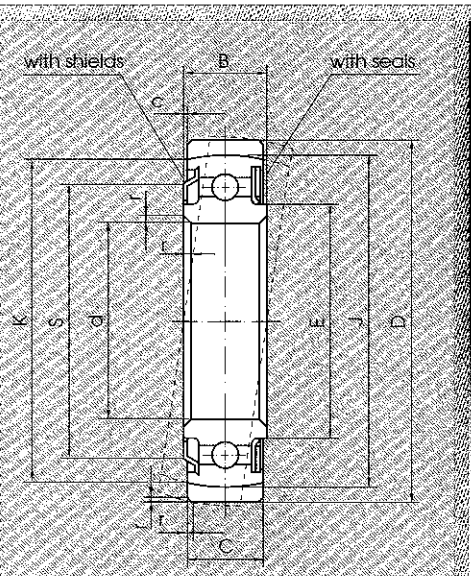
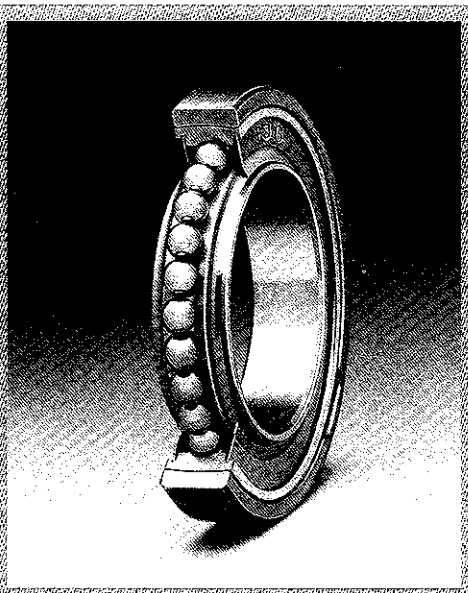




Dimensions in millimetres

Misalignment Either Direction	Runout tolerances µm max. Axial d S_{ia}	D S_{ea}	Radial d K_{ia}	D K_{ea}	Swivelling torques Nm	Radial play in µm	Starting torque 1 in mN.m Shields	Seals	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Mass g	Bearing Number
7° 25´							16,7	25,0	35,96	7,12	18,95	17,61	82	K/KP 16 BS
6° 30´					0,5		21,3	32,0	43,77	8,90	20,42	19,08	91	K/KP 21 BS
6°					to		25,3	38,0	46,70	9,79	20,68	19,39	100	K/KP 25 BS
5° 45´					1,5		28,6	43,0	50,26	10,23	20,82	19,66	113	K/KP 25 BS
5°	25	40	25	40		8	39,3	59,0	56,49	11,56	21,17	20,15	123	K/KP 29 BS
5°						to	45,3	68,0	64,05	12,90	21,44	20,59	136	K/KP 33 BS
4° 30´					1,0	25	60,6	91,0	70,28	14,23	21,71	20,86	150	K/KP 37 BS
4° 30´					to		64,6	97,0	109,87	22,24	29,62	28,42	290	K/KP 47 BS
4°					2,5		68,0	102,0	122,32	24,46	36,25	34,87	313	K/KP 48 BS
4°							68,0	102,0	122,32	24,46	36,25	34,87	313	K/KP 49 BS

Designation

Each bearing is designated as in the following example:

K P 25 BS G 1.3544.9

- Number of Standard
- P = Sealed type
- 25 = Dash-No.
- G = Grease NATO G 354/MIL-G-23 827
- 1.3544.9 = Stainless steel

NSA 8106 - 25
NSA 8116 - 25

Number of Standard — 25 = Dash-No.

ABS 0136 - 25 N

Number of Standard — N = Radial Play 8 to 25 Axial Play 180 max. — 25 = Dash-No.

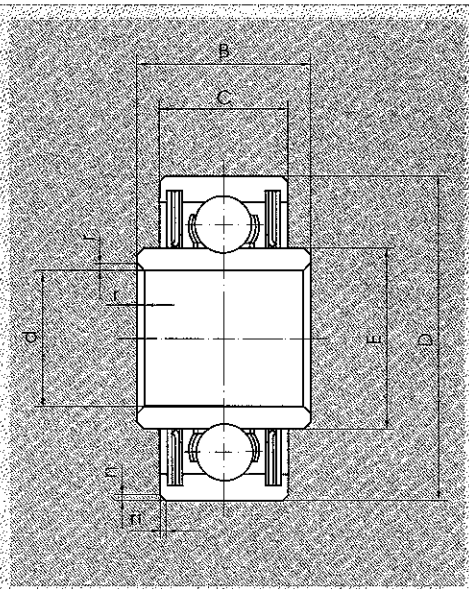
ABS 0347 N 25

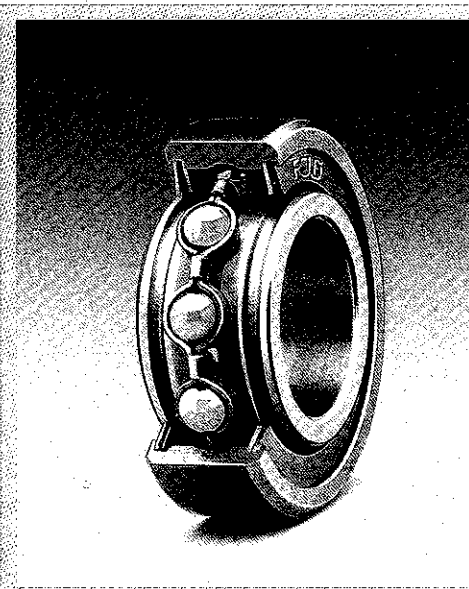
Number of Standard — 25 = Dash-No. — N = Radial Play 8 to 25 Axial Play 180 max.

BALL BEARINGS

Intermediate duty, single row, dimensions according to specification MS 27 649.

