

Dimensions in millimetres

Runout tolerances $\mu\text{m max.}$		Starting torque in mN.m		Permissible static radial load C_2 in kN	Mass g	Bearing Number	
Axial d S_a	D S_{ec}	Radial d K_a	D K_{e2}			Shields	Seals
				6,1	4	FJN 5 E*	FJN 5 P*
				4,5	9	FJN 6 CE	FJN 6 CP
				9,7	20	APF 8 E	APF 8 P
40	40	25	40	13,8	30	APF 10 E	APF 10 P
				19,4	40	APF 12 E	APF 12 P
				25,2	55	APF 12/32 E	APF 12/32 P
				42,3	65	APF 15 E*	APF 15 P*

BALL BEARINGS

Double row, full type, according to specification EN 3280

Series: EN 3056...E

Material: EN 2031 (1.3505.9)

Seals: PTFE

Seal Retainers: Stainless Steel

Series: EN 3056...P

Material: EN 2031 (1.3505.9)

Shields: Stainless steel

Series: EN 3057...E

Material: EN 2031 (1.3505.9)

Seals: Cadmium plated except bore: yellow-passivated

Seal retainers: PTFE

Series: EN 3057...P

Material: EN 2031 (1.3505.9)

Seals: Cadmium plated except bore: yellow-passivated

Shields: Stainless Steel

Series: EN 3058...E

Material: EN 2030 (1.3544.9)

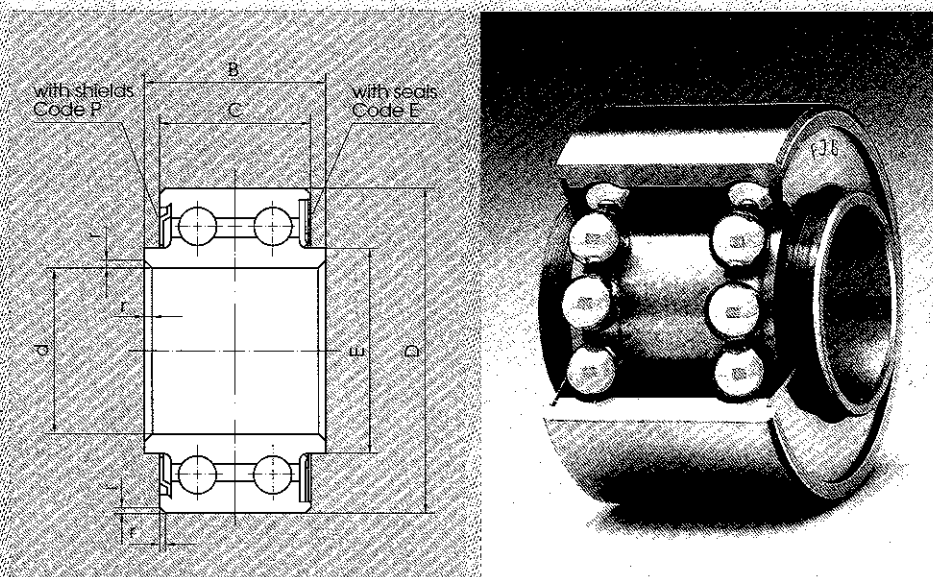
Seals: PTFE

Seal Retainers: Stainless Steel

Series: EN 3058...P

Material: EN 2030 (1.3544.9)

Shields: Stainless steel



Dimensions in millimetres

Dash No.	d		D		B		C		E		rx 45°	Out of round μm		Runout tolerances μm				Diagonal play ¹ μm	Starting torque ¹ in mN.m		Permissible static radial load C_s in kN	Mass g
	Δdmp μm	ΔDmp μm	ΔBmp μm	ΔCmp μm	Δds	ΔDs	max. Axial d S_a	D S_{ea}	Radial d K_a	D K_{ea}		Shields	Seals									
08	8	+8	22	0	22		17		10,6		within								4,0	6,0	24,0	30
10	10	-7	26	0	24		18		12,6		appli-	+2							6,0	9,0	34,4	52
12	12	+10	28	-8	24	0	18	0	14,7	0,3	cable	-11	40	40	25	40	50	7,0	11,0	40,4	60	
15	15	-8	32	0	26	-120	20	-120	17,7		to	+3					to	9,0	14,0	47,0	80	
17	17		35	0	28		22		20,2	0,8	tolerance	-14					250	11,0	17,0	53,8	100	
20	20	+12-9	42	-9	32		26		23,5									15,0	23,0	83,0	165	

Fa max. = $\frac{C_s}{Y_s}$ where $Y_s = 2.2$; Axial and radial loads may be applied simultaneously.

For ultimate static loads, see EN 3280

1) Definition: see EN 3280

Designation

Each bearing is designated as in the following example:

Number of EN Standard EN 3056 A 10 P
 A = Grease type _____ P = with shields
 10 = Dash No.

A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

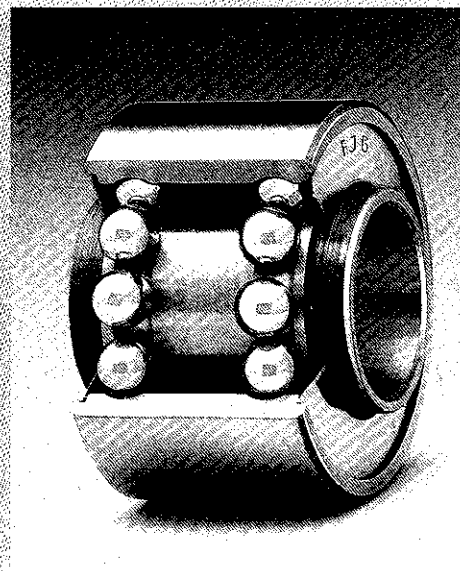
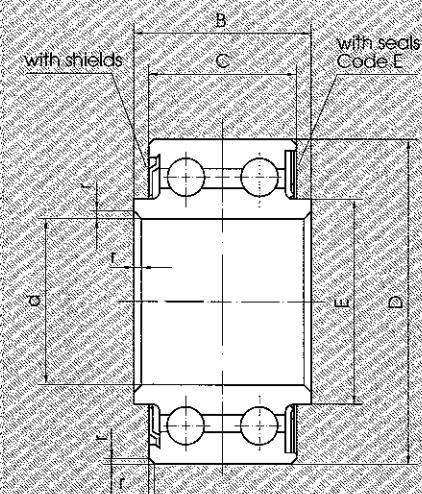
Double row, full type.

Series: AGF...
Material: EN 2031 (1.3505.9)
Shields: Stainless steel

Series: AGF... E
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel

Series: AGF... 1.3544.9
Material: EN 2030 (1.3544.9)
Shields: Stainless steel

Series: AGF... E 1.3544.9
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel



Dimensions in millimetres

Bearing Number	d	D	B		C		E	r x 45°	Out of round		Runout tolerances μm				Diagonal play μm	Starting torque in mN.m		Permissible static radial load C_s in kN	Mass radial g load C_s in kN
			ΔB_{mp}	ΔB_{ms}	ΔC_{mp}	ΔC_{ms}			Δd_s	ΔD_s	max. Axial S_{ca}	D S_{ea}	Radial d K_{ca}	D K_{ea}		Shields	Seals		
AGF 6	6	19	17	12	8,4	within									3,0	5,0	16,6	22	
AGF 8	8	22	0	23	0	10,7	0,3	appl-	+2					50	4,0	6,0	20,8	34	
AGF 10	10	24	23	17	14,1	to cable				40	40	25	40	to	6,0	9,0	24,0	42	
AGF 12	12	26	-8	23	-120	15,1	0,8	toler-	-10					250	7,0	11,0	26,3	46	
AGF 16	16	30	23	17	19,0	to cable									9,0	14,0	31,8	57	

$F_a \text{ max.} = \frac{C_s}{Y_s}$ where $Y_s = 2,2$; Axial and radial loads may be applied simultaneously.

