

# AURORA

**The *Motion-Transfer* Specialists**



**ROD END & SPHERICAL BEARING**  
SUPPLEMENT TO CATALOG 319

COMMERCIAL | MILITARY | AIRCRAFT



# Contents

	Page No.
<b><u>Rod Ends and Spherical Bearings</u></b>	
HXAM-XE-10 & HXAB-XE-10 Series Male Rod Ends .....	3
HXAM-XET-10 & HXAB-XET-10 Series Male Rod Ends .....	4
HXAW-XE-10 & HXAG-XE-10 Series Female Rod Ends .....	5
HXAW-XET-10 & HXAG-XET-10 Series Female Rod Ends .....	6
HAB-XE(G) Series Spherical Bearings .....	7
HAB-XET(G) Series Spherical Bearings .....	8
ASM(K)-X-10 & ASB(K)-X-10 Series Male Rod Ends .....	9
ASW(K)-X-10 & ASG(K)-X-10 Series Female Rod Ends .....	10
ASXM(K) & ASXB(K) Series Male Rod Ends .....	11
ASXW(K) & ASXG(K) Series Female Rod Ends .....	12
ASXM(K)-XT & ASXB(K)-XT Series Male Rod Ends .....	13
ASXW(K)-XT & ASXG(K)-XT Series Female Rod Ends .....	14

## Technical Resources

Information to assist in the installation of rod ends and spherical bearings, and to provide assistance in their usage. Frequently asked questions regarding rod ends and spherical bearings are also addressed.

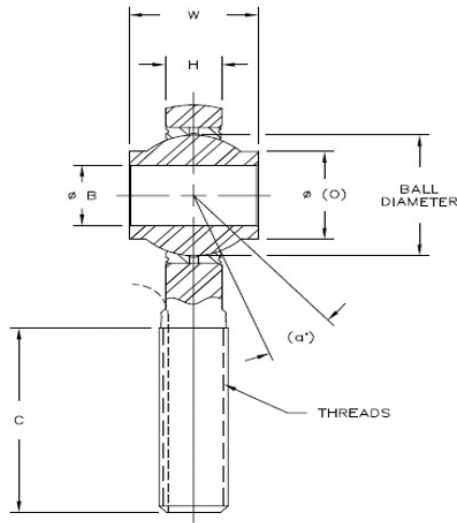
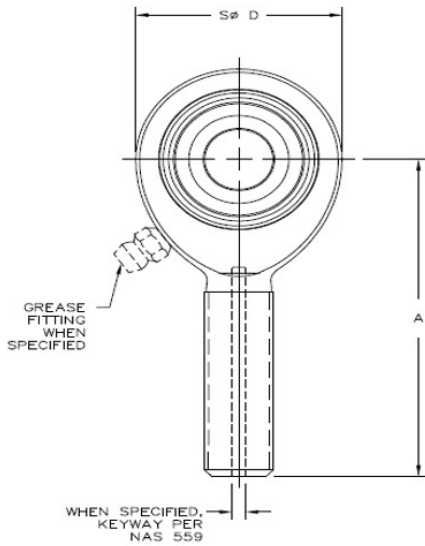
[timkenaurorabearing.com](http://timkenaurorabearing.com)

**Not Just a Site, A Technical Resource Center**

Effective August 21st, 2023, the Naval Air Warfare Center Aircraft Division (NAWCAD) has disapproved Timken Aurora's qualification status for SAE-AS81820 and SAE-AS81935 specifications. Timken Aurora is working diligently to get requalified.

# HIGH MISALIGNMENT SERIES MALE ROD ENDS

Corrosion Resistant - Precision



**Body** - 17-4 PH stainless steel, heat treated

**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440c stainless steel, heat treated, chrome plated (MFG. option)

When a keyway is required, specify by adding a K at the end of the part number.

Ex.: HXAM-6E-10K

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting Ex.: HXAM-5EZ-10

F Flush type fitting Ex.: HXAM-6EF-10

Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department.

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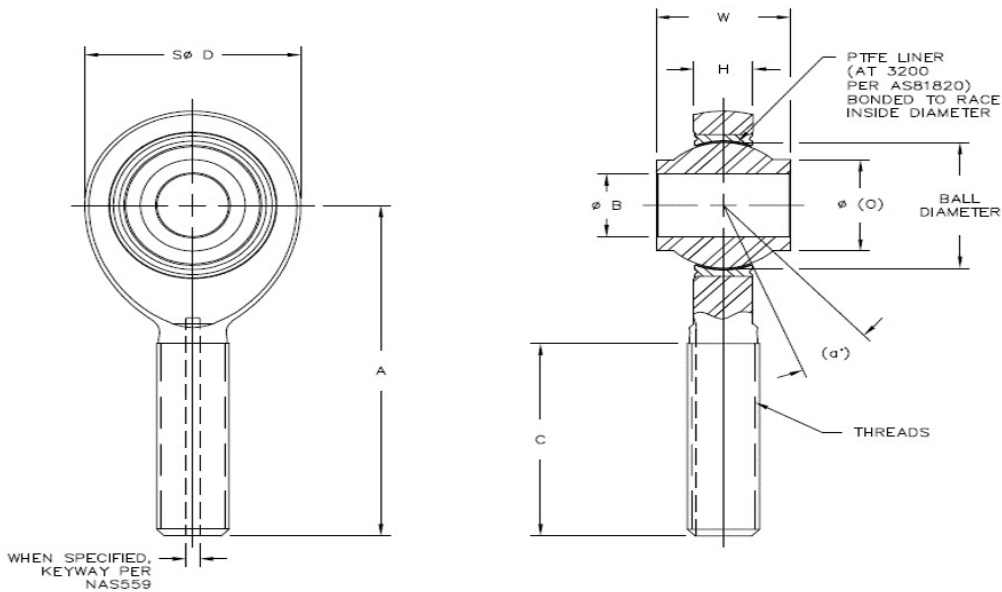
ROD END NO.		DIMENSIONS IN INCHES										a° Misalign. Angle Ref.	Radial Clearance In.	Ult. Static Radial Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.005	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C ±.060	THREAD UNJF-3A					
HXAM-3E-10	HXAB-3E-10	.1900	.560	.337	1.562	.781	.301	.531	1.000	5/16-24	16	.002 Max.	5,482	.08	
HXAM-3E-11	HXAB-3E-11	.1900	.500	.220	1.500	.750	.319	.437	1.000	5/16-24	13		4,854	.06	
HXAM-4E-10	HXAB-4E-10	.2500	.593	.265	1.938	1.000	.390	.593	1.187	5/16-24	23		7,574	.11	
HXAM-5E-10	HXAB-5E-10	.3125	.813	.355	2.125	1.125	.512	.781	1.281	5/16-24	23		7,574	.18	
HXAM-5E-11	HXAB-5E-11	.3125	.625	.265	1.875	.875	.418	.593	1.062	5/16-24	16		5,817	.10	
HXAM-6E-10	HXAB-6E-10	.3750	.813	.355	2.125	1.125	.512	.781	1.281	3/8-24	23		9,151	.17	
HXAM-7E-10	HXAB-7E-10	.4375	.875	.355	2.437	1.312	.618	.875	1.500	7/16-20	22		13,824	.26	
HXAM-8E-10	HXAB-8E-10	.5000	.937	.411	2.625	1.500	.730	1.000	1.562	1/2-20	20		19,474	.40	
HXAM-10E-10	HXAB-10E-10	.6250	1.200	.577	2.875	1.750	.856	1.250	1.687	5/8-18	20		26,281	.63	
HXAM-12E-10	HXAB-12E-10	.7500	1.280	.630	3.375	2.000	.970	1.375	1.875	3/4-16	18		34,065	.87	
HXAM-14E-10	HXAB-14E-10	.8750	1.400	.635	3.750	2.200	1.140	1.531	2.000	7/8-14	18		35,670	1.01	
HXAM-16E-10	HXAB-16E-10	1.0000	1.875	.845	4.125	2.725	1.278	1.875	2.125	1 1/4-12	21		64,393	2.31	
HXAM-20E-10	HXAB-20E-10	1.2500	1.875	1.015	5.000	3.125	1.523	2.250	2.875	1 1/4-12	21		78,050	3.15	



# HIGH MISALIGNMENT SERIES MALE ROD ENDS

Corrosion Resistant - Precision - PTFE Lined

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**Body** - 17-4 PH stainless steel, heat treated

**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

**Liner** - (AT 3200) permanently bonded to race inside diameter

When a keyway is required, specify by adding a K at the end of the part number.

