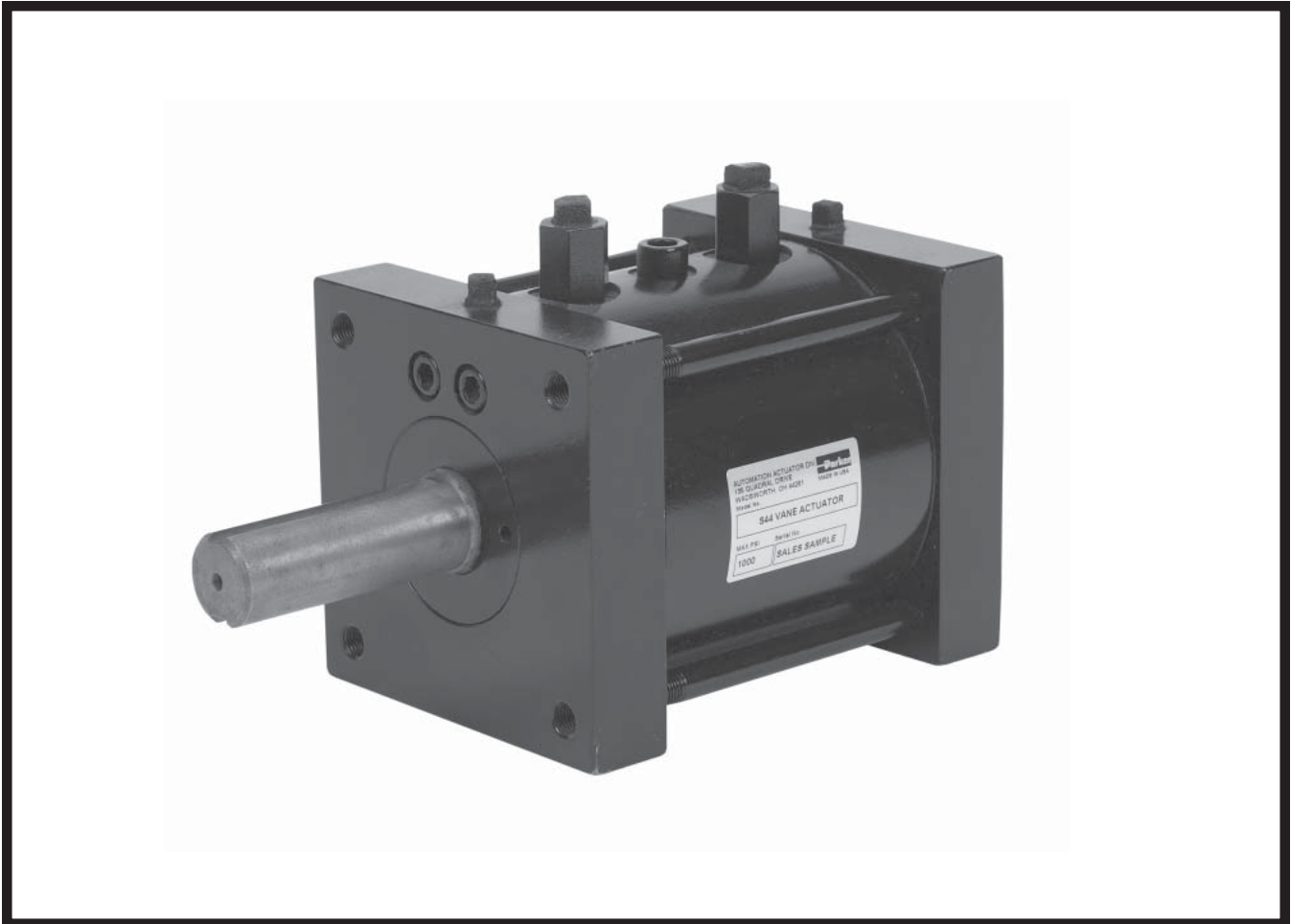




Tork-Mor Series

Vane Style Hydraulic
Rotary Actuators



Vane Actuators

