



AURORA

The Motion-Transfer Specialists

ROD END & SPHERICAL BEARING CATALOG & RESOURCE GUIDE

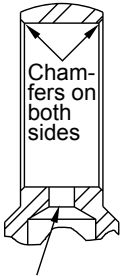
Effective August 21st, 2023, the Naval Air Warfare Center Aircraft Division (NAWCAD) has disapproved Timken Aurora's qualification status for SAE-AS81820 and SAE-AS81935 specifications. Timken Aurora is working diligently to get requalified.

COMMERCIAL | MILITARY | AIRCRAFT

3-Piece Unit



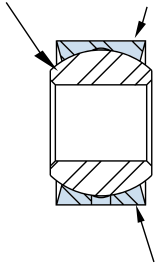
HOUSING



NOTE - Re-Lube hole for lubrication through shank of housing.

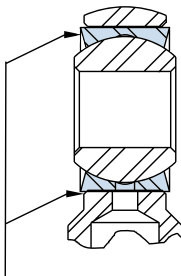
INSERT

Consists of BALL and RACE



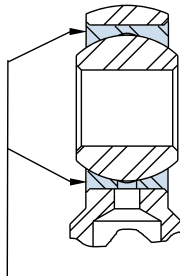
Single piece race, steel, heat-treated (optional), features swaged construction for maximum performance. Alternate race materials available to suit your application.

ASSEMBLED HOUSING AND INSERT IN PRE-STAKING POSITION



Note extension of race beyond width of housing in the pre-staking position.

ASSEMBLED HOUSING AND INSERT IN STAKED POSITION

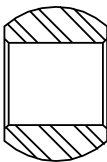


After staking, the sides of race have been upset into chamfers. Ball is subsequently loosened holding close tolerance fits between ball and race.

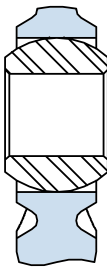
2-Piece Unit



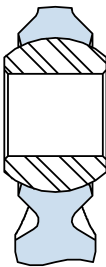
Housing ready for swaging



Precision ground ball - (available in alternate materials) - for close tolerance fits.



Housing and Ball in pre-swaging position.



Sides of housing are closed around ball for maximum strength unit.

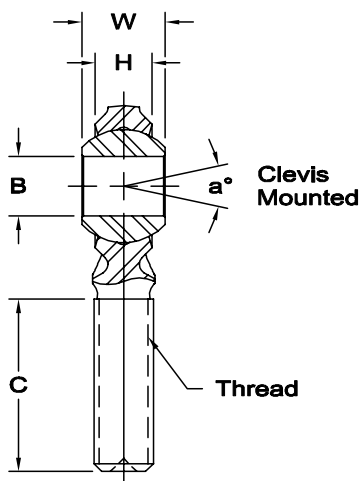
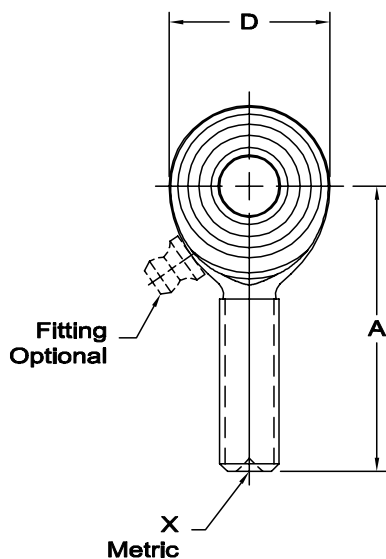


CM-M & CB-M SERIES MALE ROD ENDS - METRIC

General Purpose – Economy

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METRIC



Body - Low carbon steel, protective coated for corrosion resistance.

Ball - Alloy steel, heat treated, hard chrome plated.

*Check for availability. ** See page 5.
X Designates metric threads.

Z Zerk type fitting - CM-M10Z
(Not available for 3, 5, 6, & 8).

