



## MODEL 7087 3½” Bore Hydraulic Cylinder

**Specification:**

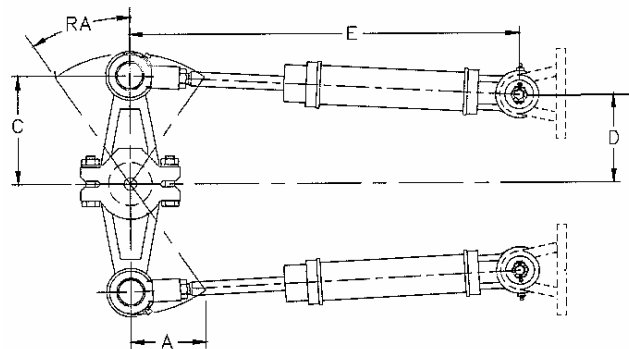
Cylinder bore: 3.5 inches (89 mm)  
 Stroke: 12 inches (305 mm) to 28 inches (711 mm)  
 Design pressure: 2000 psi (138 bar)      Weight (16” stroke): 57 lb. (26 kg) approx.

The cylinder is of the double-acting type with push/pull capability. The cylinder barrel and rod are made of steel with extra fine finish.

This cylinder model has two configuration options: balanced and unbalanced.

With the balance version, the push and pull forces are the same and oil from one side of the piston could simply be moved to the other side of the piston with a pump in a closed loop.

For the unbalanced type, the maximum force is obtained at the push stroke. If used for rudder moving purpose, two unbalanced cylinders are required. Mounting bracket for this cylinder model is available as an option.



For rudder angle = 35°, working pressure of 2000 p.s.i. on **two unbalanced** cylinders

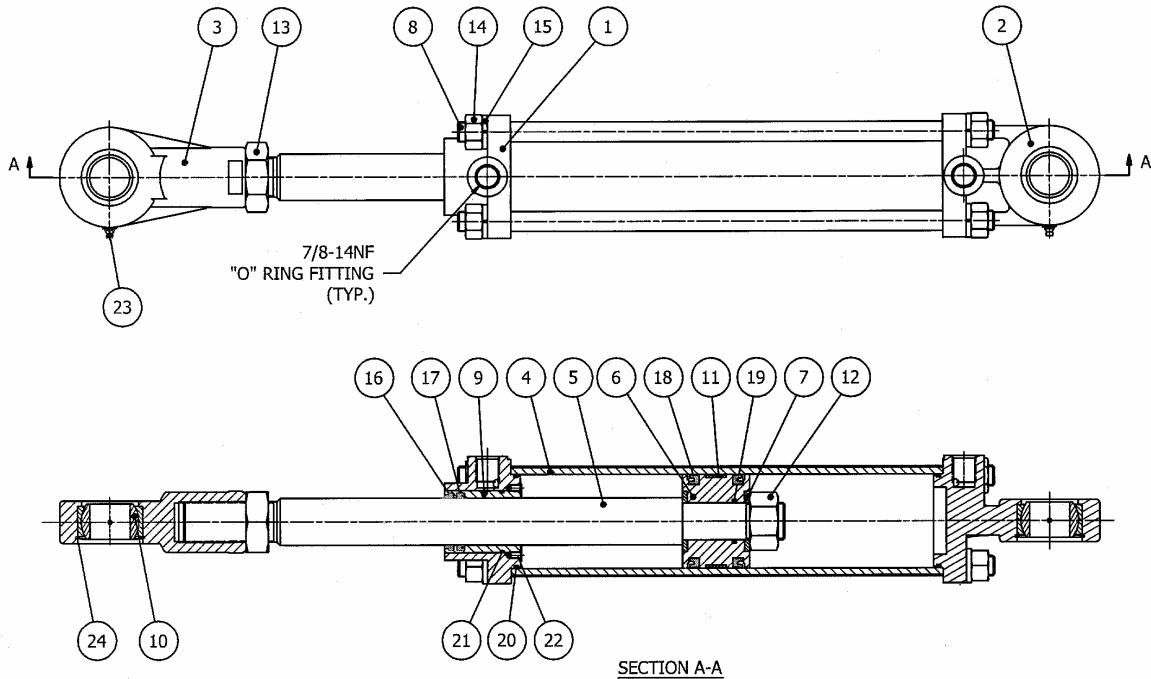
Model	Stroke		Torque		Displacement		A		C		D		E		Port thread size (F)
	in.	mm	lb-ft	kg-m	in <sup>3</sup>	cm <sup>3</sup>	in.	mm	in.	mm	in.	mm	in.	mm	
7087	12	305	24040	3324	202	3310	6	152	10.5	266	9.5	241	35.1	892	7/8”-14 O-ring fitting
	16	406	32015	4426	269	5509	8	203	14.0	354	12.7	322	41.1	1045	
	20	508	39985	5529	336	5506	10	254	17.4	443	15.9	403	47.1	1197	
	24	610	48080	6648	404	6620	12	305	20.9	531	19.0	483	53.1	1349	
	28	711	56055	7750	471	7718	14	356	24.4	620	22.2	564	59.1	1502	