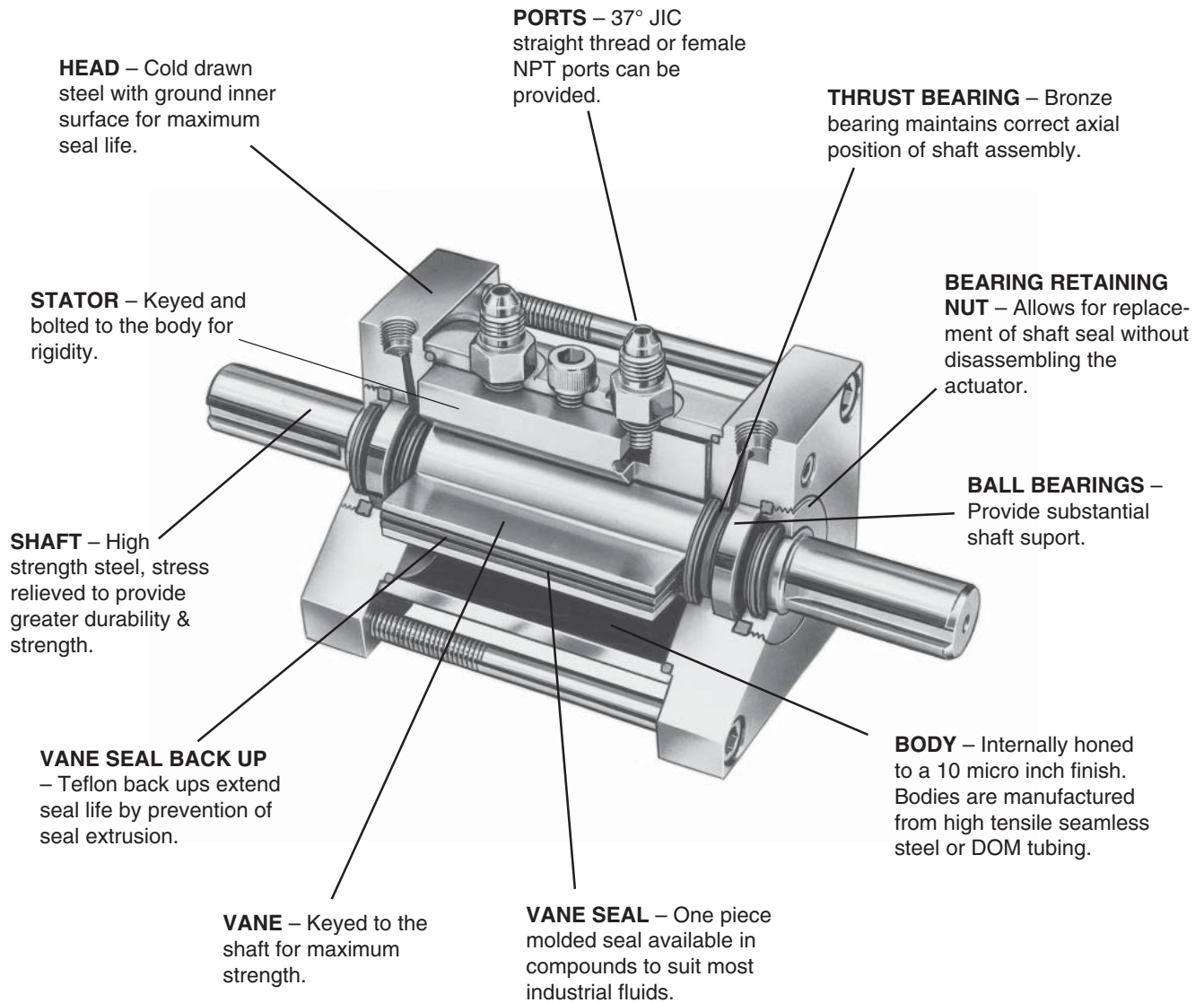
HRN

Tork-Mor

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Model Code and Ordering Information