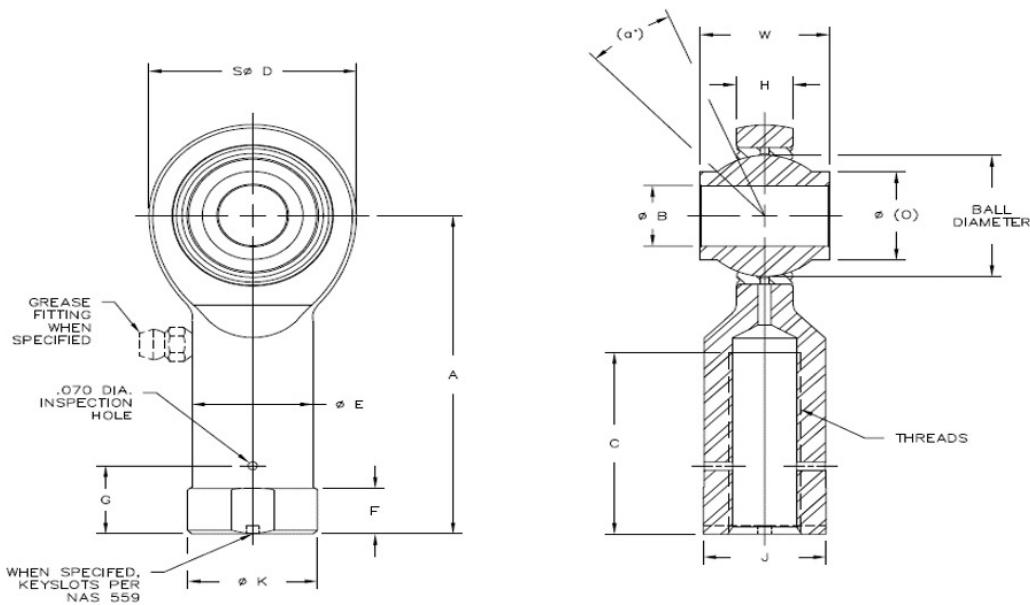
Ex.: HXAM-6ET-10K

ROD END NO.		DIMENSIONS IN INCHES										a° Misalign. Angle Ref.	No Load Breakway Torque In-Lbs.	Rotational Torque In-Lbs.	Ult. Static Radial Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.005	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C ±.060	THREAD UNJF-3A						
												Min.	Max.			
HXAM-3ET-10	HXAB-3ET-10	.1900	.560	.337	1.562	.781	.301	.531	1.000	5/16-24	16	.5	6	5,482	.08	
HXAM-3ET-11	HXAB-3ET-11	.1900	.500	.220	1.500	.750	.319	.437	1.000	5/16-24	13	.5	6	4,854	.06	
HXAM-4ET-10	HXAB-4ET-10	.2500	.593	.265	1.938	1.000	.390	.593	1.187	5/16-24	23	1	15	7,574	.11	
HXAM-5ET-10	HXAB-5ET-10	.3125	.813	.355	2.125	1.125	.512	.781	1.281	5/16-24	23	1	15	7,574	.18	
HXAM-5ET-11	HXAB-5ET-11	.3125	.625	.265	1.875	.875	.418	.593	1.062	5/16-24	16	1	15	5,817	.10	
HXAM-6ET-10	HXAB-6ET-10	.3750	.813	.355	2.125	1.125	.512	.781	1.281	3/8-24	23	1	15	9,151	.17	
HXAM-7ET-10	HXAB-7ET-10	.4375	.875	.355	2.437	1.312	.618	.875	1.500	7/16-20	22	1	15	13,824	.26	
HXAM-8ET-10	HXAB-8ET-10	.5000	.937	.411	2.625	1.500	.730	1.000	1.562	1/2-20	20	1	15	19,474	.40	
HXAM-10ET-10	HXAB-10ET-10	.6250	1.200	.577	2.875	1.750	.856	1.250	1.687	5/8-18	20	1	15	26,281	.63	
HXAM-12ET-10	HXAB-12ET-10	.7500	1.280	.630	3.375	2.000	.970	1.375	1.875	3/4-16	18	1	24	34,065	.87	
HXAM-14ET-10	HXAB-14ET-10	.8750	1.400	.635	3.750	2.200	1.140	1.531	2.000	7/8-14	18	1	24	35,670	1.01	
HXAM-16ET-10	HXAB-16ET-10	1.0000	1.875	.845	4.125	2.725	1.278	1.875	2.125	1 1/4-12	21	1	24	64,393	2.31	
HXAM-20ET-10	HXAB-20ET-10	1.2500	1.875	1.015	5.000	3.125	1.523	2.250	2.875	1 1/4-12	21	1	24	78,050	3.15	



# HIGH MISALIGNMENT SERIES FEMALE ROD ENDS

Corrosion Resistant - Precision



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**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

When a keyway is required, specify by adding a K at the end of the part number.

Ex.: HXAW-6E-10K

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting Ex.: HXAW-5EZ-10

F Flush type fitting Ex.: HXAW-6EF-10

Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department.

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ROD END NO.		DIMENSIONS IN INCHES														a <sup>9</sup> Misalign. Angle Ref.	Radial Clearance In	Ult. Static Radial Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.005	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C ±.060	THREAD UNJF-3B	E ±.010	K REF	F +.010 -.062	G ±.020	J ±.010				
HXAW-3E-10	HXAG-3E-10	.1900	.560	.337	1.625	.781	.301	.531	.750	5/16-24	.500	.562	.250	.375	.515	16	.002 Max.	5,482	.08
HXAW-3E-11	HXAG-3E-11	.1900	.500	.220	1.375	.750	.319	.437	.750	5/16-24	.437	.500	.250	.375	.452	13		4,854	.06
HXAW-4E-10	HXAG-4E-10	.2500	.593	.265	1.625	1.000	.390	.593	.937	5/16-24	.562	.625	.250	.375	.577	23		8,509	.11
HXAW-5E-10	HXAG-5E-10	.3125	.813	.355	1.812	1.125	.512	.781	1.062	5/16-24	.625	.688	.250	.375	.640	23		9,151	.18
HXAW-5E-11	HXAG-5E-11	.3125	.625	.265	1.375	.875	.418	.593	.750	5/16-24	.437	.500	.250	.375	.452	16		5,817	.10
HXAW-6E-10	HXAG-6E-10	.3750	.813	.355	1.812	1.125	.512	.781	1.062	3/8-24	.625	.688	.250	.437	.640	23		9,151	.17
HXAW-7E-10	HXAG-7E-10	.4375	.875	.355	2.125	1.312	.618	.875	1.125	7/16-20	.750	.812	.250	.500	.765	22		13,824	.26
HXAW-8E-10	HXAG-8E-10	.5000	.937	.411	2.625	1.500	.730	1.000	1.500	1/2-20	.875	.938	.375	.562	.890	20		19,474	.40
HXAW-10E-10	HXAG-10E-10	.6250	1.200	.577	2.875	1.750	.856	1.250	1.750	5/8-18	1.000	1.125	.375	.687	1.015	20		26,281	.63
HXAW-12E-10	HXAG-12E-10	.7500	1.280	.630	3.375	2.000	.970	1.375	1.875	3/4-16	1.125	1.250	.500	.812	1.140	18		34,065	.87
HXAW-14E-10	HXAG-14E-10	.8750	1.400	.635	3.750	2.200	1.140	1.531	2.000	7/8-14	1.125	1.250	.500	.937	1.140	18		35,670	1.01
HXAW-16E-10	HXAG-16E-10	1.0000	1.875	.845	4.125	2.725	1.278	1.875	2.125	1 1/4-12	1.688	1.813	.562	1.312	1.703	21		63,207	2.31
HXAW-20E-10	HXAG-20E-10	1.2500	1.875	1.015	5.000	3.125	1.523	2.250	3.125	1 1/4-12	1.688	1.813	.562	1.312	1.703	21		78,050	3.15



