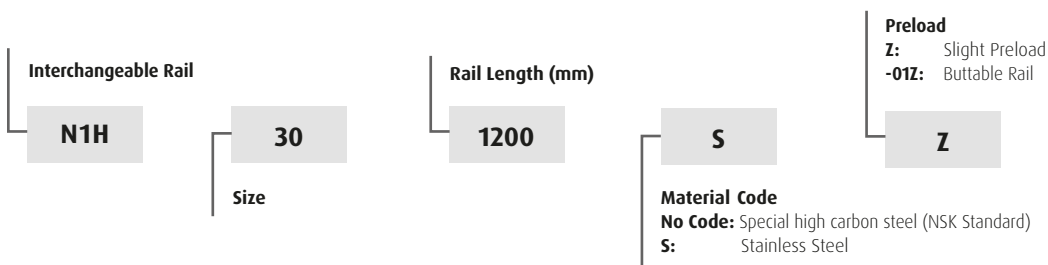
# LINEAR GUIDES: NH SERIES

## (REPLACEMENT FOR THE LH SERIES, SIZE 15-65)

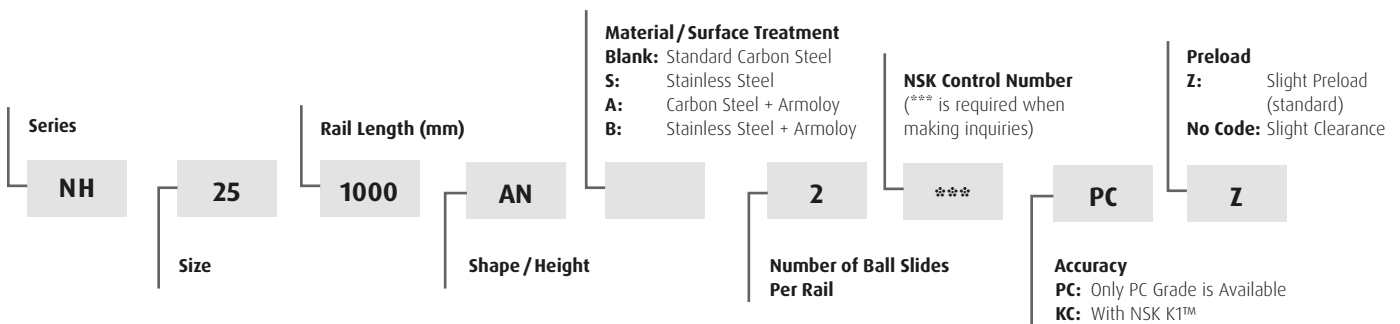
### PART NUMBER EXAMPLE FOR BALL SLIDE ONLY



### REFERENCE PART NUMBER FOR RAIL ONLY



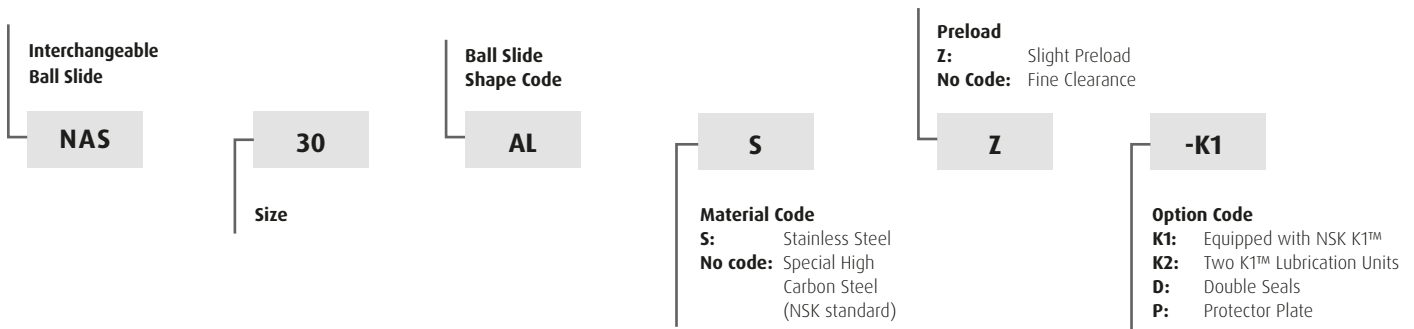
### REFERENCE PART NUMBER FOR INTERCHANGEABLE ASSEMBLY (BALL SLIDE + RAIL)