Series: **AW...AK**
Material: EN 2030 (1.3544.9)
Seals: PTFE
Seal Retainers: Stainless steel





Bearing Number	d		D		B		C		E	r x 45° ± 2°	r_1 x 45° ± 2°	Out of round µm		Runout tolerances µm max. Axial		Radial	
		Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm				Δds	ΔDs	d S_{ia}	D S_{ea}	d K_{ia}	D K_{ea}
AW 3 AK	4,826		15,875		10,312		7,925		8,052	0,13							
AW 4 AK	6,350		19,050		11,125		7,925		10,541	to 0,51	0,41						
AW 5 AK	7,937		20,637		11,913		8,738		11,735		to						
AW 6 AK	9,525	0	22,225	0	11,913	0	8,738	0	13,208		0,79						
AW 8 AK	12,700		28,575		14,275		11,125		17,297	0,38		+5 -18	+13 -25	25	40	25	40
AW 10 AK	15,875	-13	34,925	-13	15,088	-64	11,913	-127	21,539	to	0,81						
AW 12 AK	19,050		41,275		16,662		13,487		26,721	0,76	to						
AW 16 AK	25,400		50,088		17,475		14,275		33,884		1,19						
AW 20 AK	31,750		57,150		17,475		14,275		41,021								

Procurement specification MIL-B-7949

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

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

Dimensions in millimetres

Radial play in µm	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Mass g	Bearing Number
	2,00	0,93	1,96	1,96	8	AW 3 AK
	2,34	1,11	2,27	2,27	13	AW 4 AK
	3,65	1,69	3,56	3,56	15	AW 5 AK
7	3,65	1,69	3,56	3,56	15	AW 6 AK
to	6,00	2,80	5,83	5,83	34	AW 8 AK
23	8,18	3,83	7,96	7,96	54	AW 10 AK
	10,68	4,98	10,41	10,41	86	AW 12 AK
	13,34	6,23	12,99	12,99	134	AW 16 AK
	16,01	7,47	15,57	14,54	161	AW 20 AK

Designation

Each bearing is designated as in the following example:

AW 6 AK G

Number of Standard
6 = Dash-No.

G = Grease NATO G 354/MIL-G-23 827

BALL BEARINGS

Self-aligning, double row, dimensions according to specification MS 27 643.

Series: **DS...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Shields: Stainless steel

Series: **DSP...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **DS...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel

Series: **NSA 8114...**
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 0134...(60-3505...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: **DSP...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **NSA 8104...**
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 0345...(60-3505...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 max.			
		Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm				Δds	ΔDs	Axial d S_{ia}	D S_{ea}	Radial d K_{ia}	D K_{ea}
DS/DSP 3	4,826		19,745		12,700		9,956		7,721	0,12 to	0,56 to 0,94						
DS/DSP 4	6,350		22,895		17,449		11,785		10,922	0,50	0,81						
DS/DSP 5	7,937	0	31,750	0	20,624	0	16,662	0	13,081		to	+5	+13	25	40	25	40
DS/DSP 6	9,525	-13	36,512	-13	23,799	-127	19,050	-127	14,326	0,38	1,19	-18	-25				
DS/DSP 8	12,700		42,862		25,400		20,624		19,685	to	1,12 to						
DS/DSP 10	15,875		49,212		28,575		23,799		22,072	0,76	1,50						

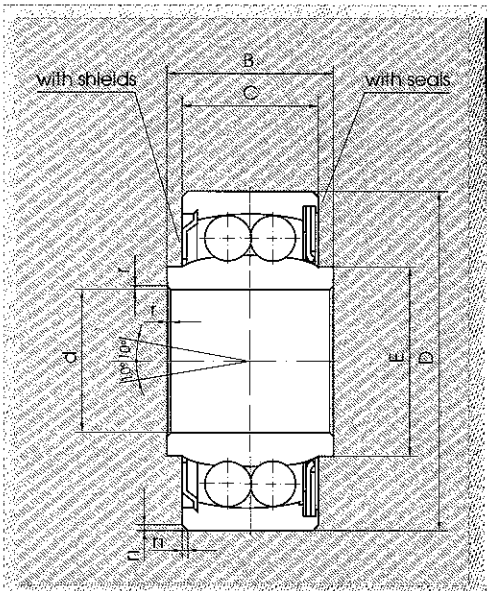
All Dimensions to be met after plating
Procurement specification MIL-B-7949 and DAN 446
1) Definition: see DAN 446

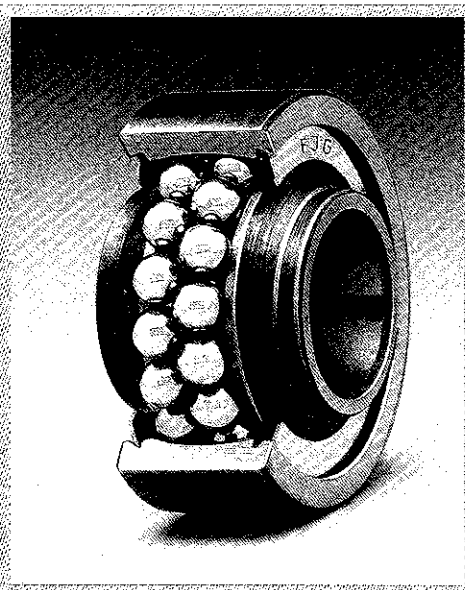
Lubricant: Grease NATO G 395/MIL-G-81 322
Grease NATO G 354/MIL-G-23 827, Suffix G

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

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

Equivalent Thrust Load = Thrust + 0,125 Radial load





Dimensions in millimetres

Radial play in µm	Reduced Radial Play Suffix R in µm	Axial play µm max.	NSA = Axial play µm max.	Starting torque [1] in mN.m Shields	Seals	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Mass g	Bearing Number
0 to 25	5 to 13	140	127	6,0	9,0	6,32	0,89	6,32	5,43	18	DS/DSP 3*
		140	152	6,7	10,0	7,92	1,33	7,92	7,12	27	DS/DSP 4
		152	152	8,7	13,0	16,64	2,67	16,64	14,68	73	DS/DSP 5
		152	152	10,7	16,0	22,69	3,56	22,15	19,44	109	DS/DSP 6
		152	178	15,3	23,0	31,67	4,45	28,20	24,78	163	DS/DSP 8
		178	178	20,0	30,0	40,03	5,78	34,61	30,51	240	DS/DSP 10

Designation

Each bearing is designated as in the following example:

DS P 3 R G 1.3544.9

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

NSA 8104 - 03
NSA 8114 - 03

Number of Standard — 03 = Dash-No.3

ABS 0134 - 03 N

Number of Standard

- N = Radial Play 0 to 25
- R = Reduced Radial Play
- 03 = Dash-No. 3

ABS 0345 N 03

Number of Standard

- 03 = Dash-No. 3
- N = Radial Play 0 to 25
- R = Reduced Radial Play

Double row, dimensions according to specification MS 27 644.

