

Know Your Rod Ends

Rod ends (sometimes called Heim joints) are spherical bearings swaged in a housing that has a male or female threaded end. Rod ends are commonly threaded onto the end of control rods – thus the name threaded rod ends.

We offer every type and strength of rod end that is made. Our entire product line is “Made in the USA”. Avoid product made offshore. It is always inferior and the actual strength ratings are highly questionable.

The most important thing when specifying a rod end is its strength as measured by “radial load”. Rod ends can be made from a variety of materials that affect their load capacity. Choosing the right strength for your application is critical. Second, the rod end must be installed correctly. Rod ends are very strong in compression and expansion loads. Conversely, they were not meant to be used in heavy side loading applications (axial loads) or single shear. If you have questions, ask a professional engineer to specify strength and installation requirements.

In this catalog we feature our commercial rod ends for simplicity. If you need stronger rod ends or special features (chromemoly, teflon lined, studded, bronze races) let us know. We have them all.

Rod End Nomenclature

Rod ends are selected by hole size, thread type and strength. For example, a 3/8” male rod end (CM6) has:

Hole diameter:	3/8”
Thread:	3/8-24 (all rod ends have fine threads), male, right handed
Static radial load:	1,210 pounds

For female threads, replace the “M” with a “F”, i.e.) CF6. The hole size and thread diameters are always the equal. Military sizing is used. An inch has 16 parts and sizes are expressed as 1/16ths. For example, a half inch is 8/16ths. A half inch rod end is an “8”. Threads are always assumed to be right handed. Left hand threads are designated by adding an “L” to the part number for example CML6. For studded rod ends, the stud has the same diameter as the hole size and a “Y” in the product number, i.e.) CM6Y.

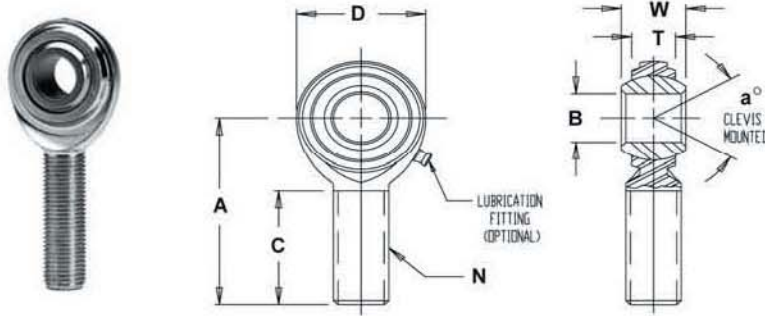
The most common types of rod ends are available in both right and left handed threads. They are shown below:



Standard

CM / CF

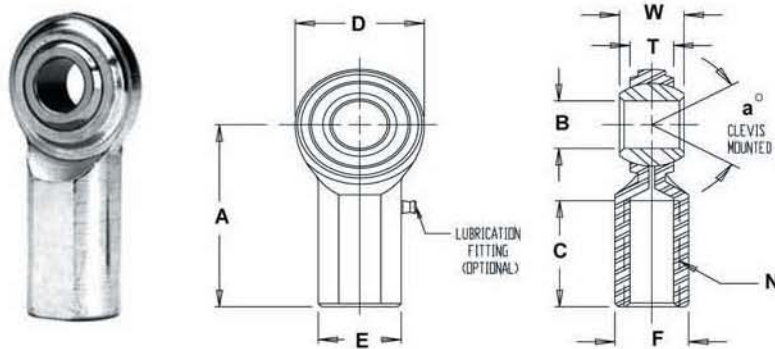
2-PIECE, METAL TO METAL



MATERIALS

BALL	BODY
52100 STEEL	LOW CARBON STEEL
Rc 56 MIN. HARDNESS	ZINC PLATED
HARD CHROME PLATED	CHROMATE TREATED

MALE ROD ENDS		B DIA.	D DIA.	W WIDTH	T WIDTH	BALL DIA.	A LGTH	N THD.	C LGTH	a° MIS. ANGLE	ULT. STATIC RADIAL LOAD (lbs.)	APPROX. WEIGHT (lbs.)
RIGHT HAND PART NO.	LEFT HAND PART NO.	+ .0025 - .0005	+ .010 - .010	+ .005 - .005	REF.	REF.	+ .015 - .015	UNF 3A	+ .062 - .031	REF.		
CM3*	CML3*	.1900	.625	.312	.234	.437	1.250	10-32	.750	20	1,210	.03
CM4*	CML4*	.2500	.750	.375	.250	.500	1.562	1/4-28	1.000	27	2,225	.04
CM5*	CML5*	.3125	.875	.437	.312	.625	1.875	5/16-24	1.250	22	3,600	.07
CM6	CML6	.3750	1.000	.500	.359	.719	1.938	3/8-24	1.250	22	5,100	.11
CM7	CML7	.4375	1.125	.562	.406	.812	2.125	7/16-20	1.375	21	6,402	.15
CM8	CML8	.5000	1.312	.625	.453	.937	2.438	1/2-20	1.500	20	8,386	.24
CM10	CML10	.6250	1.500	.750	.484	1.125	2.625	5/8-18	1.625	26	9,813	.36
CM12	CML12	.7500	1.750	.875	.593	1.312	2.875	3/4-16	1.750	24	14,290	.57



*GREASE FITTINGS ARE NOT SUPPLIED ON THESE SIZES. MALE ROD END LOAD RATINGS BASED ON NO LUBRICATING FITTING.