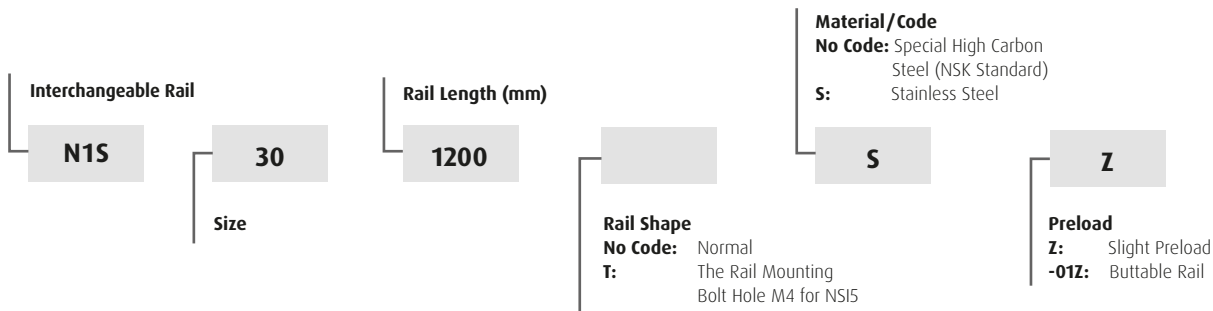


# LINEAR GUIDES: NS SERIES (REPLACEMENT FOR THE LS SERIES)

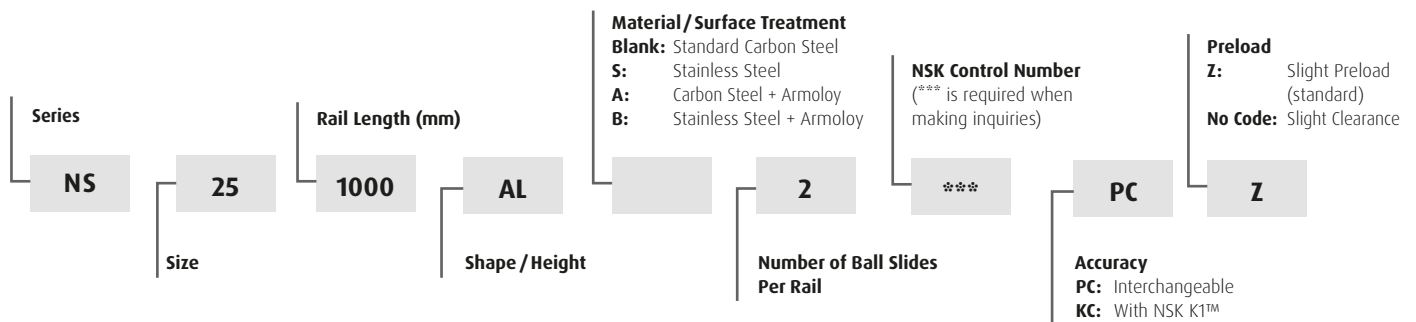
## PART NUMBER EXAMPLE FOR BALL SLIDE ONLY