Series: **DP...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Shields: Stainless steel

Series: **DPP...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **DP...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel

Series: **NSA 8115...**
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 0135...(60-3550...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: **DPP...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **NSA 8105...**
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 0346...(60-3550...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 max. Axial		Radial	
		Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm				Δds	ΔDs	d S_{ia}	D S_{ea}	d K_{ia}	D K_{ea}
DP/DPP 3	4,826		19,745		12,573		12,014		7,670	0,12 to	0,45 to 0,83						
DP/DPP 4	6,350		22,895		15,748		12,471		10,414	0,50	0,81						
DP/DPP 5	7,937	0	31,750	0	18,923	0	17,449	0	11,912		to	+5	+13	25	40	25	40
DP/DPP 6	9,525	-13	36,512	-13	22,098	-127	20,167	-127	13,995	0,38	1,19	-18	-25				
DP/DPP 8	12,700		42,862		23,672		21,742		18,669	to	1,12 to						
DP/DPP 10	15,875		49,212		25,273		23,368		22,606	0,76	1,50						

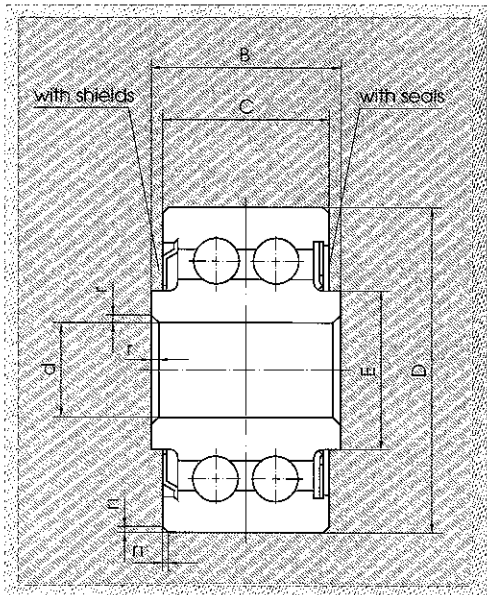
All Dimensions to be met after plating
Procurement specification MIL-B-7949 and DAN 446
1) Definition: see DAN 446

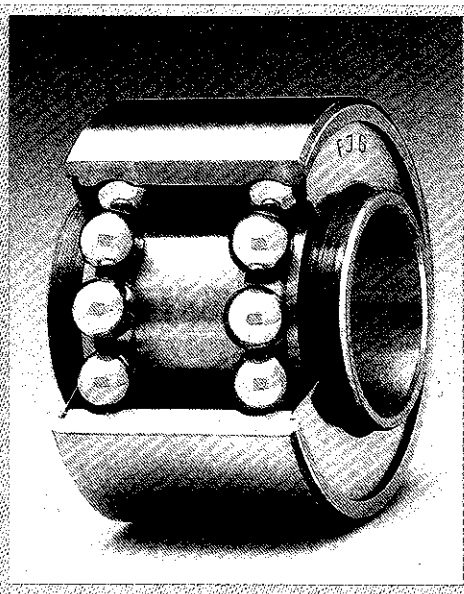
Lubricant: Grease NATO G 395/MIL-G-81 322
Grease NATO G 354/MIL-G-23 827, Suffix G

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

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	Axial play µm max.	NSA = Axial play µm max.	Starting torque [1] in mN.m Shields	Seals	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Limit Moment Rating Ncm	Moment Constant $\frac{1}{cm}$	Mass g	Bearing Number
	127	127	3,3	5,0	13,12	7,56	13,12	12,59	435	17,24	18	DP/DPP 3
	127	152	4,3	6,5	23,89	8,01	15,79	13,43	1025	7,80	27	DP/DPP 4
10	152	152	6,4	9,6	48,93	17,79	32,74	27,80	625	27,70	77	DP/DPP 5
to	152	152	8,8	13,2	70,10	23,57	43,10	36,12	3140	7,52	118	DP/DPP 6
25	178	178	11,2	16,8	104,97	34,69	62,72	51,60	6665	5,18	172	DP/DPP 8
	178	178	13,6	20,4	126,32	41,81	68,05	58,27	18075	2,30	240	DP/DPP 10

Designation

Each bearing is designated as in the following example:

DP P 3 G 1.3544.9

- Number of Standard
- P = Sealed type
- 3 = Dash-No.
- G = Grease NATO G 354/MIL-G-23 827
- 1.3544.9 = Stainless steel

NSA 8105 - 03
NSA 8115 - 03

- Number of Standard
- 03 = Dash-No. 3

ABS 0135 - 03 N

- Number of Standard
- N = Radial Play 8 to 25 Axial Play 127 max.
- 03 = Dash-No. 3

ABS 0346 N 03

- Number of Standard
- 03 = Dash-No. 3
- N = Radial Play 10 to 25 Axial Play 127 max.

BALL BEARINGS

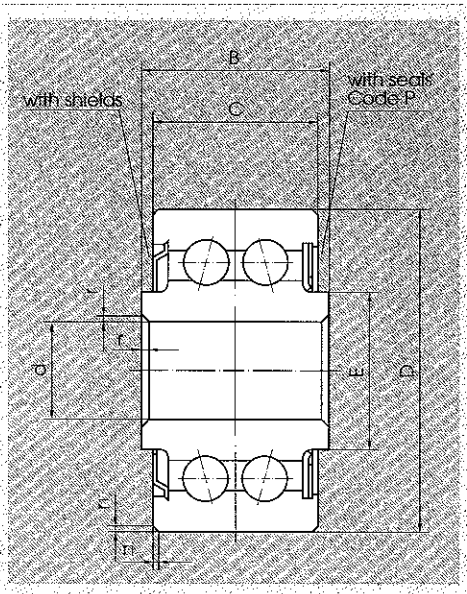
Double row, where high moment rigidity is required.