# HIGH MISALIGNMENT SERIES FEMALE ROD ENDS

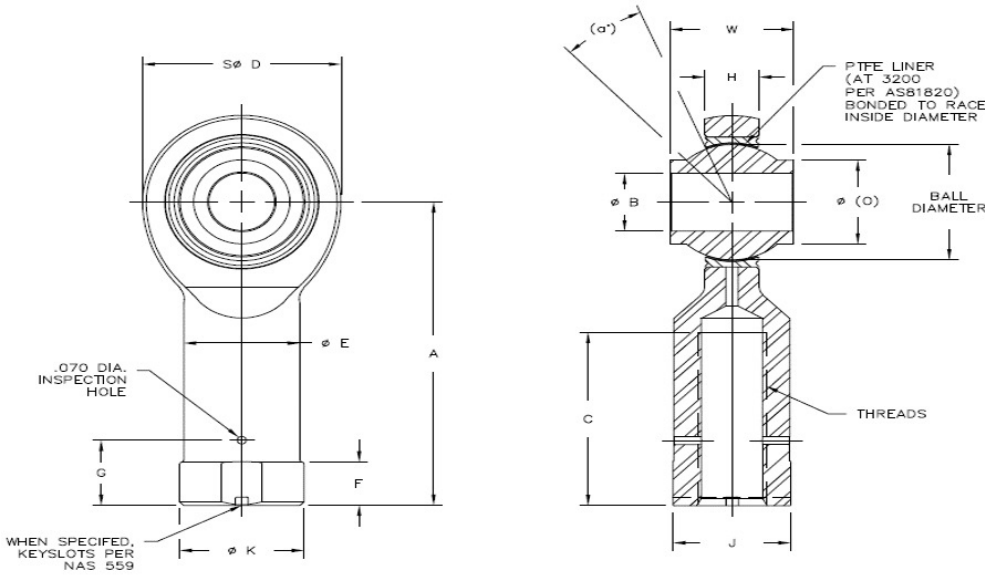
Corrosion Resistant - Precision - PTFE Lined

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**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

**Liner** - (AT 3200) permanently bonded to race inside diameter



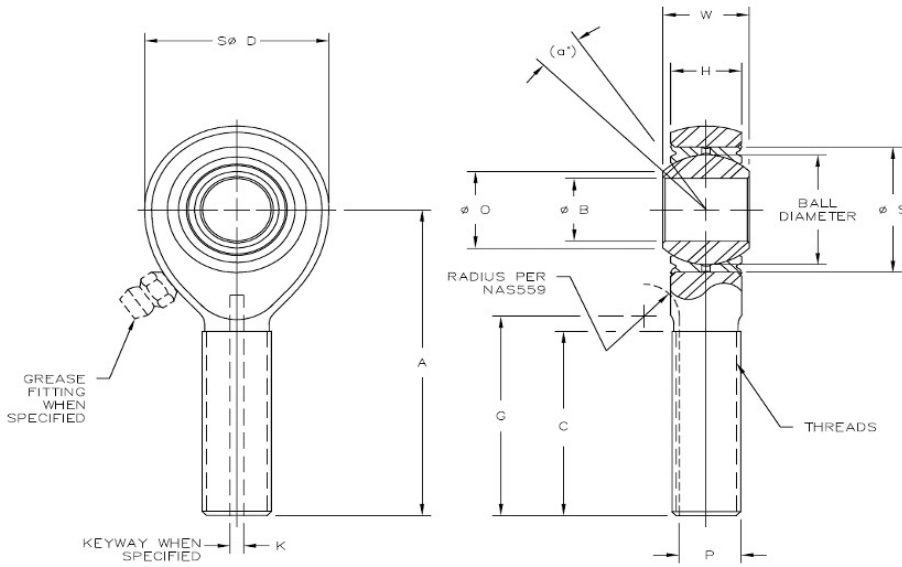
When a keyway is required, specify by adding a K at the end of the part number.  
Ex.: HXAW-6ET-10K

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ROD END NO.		DIMENSIONS IN INCHES															a° Misalign. Angle Ref.	No Load Rotational Breakway Torque In-Lbs.		Ult. Static Radial Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.005	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C ±.060	THREAD UNJF-3B	E ±.010	K REF.	F +.010 -.062	G ±.020	J ±.010	Min.		Max.			
HXAW-3ET-10	HXAG-3ET-10	.1900	.560	.337	1.625	.781	.301	.531	.750	5/16-24	.500	.562	.250	.375	.515	16		.5	6		
HXAW-3ET-11	HXAG-3ET-11	.1900	.500	.220	1.375	.750	.319	.437	.750	5/16-24	.437	.500	.250	.375	.452	13	.5	6	4,854	.06	
HXAW-4ET-10	HXAG-4ET-10	.2500	.593	.265	1.625	1.000	.390	.593	.937	5/16-24	.562	.625	.250	.375	.577	23	1	15	8,509	.11	
HXAW-5ET-10	HXAG-5ET-10	.3125	.813	.355	1.812	1.125	.512	.781	1.062	5/16-24	.625	.688	.250	.375	.640	23	1	15	9,151	.18	
HXAW-5ET-11	HXAG-5ET-11	.3125	.625	.265	1.375	.875	.418	.593	.750	5/16-24	.437	.500	.250	.375	.452	16	1	15	5,817	.10	
HXAW-6ET-10	HXAG-6ET-10	.3750	.813	.355	1.812	1.125	.512	.781	1.062	3/8-24	.625	.688	.250	.437	.640	23	1	15	9,151	.17	
HXAW-7ET-10	HXAG-7ET-10	.4375	.875	.355	2.125	1.312	.618	.875	1.125	7/16-20	.750	.812	.250	.500	.765	22	1	15	13,824	.26	
HXAW-8ET-10	HXAG-8ET-10	.5000	.937	.411	2.625	1.500	.730	1.000	1.500	1/2-20	.875	.938	.375	.562	.890	20	1	15	19,474	.40	
HXAW-10ET-10	HXAG-10ET-10	.6250	1.200	.577	2.875	1.750	.856	1.250	1.750	5/8-18	1.000	1.125	.375	.687	1.015	20	1	15	26,281	.63	
HXAW-12ET-10	HXAG-12ET-10	.7500	1.280	.630	3.375	2.000	.970	1.375	1.875	3/4-16	1.125	1.250	.500	.812	1.140	18	1	24	34,065	.87	
HXAW-14ET-10	HXAG-14ET-10	.8750	1.400	.635	3.750	2.200	1.140	1.531	2.000	7/8-14	1.125	1.250	.500	.937	1.140	18	1	24	35,670	1.01	
HXAW-16ET-10	HXAG-16ET-10	1.0000	1.875	.845	4.125	2.725	1.278	1.875	2.125	1 1/4-12	1.688	1.813	.562	1.312	1.703	21	1	24	63,207	2.31	
HXAW-20ET-10	HXAG-20ET-10	1.2500	1.875	1.015	5.000	3.125	1.523	2.250	3.125	1 1/4-12	1.688	1.813	.562	1.312	1.703	21	1	24	78,050	3.15	