ROD END NO.		DIMENSIONS IN MILLIMETERS								a° Misalign. Angle**			Ultimate Radial Static Load Capacity Newtons	Approx. Brg. Wt. Grams
Right Hand	Left Hand	B + .065 - .013	W ± .13	H Ref.	A ± .40	D Ref.	Ball Dia. Ref.	C ± 1.00	Thread	a ₁	a ₂	a ₃		
* CM-M3	CB-M3	3	6	4.25	27	12.50	7.93	15	M3 X 0.5	23	34	71	1,775	7
CM-M5	CB-M5	5	8	5.75	33	16.00	11.10	20	M5 X 0.8	22	30	64	5,168	12
CM-M6	CB-M6	6	9	6.25	36	19.00	12.70	22	M6 X 1.0	23	31	65	7,296	18
CM-M8	CB-M8	8	12	8.00	42	22.25	15.88	25	M8 X 1.25	28	38	59	13,591	31
CM-M10	CB-M10	10	14	9.50	48	27.00	19.05	29	M10 X 1.5	26	35	57	21,024	68
CM-M12	CB-M12	12	16	10.75	54	30.00	22.23	33	M12 X 1.75	27	34	57	25,819	78
* CM-M14	CB-M14	14	19	12.25	60	34.75	25.40	36	M14 X 2.0	30	39	55	35,214	118
CM-M16	CB-M16	16	21	12.75	66	38.00	28.58	40	M16 X 2.0	33	42	59	37,391	173
* CM-M18	CB-M18	18	23	14.75	72	42.00	31.75	44	M18 X 1.5	30	37	56	47,903	260
CM-M20	CB-M20	20	25	16.25	78	46.00	34.93	47	M20 X 1.5	29	36	55	57,101	290

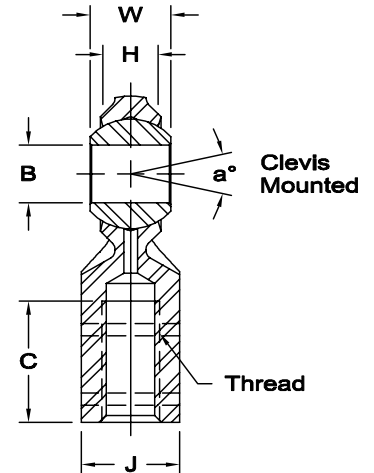
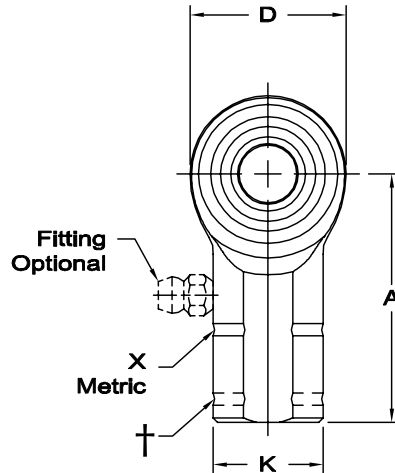
CW-M & CG-M SERIES FEMALE ROD ENDS - METRIC

General Purpose - Economy



Body - Low carbon steel, protective coated for corrosion resistance.

Ball - Alloy steel, heat treated, hard chrome plated.



Z Zerk type fitting - CW-M10Z
(Not available for 3 & 5)

*Check for availability. ** See page 5.
X Designates metric threads.

†Left hand units have identification groove near the end of shank.