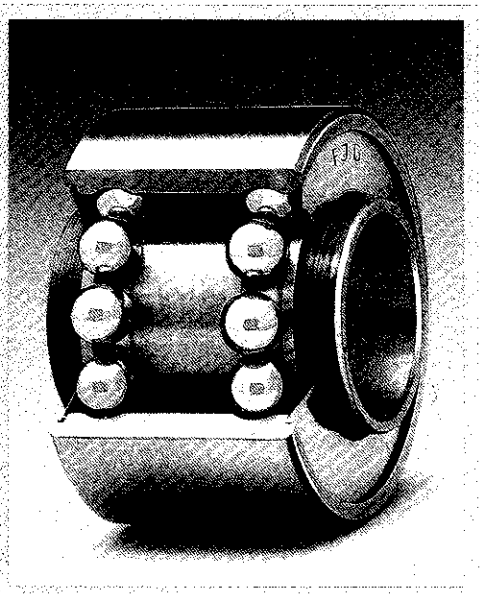
Series: **DP...W**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Shields: Stainless steel

Series: **DPP...W**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **DP...W 1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel

Series: **DPP...W 1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel





Bearing Number	d		D		B		C		E	r x 45°	r_1 x 45°	Out of round µm		Runout tolerances µm max. Axial		Radial	
		Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm				Δds	ΔDs	d S_{ia}	D S_{ea}	d K_{ia}	D K_{ea}
DP/DPP 3W	4,826		19,745		12,573		12,014		7,670	0,12 to	0,45 to 0,83						
DP/DPP 4W	6,350		22,895		15,748		12,471		10,414	0,50	0,81						
DP/DPP 5W	7,937	0	31,750	0	18,923	0	17,449	0	11,912		to	+5	+13	25	40	25	40
DP/DPP 6W	9,525	-13	36,512	-13	22,098	-127	20,167	-127	13,995	0,38	1,19	-18	-25				
DP/DPP 8W	12,700		42,862		23,672		21,742		18,669	to	1,12 to						
DP/DPP 10W	15,875		49,212		25,273		23,368		22,606	0,76	1,50						

All Dimensions to be met after plating
Procurement specification MIL-B-7949

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 „MDPP-" ...

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

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

Radial play in µm	Axial play µm max.	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Limit Moment Rating Ncm	Moment Constant $\frac{l}{cm}$	Mass g	Bearing Number
	127	13,12	7,56	13,12	12,59	8450	0,76	18	DP/DPP 3W
	127	23,89	8,01	15,79	13,43	11410	0,70	27	DP/DPP 4W
10	152	48,93	17,79	32,74	27,80	41125	0,43	77	DP/DPP 5W
to	152	70,10	23,57	43,10	36,12	63045	0,37	118	DP/DPP 6W
25	178	104,97	34,69	62,72	51,60	102360	0,34	172	DP/DPP 8W
	178	126,32	41,81	68,05	58,27	137835	0,30	240	DP/DPP 10W

Designation

Each bearing is designated as in the following example:

DP P 3W G 1.3544.9

Number of Standard
P = Sealed type
3 = Dash-No.

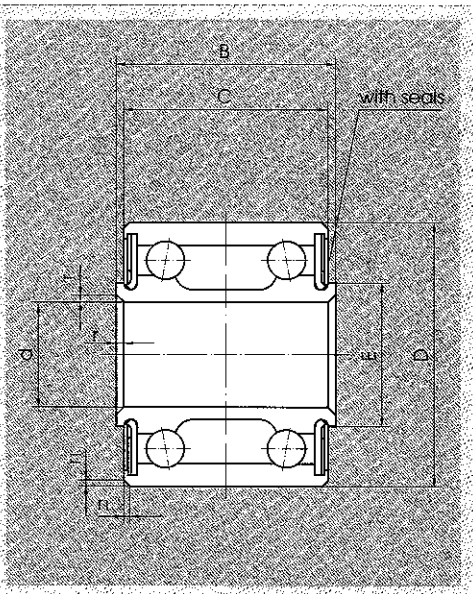
Stainless steel
G = Grease NATO G 354/MIL-G-23 827

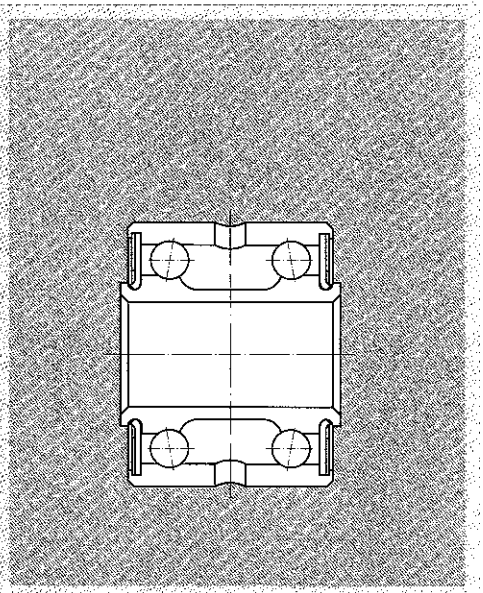
BALL BEARINGS

Exta wide, double row, dimensions according to specification MS 27 647.

Series: **DW...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore, yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel (DW 4K2 and DW 4K are retainer types)

Series: **DW... 1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel (DW 4K2 1.3544.9 and DW 4K 1.3544.9 are retainer types)





Suffix G - with Relubricant Grooves

Bearing Number		d		D		B		C		E	r x 45°	r_1 x 45°	Out of round µm		Runout tolerances µm max. Axial		Radial	
			Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm				Δds	ΔDs	d S_{ia}	D S_{ea}	d K_{ia}	D K_{ea}
DW 4K2	GDW 4K2	6,350		15,875		14,274		12,700		8,585								
DW 4K	GDW 4K	6,350		19,050		22,225		19,050		9,448	0,13	0,41						
DW 5	GDW 5	7,937	0	22,225	0	23,825	0	20,650	0	11,836	to	to	+5	+13	25	40	25	40
DW 6	GDW 6	9,525	-13	26,987	-13	30,175	-127	27,000	-127	14,478	0,51	0,79	-18	-25				
DW 8	GDW 8	12,700		36,512		38,100		34,925		18,008		0,81 to 1,19						

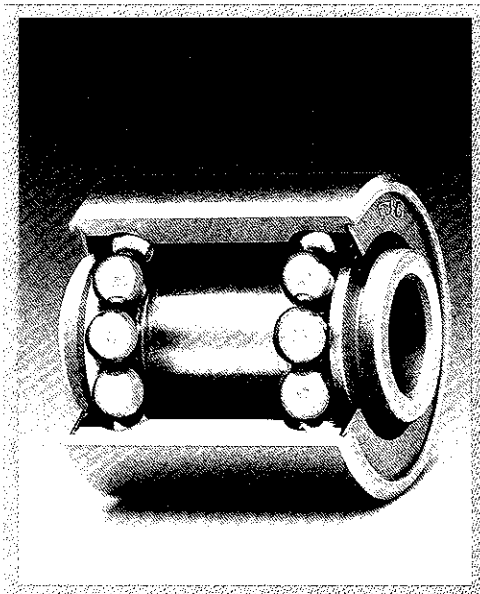
All Dimensions to be met after plating
Procurement specification MIL-B-7949