# ASM-X-10 & ASB-X-10 MALE ROD ENDS

Aerospace Series - Corrosion Resistant



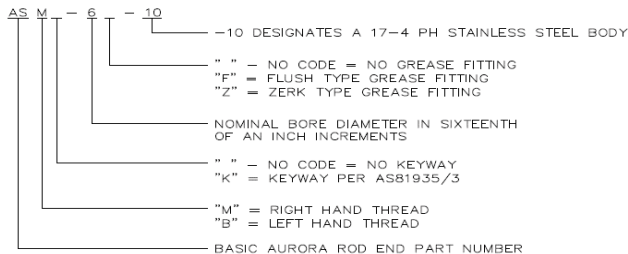
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**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

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ROD END NO.		DIMENSIONS IN INCHES													a° Misalign. Angle Min.	Radial Clearance In	Ult. Static Radial Load Lbs.	Axial Proof Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.002	H ±.005	A ±.010	D ±.010	O MIN.	S Max. Housing I.D.	Ball Dia. Ref.	G +.000 -.020	K +.005 -.000	P +.000 -.005	C ±.031	Thread UNJF-3A					
ASM-3-10	ASB-3-10	.1900	.437	.337	1.562	.806	.30	.6250	.531	.980	.062	.268	.968	5/16-24	15	.002 Max.	6,688	1,000	.072
ASM-4-10	ASB-4-10	.2500	.437	.337	1.562	.806	.30	.6250	.531	.980	.062	.268	.968	5/16-24	15		6,688	1,000	.072
ASM-5-10	ASB-5-10	.3125	.437	.327	1.875	.900	.36	.6875	.593	1.270	.062	.268	1.187	5/16-24	14		7,574	1,100	.087
ASM-6-10	ASB-6-10	.3750	.500	.416	1.938	1.025	.47	.8125	.687	1.235	.093	.319	1.187	3/8-24	8		9,681	1,660	.136
ASM-7-10	ASB-7-10	.4375	.562	.452	2.125	1.150	.54	.9062	.781	1.402	.093	.383	1.281	7/16-20	10		12,415	1,850	.183
ASM-8-10	ASB-8-10	.5000	.625	.515	2.438	1.337	.61	1.0000	.875	1.589	.093	.445	1.468	1/2-20	9		20,576	2,040	.278
ASM-10-10	ASB-10-10	.6250	.750	.577	2.625	1.525	.75	1.1875	1.062	1.683	.125	.541	1.562	5/8-18	12		22,891	2,430	.424
ASM-12-10	ASB-12-10	.7500	.875	.640	2.875	1.775	.85	1.3750	1.250	1.808	.125	.663	1.687	3/4-16	13		30,327	2,810	.639
ASM-14-10	ASB-14-10	.8750	.875	.765	3.375	2.025	1.00	1.6250	1.375	2.121	.156	.777	2.000	7/8-14	6		35,391	3,320	.963
ASM-16-10	ASB-16-10	1.0000	1.375	1.015	4.125	2.775	1.27	2.1250	1.875	2.464	.187	1.136	2.343	1 1/4-12	12		80,547	4,340	2.546

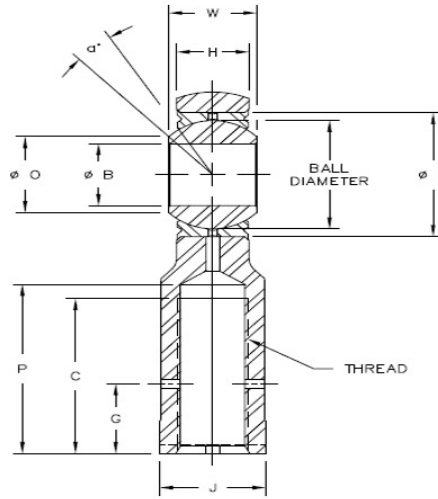
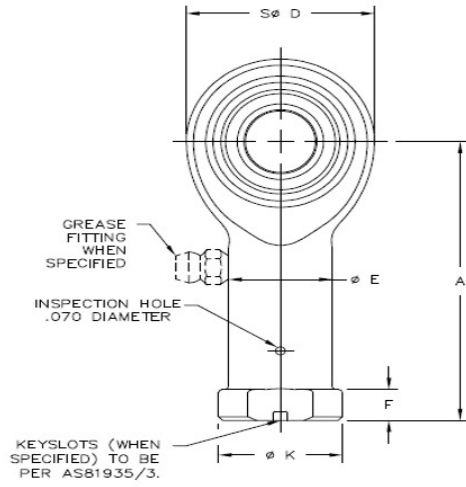




# ASW-X-10 & ASG-X-10 FEMALE ROD ENDS

Aerospace Series - Corrosion Resistant

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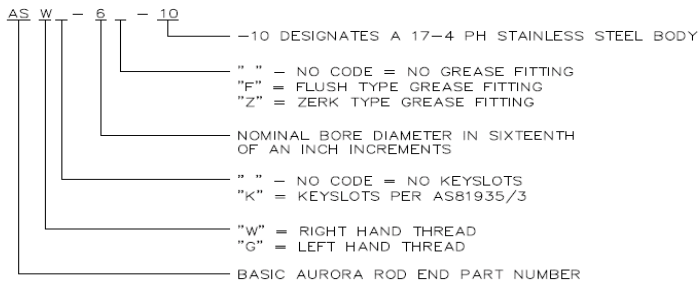