Example: S42-BB5



| Rotation | |
|-----------|--------------------|
| S | - Single vane 280° |
| DS | - Double vane 100° |

| Size | | | |
|------|----------|---------------------------------|---------------------|
| Size | Rotation | Torque at Max. Pressure (lb-in) | Max. Pressure (PSI) |
| 33 | S | 800 | 500 |
| 33 | DS | 1,625 | 500 |
| 42 | S | 3,370 | 1000 |
| 42 | DS | 6,740 | 1000 |
| 44 | S | 4,100 | 750 |
| 44 | DS | 5,500 | 500 |
| 46 | S | 4,050 | 500 |
| 46 | DS | 3,750 | 250 |
| 74 | S | 20,000 | 1000 |
| 74 | DS | 29,600 | 750 |
| 77 | S | 25,300 | 750 |
| 77 | DS | 33,800 | 500 |
| 105 | S | 61,300 | 1000 |
| 105 | DS | 124,000 | 1000 |
| 108 | S | 71,000 | 750 |
| 108 | DS | 145,000 | 750 |
| 1012 | S | 70,300 | 500 |
| 1012 | DS | 142,000 | 500 |

| Special Options |
|--|
| Omit - Standard Unit |
| Two digit code assigned by factory when any "9" or "X" appears in the model number or when special options or features are required. |

| Options |
|---|
| Omit - None |
| L - Limit Switch Actuator (LS) |
| H - Resolver Feedback |
| J - Feedback Potentiometer - 10K |
| S - Tapered Lock Stop (TLS) |
| T* - Thrust Bearings |
| *Choose Type (T1, T2, T3) from page 8 |

| Seals |
|-----------------------------|
| Omit - Nitrile (STD) |
| V - Fluorocarbon |
| X - Special |

| Ports |
|----------------------------------|
| 5 - 37° Male Flared (STD) |
| 2 - NPTF (FPP) |
| 9 - Special |

| Mounting |
|---|
| B - Base Mount, Position 1 (BM1) (STD) |
| C - Base Mount, Position 2 (BM2) |
| D - Base Mount, Position 3 (BM3) |
| E - Base Mount, Position 4 (BM4) |
| A - Face Mount (FM) |
| F - Front Mount (FF) |
| G - Side Foot (SF) |
| H - End Foot (EF) |
| X - Special Mounting |

| Shaft Style |
|---|
| B - Single Male Keyed Shaft (STD 7 & 10 Sizes) |
| C - Double Male keyed Shaft (STD 3 & 4 Sizes) |
| E - Single Male SAE 10B Splined Shaft |
| F - Double Male SAE 10B Splined Shaft |
| L - Single Square Shaft (SB) |
| M - Double Square Shaft (SB) |
| X - Special Shaft |

Vane Actuators
 HRN
Tork-Mor



Tork-Mor Series

Tork-Mor Series actuators are produced in eighteen sizes generating up to 145,000 lb-in of torque at rated pressure. Capable of providing full torque instantly in either direction, they are available with 100° or 280° rotation at pressures up to 1000 psi. The Tork-Mor Series can be mounted in any axis using a wide variety of standard or optional mountings.

Proven reliable through many years of field service, the Tork-Mor Series incorporates many quality features including precision ball bearings to provide shaft support, externally removable gland for ease of seal replacement and cylinders honed to a 10 micro inch finish to ensure long seal life.

Specifications

● **Rated Operating Pressure:**

Pneumatic – 250 psi
 Hydraulic – See table below

● **Rotations:** S Models – 280° ± 1°; DS Models – 100° ± 1°

● **Max. Allowable Drainline Pressure :** Hydraulic – 50 PSI;
 Pneumatic – Drain lines are not necessary; plug drain ports

● **External Shaft Load Capacities:**

Thrust Loads: Units have no thrust load capacity. See page 8 for optional thrust load bearings and their capacities.

Radial Loads: External radial loads are not recommended and can reduce the life of the unit. Consult factory before applying.