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

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

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 µm	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Limit Moment Rating Ncm	Moment Constant $\frac{1}{cm}$	Moss g	Bearing Number	
		6,23	2,22	4,67	4,27	1457	1,54	11	DW 4K2	GDW 4K2
0	5	12,01	4,00	9,21	8,23	4430	0,90	18	DW 4K	GDW 4K
to	to	22,86	7,12	11,57	10,32	9965	0,71	32	DW 5	GDW 5
25	13	37,54	11,56	18,77	16,64	22710	0,51	54	DW 6	GDW 6
		69,03	20,91	33,85	29,00	54910	0,38	132	DW 8	GDW 8

Designation

Each bearing is designated as in the following example:

G DW 5 R L 1.3544.9

G = with relubrication grooves
Number of standard
5 = Dash-No.
Stainless steel
L = Grease NATO G 354/MIL-G-23 827
R = Reduced radial play

BALL BEARINGS

Self-aligning, single row, dimensions according to specification MS 27 645.

Series:	**KS...**	**Series:**	**KS... 1.3544.9**
Material:	EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Material:	EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields:	Stainless steel	Shields:	Stainless steel
Series:	**KSP...**	**Series:**	**KSP... 1.3544.9**
Material:	EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated	Material:	EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals:	PTFE	Seals:	PTFE
Seal Retainers:	Stainless steel	Seal Retainers:	Stainless steel

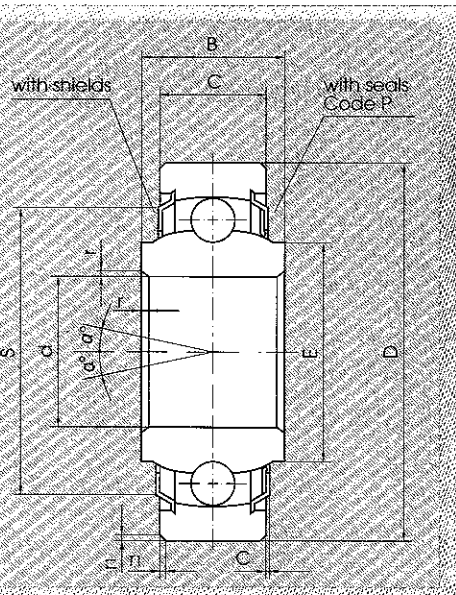
Bearing Number		d		D		B		C		E	r x 45°	r_1 x 45°	α	S	c	Out of round µm	
			Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm							Δds	ΔDs
KS 3L	KSP 3L	4,826		15,875		6,223		5,156		6,426	0,13 to	0,41	10°	-	-		
KS 4A	KSP 4A	6,350		19,050		7,137		5,563		8,153	0,51	to		14,20	0,25		
KS 5A	KSP 5A	7,937		20,637		7,543		5,943		9,677	0,38 to 0,76	0,79	8°	16,30	0,30		
KS 6A	KSP 6A	9,525		22,225		7,950		6,350		11,506	0,41 to 0,79			-	-		
KS 3	KSP 3	4,826	0	19,746	0	7,544	0	6,858	0	7,366	0,13 to	0,56 to 0,94		13,70	0,10	+5	+13
KS 4	KSP 4	6,350		22,895		12,293		8,509		9,906	0,51	0,81				-18	-25
KS 5	KSP 5	7,937	-13	31,750	-13	14,173	-127	9,525	-127	14,249	0,38	to	10°				
KS 6	KSP 6	9,525		36,512		15,748		11,912		15,418	to	1,19		-	-		
KS 8	KSP 8	12,700		42,862		15,748		12,700		20,091	0,76	1,12 to					
KS 10	KSP 10	15,875		49,212		20,650		15,875		23,266		1,50					

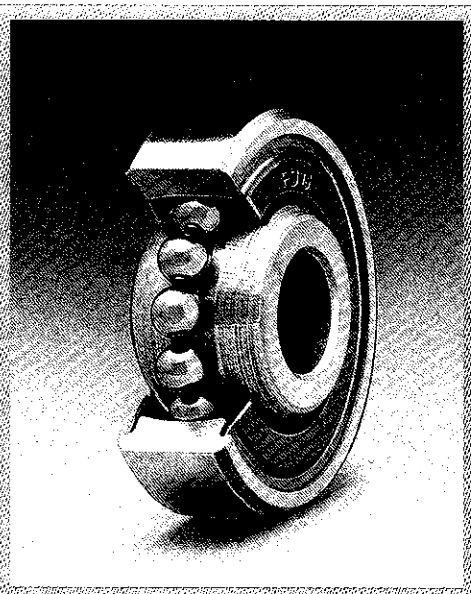
All Dimensions be met after plating
Procurement specification MIL-B-7949

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 „MKS-"...

Case I : Load fixed with respect to outer race
Case II : Load fixed with respect to inner race
Equivalent Thrust Load = Thrust + 0,10 Radial Load





Dimensions in millimetres

Runout tolerances µm max. Axial d S_{ia}	D S_{ea}	Radial d K_{ia}	D K_{ea}	Radial play in µm	Reduced Radial play Suffix R in µm	Axial play µm max.	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Mass g	Bearing Number	
						584	2,45	0,44	2,45	2,14	5	KS 3L	KSP 3L
						635	4,00	0,89	4,00	3,42	9	KS 4A	KSP 4A
						711	4,46	0,89	4,23	3,63	9	KS 5A	KSP 5A
						762	4,98	0,89	4,98	4,40	14	KS 6A	KSP 6A
				10	5	584	4,00	0,89	4,00	3,42	14	KS 3	KSP 3
25	40	25	40	to	to	635	6,27	1,33	5,47	5,47	18	KS 4	KSP 4
				25	13	711	9,74	1,33	9,74	8,41	45	KS 5	KSP 5
						762	13,26	1,78	13,26	11,48	68	KS 6	KSP 6
						813	16,32	2,22	16,32	14,63	104	KS 8	KSP 8
						863	23,66	2,67	22,15	19,39	168	KS 10	KSP 10

Designation

Each bearing is designated as in the following example:

KS P 3 R G 1.3544.9

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

ROLLER BEARINGS

Self-aligning, single row.