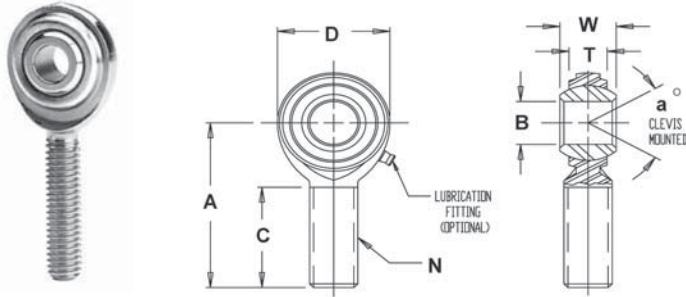
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Metric

CM-M / CF-M

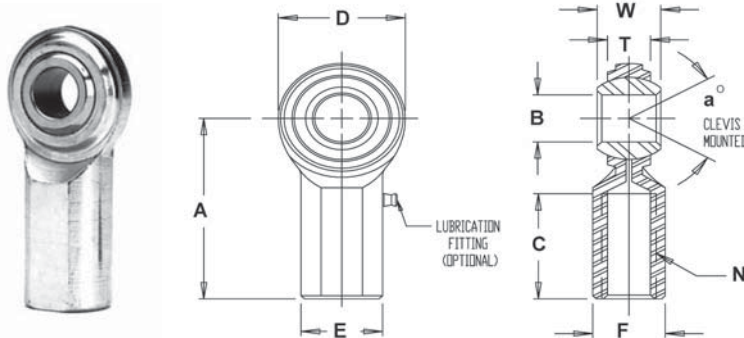
2-PIECE METRIC, METAL TO METAL



MATERIALS

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Rc 56 MIN. HARDNESS	ZINC PLATED
HARD CHROME PLATED	CHROMATE TREATED

MALE ROD ENDS		B DIA.	D DIA.	W WIDTH	T WIDTH	BALL DIA.	A LGTH	N THD.	C LGTH	a° MIS. ANGLE	ULT. STATIC RADIAL LOAD Newtons	APPROX. WEIGHT (GRAMS)
RIGHT HAND PART NO.	LEFT HAND PART NO.	+ .065 - .012	+ .038 - .038	+ .12 - .12	REF.	REF.	+ .40 - .40	THREAD	+ 1.00 - 1.00	REF.		
CM3M*	CML3M*	3	12.5	6	4.25	7.93	27	M3 X 0.5	15	23	1,775	7
CM5M*	CML5M*	5	16	8	5.75	11.10	33	M5 X 0.8	20	22	5,168	12
CM6M*	CML6M*	6	19	9	6.25	12.70	36	M6 X 1.0	22	23	7,296	18
CM8M*	CML8M*	8	22.25	12	8.0	15.88	42	M8 X 1.25	25	28	13,591	31
CM10M	CML10M	10	27	14	9.5	19.05	48	M10 X 1.5	29	26	21,024	68
CM12M	CML12M	12	30	16	10.75	22.23	54	M12 X 1.75	33	27	25,819	78
CM14M	CML14M	14	34.75	19	12.25	25.40	60	M14 X 2.0	36	30	35,214	118
CM16M	CML16M	16	38	21	12.75	28.58	66	M16 X 2.0	40	33	37,391	173
CM18M	CML18M	18	42	23	14.75	31.75	72	M18 X 1.5	44	30	47,903	260
CM20M	CML20M	20	46	25	16.25	34.93	78	M20 X 1.5	47	29	57,101	290



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Rc 56 MIN. HARDNESS	ZINC PLATED
HARD CHROME PLATED	CHROMATE TREATED

FEMALE ROD ENDS		B DIA.	D DIA.	W WIDTH	T WIDTH	BALL DIA.	A LGTH	N THD.	C LGTH	E DIA.	F FLAT	a° MIS. ANGLE	ULT. STATIC RADIAL LOAD Newtons	APPROX. WEIGHT (grams)
RIGHT HAND PART NO.	LEFT HAND PART NO.	+ .065 - .012	+ .38 - .38	+ .12 - .12	REF.	REF.	+ .40 - .40	THREAD	+ 1.00 - 1.00	+ .25 - .25	+ .25 - .25	REF.		
CF3M*	CFL3M*	3	12.5	6	4.25	7.93	21	M3 X 0.5	10	8	7	23	5,746	10
CF5M*	CFL5M*	5	16	8	5.75	11.10	27	M5 X 0.8	14	11	9	22	8,247	18
CF6M	CFL6M	6	19	9	6.25	12.70	30	M6 X 1.0	14	13	11	23	11,895	25
CF8M	CFL8M	8	22.25	12	8.0	15.88	36	M8 X 1.25	17	16	14	28	15,190	40
CF10M	CFL10M	10	27	14	9.5	19.05	43	M10 X 1.5	21	19	17	26	22,750	80
CF12M	CFL12M	12	30	16	10.75	22.23	50	M12 X 1.75	24	22	19	27	25,819	95
CF14M	CFL14M	14	34.75	19	12.25	25.40	57	M14 X 2.0	27	25	22	30	35,214	160
CF16M	CFL16M	16	38	21	12.75	28.58	64	M16 X 2.0	33	27	22	33	37,391	215
CF18M	CFL18M	18	42	23	14.75	31.75	71	M18 X 1.5	36	28.58	25.4	30	47,903	300
CF20M	CFL20M	20	46	25	16.25	34.93	77	M20 X 1.5	40	30.15	27	29	57,101	350