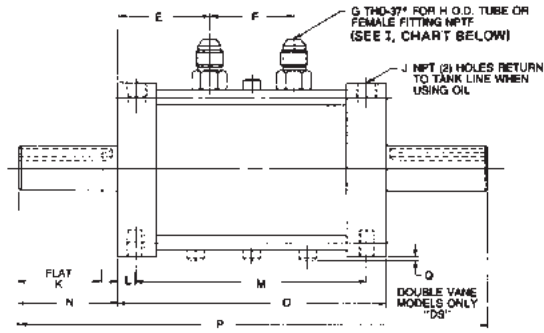
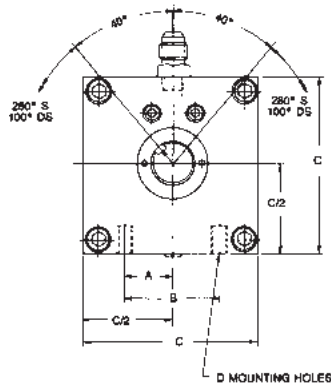
● **Installation and Operating:** Read instructions in Maintenance & Installation Section of this catalog before applying Tork-Mor Series actuators.

Model Quick Reference

| Model | | Rated Pressure (psi) | | Output Torque | | | | | | Capacity (cu. in.) | Max. Bypass Leakage | | Max. Breakaway Pressure (psi) | Unit Weights (lbs) |
|---------------|---------------|----------------------|-----------|---------------|---------|---------|---------|---------|----------|--------------------|---------------------|---------------------------|-------------------------------|--------------------|
| 280° Rotation | 100° Rotation | Normal Operating | Non-Shock | 50 psi | 100 psi | 250 psi | 500 psi | 750 psi | 1000 psi | | 100 psi Air (cfm) | 500 psi Oil* (cu.in./min) | | |
| S33 | — | 350 | 500 | 38 | 115 | 360 | 800 | — | — | 8.7 | .20 | 2.5 | 25 | 8 |
| — | DS33 | 350 | 500 | 77 | 235 | 728 | 1,625 | — | — | 6.2 | .25 | 3.0 | 25 | 8.5 |
| S42 | — | 750 | 1000 | 85 | 240 | 750 | 1,640 | 2,350 | 3,370 | 17.9 | .25 | 3.0 | 25 | 16 |
| — | DS42 | 750 | 1000 | 170 | 480 | 1,500 | 3,280 | 4,700 | 6,740 | 12.8 | .30 | 3.5 | 25 | 19 |
| S44 | — | 500 | 750 | 160 | 415 | 1,280 | 2,700 | 4,100 | — | 31.8 | .25 | 3.0 | 25 | 22 |
| — | DS44 | 350 | 500 | 325 | 840 | 2,570 | 5,500 | — | — | 22.6 | .30 | 3.5 | 25 | 23 |
| S46 | — | 350 | 500 | 240 | 600 | 1,850 | 4,050 | — | — | 47.7 | .25 | 3.0 | 25 | 25 |
| — | DS46 | 150 | 250 | 490 | 1,220 | 3,750 | — | — | — | 34.1 | .30 | 3.5 | 25 | 27 |
| S74 | — | 750 | 1,000 | 540 | 1,390 | 4,230 | 9,500 | 14,500 | 20,000 | 106 | .30 | 3.5 | 25 | 92 |
| — | DS74 | 500 | 750 | 1,080 | 2,800 | 8,560 | 19,300 | 29,600 | — | 75.7 | .35 | 4.0 | 25 | 118 |
| S77 | — | 500 | 750 | 950 | 2,430 | 7,400 | 16,700 | 25,300 | — | 186 | .30 | 3.5 | 25 | 105 |
| — | DS77 | 350 | 500 | 1,900 | 4,900 | 15,000 | 33,800 | — | — | 133 | .35 | 4.0 | 25 | 120 |
| S105 | — | 750 | 1,000 | 1,660 | 4,260 | 13,000 | 29,300 | 44,500 | 61,300 | 326 | .30 | 5.0 | 25 | 290 |
| — | DS105 | 750 | 1,000 | 3,330 | 8,650 | 26,300 | 59,300 | 90,900 | 124,000 | 233 | .35 | 5.5 | 25 | 345 |
| S108 | — | 500 | 750 | 2,660 | 6,820 | 20,800 | 46,900 | 71,000 | — | 521 | .30 | 5.0 | 25 | 340 |
| — | DS108 | 500 | 750 | 5,330 | 13,900 | 42,100 | 94,800 | 145,000 | — | 372 | .35 | 5.5 | 25 | 362 |
| S1012 | — | 350 | 500 | 3,990 | 10,200 | 31,200 | 70,300 | — | — | 781 | .30 | 5.0 | 25 | 365 |
| — | DS1012 | 350 | 500 | 7,990 | 20,800 | 63,100 | 142,000 | — | — | 558 | .35 | 5.5 | 25 | 400 |

