



ABT, ABT-V, ABWT, ABWT-V

Spherical Bearings - Self-Lubricating
MIL-B-8942

Bearings in the tables below are approved for procurement to MIL-B-8942 and MS21230 through MS21233.

Temperature: Operating temperature range per MIL-B-8942 is -65° to 250°F (-54° to 121°C). Broader temperature capabilities are achievable.

MATERIALS

Part No.	Ball	Race	Liner
Catalog No.	CRES 440C AMS 5630, 55-62 HRC	CRES 410 AMS 5613, 23-35 HRC	*Teflon/Fabric Bonded to race I.D. No. Lub. Req'd.

* A trade name of E.I. duPont de Nemours & Co., Inc.

** Bore code "3" is not specified on MS21232, but may be ordered to NMB part number "ABT3V"

NMB Part Number		(B) Bore Diameter		(D) Outside Diameter		(W) Ball Width		(H) Race Width		(O) Shoulder Diameter		Ball Diameter		(C) Race Chamfered × 45°		(Q) Misalign- ment
Chamfered	V-Grooved	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	
NARROW		+.0000	+0.000	+.0000	+0.000	+.000	+0.00							+.000	+0.00	
MS21233	MS21232	-.0005	-0.013	-.0005	-0.013	-.002	-0.05	±.005	±0.13	MIN	MIN	Ref.	Ref.	-.030	-0.76	MIN
ABT3	(ABT3V)**	.1900	4.826	.5625	14.288	.281	7.14	.218	5.54	.293	7.44	.406	10.31	.040	1.02	10°
ABT4	ABT4V	.2500	6.350	.6562	16.667	.343	8.71	.250	6.35	.364	9.25	.500	12.70	.040	1.02	10°
ABT5	ABT5V	.3125	7.938	.7500	19.050	.375	9.52	.281	7.14	.419	10.64	.562	14.27	.040	1.02	10°
ABT6	ABT6V	.3750	9.525	.8125	20.638	.406	10.31	.312	7.92	.475	12.06	.656	16.66	.040	1.02	9°
ABT7	ABT7V	.4375	11.112	.9062	23.017	.437	11.10	.343	8.71	.530	13.46	.718	18.24	.040	1.02	8°
ABT8-1	ABT8V-1	.5000	12.700	1.0000	25.400	.500	12.70	.390	9.91	.600	15.24	.813	20.65	.040	1.02	8°
ABT9-1	ABT9V-1	.5625	14.288	1.0937	27.780	.562	14.27	.437	11.10	.670	17.02	.906	23.01	.040	1.02	8°
ABT10	ABT10V	.6250	15.875	1.1875	30.162	.625	15.88	.500	12.70	.739	18.77	.968	24.59	.040	1.02	8°
ABT12	ABT12V	.7500	19.050	1.4375	36.512	.750	19.05	.593	15.06	.920	23.37	1.187	30.15	.040	1.02	8°
ABT14	ABT14V	.8750	22.225	1.5625	39.687	.875	22.22	.703	17.86	.980	24.89	1.312	33.32	.040	1.02	8°
ABT16	ABT16V	1.0000	25.400	1.7500	44.450	1.000	25.40	.797	20.24	1.118	28.40	1.500	38.10	.040	1.02	9°
WIDE																
MS21231	MS21230															
ABWT3	ABWT3V	.1900	4.826	.6250	15.875	.437	11.10	.327	8.31	.300	7.62	.531	13.49	.040	1.02	15°
ABWT4	ABWT4V	.2500	6.350	.6250	15.875	.437	11.10	.327	8.31	.300	7.62	.531	13.49	.040	1.02	15°
ABWT5	ABWT5V	.3125	7.938	.6875	17.462	.437	11.10	.317	8.05	.360	9.14	.593	15.06	.040	1.02	14°
ABWT6	ABWT6V	.3750	9.525	.8125	20.638	.500	12.70	.406	10.31	.466	11.84	.687	17.45	.040	1.02	8°
ABWT7	ABWT7V	.4375	11.112	.9375	23.812	.562	14.27	.442	11.23	.537	13.64	.781	19.84	.040	1.02	10°
ABWT8	ABWT8V	.5000	12.700	1.0000	25.400	.625	15.87	.505	12.83	.607	15.42	.875	22.22	.040	1.02	9°
ABWT9	ABWT9V	.5625	14.287	1.1250	28.575	.687	17.45	.536	13.61	.721	18.31	1.000	25.40	.040	1.02	10°
ABWT10	ABWT10V	.6250	15.875	1.1875	30.162	.750	19.05	.567	14.40	.747	18.97	1.062	26.97	.040	1.02	12°
ABWT12-1	ABWT12V-1	.7500	19.050	1.3750	34.925	.875	22.22	.630	16.00	.845	21.46	1.250	31.75	.040	1.02	13°
ABWT14	ABWT14V	.8750	22.225	1.6250	41.275	.875	22.22	.755	19.18	.995	25.27	1.375	34.92	.040	1.02	6°
ABWT16	ABWT16V	1.0000	25.400	2.1250	53.975	1.375	34.92	1.005	25.53	1.269	32.23	1.875	47.62	.040	1.02	12°