## REFERENCE PART NUMBER FOR RAIL ONLY

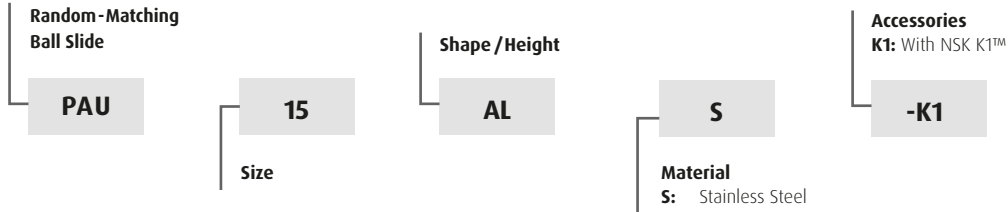


## REFERENCE PART NUMBER FOR ASSEMBLY (BALL SLIDE + RAIL)

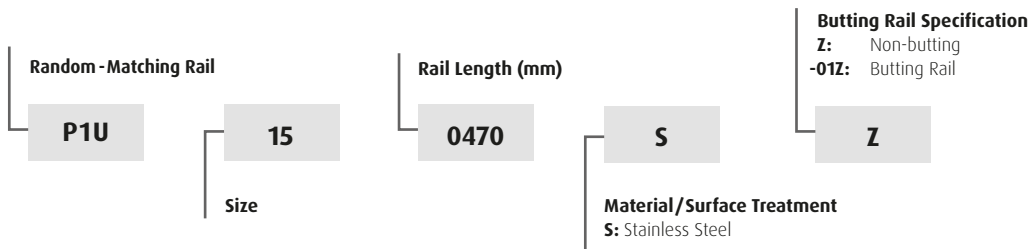


# LINEAR GUIDES: PU SERIES

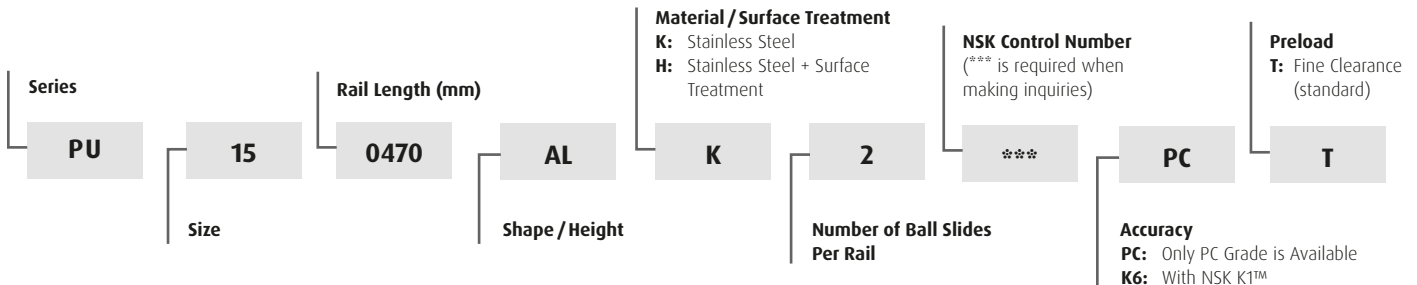
## PART NUMBER EXAMPLE FOR BALL SLIDE ONLY



## REFERENCE PART NUMBER FOR RAIL ONLY

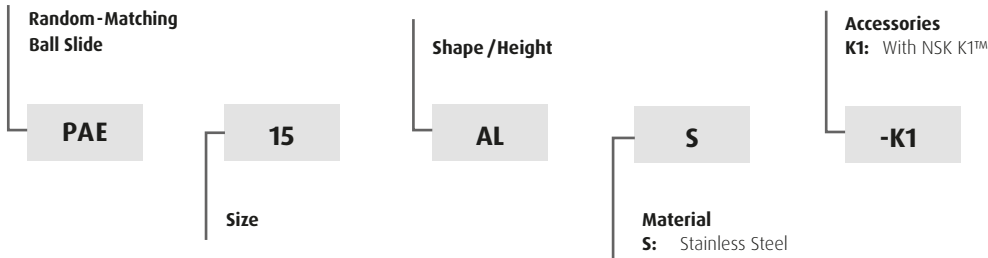


## REFERENCE PART NUMBER FOR ASSEMBLY (BALL SLIDE + RAIL)

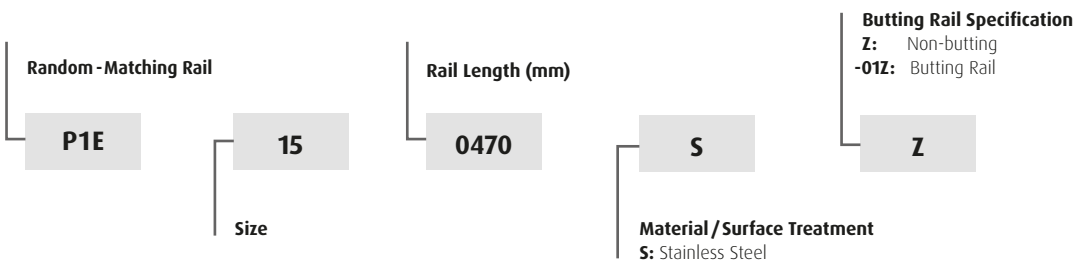


# LINEAR GUIDES: PE SERIES

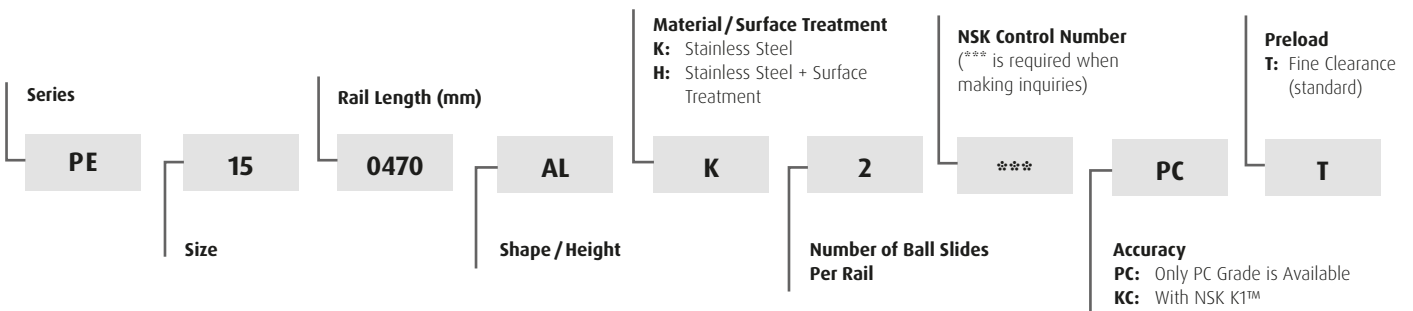
## PART NUMBER EXAMPLE FOR BALL SLIDE ONLY