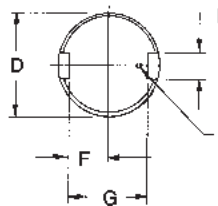
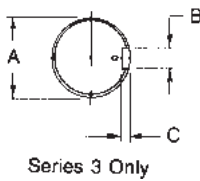


Series 3 & 4 with Std. Base Mount (B) and Double Male Keyed Shaft (C)



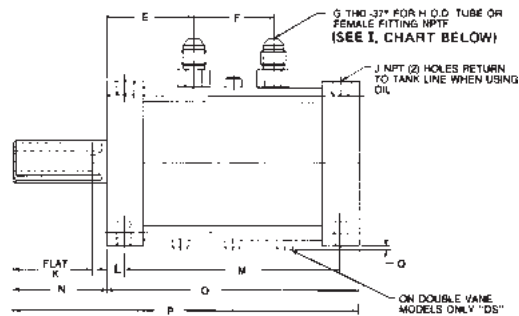
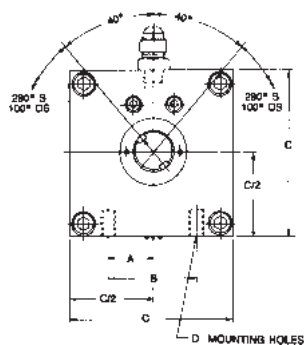
| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|----------|-------|-------|------|---------------------|-------|-------|-----------|-----|-----|--------|------|-----|-------|------|-------|--------|------|
| S & DS33 | 0.813 | 1.625 | 3.00 | 5/16-18 NC x .47 DP | 1 5/8 | 1 1/2 | 7/16 - 20 | 1/4 | 1/8 | 1/8-27 | 1.50 | .38 | 4 | 1.75 | 4 3/4 | 8 1/4 | 1/4 |
| S & DS42 | 1.188 | 2.375 | 4.50 | 3/8-16 NC x .56 DP | 1 5/8 | 1 | 9/16-18 | 3/8 | 1/4 | 1/8-27 | 2.50 | .50 | 3 1/4 | 3.00 | 4 1/4 | 10 1/4 | 9/32 |
| S & DS44 | 1.188 | 2.375 | 4.50 | 3/8-16 NC x .56 DP | 1 3/4 | 2 1/2 | 9/16-18 | 3/8 | 1/4 | 1/8-27 | 2.50 | .50 | 5 | 3.00 | 6 | 12 | 9/32 |
| S & DS46 | 1.188 | 2.375 | 4.50 | 3/8-16 NC x .56 DP | 2 3/4 | 2 1/2 | 9/16-18 | 3/8 | 1/4 | 1/8-27 | 2.50 | .50 | 7 | 3.00 | 8 | 14 | 9/32 |

Shaft Details for Standard Male Keyed Shafts (B & C)



| Model | A | B | C | D | E | F | G |
|----------|---|---|---|--|---|--|--|
| S & DS33 | .749 ^{+0.000} / _{-.001} | .188 ^{+0.001} / _{-.000} | .093 ^{+0.000} / _{-.003} | N/A | N/A | N/A | N/A |
| S & DS4 | N/A | N/A | N/A | .999 ^{+0.000} / _{-.001} | .250 ^{+0.000} / _{-.001} | .390 ^{+0.000} / _{-.001} | .780 ^{+0.000} / _{-.002} |
| S & DS7 | N/A | N/A | N/A | 1.749 ^{+0.000} / _{-.001} | .375 ^{+0.002} / _{-.000} | .730 ^{+0.000} / _{-.002} | 1.460 ^{+0.000} / _{-.010} |
| S & DS10 | N/A | N/A | N/A | 2.999 ^{+0.000} / _{-.001} | .750 ^{+0.002} / _{-.000} | 1.200 ^{+0.000} / _{-.003} | 2.400 ^{+0.000} / _{-.010} |