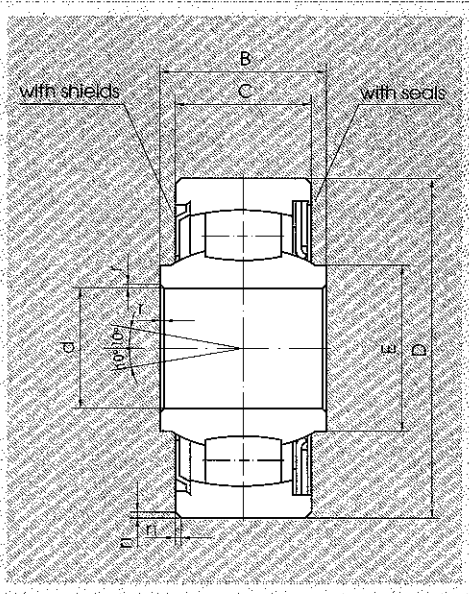
Series: **DSR...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Shields: Stainless steel

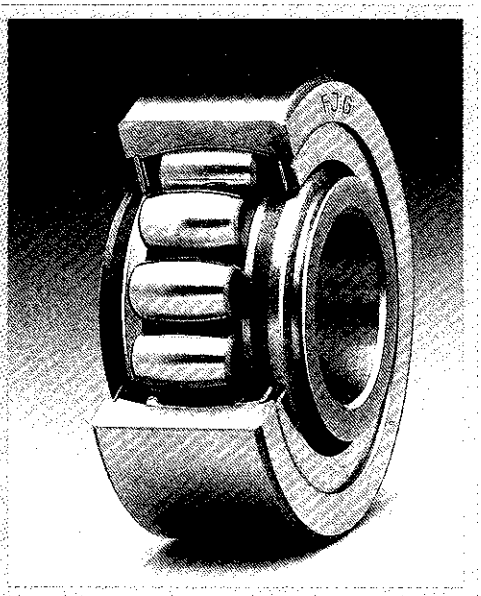
Series: **DSRP...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **DSR...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel

Series: **DSRP...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **NSA 8110...**
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





Dimensions in millimetres

Bearing Number	d	Δdmp µm	D	ΔDmp µm	B	ΔBmp µm	C	ΔCmp µm	E	r x 45°	r_1 x 45°	Out of round µm Δds	Out of round µm ΔDs	Radial play in µm	Radial Limit Load Rating in kN	Mass g
DSR/DSRP 4	6,350		22,895		15,875		11,785		10,261	0,13 to 0,51	0,81				13,4	27
DSR/DSRP 5	7,937		31,750		20,624		16,662		13,081		to				32,5	73
DSR/DSRP 6	9,525	0	36,512	0	23,799	0	19,050	0	14,325	0,38	1,19	+2	+4	25	42,5	109
DSR/DSRP 8	12,700	-13	42,862	-13	25,400	-127	20,624	-127	19,685	to	1,12	-14	-16	max.	56,0	163
DSR/DSRP 10	15,875		49,212		28,575		23,799		22,072	0,76	to				78,0	250
DSR/DSRP 12	19,050		60,325		33,324		28,575		29,210		1,50				120,0	476

All Dimensions to be met after plating
Procurement specification MIL-B-7949

These bearings are self-aligning for 10° in either direction.
Thrust limit load rating = 30 % of the radial limit load rating.
Radial case I and case II load ratings for average life of 10.000 complete 90° cycles are 82 % of the Radial Limit Load Rating.

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

Designation

Each bearing is designated as in the following example:

DSR P 4 G 1.3544.9

Number of Standard
P = Sealed type
4 = Dash-No.
G = Grease NATO G 354/MIL-G-23 827
Stainless steel

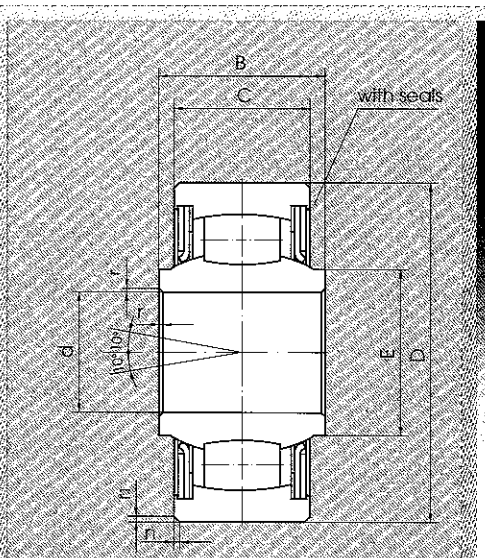
NSA 8110 - 04

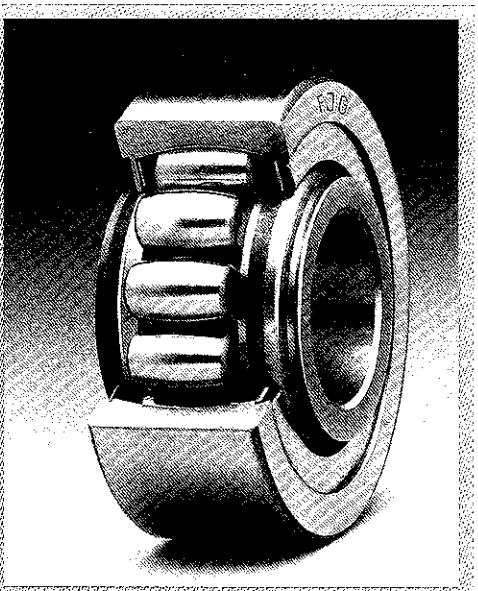
Number of Standard
04 = Dash No. 4

Precision series, single row, self-aligning.

