

# MODEL 7093 4" I.D. STEERING CYLINDER



This cylinder offers the very latest in design and engineering. It is entirely made of non-corrosive materials. Heavy duty urethane "U" cups are used to ensure positive sealing and long life. The cylinder can be ordered with the rod end secured with a jam nut.

**Materials:** Cylinder tube is 4" ID steel tube. Piston, end caps and bearings are silicon bronze. Piston rod is stainless steel and hard chromed.

**Max. Pressure:** 1000 psi (69 bar)

**Weight:** 124 lb. (56.5 kg) for 24" stroke

### ORDERING INFORMATION

- B – Balanced cylinder
- U – Unbalanced cylinder
- 12 – With 12" stroke
- 16 – With 16" stroke
- 20 – With 20" stroke
- 24 – With 24" stroke

**Example:** Balanced steering cylinder with rod end and 12" stroke, the ordering number is 7093-B12

**Note:** Other strokes are available on request.

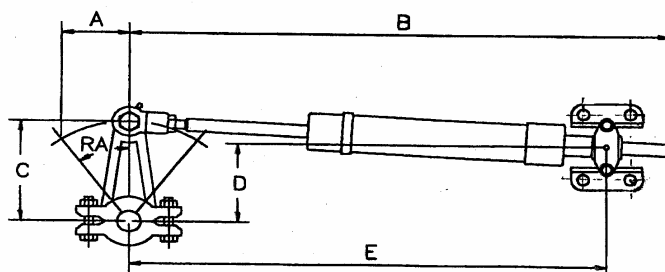
### Balanced Cylinders Rudder angle 35°

| Torque |      | Stroke |     | Displacement    |                 | A   |     | B    |      | C    |     | D    |     | E    |      |
|--------|------|--------|-----|-----------------|-----------------|-----|-----|------|------|------|-----|------|-----|------|------|
| lb-ft  | kg-m | in.    | mm  | in <sup>3</sup> | cm <sup>3</sup> | in. | mm  | in.  | mm   | in.  | mm  | in.  | mm  | in.  | mm   |
| 7256   | 1004 | 12     | 305 | 122             | 1999            | 6   | 152 | 39.3 | 999  | 10.5 | 266 | 9.5  | 242 | 38.6 | 980  |
| 9674   | 1339 | 16     | 406 | 163             | 2671            | 8   | 203 | 47.3 | 1202 | 13.9 | 354 | 12.7 | 322 | 44.6 | 1133 |
| 12093  | 1673 | 20     | 508 | 203             | 3327            | 10  | 254 | 55.3 | 1406 | 17.4 | 443 | 15.8 | 403 | 50.6 | 1285 |
| 14512  | 2008 | 24     | 610 | 244             | 3998            | 12  | 305 | 63.3 | 1609 | 20.9 | 531 | 19.0 | 483 | 56.6 | 1437 |

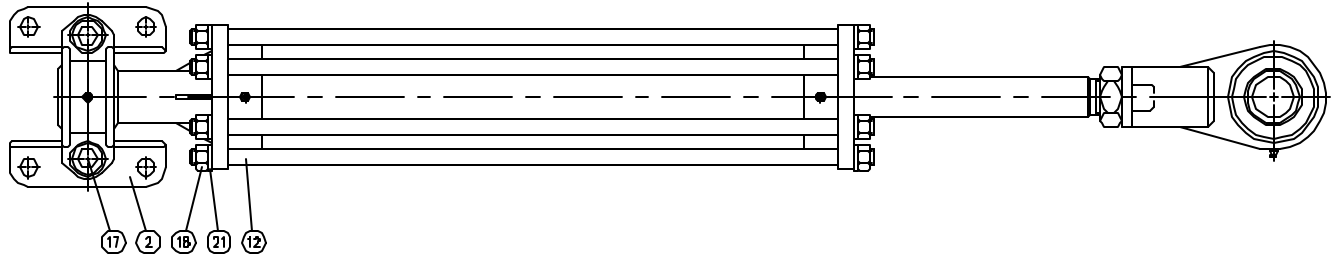
### Rudder angle 45°

| Torque |      | Stroke |     | Displacement    |                 | A   |     | B    |      | C    |     | D    |     | E    |      |
|--------|------|--------|-----|-----------------|-----------------|-----|-----|------|------|------|-----|------|-----|------|------|
| lb-ft  | kg-m | in.    | mm  | in <sup>3</sup> | cm <sup>3</sup> | in. | mm  | in.  | mm   | in.  | mm  | in.  | mm  | in.  | mm   |
| 5081   | 703  | 12     | 305 | 122             | 1999            | 6   | 152 | 39.3 | 999  | 8.5  | 216 | 7.3  | 184 | 38.6 | 980  |
| 6774   | 937  | 16     | 406 | 163             | 2671            | 8   | 203 | 47.3 | 1202 | 11.3 | 287 | 9.6  | 245 | 44.6 | 1133 |
| 8468   | 1172 | 20     | 508 | 203             | 3327            | 10  | 254 | 55.3 | 1406 | 14.1 | 359 | 12.1 | 307 | 50.6 | 1285 |
| 10161  | 1406 | 24     | 610 | 244             | 3998            | 12  | 305 | 63.3 | 1609 | 17.0 | 431 | 14.5 | 368 | 56.6 | 1437 |