## REFERENCE PART NUMBER FOR RAIL ONLY

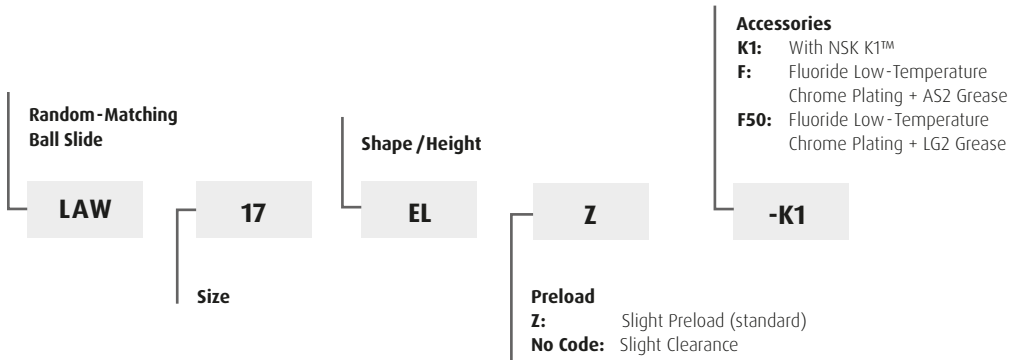


## REFERENCE PART NUMBER FOR ASSEMBLY (BALL SLIDE + RAIL)

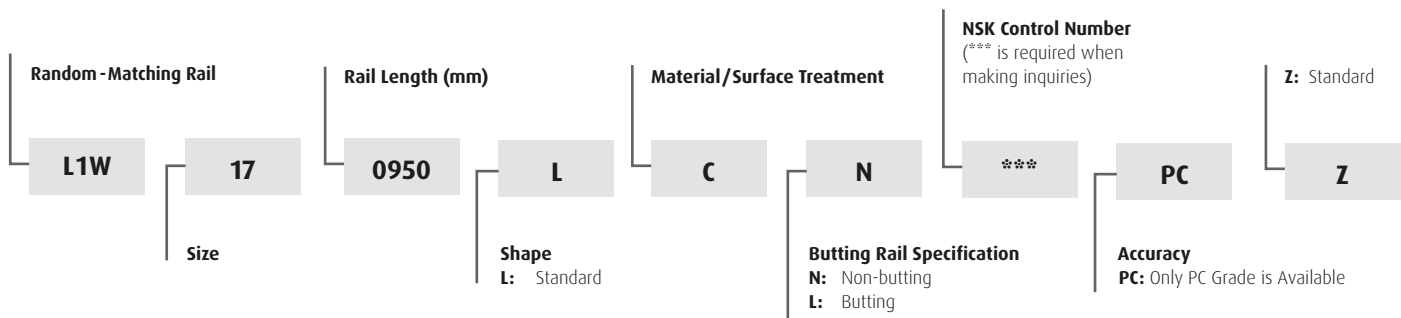


# LINEAR GUIDES: LW SERIES

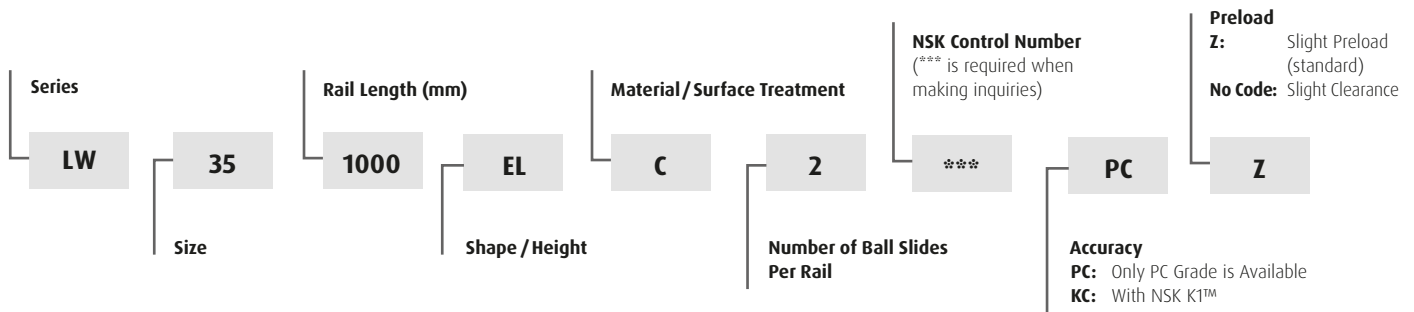
## PART NUMBER EXAMPLE FOR BALL SLIDE ONLY