Series 7 & 10 with Std. Base Mount (B) and Single Male Keyed Shaft (B)



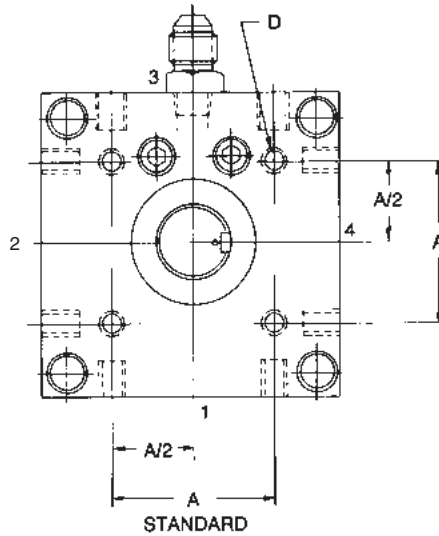
| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|------------|-------|-------|-------|---------------------|--------|-------|-----------|-----|-----|--------|------|------|--------|------|----|-------|-----|
| S & DS74 | 1.875 | 3.750 | 8.00 | 3/4-10 NC x 1.13 DP | 2 1/16 | 1 5/8 | 1 1/16-12 | 3/4 | 3/4 | 1/8-27 | 5.00 | .69 | 5 5/8 | 5.50 | 7 | 12.50 | 5/8 |
| S & DS77 | 1.875 | 3.750 | 8.00 | 3/4-10 NC x 1.13 DP | 3 3/8 | 3 1/4 | 1 1/16-12 | 3/4 | 3/4 | 1/8-27 | 5.00 | .69 | 8 5/8 | 5.50 | 10 | 15.50 | 5/8 |
| S & DS105 | 3.000 | 6.000 | 12.25 | 1-14 NC x 1.50 DP | 3 3/4 | 2 1/2 | 1 5/16-12 | 1 | 1 | 1/4-18 | 8.00 | 1.25 | 7 1/2 | 9.00 | 10 | 19.00 | 5/8 |
| S & DS108 | 3.000 | 6.000 | 12.25 | 1-14 NC x 1.50 DP | 4 1/4 | 4 1/2 | 1 5/16-12 | 1 | 1 | 1/4-18 | 8.00 | 1.25 | 10 1/2 | 9.00 | 13 | 22.00 | 5/8 |
| S & DS1012 | 3.000 | 6.000 | 12.25 | 1-14 NC x 1.50 DP | 6 1/4 | 4 1/2 | 1 5/16-12 | 1 | 1 | 1/4-18 | 8.00 | 1.25 | 14 1/2 | 9.00 | 17 | 26.00 | 5/8 |

1800_Tork-Mor.pmd, M&A



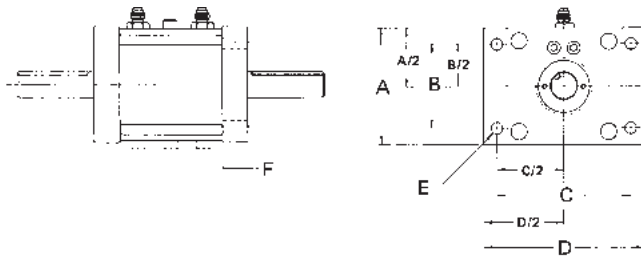
Face Mount (A)
Base Mount (B, C, D, E)

In addition to the standard base mounting holes in position 1, similar holes can be provided at position 2, 3 or 4. Alternate mounting holes can also be provided for face mounting as shown.