Designation

Each bearing is designated as in the following example:

AGF 8 A C E 1.3544.9
 Number of Bearing _____
 A = Grease type _____ Stainless steel
 _____ E = Sealed Type
 _____ C = Cadmium plated except bore passivated
 A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

BALL BEARINGS

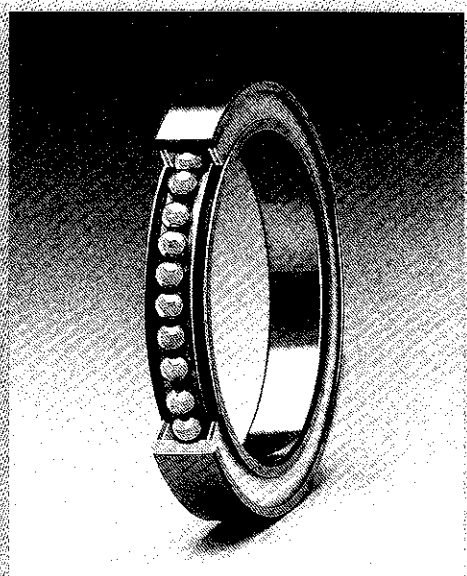
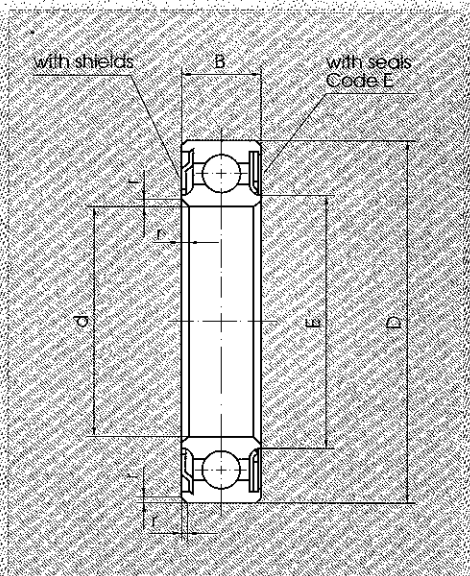
Extra light duty, single row.

Series: FT...
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant

Series: FT...E
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel

Series: FT... 1.3544.9
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant

Series: FT...E 1.3544.9
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel



Dimensions in millimetres

Bearing Number	d		D		B		E	r x 45° Radial play μm		Out of round μm		Runout tolerances μm				Starting torque in mN.m		Permissible static radial load C _s in kN	Mass g
	Δdmp μm	Dmp μm	ΔDmp μm	Dmp μm	ΔBmp μm	Bmp μm		Δds	ΔDs	max. Axial S _a	D S _{ea}	Radial d K _a	D K _{ea}	Shields	Seals				
FT 15 FT 15E	15	0	28	0	6	17,6	3	+3	+2						4	7	14,5	15	
FT 16 FT 16E	16	-8	30	-9	6	18,6	to 11	-11	-11						5	8	15,2	17	
FT 20 FT 20E	20	0	35	0	7	22,7		+3							6	9	18,6	25	
FT 25 FT 25E	25	-10	40	0	7	27,7		-13	+3						8	14	22,2	29	
FT 28 FT 28E	28		43	-11	7	31,5			-14						11	16	24,2	32	
FT 32 FT 32E	32		48		7	35,3									14	20	27,0	39	
FT 35 FT 35E	35	0	51		7	39,0	0,3	5							18	23	29,0	42	
FT 40 FT 40E	40	-12	57	0	8	43,0	to	to	+3	+4	40	40	25	40	22	29	33,2	56	
FT 45 FT 45E	45		62	-13	8	48,3	0,8	13	-15	-17					26	35	36,7	60	
FT 50 FT 50E	50		68		8	53,3									32	45	40,2	67	
FT 55 FT 55E	55	0	73		8	58,4									39	60	43,6	76	
FT 63 FT 63E	63	-15	82	0	9	67,6			+4						55	75	61,7	110	
FT 80 FT 80E	80		100	-15	9	87,0			-19	+5					75	120	75,7	132	
FT 90 FT 90E	90	0-20	115		9	96,9			+5-25	-20					110	160	86,5	223	

$Fa_{max} = \frac{C_s}{Y_s}$ where $Y_s = 2,2$; Axial and radial loads may be applied simultaneously.

Designation

Each bearing is designated as in the following example:

Number of Bearing FT 40 A E 1.3544.9
 A = Grease type Stainless steel
 E = Sealed Type

A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

Special flanged type, extra light duty, single row.

Series: **FTRCE...EC**
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated,
 yellow passivated

Series: **FTRCE...EC 1.3544.9**
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: EN 2136 (1.4044.6)
 Cadmium plated,
 bright passivated

Series: **FTRCE...C**
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated,
 yellow passivated

Series: **FTRCE...C 1.3544.9**
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant
Flange: EN 2136 (1.4044.6)
 Cadmium plated,
 bright passivated

Series: **FTRCEC...EC**
Material: EN 2031 (1.3505.9)
 Cadmium plated,
 yellow passivated
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated,
 yellow passivated

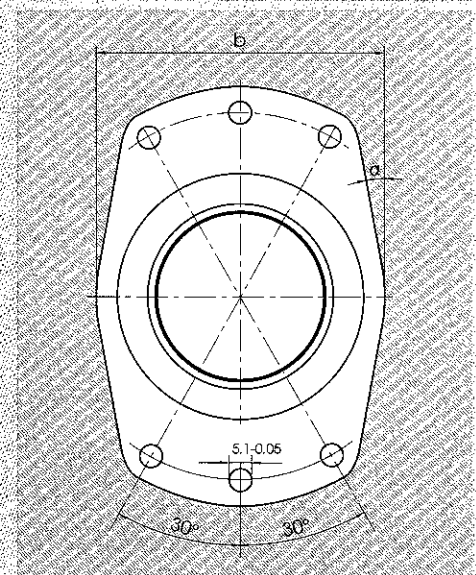
Series: **FTRCEC...C**
Material: EN 2031 (1.3505.9)
 Cadmium plated,
 yellow passivated
Shields: Corrosion resistant
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated,
 yellow passivated

Series: **FTRCEI...C**
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant
Inner ring: Cadmium plated except
 bore; yellow passivated
Flange: EN 2213 (1.7734.5)
 Cadmium plated,
 yellow passivated

Series: **FTRCEI...C 1.3544.9**
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant
Inner ring: Cadmium plated except
 bore; bright passivated
Flange: EN 2136 (1.4044.6)
 Cadmium plated,
 bright passivated