ROD END NO.		DIMENSIONS IN MILLIMETERS										a°			Ultimate	Approx.
Right Hand	Left Hand†	B + .065 - .013	W ± .13	H Ref.	A ± .40	D Ref.	K ± .25	J ± .25	Ball Dia. Ref.	C ± 1.00	Thread	Misalign. Angle**			Radial Static Load Capacity Newtons	Brg. Wt. Grams
												a ₁	a ₃	a ₄		
* CW-M3	CG-M3	3	6	4.25	21	12.50	8	7	7.93	10	M3 X 0.5	23	34	71	5,746	10
* CW-M5	CG-M5	5	8	5.75	27	16.00	11	9	11.10	14	M5 X 0.8	22	30	64	8,247	18
CW-M6	CG-M6	6	9	6.25	30	19.00	13	11	12.70	14	M6 X 1.0	23	31	65	11,895	25
CW-M8	CG-M8	8	12	8.00	36	22.25	16	14	15.88	17	M8 X 1.25	28	38	59	15,190	40
CW-M10	CG-M10	10	14	9.50	43	27.00	19	17	19.05	21	M10 X 1.5	26	35	57	22,750	80
CW-M12	CG-M12	12	16	10.75	50	30.00	22	19	22.23	24	M12 X 1.75	27	34	57	25,819	95
* CW-M14	CG-M14	14	19	12.25	57	34.75	25	22	25.40	27	M14 X 2.0	30	39	55	35,214	160
CW-M16	CG-M16	16	21	12.75	64	38.00	27	22	28.58	33	M16 X 2.0	33	42	59	37,391	215
* CW-M18	CG-M18	18	23	14.75	71	42.00	31	27	31.75	36	M18 X 1.5	30	37	56	47,903	300
CW-M20	CG-M20	20	25	16.25	77	46.00	34	30	34.93	40	M20 X 1.5	29	36	55	57,101	350

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METRIC

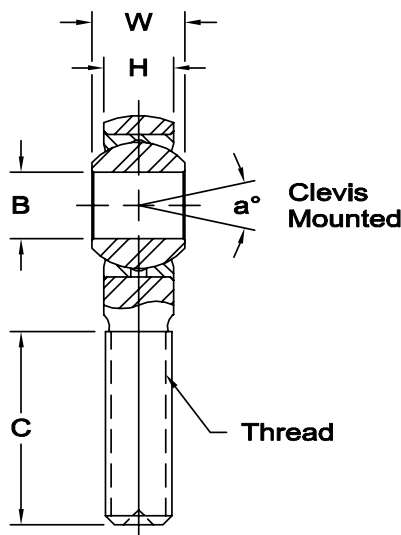
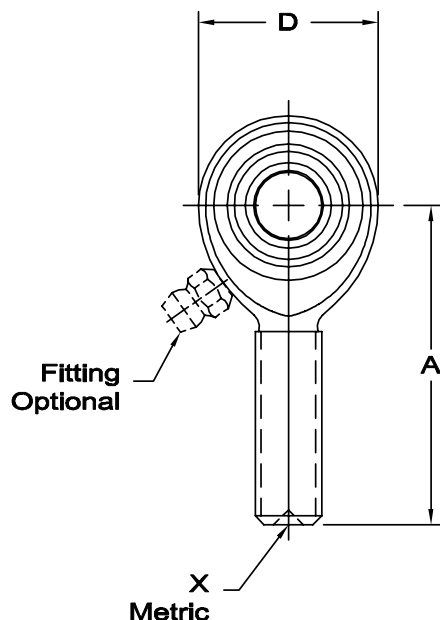


MM-M & MB-M SERIES MALE ROD ENDS - METRIC

General Purpose – Precision (PTFE Liners Available)

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METRIC



Body - Low carbon steel, protective coated for corrosion resistance.

Race - Low carbon steel, protective coated for corrosion resistance.

Ball - Alloy steel, heat treated, hard chrome plated.

*Check for availability.

** See page 5.

X Designates metric threads.

1 Tolerance variation: "D" ± .51, "A" ± .51

‡ Grease fitting not available on this size. Units are supplied without grease fittings. When a grease fitting is required, specify by adding suffix as designated.

