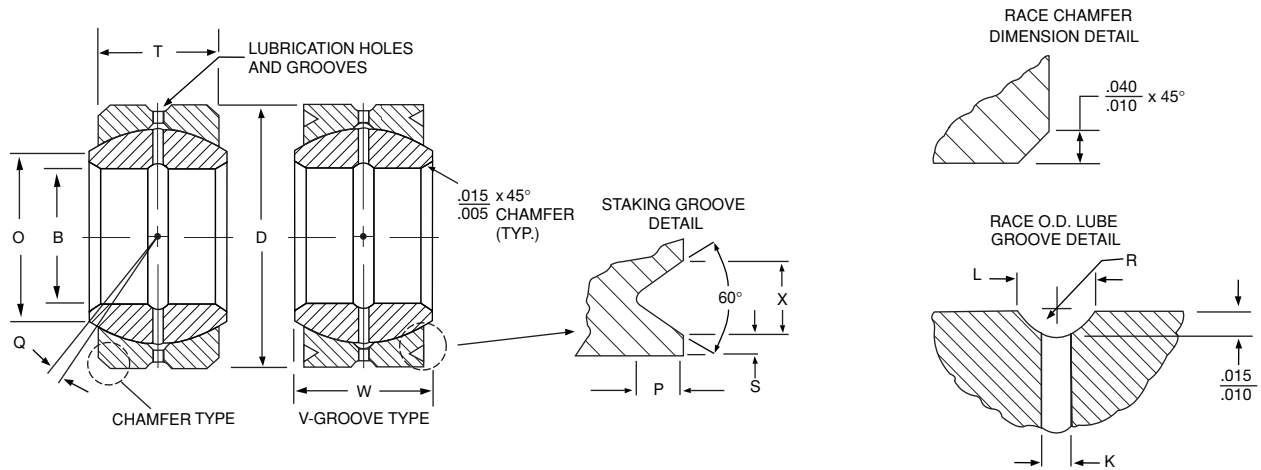


# SPHERICAL BEARINGS – Metal-to-Metal

## MIL-B-8976 (proposed as AS8976) – Narrow



Part Number V-Grooved* Steel Race	Part Number V-Grooved* Bronze Race	(B)	(D)	(W)	(T)	(O)	Ball Diameter		(K)	(L)	(Q)
		Bore Diameter	Outside Diameter	Ball Width	Race Width	Shoulder Diameter	Bronze Race	Steel Race	Lube Hole Diameter	Groove Width ID & OD of Race & ID of Ball	Misalignment
		Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Min.
<b>MS21154S(**)</b>	<b>MS21154B(**)</b>	+ .0000	+ .0000	+ .000	+ .005	Min.	Max.	Max.	+ .010	+ .005	
		- .0005	- .0005	- .002	- .005				- .010	- .005	
ABG3VA(L)	ABG3VA-501(L)	.1900	.5625	.281	.218	.293	.438	.407	.047	.062	10°
ABG4VA(L)	ABG4VA-501(L)	.2500	.6562	.343	.250	.364	.501	.501	.047	.062	10°
ABG5VA(L)	ABG5VA-501(L)	.3125	.7500	.375	.281	.419	.594	.563	.062	.078	10°
ABG6VA(L)	ABG6VA-501(L)	.3750	.8125	.406	.312	.475	.657	.657	.062	.078	9°
ABG7VA(L)	ABG7VA-501(L)	.4375	.9062	.437	.343	.530	.719	.719	.062	.078	8°
ABG8VA(L)	ABG8VA-501(L)	.5000	1.0000	.500	.390	.600	.814	.814	.062	.078	8°
ABG9VA(L)	ABG9VA-501(L)	.5625	1.0937	.562	.437	.670	.907	.907	.062	.078	8°
ABG10VA(L)	ABG10VA-501(L)	.6250	1.1875	.625	.500	.739	1.001	.907	.078	.093	8°
ABG12VA(L)	ABG12VA-501(L)	.7500	1.4375	.755	.593	.920	1.251	1.188	.078	.093	8°
ABG14VA(L)	ABG14VA-501(L)	.8750	1.5625	.875	.703	.980	1.376	1.313	.078	.093	8°
ABG16VA(L)	ABG16VA-501(L)	1.0000	1.7500	1.000	.797	1.118	1.563	1.501	.078	.093	9°

\* For chamfered version MS21155, delete 'V' from part number.  
 \*\* Add bore codes in multiples of 1/16.