For rudder angle = 45°, working pressure of 2000 p.s.i. on **two unbalanced** cylinders

Model	Stroke		Torque		Displacement		A		C		D		E (mid travel)	
	in.	mm	lb-ft	kg-m	in <sup>3</sup>	cm <sup>3</sup>	in.	mm	in.	mm	in.	mm	in.	mm
7087	12	305	16830	2327	202	3310	6	152	8.5	216	7.2	184	35.1	892
	16	406	22415	3099	269	5509	8	203	11.3	287	9.7	245	41.1	1045
	20	508	28000	3871	336	5506	10	254	14.1	359	12.1	306	47.1	1197
	24	610	33665	4655	404	6620	12	305	17.0	431	14.5	368	53.1	1349
	28	711	39250	5427	471	7718	14	356	19.8	503	16.9	429	59.1	1502

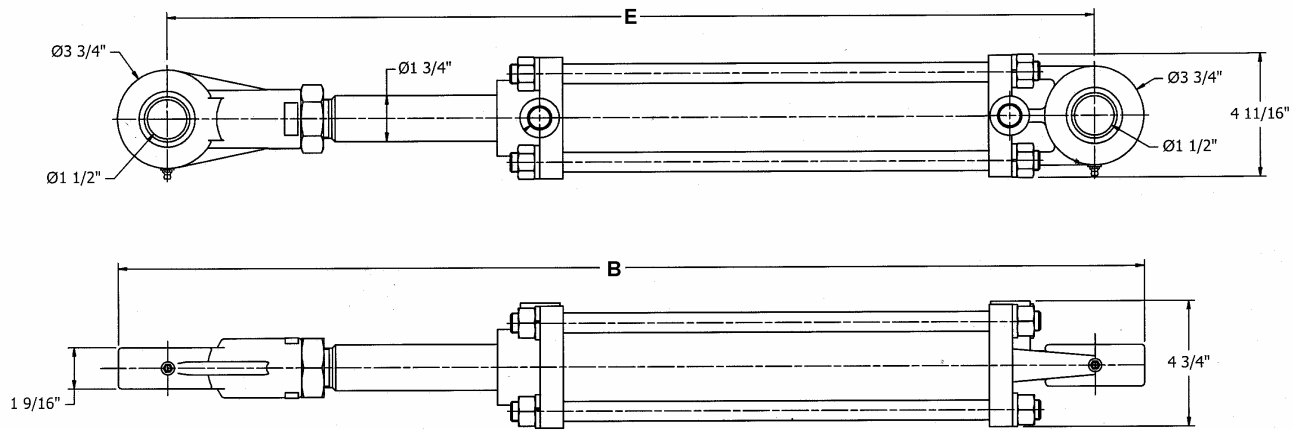
NOTE: Performance data are for reference only. Changes may be made without notice.

# DIMENSIONS AND PARTS LIST MODEL 7087-U



Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	7087-0001	Front end cap	13	1	1041-21150	Jam nut
2	1	7087-0002	Rear end cap	14	8	1022-0167	Hex nut
3	1	7087-0004	Rod end	15	8	1023-0318	Lock washer
4	1	7087-0106	Tube	16	1	1102-6028-H	Rod wiper
5	1	7087-0107	Piston rod	17	1	1102-2031-H	"U" cup
6	1	7087-0108	Piston	18	2	1102-2037	"U" cup
7	2	7087-0009	Piston washer	19	1	1101-0218	"O" ring
8	1	7087-0110	Tie rod	20	2	1101-0236	"O" ring
9	4	7087-0011	End cap bushing	21	1	1101-0138	"O" ring
10	2	7087-0012	Spherical bearing	22	4	1016-1006	Set screw
11	1	7085-0041	Wear ring	23	2	1501-0301	Grease nipple
12	1	1041-11125	Hex nut	24	2	1029-3243	Retaining ring