Series: **FTRCEI...EC**
Material: EN 2031 (1.3505.9)
Seals: PTFE
Inner ring: Cadmium plated except
 bore; yellow passivated
Flange: EN 2213 (1.7734.5)
 Cadmium plated,
 yellow passivated

Series: **FTRCEI...EC 1.3544.9**
Material: EN 2030 (1.3544.9)
Seals: PTFE
Inner ring: Cadmium plated except
 bore; bright passivated
Flange: EN 2136 (1.4044.6)
 Cadmium plated,
 bright passivated



Bearing Number				b	b Δ bmp µm	α
FTRCE 16 C	FTRCE 16 EC	-	-	35		-
FTRCE 20 C	FTRCE 20 EC	-	-	41		7°
FTRCE 25 C	FTRCE 25 EC	-	-	46		7°
FTRCE 32 C	FTRCE 32 EC	FTRCEI 32 C	FTRCEI 32 EC	54		12°
FTRCE 35 C	FTRCE 35 EC	FTRCEI 35 C	FTRCEI 35 EC	58	± 250	15°
FTRCE 40 C	FTRCE 40 EC	FTRCEI 40 C	FTRCEI 40 EC	64		15°
FTRCE 45 C	FTRCE 45 EC	FTRCEI 45 C	FTRCEI 45 EC	68		15°
FTRCE 50 C	FTRCE 50 EC	FTRCEI 50 C	FTRCEI 50 EC	74		15°
FTRCE 63 C	FTRCE 63 EC	FTRCEI 63 C	FTRCEI 63 EC	90		22°

BALL BEARINGS

Flanged type, extra light duty, single row.

Series: **FTRCE...E**
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

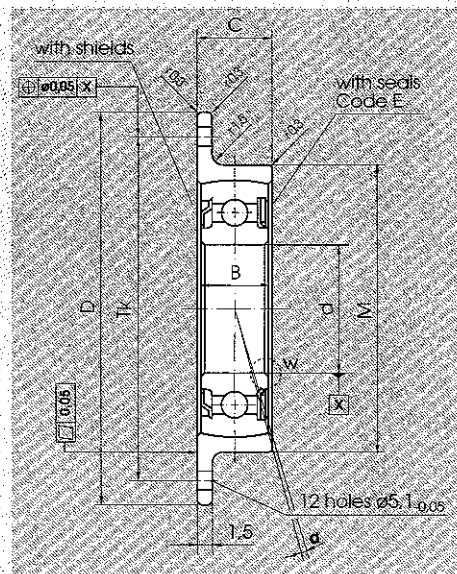
Series: **FTRCEC...**
Material: EN 2031 (1.3505.9)
 Cadmium plated
 yellow passivated
 Corrosion resistant
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: **FTRCE...**
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: **FTRCE...E 1.3544.9**
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: EN 2136 (1.4044.6)
 Cadmium plated
 bright passivated

Series: **FTRCEC...E**
Material: EN 2031 (1.3505.9)
 Cadmium plated
 yellow passivated
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: **FTRCE...1.3544.9**
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant
Flange: EN 2136 (1.4044.6)
 Cadmium plated
 bright passivated



Bearing Number	d	B		C	D	TK	M	r x 45°	α	Out of round in μm	Internal clearance μm	
		Δdmp μm	ΔBmp μm								ΔCmp μm	ΔDmp μm
16	16	0-8	6	8	58	47	33		4°	+3-11		3 to 11
20	20	0			63	52	38		3°30'	+3		
25	25	-10		9	68	57	43		3°	-13		
32	32				77	66	52		2°30'			
35	35		0		80	69	55	±50	to	2°30'	120	5 to 13
40	40	0	-120		86	75	61		0,8	2°	+3	
45	45	-12		10	91	80	66			2°	-15	
50	50				97	86	72			1°40'		
63	63	0-15		11	111	100	86			1°30'	+4-19	

All dimensions to be met after plating
 Suffix C = Variant of flange, see page 17

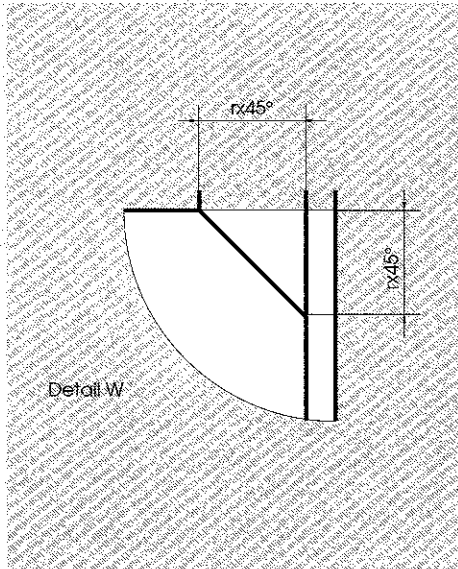
Designation

Each bearing is designated as in the following example:

FTRCE C 40 A E C 1.3544.9

Number of Standard _____
 C = Bearing Cadmium plated _____
 40 = Dash No. _____
 A = Grease type _____
 A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

Stainless steel
 C = Variant of flange
 E = Sealed type



Dimensions in millimetres

Runout tolerances		µm max.		Starting torque		Swivelling torques Nm	Permissible static radial load C _r in kN	Mass g	Bearing Number
Axial d S _{ra}	D S _{ea}	Radial d K _{ra}	D K _{ea}	Shields	Seals				
40	40	25	40	8	12	0,8	15,2	47	16
				9	14	to	18,7	62	20
				12	21	3,0	20,6	70	25
				21	30	1,0 to 4,5	24,5	94	32
				27	35		25,5	100	35
				33	44	1,3 to 4,5	29,5	125	40
				39	53		32,4	137	45
				48	68	1,5 to 5,0	35,3	155	50
				83	113	2,0 to 6,0	39,2	210	63

BALL BEARINGS

Flanged type, extra light duty, single row.

Series: EN 3059 P
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

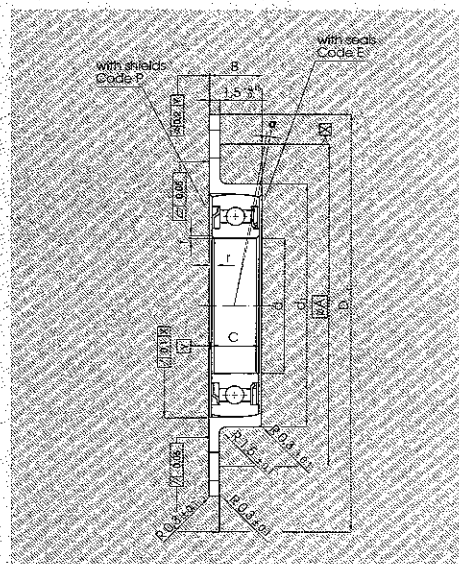
Series: EN 3059 E
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: EN 3060 P
Material: EN 2031 (1.3505.9)
Shields: Cadmium plated
 yellow passivated
Flange: Corrosion resistant
 Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: EN 3060 E
Material: EN 2031 (1.3505.9)
Seals: Cadmium plated
 yellow passivated
Flange: PTFE
Seal Retainers: Stainless Steel
 Heat treatable steel
 900 - 1100 MPa
 Cadmium plated
 yellow passivated