**Body** - 17-4 PH stainless steel, heat treated

**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

ROD END NO.		DIMENSIONS IN INCHES															a° Misalign. Angle Min.	Radial Clearance In	Ult. Static Radial Load Lbs.	Axial Proof Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.002	H ±.005	A ±.010	D ±.010	O MIN.	S Max. Housing I.D.	E ±.010	K Ref.	J ±.010	F +.010 -.062	Ball Dia. Ref.	P Max.	C Min.	Thread UNJF-3B					
ASW-3-10	ASG-3-10	.1900	.437	.337	1.375	.806	.30	.6250	.422	.500	.437	.188	.531	.875	.750	5/16-24	15	.002 Max.	6,688	1,000	.080
ASW-4-10	ASG-4-10	.2500	.437	.337	1.469	.806	.30	.6250	.422	.500	.437	.188	.531	.875	.750	5/16-24	15		6,688	1,000	.084
ASW-5-10	ASG-5-10	.3125	.437	.327	1.625	.900	.36	.6875	.485	.580	.500	.250	.593	1.000	.875	3/8-24	14		8,063	1,100	.102
ASW-6-10	ASG-6-10	.3750	.500	.416	1.812	1.025	.47	.8125	.547	.660	.562	.250	.687	1.125	1.000	3/8-24	8		9,681	1,660	.161
ASW-7-10	ASG-7-10	.4375	.562	.452	2.000	1.150	.54	.9062	.610	.720	.625	.250	.781	1.250	1.125	7/16-20	10		12,415	1,850	.212
ASW-8-10	ASG-8-10	.5000	.625	.515	2.250	1.337	.61	1.0000	.735	.880	.750	.250	.875	1.375	1.250	1/2-20	9		20,576	2,040	.325
ASW-10-10	ASG-10-10	.6250	.750	.577	2.500	1.525	.75	1.1875	.860	1.020	.875	.375	1.062	1.500	1.375	5/8-18	12		22,891	2,430	.481
ASW-12-10	ASG-12-10	.7500	.875	.640	2.875	1.775	.85	1.3750	.985	1.160	1.000	.375	1.250	1.750	1.625	3/4-16	13		30,327	2,810	.673
ASW-14-10	ASG-14-10	.8750	.875	.765	3.375	2.025	1.00	1.6250	1.110	1.300	1.125	.500	1.375	2.062	1.875	7/8-14	6		35,391	3,320	.963
ASW-16-10	ASG-16-10	1.0000	1.375	1.015	4.125	2.775	1.27	2.1250	1.688	2.020	1.750	.563	1.875	2.312	2.125	1 1/4-12	12		80,547	4,340	2.717

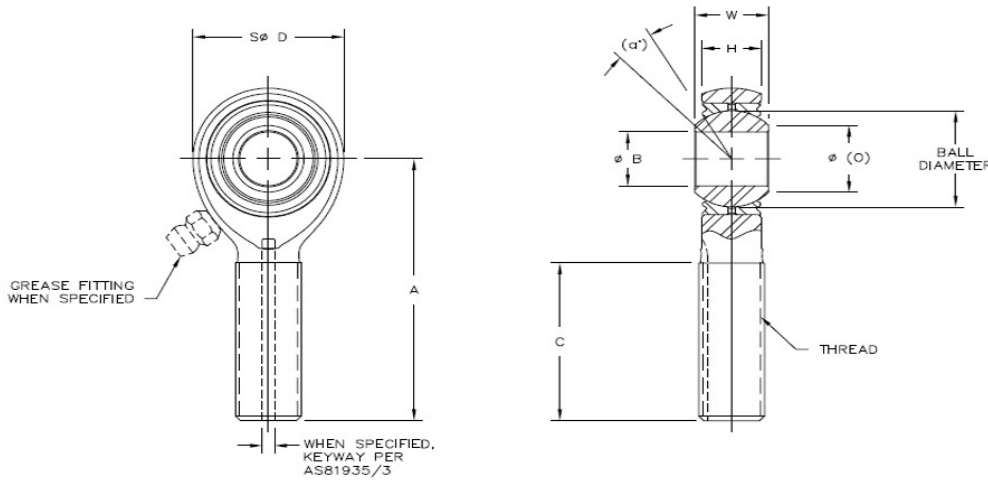


# ASXM & ASXB MALE ROD ENDS

Aerospace Series - Heavy Duty Shank



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**Body** - 4340 alloy steel, heat treated, cadmium plated

**Race** - 4130 alloy steel, heat treated, cadmium plated

**Ball** - 52100 alloy steel, heat treated, chrome plated

ROD END NO.		DIMENSIONS IN INCHES										a° Misalign. Angle Ref.	Radial Clearance In	Ult. Static Radial Load Lbs.		Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.005	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C +.031 -.031	THREAD UNF-3A	4340 Steel			17-4 Stainless Steel		
ASXM-4	ASXB-4	.2500	.375	.337	1.562	.806	.375	.531	.968	5/16-24	5	.002 Max.	7,356	6,668	.07	
ASXM-5	ASXB-5	.3125	.437	.327	1.875	.900	.401	.593	1.187	3/8-24	14		8,895	8,063	.10	
ASXM-6	ASXB-6	.3750	.500	.416	1.938	1.025	.471	.687	1.187	7/16-20	9		10,680	9,681	.14	
ASXM-7	ASXB-7	.4375	.562	.452	2.125	1.150	.542	.781	1.281	1/2-20	10		13,697	12,415	.21	
ASXM-8	ASXB-8	.5000	.625	.515	2.438	1.337	.612	.875	1.468	5/8-18	9		22,700	20,576	.33	
ASXM-10	ASXB-10	.6250	.750	.577	2.625	1.525	.752	1.062	1.562	3/4-16	12		25,254	22,891	.48	
ASXM-12	ASXB-12	.7500	.875	.640	2.875	1.775	.892	1.250	1.687	7/8-14	13		33,457	30,327	.73	

ASX M K - 5 F - 10

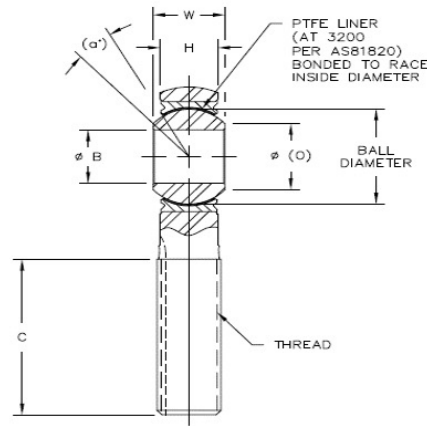
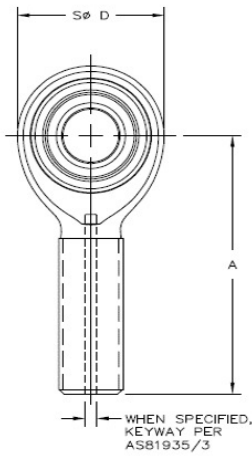
- " " - NO CODE = 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, 4130 STEEL CADMIUM PLATED RACE
- "-1" - 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, 17-4 PH STAINLESS STEEL RACE
- "-2" - 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, ALUMINUM BRONZE CADMIUM PLATED RACE
- "-10" - 17-4 PH STAINLESS STEEL BODY AND RACE, 440C STAINLESS STEEL BALL
- " " - NO CODE = NO GREASE FITTING
- "F" = FLUSH TYPE GREASE FITTING
- "Z" = ZERK TYPE GREASE FITTING
- "P" = 440C STAINLESS STEEL CHROME PLATED BALL (ONLY AVAILABLE WITH -10)
- NOMINAL BORE DIAMETER IN SIXTEENTH OF AN INCH INCREMENTS
- " " - NO CODE = NO KEYWAY
- "K" = KEYWAY PER ASB1935/3
- "M" = RIGHT HAND THREAD
- "B" = LEFT HAND THREAD
- BASIC AURORA ROD END PART NUMBER





# ASXM-T & ASXB-T MALE ROD ENDS

Aerospace Series - Heavy Duty Shank - PTFE Lined



**Body** - 4340 alloy steel, heat treated, cadmium plated

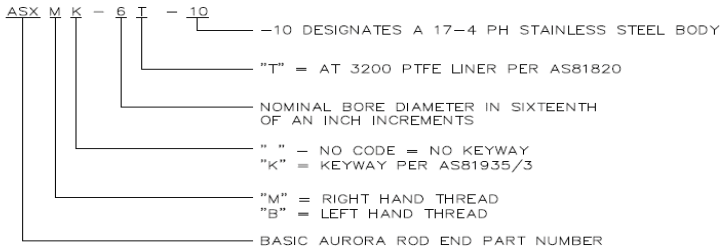
**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