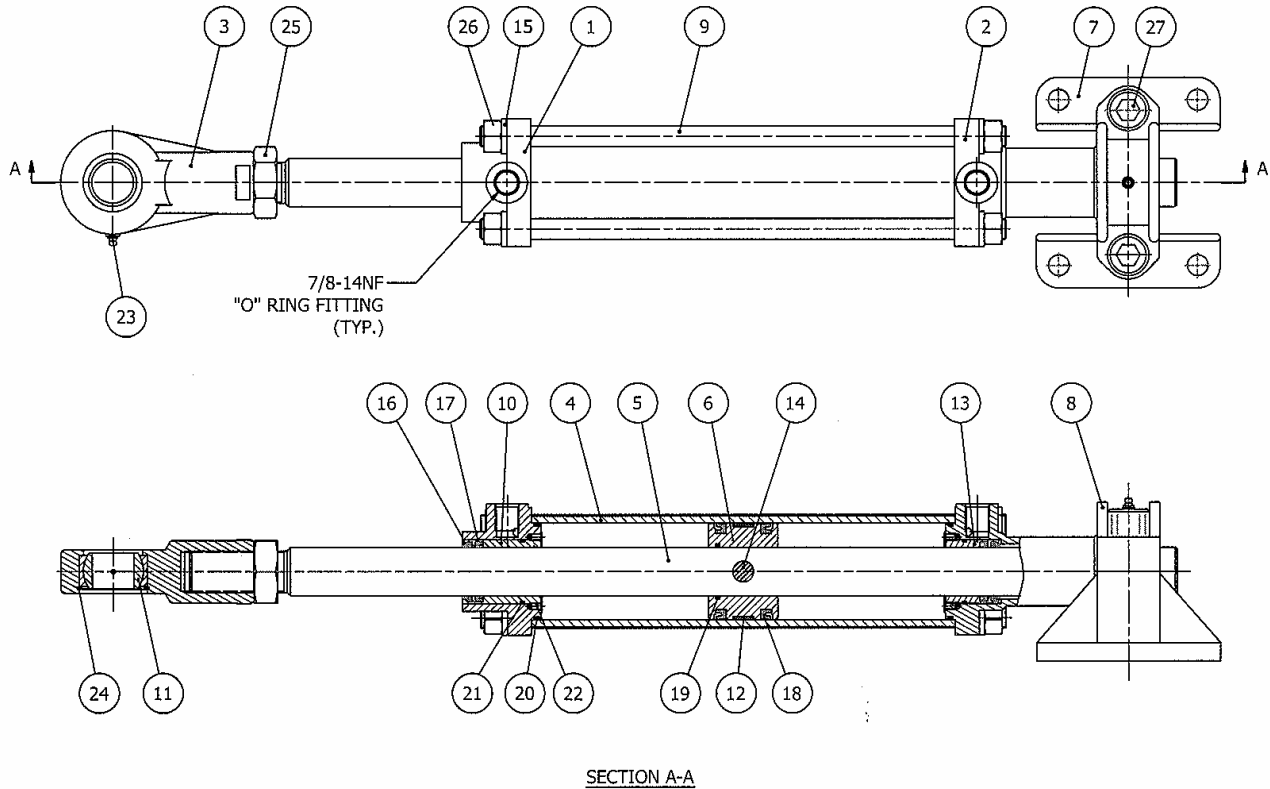
Tube Bore	Piston rod Diameter	Rod end		
		Thickness	Thread	Bearing bore
3½ in. (89 mm)	1¾ in. (44 mm)	1 9/16 in. (40 mm)	1½"-12 NF	1½ in. (38 mm)