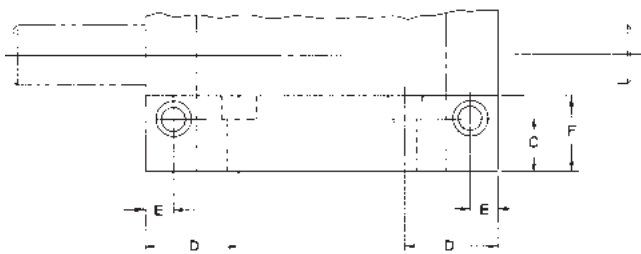
| Model | A | D |
|----------|-------------------------------|-------------------|
| S & DS33 | 1 ⁵ / ₈ | 5/16 -18 x .47 DP |
| S & DS4 | 2 ³ / ₈ | 3/8 -16 x .56 DP |
| S & DS7 | 3 ³ / ₄ | 3/4 -10 x 1.13 DP |
| S & DS10 | 6 | 1-14 x 1.50 DP |

Front Flange Mount (F)

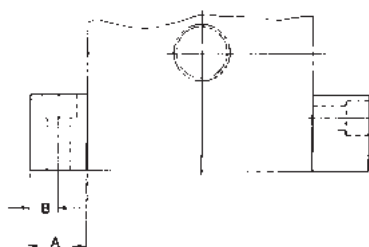
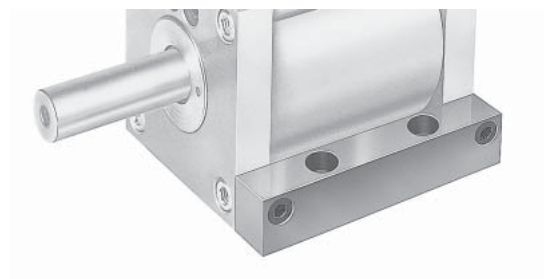


| Model | A | B | C | D | E | F |
|-------|-------|--------|--------|-------|-------|------|
| S33 | 3.00 | 2.000 | 3.750 | 4.625 | 0.344 | 0.75 |
| S4 | 4.50 | 3.250 | 5.250 | 6.25 | 0.406 | 1.00 |
| S7 | 8.00 | 6.000 | 9.500 | 11.00 | 0.781 | 1.50 |
| S10 | 12.25 | 10.000 | 14.500 | 16.50 | 1.031 | 2.50 |

Side Foot Mount (G)

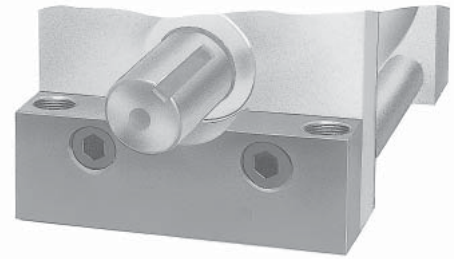
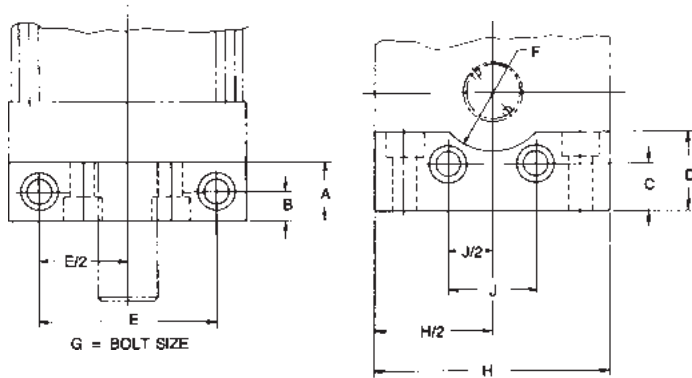