**Liner** - (AT 3200) permanently bonded to race inside diameter, qualified to SAE-AS81820

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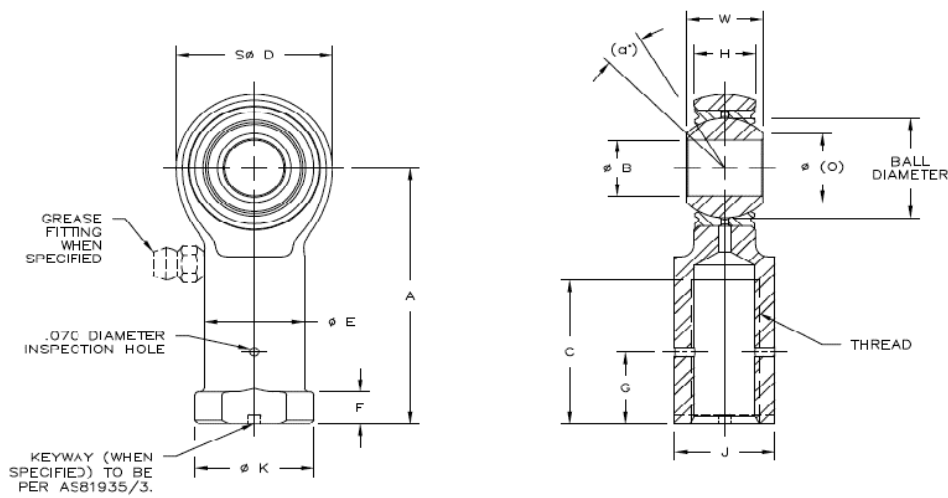
ROD END NO.		DIMENSIONS IN INCHES										a° Misalign. Angle Ref.	No Load Rotational Breakway Torque In-Lbs.		Ult. Static Radial Load Lbs.		Axial Proof Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.002	H ±.005	A ±.010	D ±.010	O REF.	Ball Dia. Ref.	C +.031 -.031	THREAD UNF-3A	Min.		Max.	4340 Steel	17-4 Stainless Steel			
ASXM-4T	ASXB-4T	.2500	.375	.337	1.562	.806	.375	.531	.968	5/16-24						5		
ASXM-5T	ASXB-5T	.3125	.437	.327	1.875	.900	.401	.593	1.187	3/8-24	14	1	10	8,895	8,063	1,100	.10	
ASXM-6T	ASXB-6T	.3750	.500	.416	1.938	1.025	.471	.687	1.187	7/16-20	9	1	10	10,680	9,681	1,660	.14	
ASXM-7T	ASXB-7T	.4375	.562	.452	2.125	1.150	.542	.781	1.281	1/2-20	10	1	10	13,697	12,415	1,850	.21	
ASXM-8T	ASXB-8T	.5000	.625	.515	2.438	1.337	.612	.875	1.468	5/8-18	9	1	10	22,700	20,576	2,040	.33	
ASXM-10T	ASXB-10T	.6250	.750	.577	2.625	1.525	.752	1.062	1.562	3/4-16	12	1	10	25,254	22,891	2,430	.48	
ASXM-12T	ASXB-12T	.7500	.875	.640	2.875	1.775	.892	1.250	1.687	7/8-14	13	1	10	33,457	30,327	2,810	.73	



Effective August 21st, 2023, the Naval Air Warfare Center Aircraft Division (NAWCAD) has disapproved Timken Aurora's qualification status for SAE-AS81820 and SAE-AS81935 specifications. Timken Aurora is working diligently to get requalified.

# ASXW & ASXG FEMALE ROD ENDS

Aerospace Series



**Body** - 4340 alloy steel, heat treated, cadmium plated

**Race** - 4130 alloy steel, heat treated, cadmium plated

**Ball** - 52100 alloy steel, heat treated, chrome plated

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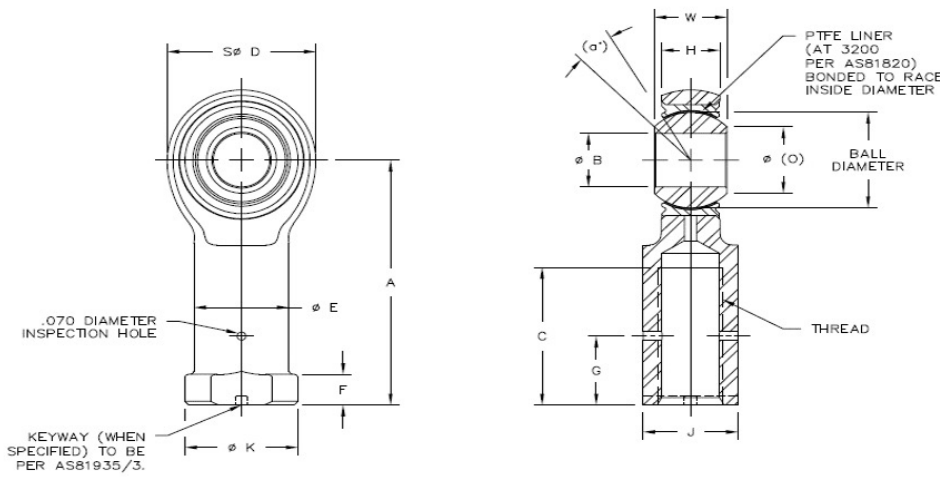
ROD END NO.		DIMENSIONS IN INCHES													a° Misalign. Angle Ref.	Radial Clearance In	Ult. Static Radial Load Lbs.		Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B +.0000 -.0005	W +.000 -.002	H ±.005	A ±.010	D ±.010	O REF.	E ±.010	K Ref.	J ±.010	F +.010 -.062	Ball Dia. Ref.	C Min.	Thread UNJF-3B			4340 Steel	17-4 Stainless Steel	
ASXW-4	ASXG-4	.2500	.375	.337	1.469	.806	.375	.485	.562	.500	.188	.531	.750	5/16-24	5	.002 Max.	7,356	6,668	.084
ASXW-5	ASXG-5	.3125	.437	.327	1.625	.900	.401	.547	.625	.562	.250	.593	.875	3/8-24	14		8,895	8,063	.102
ASXW-6	ASXG-6	.3750	.500	.416	1.812	1.025	.471	.610	.687	.625	.250	.687	1.000	7/16-20	9		10,680	9,681	.160
ASXW-7	ASXG-7	.4375	.562	.452	2.000	1.150	.542	.735	.875	.750	.250	.781	1.125	1/2-20	10		13,697	12,415	.230
ASXW-8	ASXG-8	.5000	.625	.515	2.225	1.337	.612	.860	1.000	.875	.250	.875	1.250	5/8-18	9		22,700	20,576	.340
ASXW-10	ASXG-10	.6250	.750	.577	2.500	1.525	.752	.985	1.125	1.000	.375	1.062	1.375	3/4-16	12		25,254	22,891	.490
ASXW-12	ASXG-12	.7500	.875	.640	2.875	1.775	.892	1.110	1.250	1.125	.375	1.250	1.625	7/8-14	13		33,457	30,327	.740

- ASX W K - G F - 10
- " " - NO CODE = 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, 4130 STEEL CADMIUM PLATED RACE
  - "-1" - 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, 17-4 PH STAINLESS STEEL RACE
  - "-2" - 4340 STEEL CADMIUM PLATED BODY, 52100 STEEL CHROME PLATED BALL, ALUMINUM BRONZE CADMIUM PLATED RACE
  - "-10" - 17-4 PH STAINLESS STEEL BODY AND RACE, 440C STAINLESS STEEL BALL
  - " " - NO CODE = NO GREASE FITTING
  - "F" = FLUSH TYPE GREASE FITTING
  - "Z" = ZERK TYPE GREASE FITTING
  - "P" = 440C STAINLESS STEEL CHROME PLATED BALL (ONLY AVAILABLE WITH -10)
  - NOMINAL BORE DIAMETER IN SIXTEENTH OF AN INCH INCREMENTS
  - " " - NO CODE = NO KEYSLOTS
  - "K" = KEYSLOTS PER AS81935/3
  - "W" = RIGHT HAND THREAD
  - "G" = LEFT HAND THREAD
  - BASIC AURORA ROD END PART NUMBER