Series: EN 3061P
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant
Flange: EN 2539 (1.4548.3)

Series: EN 3061E
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Flange: EN 2539 (1.4548.3)



Bearing Number	d	Internal clearances μm		A	B	C	D	d_1	E	r	α	β	Internal clearances μm	
		Δd_{imp} μm	Δd_s μm										Axial max. G_a	Radial G_r
16	16	0 - 8	+3 - 11	47	8	6	58	33	35					3 to 11
20	20	0	+3	52			63	38	41		4°	0°		
25	25	-10	-13	57	9	7	68	43	46		3°30'	7°		
32	32			66			77	52	54	0,3	3°	7°		
35	35			69			80	55	58	to	2°30'	12°		
40	40	0	+3	75			86	61	64	0,8	2°20'		120	5 to 13
45	45	-12	-15	80	10	8	91	66	68		2°	15°		
50	50			86			97	72	74		1°40'			
63	63	0 - 15	+4 - 19	100	11	9	111	86	90		1°30'	22°		

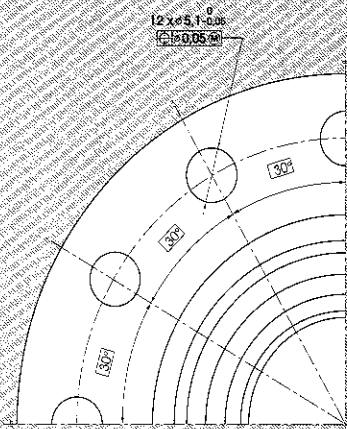
Procurement Specification EN 3727

Designation

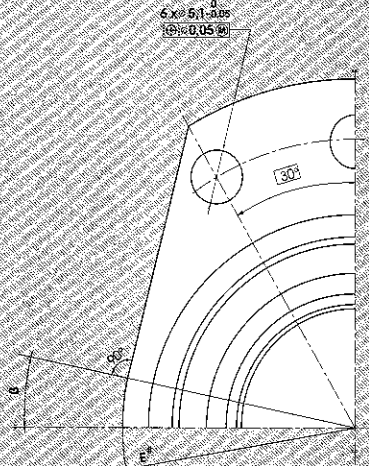
Each bearing is designated as in the following example:

Number of Standard _____ **EN 3061 - A 16 P C T** _____
 A = Grease type _____
 16 = Dash No. _____
 A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

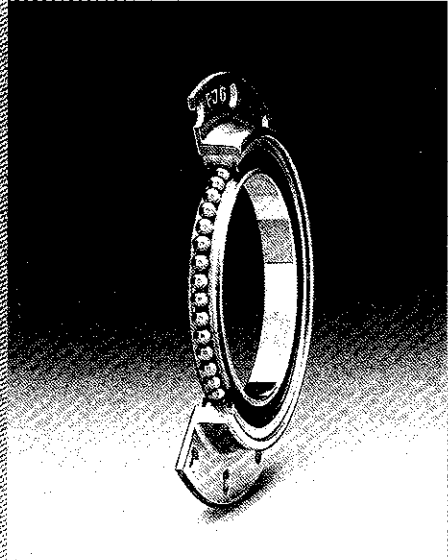
T = Passivated ISO 8075
 C = Variant of flange
 P = Shields type



Solid flanged code C



Lightweight flanged code D



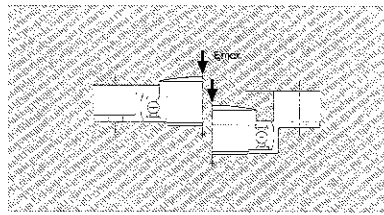
Dimensions in millimetres

Runout tolerances μm max.				Tilting torque N.m	Starting torque max. mN.m		Mass g	Bearing Number	
Axial d S_{a}	D $S_{e a}$	Radial d $K_{i a}$	D $K_{e a}$		Code P	Code E		Code C	Code D
40	40	25	40	0,8	8	12	47	38	16
				to	9	14	62	50	20
				3,0	12	21	70	58	25
				1,0 to 4,0	21	30	94	78	32
					27	35	100	86	35
				1,3 to 4,6	33	44	125	104	40
					39	53	137	114	45
				1,5 to 5,0	48	68	155	129	50
2,0 to 6,0	83	113	210	178	63				

Permissible static load $F_{0\text{max}}$ in kN.

Axial and radial loads may be applied simultaneously

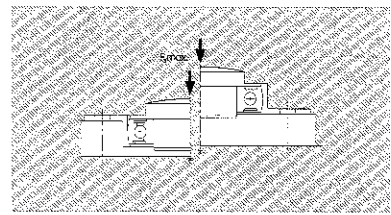
for a max. displacement of:



Permissible static load $F_{0\text{max}}$ in kN.

Axial and radial loads may be applied simultaneously

for a max. displacement of:



Bearing Number	Loads for bearings with code C			Loads for bearings with code D		
	0,1mm	0,15 mm	0,2 mm	0,1mm	0,15 mm	0,2 mm
16	1,32	1,78	2,16	1,15	1,45	1,7
20	1,32	1,78	2,16	1,15	1,45	1,7
25	1,32	1,78	2,16	0,92	1,29	1,56
32	1,32	1,78	2,16	0,84	1,1	1,3
35	1,32	1,78	2,16	0,84	1,1	1,3
40	1,3	1,75	2,13	0,84	1,1	1,3
45	1,27	1,72	2,08	0,84	1,1	1,3
50	1,2	1,67	2	0,84	1,1	1,3
63	0,92	1,11	1,29	0,99	1,17	1,3

Bearing Number	Loads for bearings with code C			Loads for bearings with code D			Radial C_s
	0,1mm	0,15 mm	0,2 mm	0,1mm	0,15 mm	0,2 mm	
16	1,8	2,5	3,2	1,32	1,71	2,06	15,2
20	1,8	2,5	3,2	1,32	1,71	2,06	18,7
25	1,8	2,5	3,2	1,22	1,58	1,91	20,6
32	1,8	2,5	3,2	1,06	1,37	1,57	24,5
35	1,8	2,5	3,2	1,06	1,37	1,57	25,5
40	1,78	2,48	3,18	1,06	1,37	1,57	29,5
45	1,75	2,44	3,13	1,06	1,37	1,57	32,4
50	1,68	2,37	3,03	1,06	1,37	1,57	35,3
63	1,16	1,46	1,78	1,18	1,37	1,57	39,2

BALL BEARINGS

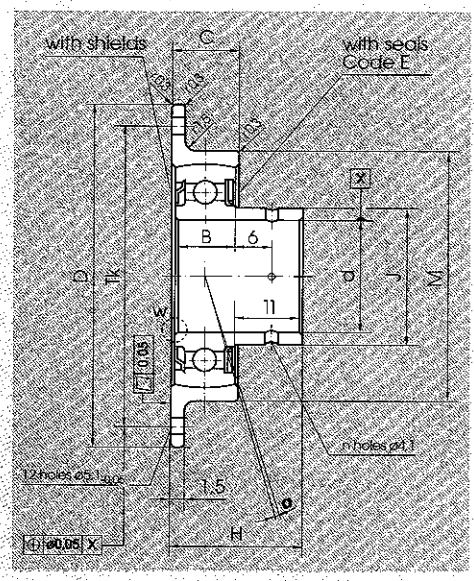
Flanged type, extra light duty,
single row, especially wide inner race.