Series: **MDSRP...**
Material: EN 2031 (1.3505.9) Cadmium plated except bore, yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **MDSRP...1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore, bright passivated
Seals: PTFE
Seal Retainers: Stainless steel





Dimensions in millimetres

Bearing Number	d	Δdmp µm	D	ΔDmp µm	B	ΔBmp µm	C	ΔCmp µm	E	r x 45°	r1 x 45°	Out of round µm Δds	Out of round µm ΔDs	Radial play in µm	Radial Limit Load Rating in kN	Mass g
MDSRP 4	6,350		22,895		15,875		11,785		10,261	0,13 to 0,51	0,81				13,4	27
MDSRP 5	7,937		31,750		20,624		16,662		13,081		to				32,5	73
MDSRP 6	9,525	0	36,512	0	23,799	0	19,050	0	14,325	0,38	1,19	+1	+2	to	42,5	109
MDSRP 8	12,700	-8	42,862	-10	25,400	-64	20,624	-127	19,685	to	1,12	-9	-12	13	56,0	163
MDSRP 10	15,875		49,212		28,575		23,799		22,072	0,76	to				78,0	250
MDSRP 12	19,050		60,325		33,324		28,575		29,210		1,50				120,0	476

All Dimensions to be met after plating
Procurement specification MIL-B-7949

These bearings are self-aligning for 10° in either direction.
Thrust limit load rating = 30 % of the radial limit load rating.
Radial case I and case II load ratings for average life of 10.000 complete 90° cycles are 82 % of the Radial Limit Load Rating.

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

Designation

Each bearing is designated as in the following example:

MDSR P 4 G 1.3544.9

Number of Standard
P = Sealed type
4 = Dash-No.
Stainless steel
G = Grease NATO G 354/MIL-G-23 827

BALL BEARINGS

Precision series, single row, extra light duty, dimensions according to specification MS 21 428.

Series: **MB 500 DD**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **MB 500 DD 1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **NSA 8154...E**
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 0348R...(60-3439R...)**
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

Series: **MB 500 P**
Material: EN 2031 (1.3505.9) Cadmium plated except bore; yellow passivated
Shields: Stainless steel

Series: **MB 500 P 1.3544.9**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel

Series: **NSA 8154...**
Material: EN 2030 (1.3544.9) Cadmium plated except bore; bright passivated
Shields: Stainless steel
Lubricant: NATO G 354/MIL-G-23 827

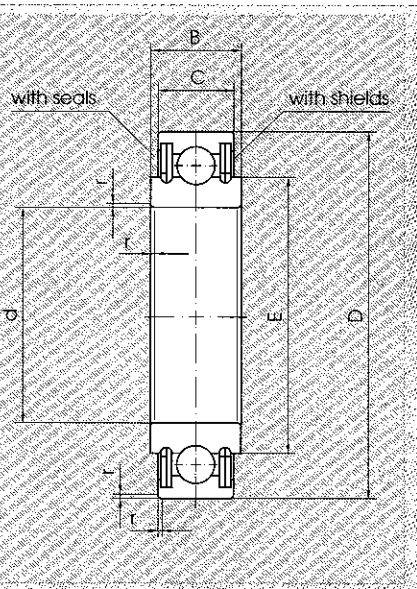
Bearing Number		ABS Dash No.	NSA Dash No.	d	Δdmp µm	D	ΔDmp µm	B	ΔBmp µm	C	ΔCmp µm	E	r x 45°	Out of round µm Δds	Out of round µm ΔDs
MB 538 DD	MB 538 P	10	10	15,875		26,988						19,7			
MB 539 DD	MB 539 P	12	12	19,050		30,162						22,7			
MB 540 DD	MB 540 P	14	14	22,225	0	33,338	0					25,8		+8	+13
MB 541 DD	MB 541 P	17	16	26,988	-13	38,100	-13					30,9	0,38	-20	-25
MB 542 DD	MB 542 P	21	21	33,338		44,450		7,140	0 -64	6,350	0 -127	36,9	to		
MB 543 DD	MB 543 P	25	25	39,688		50,800						43,2	0,89		
MB 544 DD	MB 544 P	29	29	46,038	0	57,150	0					50,0		+8	+13
MB 545 DD	MB 545 P	33	35	52,388	-20	66,675	-18					58,1		-28	-31
MB 546 DD	MB 546 P	37	37	58,738		73,025						64,2			

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

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

Runout tolerances µm max. Axial d S_{ia}	D S_{ea}	Radial d K_{ia}	D K_{ea}	Radial play in µm	Starting torque [1] in mN.m Seals	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Limit Moment Rating Ncm	Moment Constant $\frac{1}{cm}$	Mass g	Bearing Number	
					11,0	14,59	6,67	8,85	8,10	2880	2,33	14	MB 538 DD	MB 538 P
					12,0	16,68	7,56	9,12	8,45	3715	2,02	18	MB 539 DD	MB 539 P
					14,0	18,77	8,45	9,39	8,76	4675	1,82	23	MB 540 DD	MB 540 P
				3	16,0	22,24	9,79	9,65	8,98	6405	1,53	27	MB 541 DD	MB 541 P
20	20	20	20	to	20,0	26,47	12,01	9,87	9,47	9320	1,29	41	MB 542 DD	MB 542 P
				13	25,0	30,60	14,23	10,05	9,70	12765	1,12	45	MB 543 DD	MB 543 P
					36,0	35,50	16,01	10,23	9,87	16610	0,96	50	MB 544 DD	MB 544 P
					47,0	41,01	17,79	10,41	10,05	21355	0,82	68	MB 545 DD	MB 545 P
					70,0	45,15	19,57	10,50	10,14	25870	0,76	77	MB 546 DD	MB 546 P

Designation

Each bearing is designated as in the following example:

MB 500 DD G 1.3544.9

- MB 500: Number of Standard
- DD = Sealed type, P = Shield type
- G = Grease NATO G 354/MIL-G-23 827
- 1.3544.9: Stainless steel

NSA 8154 - 10 E

- NSA 8154: Number of Standard
- E = Sealed Type, - = Shield Type
- 10 = Dash No.

ABS 0348 R 10

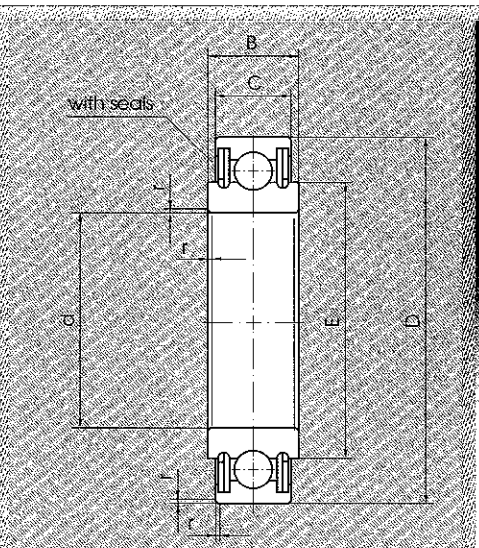
- ABS 0348: Number of Standard
- 10 = Dash No.
- R = Reduced Radial Play

BALL BEARINGS

Single row, extra light duty, dimensions according to specification MS 27 646.