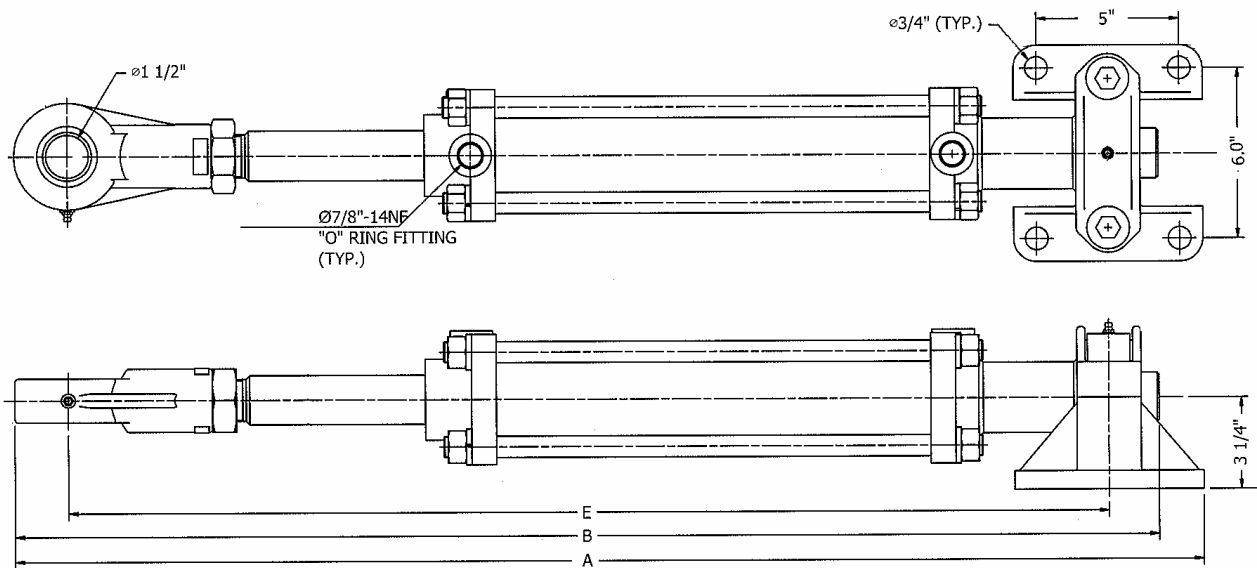
STROKE (in.)	B (in.)	E (in.)
12	38 7/8	35 1/8
16	44 7/8	41 1/8
20	50 7/8	47 1/8
24	56 7/8	53 1/8
28	62 7/8	59 1/8

Dimensions are measured at piston mid-travel position.

## DIMENSIONS AND PARTS LIST MODEL 7087-B (balanced)



Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	7087-0001	Front end cap	15	8	1023-0318	Lock washer
2	1	7087-0003	Trunnion end cap	16	2	1102-6028-H	Rod wiper
3	1	7087-0004	Rod end	17	2	1102-2031-H	"U" cup
4	1	7087-0006	Tube	18	2	1102-2037	"U" cup
5	1	7087-0007	Piston rod	19	1	1101-0224	"O" ring
6	1	7087-0008	Piston	20	2	1101-0236	"O" ring
7	1	7093-0002	Trunnion foot	21	2	1101-0138	"O" ring
8	1	7093-0005	Trunnion cap	22	8	1016-1006	Set screw
9	4	7087-0010	Tie rod	23	2	1501-0301	Grease nipple
10	1	7087-0011	Bushing (front end)	24	2	1029-3243	Retaining ring
11	1	7087-0012	Spherical bearing	25	1	1041-21150	Jam nut
12	1	7087-0013	Wear ring	26	8	1022-0167	Hex nut
13	1	7087-0014	Bushing (rear end)	27	2	1002-2240	Hex head cp screw
14	1	7087-0015	Piston pin				



**7087-B**

Rudder Angle	TORQUE *		STROKE		DISPLACEMENT		A	B	E
	lbf-ft	kg-m	in.	mm	in <sup>2</sup>	cm <sup>2</sup>	in.	in.	in.
35°	10354	1432	12	305	87	1426	41 13/16	40 1/4	36 5/8
	10686	1892	16	406	115	1885	47 13/16	48 1/4	42 5/8
	17138	2369	20	508	144	2360	53 13/16	56 1/4	48 5/8
	20589	2847	24	610	173	2835	59 13/16	64 1/4	54 5/8
	24040	3324	28	711	202	3310	65 13/16	72 1/4	60 5/8
45°	7250	1002	12	305	87	1426	41 13/16	40 1/4	36 5/8
	9583	1325	16	406	115	1885	47 13/16	48 1/4	42 5/8
	12000	1659	20	508	144	2360	53 13/16	56 1/4	48 5/8
	14417	1993	24	610	173	2835	59 13/16	64 1/4	54 5/8
	16833	2327	28	711	202	3310	65 13/16	72 1/4	60 5/8

\* Torque is based on one cylinder at 2000 psi (138 bar)