MS P/N

Bore Diameter in Multiples of 1/16 Inches

MS P/N MS21230-X

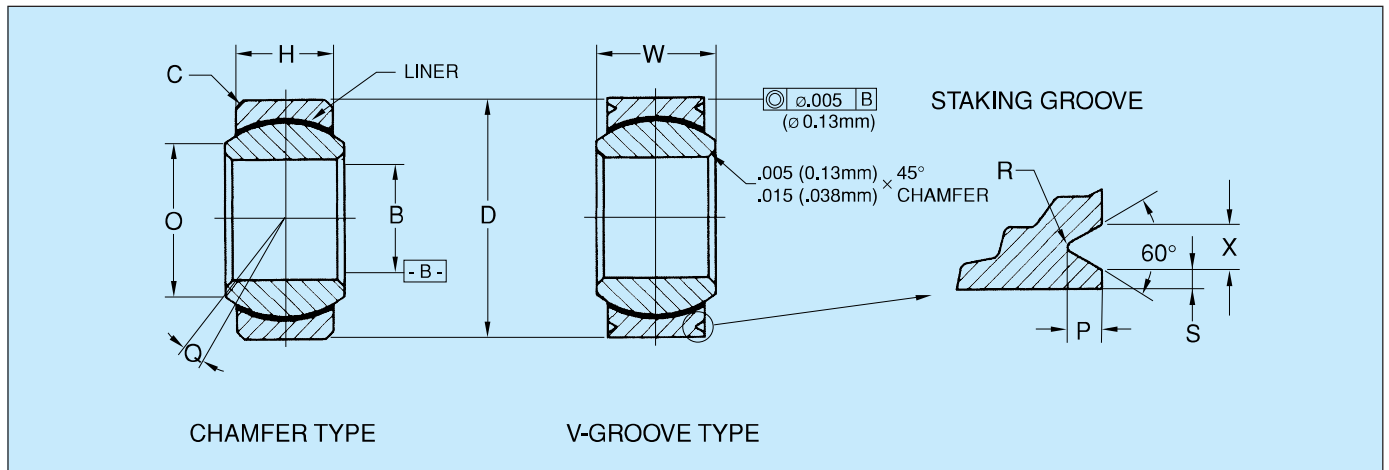
NMB P/N ABWT X V

Letter "V" Indicates V-Grooved Outer Race (MS21230 and MS21232)

No Letter Indicates Chamfered Outer Race (MS21231 and MS21233)