Series: **B 500 DD**
Material: EN 2031 (1.3505.9)
Cadmium plated except bore: Yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel

Series: **B 500 DD 1.3544.9**
Material: EN 2030 (1.3544.9)
Cadmium plated except bore: bright passivated
Seals: PTFE
Seal Retainers: Stainless steel



Bearing Number	d		D		B		C		E	r x 45°	Out of round µm		Runout tolerances µm max. Axial		Radial	
		Δdmp µm		ΔDmp µm		ΔBmp µm		ΔCmp µm			Δds	ΔDs	d S_{ia}	D S_{ea}	d K_{ia}	D K_{ea}
B 538 DD	15,875		26,988						19,7							
B 539 DD	19,050		30,162						22,7							
B 540 DD	22,225	±18	33,338	0					25,8		± 25	+13				
B 541 DD	26,988		38,100	-25		0		0	30,9	0,38		-38	50	40	50	40
B 542 DD	33,338		44,450		7,140	-127	6,350	-127	36,9	to						
B 543 DD	39,688		50,800						43,2	0,89						
B 544 DD	46,038		57,150	0					50,0			+20				
B 545 DD	52,388	± 25	66,675	-38					58,1		± 41	-58				
B 546 DD	58,738		73,025						64,2							

All Dimensions to be met after plating
Procurement specification MIL-B-7949

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

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	Radial Limit Load Rating in kN	Thrust Limit Load Rating in kN	Radial Load Rating for Average life of 10.000 Complete 90° Cycles Case I in kN	Case II in kN	Limit Moment Rating Ncm	Moment Constant $\frac{1}{cm}$	Mass g	Bearing Number
	14,59	6,67	8,85	8,10	2880	2,33	14	B 538 DD
	16,68	7,56	9,12	8,45	3715	2,02	18	B 539 DD
20	18,77	8,45	9,39	8,76	4675	1,82	23	B 540 DD
to	22,24	9,79	9,65	8,98	6405	1,53	27	B 541 DD
46	26,47	12,01	9,87	9,47	9320	1,29	41	B 542 DD
	30,60	14,23	10,05	9,70	12765	1,12	45	B 543 DD
	35,50	16,01	10,23	9,87	16610	0,96	50	B 544 DD
	41,01	17,79	10,41	10,05	21355	0,82	68	B 545 DD
	45,15	19,57	10,50	10,14	25870	0,76	77	B 546 DD

Designation

Each bearing is designated as in the following example:

B 500 DD G 1.3544.9

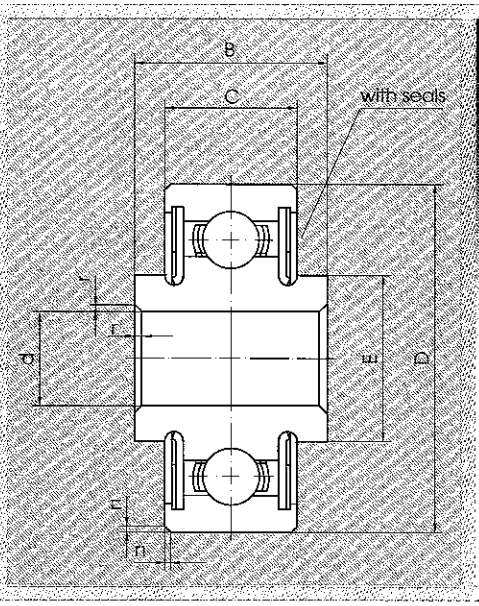
Number of Standard
DD = Sealed type
G = Grease NATO G 354/MIL-G-23 827
Stainless steel

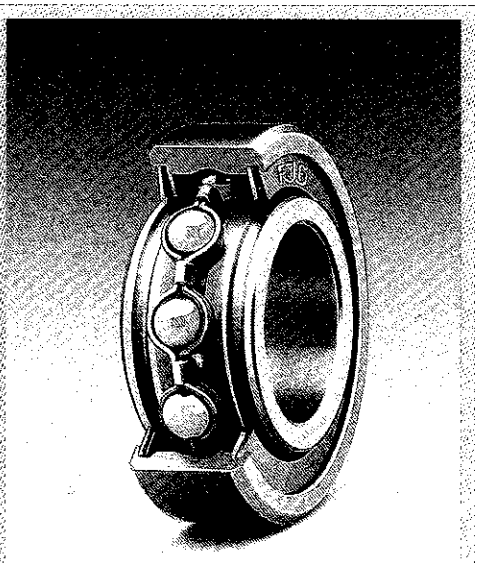
PULLEY BEARINGS

Single row, with retainer.

Series: P...
Material: EN 2031 (1.3505.9)
Cadmium plated except bore; yellow passivated
Seals: PTFE
Seal Retainers: Stainless steel
(PD5K double row)
(P8 full type - no retainer)

Series: P... 1.3544.9
Material: EN 2030 (1.3544.9)
Cadmium plated except bore; bright passivated
Seals: PTFE
Seal Retainers: Stainless steel
(PD5K 1.3544.9 double row)
(P 8 1.3544.9 full type - no retainer)





Bearing Number	d	ΔdmpD µm	D	ΔDmpD µm	B	ΔBmpB µm	C	ΔCmpC µm	E	r x 45°	r_1 x 45°	Out of round µm Δds	Out of round µm ΔDs	Runout tolerances µm max. Axial d S_{ia}	Runout tolerances µm max. Axial D S_{ea}	Runout tolerances µm max. Radial d K_{ia}	Runout tolerances µm max. Radial D K_{ea}
P 4K	6,350		22,225		11,125		9,525		10,744		0,6	+2					
P 5K	7,937		22,225		15,875		9,525		11,557	0,13	to	-10					
PD 5K	7,937	-13	23,812	-13	15,875	-127	14,300	-127	12,446	to	0,9		+4	25	40	25	40
P 8	12,700		42,862		19,050		14,300		19,506	0,51	0,8 to 1,1	+3	-16				
P 10K	15,875		30,162		11,125		9,525		19,532		0,6 to 0,9	-11					

All Dimensions to be met after plating
Procurement specification MIL-B-7949

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

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

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

P8 = Pure Thrust Rating = $^1/_3$ Radial Rating at operating speed

Equivalent Radial Load = Radial Load + 3 x Thrust Load