### Notes:

- Radial Clearance: 0.0005 to 0.0020.
- Axial Clearance: 0.010 Maximum.
- Dimensions: All dimensions apply after plating.
- Concentricity: Outside diameter (D) to bore diameter (B) within .005 FIM.
- Temperature: Operating temperature range -65° to 250°F.
- Lubrication: MIL-PRF-21164.
- Groove dimensions on ID of race and grease holes through race are before bearing assembly, but swaging shall not restrict grease flow.

### Materials

Part No.	Ball	Race
ABG-A	ABG-VA	52100 Alloy Steel Rc56 Min. Chrome Plated†
ABG-A-501	ABG-VA-501	Aluminum Bronze (AMPCO® 15), Cadmium Plated

† Plating: When specified in materials block, ball spherical diameter and ends are hard chrome plated per AMS-QQ-C-320, CL. 2 (.0002 to .0005 inch thickness). All external surfaces of race are cadmium plated per AMS-QQ-P-416.

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### Aerospace Standard P/N

**MS21154 S 03**

- └ Bore Diameter in Multiples of 1/16 Inch (2 Digits)
- └ Letter "S" Indicates Alloy Steel (4340, 4130 or 8630) Race Material
- └ Letter "B" Indicates Aluminum Bronze (AMPCO® 15) Race Material
- └ AS P/N Prefix Denoting Narrow, Metal on Metal Spherical Bearing with Lube Grooves and Lube Holes in Race and Ball (MS21154=V-Grooved, MS21155=Chamfered)

### NHBB P/N

**ABG 3 V A X X (L)**

- └ NHBB Manufacturing Code
- └ Letters "CR" Indicate Optional 440C Ball Material
- └ "-501" Indicates Aluminum Bronze (AMPCO® 15) Race Material
- └ Blank Indicates Alloy Steel (4340, 4130 or 8630) Race Material
- └ Letter "A" Indicates Lube Groove and Lube Holes in Ball
- └ Letter "V" Indicates V-Grooved Outer Race (MS21154)
- └ No Letter "V" Indicates Chamfered Outer Race (MS21155)
- └ Bore Diameter in multiples of 1/16 inch
- └ NHBB P/N Prefix for Narrow, Metal-to-Metal Spherical Bearing

(R) Groove Radius ID & OD of Race & ID of Ball	(S)	(P)	(X)	Limit Static Load				Weight
				Bronze Race		Steel Race		
				Radial	Axial	Radial	Axial	
Inch Ref.	Inch +.000 -.010	Inch +.000 -.015	Inch +.000 -.010	lbs.	lbs.	lbs.	lbs.	lbs. Ref.
.045	.020	.030	.045	2800	850	4600	2100	.02
.045	.020	.030	.045	4300	1100	7080	2800	.02
.065	.030	.040	.055	5200	1400	8500	3550	.03
.065	.030	.040	.055	6750	1760	11050	4400	.04
.065	.030	.040	.055	8500	2150	13900	5400	.05
.065	.030	.060	.080	11500	2800	18850	7050	.07
.065	.030	.060	.080	15600	3550	25500	8900	.09
.088	.030	.060	.080	19500	4650	31950	11700	.11
.088	.030	.060	.080	28500	6575	46750	16500	.21
.088	.030	.060	.080	38300	9300	62750	23300	.27
.088	.030	.060	.080	51000	12000	83350	30000	.39