## REFERENCE PART NUMBER FOR RAIL ONLY

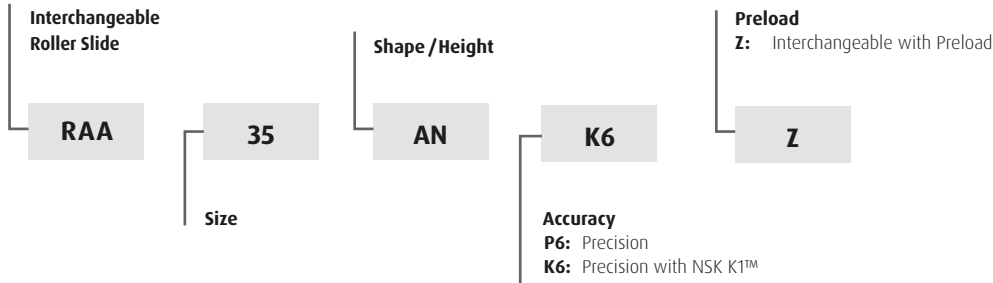


## REFERENCE PART NUMBER FOR ASSEMBLY (BALL SLIDE + RAIL)

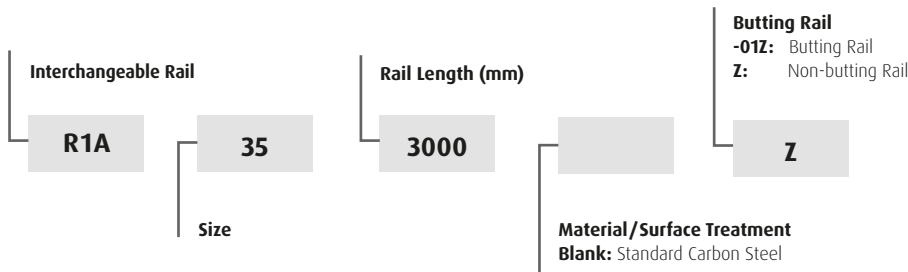


# LINEAR GUIDES: RA SERIES

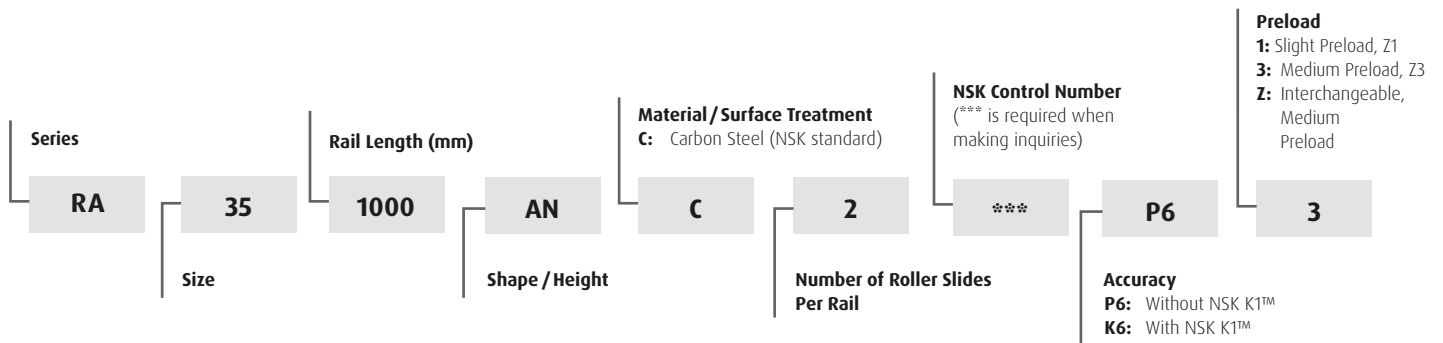
## PART NUMBER EXAMPLE FOR ROLLER SLIDE ONLY



## REFERENCE PART NUMBER FOR RAIL ONLY



## REFERENCE PART NUMBER FOR ASSEMBLY (ROLLER SLIDE + RAIL)









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