Series: FTRCEI...
Material: EN 2031 (1.3505.9)
Shields: Corrosion resistant
Inner ring: Cadmium plated except bore yellow passivated
Flange: EN 2213 (1.7734.5) Cadmium plated yellow passivated

Series: FTRCEI...1.3544.9
Material: EN 2030 (1.3544.9)
Shields: Corrosion resistant
Inner ring: Cadmium plated except bore bright passivated
Flange: EN 2136 (1.4044.6) Cadmium plated bright passivated

Series: FTRCEI...E
Material: EN 2031 (1.3505.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Inner ring: Cadmium plated except bore yellow passivated
Flange: EN 2213 (1.7734.5) Cadmium plated yellow passivated

Series: FTRCEI...E 1.3544.9
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless Steel
Inner ring: Cadmium plated except bore bright passivated
Flange: EN 2136 (1.4044.6) Cadmium plated bright passivated

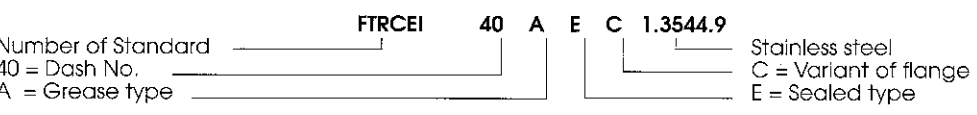


Bearing Number	d	D	H	C	B	J	TK	M	α
FTRCEI 32 FTRCEI 32 E	32	77				35	66	52	2°30'
FTRCEI 35 FTRCEI 35 E	35	80	19	9	7	38	69	55	2°20'
FTRCEI 40 FTRCEI 40 E	40	+3 86	±200	±150	10	±150	0 43	0 75	2°
FTRCEI 45 FTRCEI 45 E	45	-11 91			8	-100	48	-100	±50 80
FTRCEI 50 FTRCEI 50 E	50								1°40'
FTRCEI 63 FTRCEI 63 E	63	+3-12 111			9		67		1°30'

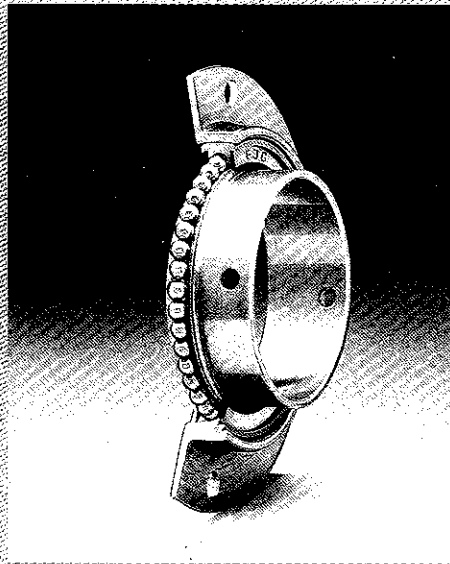
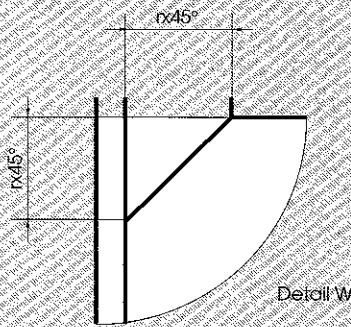
All dimensions to be met after plating
 Suffix C = Variant of flange, see page 17

Designation

Each bearing is designated as in the following example:

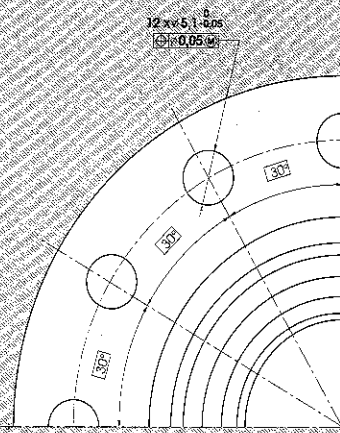


A = Grease NATO G 354/MIL-G-23 827; B = NATO G 395/MIL-G-81 322

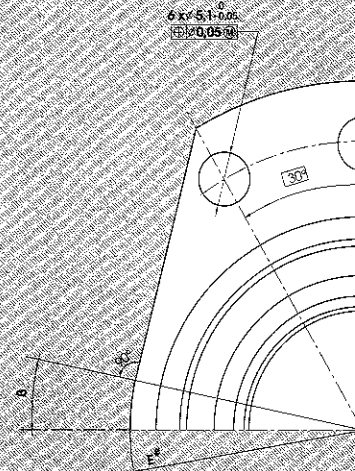


Dimensions in millimetres

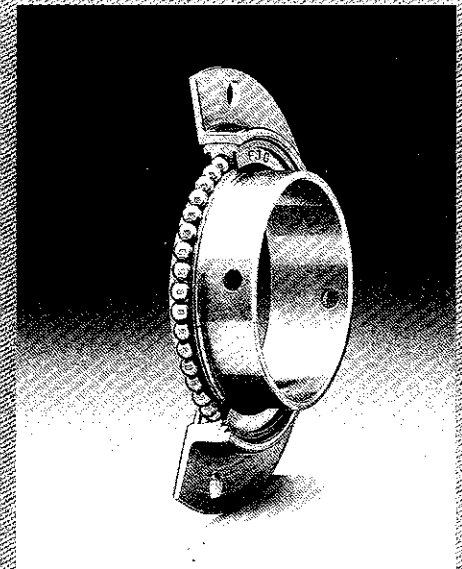
r x 45°	r x 45°	Out of round in μm Δd_s	Internal clearance μm		Runout tolerances μm max.				Starting torque in mN.m		Swivelling torques Nm	Permissible static radial load C_s in kN	Mass g	Bearing Number	
			Axial max.	Radial	Axial d S_a	D S_{ea}	Radial d K_a	D K_{ea}	Shields	Seals					
0,3 to 0,8	4	+3	120	5 to 13	40	40	25	40	21	30	1,0 to 4,5	24,5	107	FTRCE32	FTRCE32E
		27							35	125				FTRCE35	FTRCE35E
		33							44	143				FTRCE40	FTRCE40E
	6	+4-19							39	53	1,3 to 4,5	32,4	155	FTRCE45	FTRCE45E
									48	68	1,5 to 5,0	35,3	175	FTRCE50	FTRCE50E
									83	113	2,0 to 6,0	39,2	235	FTRCE63	FTRCE63E



Solid flanged code C



Lightweight flanged code D



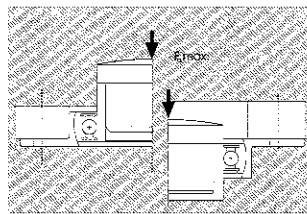
Dimensions in millimetres

Runout tolerances $\mu\text{m max.}$		Tilting torque N.m		Starting torque max. mN.m		Mass g		Bearing Number	
Axial d	D	Radial d	D	Code P	Code E	Code C	Code D		
S_{0a}	S_{0a}	K_{0a}	K_{0a}						
40	40	25	40	1,0 to 4,0	21	30	107	91	32
					27	35	125	97	35
				1,3 to 4,5	33	44	143	121	40
					39	53	155	136	45
				1,5 to 5,0	48	68	175	152	50
		2,0 to 6,0	83	113	235	205	63		

Permissible static load $F_{0\text{max}}$ in kN.