# ASXW-T & ASXG-T FEMALE ROD ENDS

Aerospace Series - PTFE Lined



**Body** - 4340 alloy steel, heat treated, cadmium plated

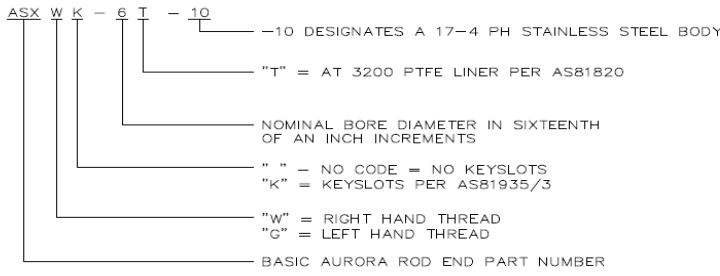
**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

**Liner** - (AT 3200) permanently bonded to race inside diameter, qualified to SAE-AS81820

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ROD END NO.		DIMENSIONS IN INCHES													a° Misalign. Angle Ref.	No Load Rotational Breakway Torque In-Lbs.		Ult. Static Radial Load Lbs.		Axial Proof Load Lbs.	Approx. Brg. Wt. Lbs.
Right Hand	Left Hand	B	W	H	A	D	O	E	K	J	F	Ball Dia.	C	Thread UNJF-3B		Min.	Max.	4340 Steel	17-4 Stainless Steel		
		+0.000 -0.005	+0.000 -0.002	±.005	±.010	±.010	Ref.	±.010	Ref.	±.010	+0.010 -0.062	Ref.	Min.	Ref.				Ref.	Ref.		
ASXW-4T	ASXG-4T	.2500	.375	.337	1.469	.806	.375	.485	.562	.500	.188	.531	.750	5/16-24	5	.5	6	7,356	6,668	1,000	.084
ASXW-5T	ASXG-5T	.3125	.437	.327	1.625	.900	.401	.547	.625	.562	.250	.593	.875	3/8-24	14	1	10	8,895	8,063	1,100	.102
ASXW-6T	ASXG-6T	.3750	.500	.416	1.812	1.025	.471	.610	.687	.625	.250	.687	1.000	7/16-20	9	1	10	10,680	9,681	1,660	.160
ASXW-7T	ASXG-7T	.4375	.562	.452	2.000	1.150	.542	.735	.875	.750	.250	.781	1.125	1/2-20	10	1	10	13,697	12,415	1,850	.230
ASXW-8T	ASXG-8T	.5000	.625	.515	2.250	1.337	.612	.860	1.000	.875	.250	.875	1.250	5/8-18	9	1	10	22,700	20,576	2,040	.340
ASXW-10T	ASXG-10T	.6250	.750	.577	2.500	1.525	.752	.985	1.125	1.000	.375	1.062	1.375	3/4-16	12	1	10	25,254	22,891	2,430	.490
ASXW-12T	ASXG-12T	.7500	.875	.640	2.875	1.775	.892	1.110	1.250	1.125	.375	1.250	1.625	7/8-14	13	1	10	33,457	30,327	2,810	.740



Effective August 21st, 2023, the Naval Air Warfare Center Aircraft Division (NAWCAD) has disapproved Timken Aurora's qualification status for SAE-AS81820 and SAE-AS81935 specifications. Timken Aurora is working diligently to get requalified.

# HIGH MISALIGNMENT SERIES SPHERICAL BEARINGS

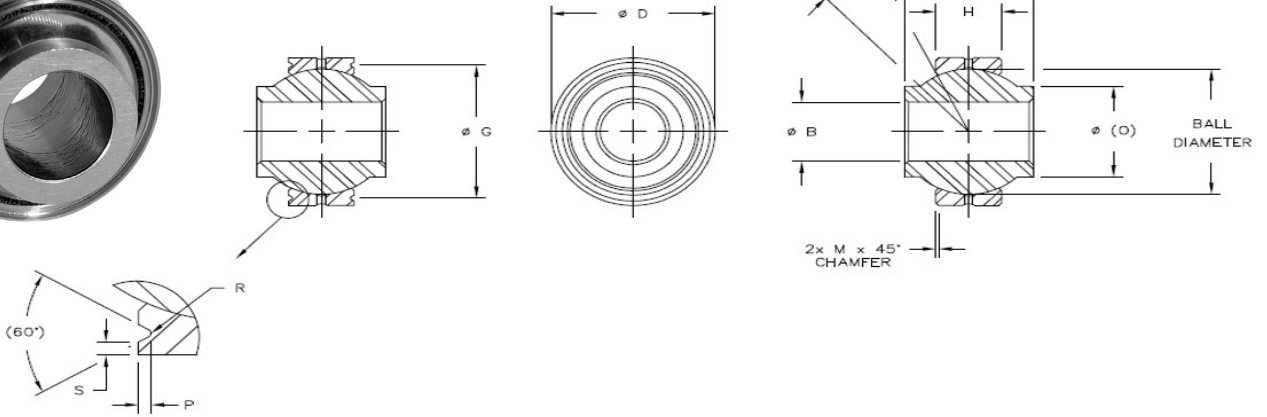
Corrosion Resistant



**Race** - 17-4 PH stainless steel, heat treated



**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)



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BEARING NO.		DIMENSIONS IN INCHES											a <sup>e</sup> Misalign. Angle REF	Radial Clearance In	RADIAL STATIC LIMIT LOAD CAPACITY Lbs.	APPROX. BEARING WEIGHT Lbs.
Plain	Grooved	B +.0000 -.0005	D ±.0000 -.0005	W +.000 -.005	H ±.005	M Ref.	O Ref.	P +.000 -.010	S Min.	G +.000 -.008	R +.002 -.005	Ball Dia. Ref.				
HAB-3E-3	HAB-3EG-3	.1900	.5625	.500	.210	.010	.319	.025	.010	.494	.010	.437	13	.002 Max.	6,334	.02
HAB-4E	HAB-4EG	.2500	.7400	.593	.255	.010	.390	.025	.010	.674	.010	.593	23		10,564	.04
HAB-5E-4	HAB-5EG-4	.3125	.6875	.625	.255	.010	.418	.025	.010	.629	.010	.593	18		10,564	.03
HAB-6E	HAB-6EG	.3750	.9060	.813	.345	.020	.512	.025	.010	.840	.010	.781	23		18,881	.07
HAB-7E	HAB-7EG	.4375	1.0000	.875	.345	.020	.618	.025	.010	.934	.010	.875	21		21,302	.10
HAB-8E	HAB-8EG	.5000	1.1250	.937	.401	.020	.730	.025	.010	1.059	.010	1.000	19		28,326	.16
HAB-10E	HAB-10EG	.6250	1.3750	1.200	.567	.020	.856	.035	.020	1.279	.015	1.250	19		49,837	.25
HAB-12E	HAB-12EG	.7500	1.5625	1.280	.620	.030	.970	.035	.020	1.467	.015	1.375	18		60,013	.32
HAB-14E	HAB-14EG	.8750	1.7500	1.400	.625	.030	1.140	.035	.020	1.654	.015	1.531	17		67,810	.43
HAB-16E	HAB-16EG	1.0000	2.1250	1.875	.835	.030	1.278	.055	.020	2.000	.015	1.875	20		110,530	.83
HAB-18E	HAB-18EG	1.1250	2.3125	1.875	.942	.030	1.400	.055	.020	2.188	.015	2.062	20		136,957	1.10
HAB-20E	HAB-20EG	1.2500	2.5000	1.875	1.005	.030	1.523	.055	.020	2.375	.015	2.250	21		159,756	1.32
HAB-22E	HAB-22EG	1.3750	2.7500	2.125	1.097	.030	1.670	.055	.020	2.625	.015	2.500	22		194,078	1.80
HAB-24E	HAB-24EG	1.5000	3.0000	2.250	1.175	.030	1.800	.055	.020	2.875	.015	2.672	21		222,208	2.22