Z Zerk type fitting

Ex: MM-M10Z

F Flush type fitting

Ex: MM-M10F

T PTFE Liner

Ex: MM-M10T

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

ROD END NO.		DIMENSIONS IN MILLIMETERS								a°			Ultimate	Approx.
Right Hand	Left Hand	B + .065 - .013	W ± .13	H ± .13	A ± .40	D ± .38	Ball Dia. Ref.	C ± 1.00	Thread	Misalign. Angle**			Radial Static Load Capacity Newtons	
										a ₁	a ₂	a ₃		Brg. Wt. Grams
* ‡MM-M3	‡MB-M3	3	6	4.75	27	12.50	7.93	15	M3 X 0.5	13	25	62	1,775	7
MM-M5	MB-M5	5	8	6.25	33	16.00	11.10	20	M5 X 0.8	14	24	58	5,168	13
MM-M6	MB-M6	6	9	7.00	36	19.00	12.70	22	M6 X 1.0	13	23	57	7,296	18
MMF-M8	MBF-M8	8	12	8.75	42	22.25	15.88	25	M8 X 1.0	18	31	53	13,591	31
MM-M8	MB-M8	8	12	8.75	42	22.25	15.88	25	M8 X 1.25	18	31	53	13,591	31
MMF-M10	MBF-M10	10	14	10.50	48	27.00	19.05	29	M10 X 1.25	17	28	50	20,603	68
MM-M10	MB-M10	10	14	10.50	48	27.00	19.05	29	M10 X 1.5	17	28	50	20,603	68
MMF-M12	MBF-M12	12	16	12.00	54	30.00	22.23	33	M12 X 1.25	17	27	49	18,215	78
MM-M12	MB-M12	12	16	12.00	54	30.00	22.23	33	M12 X 1.75	17	27	49	18,215	78
MMF-M14	MBF-M14	14	19	13.50	60	34.75	25.40	36	M14 X 1.5	21	33	49	29,840	118
MM-M14	MB-M14	14	19	13.50	60	34.75	25.40	36	M14 X 2.0	21	33	49	29,840	118
MMF-M16	MBF-M16	16	21	14.25	66	38.00	28.58	40	M16 X 1.5	23	35	52	32,223	173
MM-M16	MB-M16	16	21	14.25	66	38.00	28.58	40	M16 X 2.0	23	35	52	32,223	173
* MM-M18	MB-M18	18	23	16.25	72	42.00	31.75	44	M18 X 1.5	21	31	49	41,303	260
MMF-M20	MBF-M20	20	25	18.00	78	46.00	34.93	47	M20 X 1.5	20	29	48	50,952	290
MM-M20	MB-M20	20	25	18.00	78	46.00	34.93	47	M20 X 2.5	20	29	48	50,952	290
* MM-M22	MB-M22	22	28	19.50	86	50.00	38.10	51	M22 X 1.5	22	33	48	56,238	315
MM-M25	MB-M25	25	31	22.00	95	60.00	42.86	57	M24 X 2.0	19	31	47	104,435	500
1 MM-M30	MB-M30	30	37	25.40	104.78	69.85	50.80	60	M30 X 2.0	21	33	47	147,238	1,090

MW-M & MG-M SERIES FEMALE ROD ENDS - METRIC

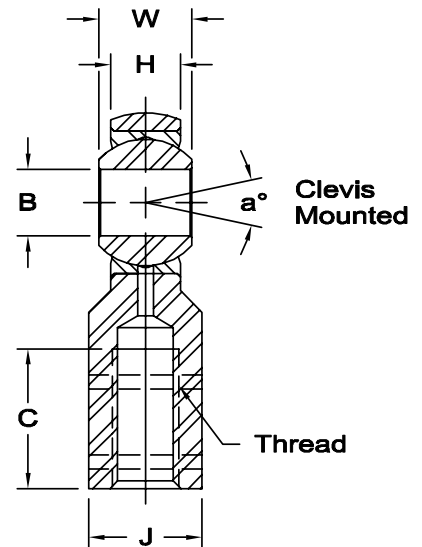
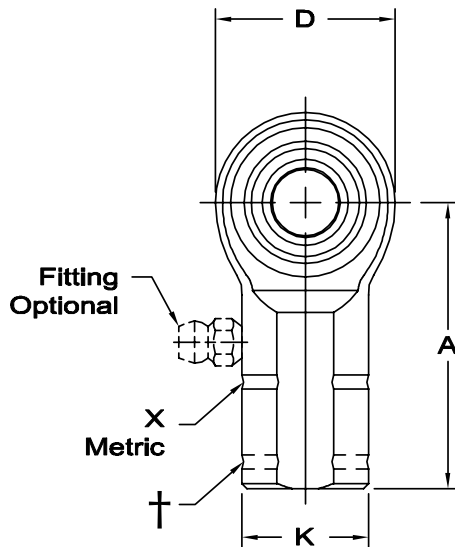
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‡ Grease fitting not available on this size. Units are supplied without grease fittings. When a grease fitting is required, specify by adding suffix as designated.