Axial and radial loads may be applied simultaneously

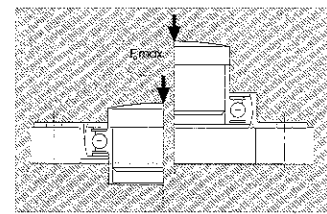
for a max. displacement of:



Permissible static load $F_{0\text{max}}$ in kN.

Axial and radial loads may be applied simultaneously

for a max. displacement of:



Bearing Number	Loads for bearings with code C			Loads for bearings with code D		
	0,1mm	0,15 mm	0,2 mm	0,1mm	0,15 mm	0,2 mm
32	1,32	1,78	2,16	0,84	1,1	1,3
35	1,32	1,78	2,16	0,84	1,1	1,3
40	1,3	1,75	2,13	0,84	1,1	1,3
45	1,27	1,72	2,08	0,84	1,1	1,3
50	1,2	1,67	2	0,84	1,1	1,3
63	0,92	1,11	1,29	0,99	1,17	1,3

Bearing Number	Loads for bearings with code C			Loads for bearings with code D			Radial C_s
	0,1mm	0,15 mm	0,2 mm	0,1mm	0,15 mm	0,2 mm	
32	1,8	2,5	3,2	1,06	1,37	1,57	24,5
35	1,8	2,5	3,2	1,06	1,37	1,57	25,5
40	1,78	2,48	3,18	1,06	1,37	1,57	29,5
45	1,75	2,44	3,13	1,06	1,37	1,57	32,4
50	1,68	2,37	3,03	1,06	1,37	1,57	35,3
63	1,16	1,46	1,78	1,18	1,37	1,57	39,2

BALL BEARINGS



Heavy duty, single row,
dimensions according to specification MS 27 640.

Series: K...	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Shields: Stainless steel			
Series: KP...	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Seals: PTFE	Seal Retainers: Stainless steel		
Series: K...1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel	Series: NSA 8111...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel
			Lubricant: NATO G 354/MIL-G-23 827	Series: ABS 0131...(60-3502...P)	Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated
				Shields: Stainless steel	Lubricant: NATO G 395/MIL-G-81 322
Series: KP...1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Seals: PTFE	Seal Retainers: Stainless steel	Lubricant: NATO G 354/MIL-G-23 827	
				Series: NSA 8101...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
				Seals: PTFE	Seal Retainers: Stainless steel
				Lubricant: NATO G 354/MIL-G-23 827	Series: ABS 0342...(60-3502...E)
					Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated
					Seals: PTFE
					Seal Retainers: Stainless steel
					Lubricant: NATO G 395/MIL-G-81 322

Bearing Number	d	D		B	C		E	r x 45°	r ₁ x 45°	Out of round μm		Runout tolerances μm			
		Δdmp	ΔDmp		ΔBmp	ΔCmp				Δds	ΔDs	max. Axial	Radial	D	D
		μm	μm		μm	μm						S _a	S _{ea}	K _a	K _{ea}
K/KP 3L	4,826		15,875	6,223	5,156	7,112	0,12	0,25 to 0,63							
K/KP 3	4,826		19,745	7,543	6,858	8,407	to	0,56 to 0,94							
K/KP 4	6,350	0	22,895	0	12,293	0	8,509	0	9,906	0,50	0,81	+5	+13		
K/KP 5	7,937	-13	31,750	-13	14,173	9,525	11,912	0,38	to			-18	-25	25	40
K/KP 6	9,525		36,512	15,748	-127	11,912	-127	15,011	to	1,19					
K/KP 8	12,700		42,862	15,748	12,700	12,700	19,507	0,76	1,12 to 1,50						
K/KP 10	15,875		49,212	15,748	12,700	21,590									

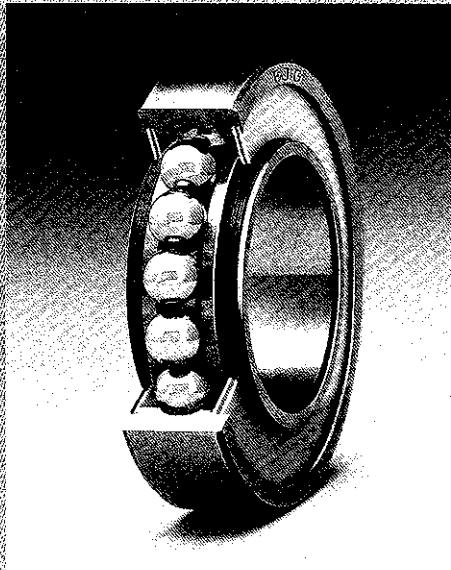
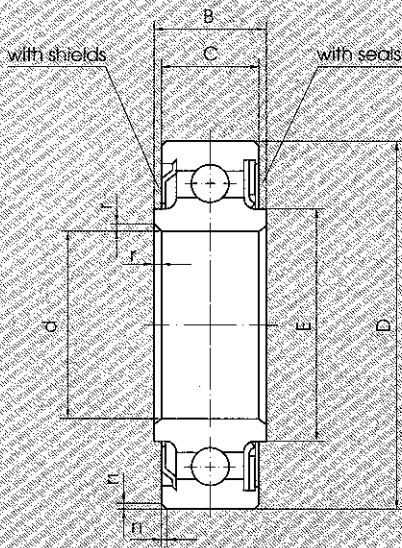
All Dimensions to be met after plating
Procurement specification MIL-B-7949 and DAN 446
1) Definition: see DAN 446

Lubricant: Grease NATO G 395/MIL-G-81 322
Grease NATO G 354/MIL-G-23 827, Suffix G

This series can also be supplied in precision execution suffix „M” for instance „MKP-” ...

Case I : Load fixed with respect to outer race
Case II : Load fixed with respect to inner race

$$\text{Equivalent Thrust Load} = \left[\frac{\text{Thrust Limit Load Rating}}{\text{Radial Limit Load Rating}} \times \text{Radial Load} \right] + \text{Thrust Load} + \text{Moment Constant} \times \text{Moment in Ncm}$$

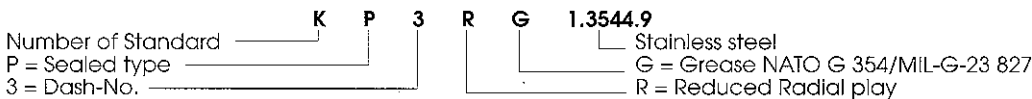


Dimensions in millimetres

Radial play in μm	Reduced Radial Play Suffix R in μm	NSA = Axial play μm max.	Starting torque ¹ in mN.m		Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles		Limit Moment Rating Ncm	Moment Constant $\frac{1}{\text{cm}}$	Mass g	Bearing Number
			Shields	Seats			Case I in kN	Case II in kN				
		127	4,7	7,0	6,94	3,11	6,76	5,60	655	4,76	5	K/KP 3L
		127	5,3	8,0	8,36	4,00	7,56	6,45	1000	4,00	14	K/KP 3
10	5	152	6,3	9,5	11,92	5,34	10,72	9,03	1540	3,44	18	K/KP 4
to	to	152	7,3	11,0	25,00	11,12	21,80	17,66	4180	2,68	41	K/KP 5
25	13	152	8,6	13,0	35,18	15,57	29,09	24,06	7280	2,14	68	K/KP 6
		178	11,0	16,0	52,49	23,13	41,46	34,25	13200	1,76	95	K/KP 8
		178	13,3	20,0	62,72	27,58	48,93	40,30	17200	1,60	127	K/KP 10

Designation

Each bearing is designated as in the following example:



NSA 8101 - 03
NSA 8111 - 03

Number of Standard _____ 03 = Dash-No.3

ABS 0131 - 03 N

Number of Standard _____ N = Radial Play 10 to 25
 R = Reduced Radial play
 03 = Dash-No.3

ABS 0342 N 03

Number of Standard _____ 03 = Dash-No.3
 N = Radial Play 10 to 25
 R = Reduced Radial Play

BALL BEARINGS

Deep groove, single row,
dimensions according to specification MS 27 641.