Bore Diameter: Same as MS P/N

NMB P/N



(P)		Staking Groove Data (R)		(S)		(X)		No Load Rotational Breakaway Torque		Static Limit Load Radial		Dynamic Osc. Radial Load		Approx. Weight	
Inch	mm	Inch	mm	Inch	mm	Inch	mm	In-lb	N-m	lbs	N	lbs	N	lbs	kg
+.000	+0.00	+.000	+0.00	+.000	+0.00	+.000	+0.00								
-.015	-0.38	-.010	-0.25	-.010	-0.25	-.010	-0.25								
.030	0.76	.015	0.38	.020	0.51	.045	1.14	.5-50	0.06-0.56	3975	17681	150	667	.020	0.009
.030	0.76	.015	0.38	.020	0.51	.045	1.14	1.0-5.0	0.12-0.56	6040	26866	430	1913	.020	0.009
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	8750	38920	700	3114	.030	0.014
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	10540	46882	1100	4893	.040	0.018
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	13200	58714	1400	6227	.050	0.023
.060	1.52	.020	0.51	.030	0.76	.080	2.03	1.0-5.0	0.12-0.56	17900	79619	2100	9341	.070	0.032
.060	1.52	.020	0.51	.030	0.76	.080	2.03	1.0-5.0	0.12-0.56	23200	103194	3680	16369	.090	0.041
.060	1.52	.020	0.51	.030	0.76	.080	2.03	1.0-5.0	0.12-0.56	30500	135664	4720	20995	.120	0.054
.060	1.52	.020	0.51	.030	0.76	.080	2.03	1.0-5.0	0.12-0.56	46400	206387	6750	30024	.210	0.095
.060	1.52	.020	0.51	.030	0.76	.080	2.03	2.0-8.0	0.23-0.90	62200	276666	9350	41589	.270	0.122
.060	1.52	.020	0.51	.030	0.76	.080	2.03	2.0-8.0	0.23-0.90	82200	365626	12160	54088	.390	0.177
.030	0.76	.015	0.38	.020	0.51	.045	1.14	.5-50	0.06-0.56	9000	40032	1770	7873	.031	0.014
.030	0.76	.015	0.38	.020	0.51	.045	1.14	1.0-5.0	0.12-0.56	9000	40032	1770	7873	.031	0.014
.030	0.76	.015	0.38	.020	0.51	.045	1.14	1.0-5.0	0.12-0.56	9400	41811	1640	7295	.035	0.016
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	13700	60938	2630	11698	.060	0.027
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	20700	92074	3650	16235	.080	0.036
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	27500	122320	4970	22107	.100	0.045
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	34400	153011	5370	23886	.135	0.061
.040	1.02	.020	0.51	.030	0.76	.055	1.40	1.0-5.0	0.12-0.56	39000	173472	6130	27266	.160	0.073
.060	1.52	.020	0.51	.030	0.76	.080	2.03	1.0-5.0	0.12-0.56	52300	232630	7730	34383	.240	0.109
.060	1.52	.020	0.51	.030	0.76	.080	2.03	2.0-8.0	0.23-0.90	67300	299350	10800	48038	.350	0.159
.060	1.52	.020	0.51	.030	0.76	.080	2.03	2.0-8.0	0.23-0.90	137000	609376	19300	85846	.970	0.440

MS21230		MS21231		MS21232		MS21233	
MS	NMB	MS	NMB	MS	NMB	MS	NMB
MS21230-3	ABWT3V	MS21231-3	ABWT3			MS21233-3	ABT3
MS21230-4	ABWT4V	MS21231-4	ABWT4	MS21232-4	ABT4V	MS21233-4	ABT4
MS21230-5	ABWT5V	MS21231-5	ABWT5	MS21232-5	ABT5V	MS21233-5	ABT5
MS21230-6	ABWT6V	MS21231-6	ABWT6	MS21232-6	ABT6V	MS21233-6	ABT6
MS21230-7	ABWT7V	MS21231-7	ABWT7	MS21232-7	ABT7V	MS21233-7	ABT7
MS21230-8	ABWT8V	MS21231-8	ABWT8	MS21232-8	ABT8V	MS21233-8	ABT8
MS21230-9	ABWT9V	MS21231-9	ABWT9	MS21232-9	ABT9V	MS21233-9	ABT9
MS21230-10	ABWT10V	MS21231-10	ABWT10	MS21232-10	ABT10V	MS21233-10	ABT10
MS21230-12	ABWT12V	MS21231-12	ABWT11	MS21232-12	ABT12V	MS21233-12	ABT12
MS21230-14	ABWT14V	MS21231-14	ABWT14	MS21232-14	ABT14V	MS21233-14	ABT14
MS21230-16	ABWT16V	MS21231-16	ABWT16	MS21232-16	ABT16V	MS21233-16	ABT16