Z Zerk type fitting Ex: MW-M10Z

F Flush type fitting Ex: MW-M10F

T PTFE Liner Ex: MW-M10T

ROD END NO.		DIMENSIONS IN MILLIMETERS										a°			Ultimate	Approx.
Right Hand	Left Hand†	B + .065 - .013	W ± .13	H ± .13	A ± .40	D ± .38	K ± .25	J ± .25	Ball Dia. Ref.	C ± 1.00	Thread	Misalign. Angle**			Radial Static Load Capacity Newtons	Brg. Wt. Grams
												a ₁	a ₂	a ₃		
‡MW-M3	‡MG-M3	3	6	4.75	21	12.50	8	7	7.93	10	M3 X 0.5	13	25	62	4,972	10
MW-M5	MG-M5	5	8	6.25	27	16.00	11	9	11.10	14	M5 X 0.8	14	24	58	7,090	17
MW-M6	MG-M6	6	9	7.00	30	19.00	13	11	12.70	14	M6 X 1.0	13	23	57	10,573	25
MWF-M8	MGF-M8	8	12	8.75	36	22.25	16	14	15.88	17	M8 X 1.0	18	31	53	14,072	40
MW-M8	MG-M8	8	12	8.75	36	22.25	16	14	15.88	17	M8 X 1.25	18	31	53	14,072	40
MWF-M10	MGF-M10	10	14	10.50	43	27.00	19	17	19.05	21	M10 X 1.25	17	28	50	20,603	80
MW-M10	MG-M10	10	14	10.50	43	27.00	19	17	19.05	21	M10 X 1.5	17	28	50	20,603	80
MWF-M12	MGF-M12	12	16	12.00	50	30.00	22	19	22.23	24	M12 X 1.25	17	27	49	18,215	95
MW-M12	MG-M12	12	16	12.00	50	30.00	22	19	22.23	24	M12 X 1.75	17	27	49	18,215	95
MWF-M14	MGF-M14	14	19	13.50	57	34.75	25	22	25.40	27	M14 X 1.5	21	33	49	29,840	160
MW-M14	MG-M14	14	19	13.50	57	34.75	25	22	25.40	27	M14 X 2.0	21	33	49	29,840	160
MWF-M16	MGF-M16	16	21	14.25	64	38.00	27	22	28.58	33	M16 X 1.5	23	35	52	32,223	215
MW-M16	MG-M16	16	21	14.25	64	38.00	27	22	28.58	33	M16 X 2.0	23	35	52	32,223	215
MW-M18	MG-M18	18	23	16.25	71	42.00	31	27	31.75	36	M18 X 1.5	21	31	49	41,303	300
MWF-M20	MGF-M20	20	25	18.00	77	46.00	34	30	34.93	40	M20 X 1.5	20	29	48	50,952	350
MW-M20	MG-M20	20	25	18.00	77	46.00	34	30	34.93	40	M20 X 2.5	20	29	48	50,952	350
* MW-M22	MG-M22	22	28	19.50	86	50.00	37	32	38.10	43	M22 X 1.5	22	33	48	56,238	390
MW-M25	MG-M25	25	31	22.00	95	60.00	42	36	42.86	48	M24 X 2.0	19	31	47	104,435	700
1 MW-M30	MG-M30	30	37	25.40	104.78	69.85	41.25	38.10	50.80	54	M30 X 2.0	21	33	47	147,238	970