Series: K...A	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Shields: Stainless steel
Series: KP...A	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Seals: PTFE Seal Retainers: Stainless steel
Series: K...A1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel
Series: KP...A1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Seals: PTFE Seal Retainers: Stainless steel
Series: NSA 8112...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel Lubricant: NATO G 354/MIL-G-23 827
Series: NSA 8102...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Seals: PTFE Seal Retainers: Stainless steel Lubricant: NATO G 354/MIL-G-23 827
Series: ABS 0132...(60-3503...P)	Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated	Shields: Stainless steel Lubricant: NATO G 395/MIL-G-81 322
Series: ABS 0343...(60-3503...E)	Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated	Seals: PTFE Seal Retainers: Stainless steel Lubricant: NATO G 395/MIL-G-81 322

Bearing Number	d		D		B		C		E		r x 45°	r ₁ x 45°	Out of round μm		Runout tolerances μm				
	Δdmp	μm	ΔDmp	μm	ΔBmp	μm	ΔCmp	μm	Δds	ΔDs			Δds	ΔDs	max. Axial	Radial	d	D	d
															S _a	S _{ea}	K _{ra}	K _{ea}	
K/KP 3AL	4,826		12,700		6,020		4,978		6,550	0,12		0,30 to 0,68							
K/KP 3A	4,826		15,875		7,543		5,943		7,544	to									
K/KP 4A	6,350		19,050		7,137		5,562		9,652	0,50		0,41							
K/KP 5A	7,937		20,637		7,543		5,943		10,541			to							
K/KP 6A	9,525	0	22,225	0	7,950	0	6,350	0	12,573			0,79	+5	+13	25	40	25	40	
K/KP 8A	12,700	-13	28,575	-13	9,525	-127	7,950	-127	15,646	0,38			-18	-25					
K/KP 10A	15,875		34,925		10,312		8,737		19,507	to		0,81							
K/KP 12A	19,050		41,275		11,100		9,525		23,343	0,76		to							
K/KP 16A	25,400		50,800		12,700		11,125		31,521			1,19							
K/KP 20A	31,750		57,150		12,700		11,125		37,541										

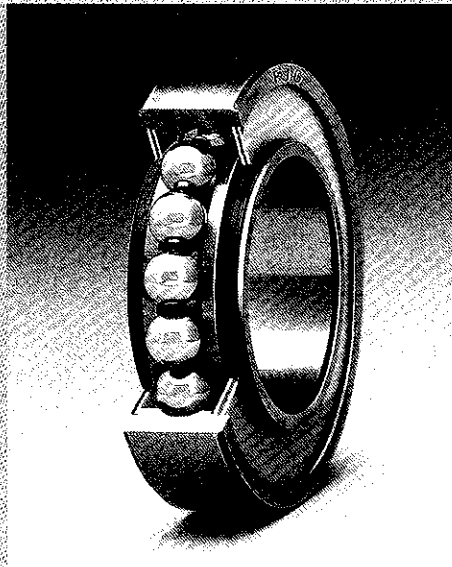
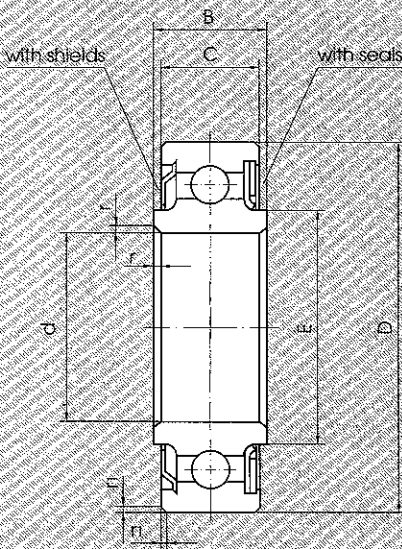
All Dimensions to be met after plating
Procurement specification MIL-B-7949 and DAN 446
1) Definition: see DAN 446

Lubricant: Grease NATO G 395/MIL-G-81 322
Grease NATO G 354/MIL-G-23 827, Suffix G

This series can also be supplied in precision execution suffix „M” for instance „MKP-” ...

Case I : Load fixed with respect to outer race
Case II : Load fixed with respect to inner race

$$\text{Equivalent Thrust Load} = \left[\frac{\text{Thrust Limit Load Rating}}{\text{Radial Limit Load Rating}} \times \text{Radial Load} \right] + \text{Thrust Load} + \text{Moment Constant} \times \text{Moment in Ncm}$$



Dimensions in millimetres

Radial play in μm	Reduced Radial Play Suffix R in μm	NSA = Axial play μm max.	Starting torque ¹ in mN.m		Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles		Limit Moment Rating Ncm	Moment Constant $\frac{1}{\text{cm}}$	Mass g	Bearing Number
			Shields	Seals			Case I in kN	Case II in kN				
		127	4,7	7,0	4,30	1,90	4,30	3,60	329	6,81	5	K/KP 3AL
		127	4,7	7,0	6,94	3,11	6,67	5,56	560	5,54	5	K/KP 3A
		152	5,3	8,0	8,36	4,00	7,52	6,45	1000	4,00	9	K/KP 4A
		152	6,3	9,5	9,74	4,45	8,10	7,12	1290	3,49	9	K/KP 5A
10	5	152	7,0	10,5	11,12	4,89	8,54	7,61	1620	3,02	14	K/KP 6A
to	to	178	7,6	11,5	17,39	7,56	12,77	11,34	3130	2,40	23	K/KP 8A
25	13	178	9,3	14,0	29,80	13,34	22,15	19,39	6760	1,98	36	K/KP 10A
		178	12,0	18,0	39,10	17,35	26,60	23,66	10700	1,62	59	K/KP 12A
		178	18,7	28,0	52,93	23,13	31,45	28,47	18100	1,28	100	K/KP 16A
		178	26,0	39,0	61,38	27,13	32,92	30,29	24500	1,10	118	K/KP 20A

Designation

Each bearing is designated as in the following example:

Number of Standard _____ **K** **P** **3A** **R** **G** **1.3544.9** _____ Stainless steel
 P = Sealed type _____ **G** = Grease NATO G 354/MIL-G-23 827
 3A = Dash-No. _____ **R** = Reduced Radial play

NSA 8102 - 03
NSA 8112 - 03

Number of Standard _____ 03 = Dash-No.3

ABS 0132 - 03 N

Number of Standard _____
 N = Radial Play 10 to 25
 R = Reduced Radial play
 03 = Dash-No.3

ABS 0343 N 03

Number of Standard _____
 03 = Dash-No.3
 N = Radial Play 10 to 25
 R = Reduced Radial Play

BALL BEARINGS

Single row, dimensions according to specification MS 27 642.