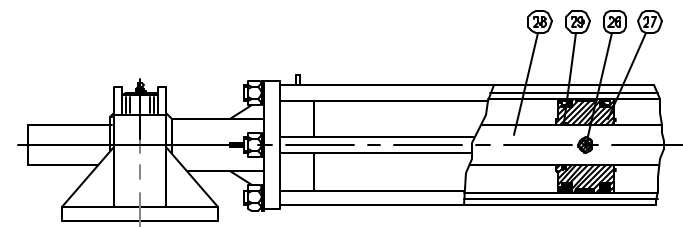
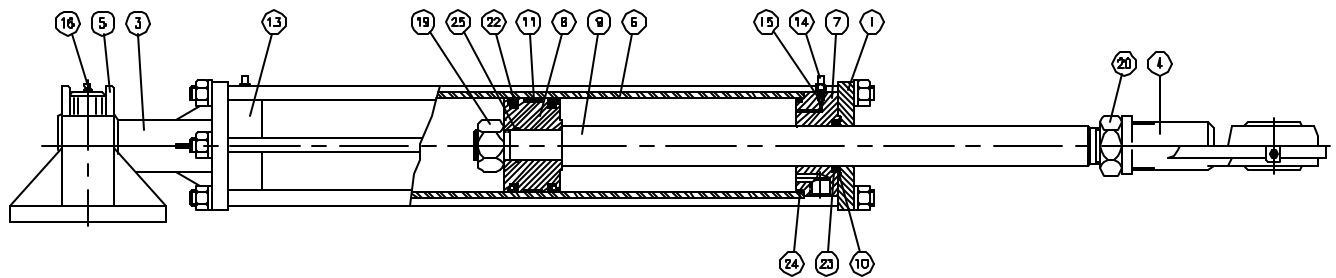
? Torque is based on 1000 psi (69 bar)



# MODEL 7093 PARTS LIST



UNBALANCED MODEL



BALANCED MODEL

| ITEM | QTY            | PART NO.  | DESCRIPTION         | ITEM | QTY | PART NO.  | DESCRIPTION           |
|------|----------------|-----------|---------------------|------|-----|-----------|-----------------------|
| 1    | 1              | 7093-0001 | Front End Cap       | 16   | 2   | 1501-0301 | Grease Nipple         |
| 2    | 1              | 7093-0002 | Trunnion Foot       | 17   | 2   | 1002-2240 | Hex Socket Cap Screw  |
| 3    | 1              | 7093-0003 | Trunnion End Cap    | 18   | 12  | 1022-0166 | Hex Nut               |
| 4    | 1              | 7093-0004 | Rod End Cap         | 19   | 1   | 1022-0172 | Hex Nut               |
| 5    | 1              | 7093-0005 | Trunnion Cap        | 20   | 1   | 1022-0276 | Jam Nut               |
| 6    | 1              | 7093-0006 | Tube                | 21   | 12  | 1023-0316 | Lock Washer           |
| 7    | 1 <sup>†</sup> | 7093-0008 | Shaft Guide         | 22   | 2   | 1102-2053 | "U" Cup               |
| 8    | 1              | 7093-0109 | Piston (unbal.)     | 23   | 1   | 1102-2058 | "U" Cup               |
| 9    | 1              | 7093-0110 | Piston Rod (unbal.) | 24   | 2   | 1101-0240 | "O" Ring              |
| 10   | 1              | 7093-0011 | Retaining Washer    | 25   | 1   | 1101-0218 | "O" Ring              |
| 11   | 1              | 7093-0013 | Wear Ring           | 26*  | 1   | 7093-0012 | Pin                   |
| 12   | 6              | 7093-0014 | Tie Rod             | 27*  | 1   | 7093-0019 | Piston (balanced)     |
| 13   | 1 <sup>†</sup> | 7093-0015 | Rear End Cap        | 28*  | 1   | 7093-0010 | Piston Rod (balanced) |
| 14   | 2              | 7040-0011 | Bleeder Screw       | 29*  | 1   | 1101-0224 | "O" Ring              |
| 15   | 2              | 1301-0005 | Ball                |      |     |           |                       |

<sup>†</sup> Quantity varies with model

\* Items for 7093-B balanced cylinder