# HIGH MISALIGNMENT SERIES SPHERICAL BEARINGS

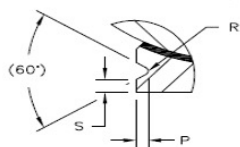
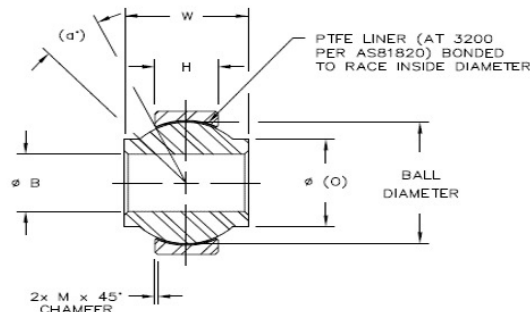
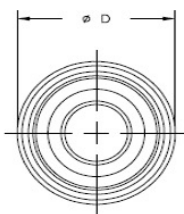
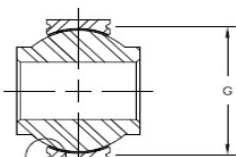
Corrosion Resistant- PTFE Lined



**Race** - 17-4 PH stainless steel, heat treated

**Ball** - 440C stainless steel, heat treated, chrome plated (MFG. option)

**Liner** - (AT 3200) Permanently bonded to race inside diameter

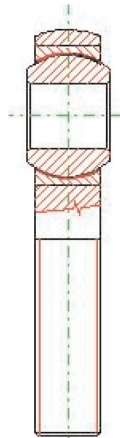


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BEARING NO.		DIMENSIONS IN INCHES											a° Misalign. Angle REF	NO-LOAD BREAKAWAY TORQUE (IN-LBS)		RADIAL STATIC LIMIT LOAD CAPACITY Lbs.	APPROX. BEARING WEIGHT Lbs.
Plain	Grooved	B	D	W	H	M	O	P	S	G	R	Ball Dia. Ref.		Min.	Max.		
		+0.0000 -0.0005	±0.0000 -0.0005	+0.000 -0.005	±0.005	Ref.	Ref.	+0.000 -0.010	Min.	+0.000 -0.008	+0.002 -0.005						
HAB-3ET-3	HAB-3ETG-3	.1900	.5625	.500	.210	.010	.319	.025	.010	.494	.010	.437	13	.25	5	6,334	.02
HAB-4ET	HAB-4ETG	.2500	.7400	.593	.255	.010	.390	.025	.010	.674	.010	.593	23	.25	5	10,564	.04
HAB-5ET-4	HAB-5ETG-4	.3125	.6875	.625	.255	.010	.418	.025	.010	.629	.010	.593	18	1	15	10,564	.03
HAB-6ET	HAB-6ETG	.3750	.9060	.813	.345	.020	.512	.025	.010	.840	.010	.781	23	1	15	18,881	.07
HAB-7ET	HAB-7ETG	.4375	1.0000	.875	.345	.020	.618	.025	.010	.934	.010	.875	21	1	15	21,302	.10
HAB-8ET	HAB-8ETG	.5000	1.1250	.937	.401	.020	.730	.025	.010	1.059	.010	1.000	19	1	15	28,326	.16
HAB-10ET	HAB-10ETG	.6250	1.3750	1.200	.567	.020	.856	.035	.020	1.279	.015	1.250	19	1	15	49,837	.25
HAB-12ET	HAB-12ETG	.7500	1.5625	1.280	.620	.030	.970	.035	.020	1.467	.015	1.375	18	1	15	60,013	.32
HAB-14ET	HAB-14ETG	.8750	1.7500	1.400	.625	.030	1.140	.035	.020	1.654	.015	1.531	17	1	24	67,810	.43
HAB-16ET	HAB-16ETG	1.0000	2.1250	1.875	.835	.030	1.278	.055	.020	2.000	.015	1.875	20	1	24	110,530	.83
HAB-18ET	HAB-18ETG	1.1250	2.3125	1.875	.942	.030	1.400	.055	.020	2.188	.015	2.062	20	1	24	136,957	1.10
HAB-20ET	HAB-20ETG	1.2500	2.5000	1.875	1.005	.030	1.523	.055	.020	2.375	.015	2.250	21	1	24	159,756	1.32
HAB-22ET	HAB-22ETG	1.3750	2.7500	2.125	1.097	.030	1.670	.055	.020	2.625	.015	2.500	22	1	24	194,078	1.80
HAB-24ET	HAB-24ETG	1.5000	3.0000	2.250	1.175	.030	1.800	.055	.020	2.875	.015	2.672	21	1	24	222,208	2.22



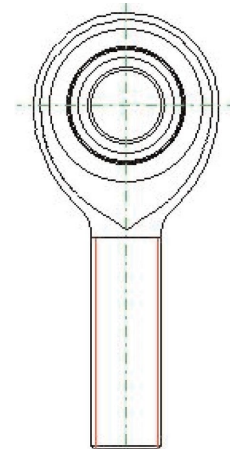
**EXCLUSIVE:  
2D AND 3D CAD DRAWINGS OF AURORA BEARING  
ROD END AND SPHERICAL BEARINGS**



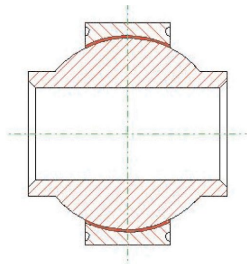
Cross section, MM-8T



3D model, MM-8T



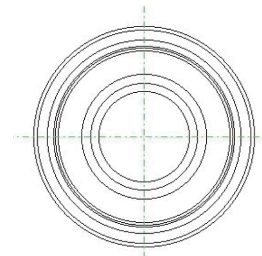
Front view, MM-8T



Cross section, HAB-6TG



3D model. HAB-6TG



Front View, HAB-6TG

Timken Aurora Bearing has developed a CAD drawing library of its entire catalog offering of Rod End and Spherical Bearings, including Mil Spec approved parts. These 2D and 3D images are importable into most major CAD and solid modeling packages, and includes both line drawings and 3D models.

Files are accessible at [cad.timken.com](http://cad.timken.com).

Try us online... where we're more than a website, we're a resource!

The Timken Aurora Bearing website is more than just an Internet location for the Timken Aurora Bearing product catalog. It allows immediate access to:

- exclusive Timken Aurora Bearing CAD drawing library
- technical resources such as industry terms and definitions
- answers to frequently asked technical questions
- reprints of articles regarding rod ends and spherical bearings
- in-depth technical data
- interchange guides for parts used in specialized industries

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The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related power transmission rebuild and repair services.

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