Series: K...B	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Shields: Stainless steel			
Series: KP...B	Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Seals: PTFE	Seal Retainers: Stainless steel		
Series: K...B1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel	Series: NSA 8113...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Shields: Stainless steel
			Lubricant: NATO G 354/MIL-G-23 827	Series: ABS 0133...(60-3504...P)	Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated
				Shields: Stainless steel	Lubricant: NATO G 395/MIL-G-81 322
Series: KP...B1.3544.9	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated	Seals: PTFE	Seal Retainers: Stainless steel	Series: NSA 8103...	Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
				Seals: PTFE	Seal Retainers: Stainless steel
			Lubricant: NATO G 354/MIL-G-23 827	Series: ABS 0344...(60-3504...E)	Material: EN 2030 (1.3544.9) Cadmium plated except bore; yellow passivated
				Seals: PTFE	Seal Retainers: Stainless steel
				Lubricant: NATO G 395/MIL-G-81 322	

Bearing Number	d	Suffix S	D	B	C	E	rx 45° S	c	Out of round μm		Runout tolerances μm			
									Δds	ΔDs	max. Axial		Radial	
		Δdmp μm	ΔDmp μm	ΔDmp μm	ΔBmp μm	ΔCmp μm					d _{sa}	D _{seo}	d _{ka}	D _{keo}
K/KP 16 B	25,400	0-13	44,450			28,981	-	-						
K/KP 21 B	33,350		52,387			36,931		43,6	0,08					
K/KP 23 B	36,525		55,562			40,005	0,6	-	-					
K/KP 25 B	39,700	-13	58,737	11,100	9,525	43,002	to	49,4	0,12					
K/KP 29 B	46,050	0 -25	65,087	0	0	49,047	1,0			+8	+25	25	40	25 40
K/KP 33 B	52,400	-25	71,437	-25	-127	56,667				-33	-53			
K/KP 37 B	58,750		77,787			62,687		-	-					
K/KP 47 B	74,625		98,425	13,487	11,912	78,562	1,0							
K/KP 49 B	77,800		101,600			81,838	to 1,4							

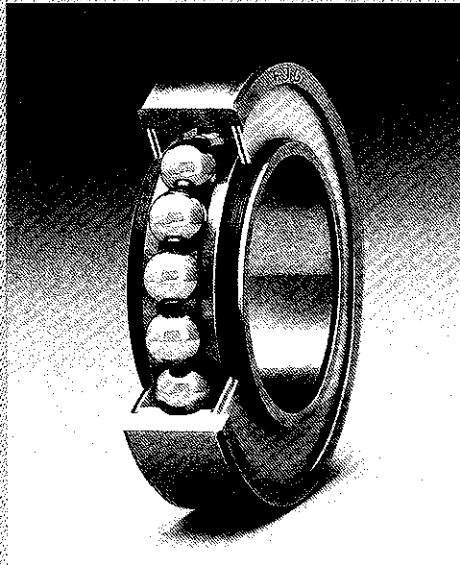
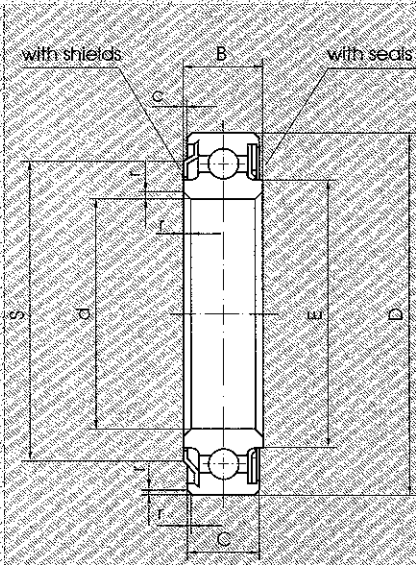
All Dimensions to be met after plating
Procurement specification MIL-B-7949 and DAN 446
1) Definition: see DAN 446

Lubricant: Grease NATO G 395/MIL-G-81 322
Grease NATO G 354/MIL-G-23 827, Suffix G

This series can also be supplied in precision execution suffix „M” for instance „MKP-” ...

Case I : Load fixed with respect to outer race
Case II : Load fixed with respect to inner race

$$\text{Equivalent Thrust Load} = \left[\frac{\text{Thrust Limit Load Rating}}{\text{Radial Limit Load Rating}} \times \text{Radial Load} \right] + \text{Thrust Load} + \text{Moment Constant} \times \text{Moment in Ncm}$$

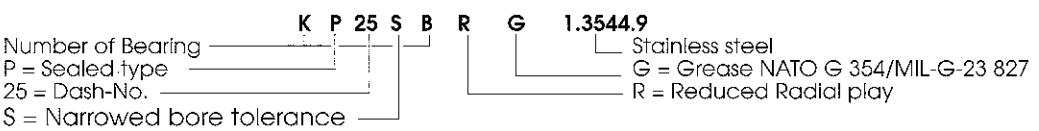


Dimensions in millimetres

Radial play in μm	Reduced Radial Play Suffix R in μm	NSA = Axial play μm max.	Starting torque ¹ in mN.m		Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10,000 Complete 90° Cycles		Limit Moment Rating Ncm	Moment Constant $\frac{1}{\text{cm}}$	Mass g	Bearing Number
			Shields	Seals			Case I in kN	Case II in kN				
8 to 25	3 to 13	178	16,7	25,0	35,96	16,01	18,95	17,61	11070	1,45	64	K/KP 16 B
			21,3	32,0	43,77	19,57	20,42	19,08	16700	1,17	73	K/KP 21 B
			25,3	38,0	46,70	20,91	20,68	19,39	19200	1,08	77	K/KP 23 B
			28,6	43,0	50,26	22,24	20,82	19,66	21800	1,03	86	K/KP 25 B
			39,3	59,0	56,49	24,91	21,17	20,15	27300	0,92	95	K/KP 29 B
			45,3	68,0	64,05	28,47	21,44	20,59	35600	0,80	104	K/KP 33 B
			60,6	91,0	70,28	31,14	21,71	20,86	42700	0,73	118	K/KP 37 B
			64,6	97,0	109,87	48,48	29,36	28,42	77700	0,62	222	K/KP 47 B
	68,0	102,0	122,32	53,83	36,25	34,87	96300	0,56	240	K/KP 49 B		

Designation

Each bearing is designated as in the following example:



NSA 8103 - 25
NSA 8113 - 25

Number of Standard _____ 25 = Dash-No.

ABS 0133 - 25 N

Number of Standard _____
 N = Radial Play 8 to 25
 R = Reduced Radial play
 25 = Dash-No.

ABS 0344 N 25

Number of Standard _____
 25 = Dash-No.
 N = Radial Play 8 to 25
 R = Reduced Radial Play