G = BOLT SIZE



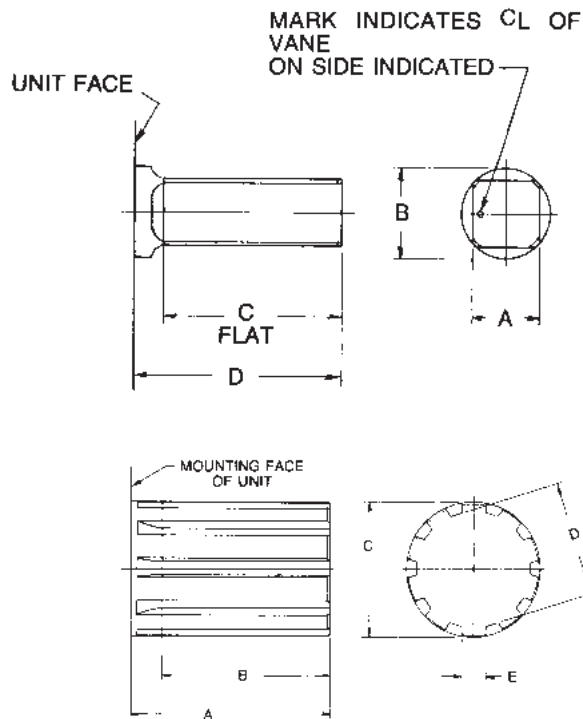
| Model | A | B | C | D | E | F | G |
|-------|-------------------------------|-----|--------------------------------|-------------------------------|--------------------------------|-----|------|
| SF-3 | 3/4 | 3/8 | 1 ¹ / ₁₆ | 1 ¹ / ₄ | 3/8 | 1 | 5/16 |
| SF-4 | 1 | 1/2 | 1 | 1 ¹ / ₄ | 1/2 | 1/2 | 3/8 |
| SF-7 | 1 ¹ / ₂ | 3/4 | 2 | 2 | 1 ¹ / ₁₆ | 3 | 3/4 |
| SF-10 | 2 | 1 | 3 | 3 ³ / ₄ | 1 ¹ / ₄ | 4 | 1 |

End Foot Mount (H)



| Model | A | B | C | D | E | F | G | H | J |
|-------|-------|-----|--------|-------|-------|-------|------|--------|-------|
| EF-3 | 3/4 | 3/8 | 1 1/16 | 1 | 2 3/4 | 3/4 | 5/16 | 3 1/2 | 1 5/8 |
| EF-4 | 1 | 1/2 | 1 1/16 | 1 1/2 | 3 3/4 | 1 | 3/8 | 4 1/2 | 2 3/8 |
| EF-7 | 1 1/2 | 3/4 | 2 1/8 | 3 | 6 3/8 | 1 1/2 | 3/4 | 8 | 3 3/4 |
| EF-10 | 2 | 1 | 3 1/8 | 4 1/2 | 10 | 1 3/4 | 1 | 12 1/4 | 6 |

Shaft Options



Optional shafts are available as shown.
Output shafts can also be provided to your special requirements.

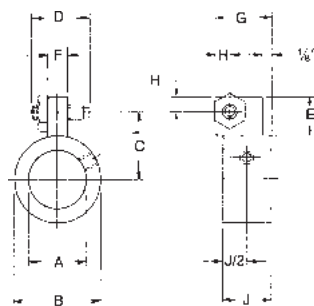
Square Shafts (L, M)

| Model | A | B | C | D |
|-------|----------------------|----------------------|-------|-------|
| S33 | .564 +.000 -.001 | .749 +.000 -.001 | 1 1/2 | 1 3/4 |
| S4 | .815 +.000 -.001 | .999 +.000 -.001 | 2 1/2 | 3 |
| S7 | 1.378 +.000 -.001 | 1.749 +.000 -.001 | 5 | 5 1/2 |
| S10 | 2.504 +.000 -.001 | 2.999 +.000 -.001 | 8 | 9 |

Splined Shafts (E, F)

| Model | A | B | C | D | E |
|-------|------|------|----------------|----------------|--------------|
| S33 | 1.75 | 1.00 | .748 .747 | .639 .634 | .114 .113 |
| S4 | 2.38 | 1.50 | .998 .997 | .854 .849 | .153 .152 |
| S7 | 3.63 | 2.63 | 1.748 1.746 | 1.499 1.494 | .270 .269 |
| S10 | 5.75 | 4.50 | 2.997 2.995 | 2.573 2.568 | .464 .463 |

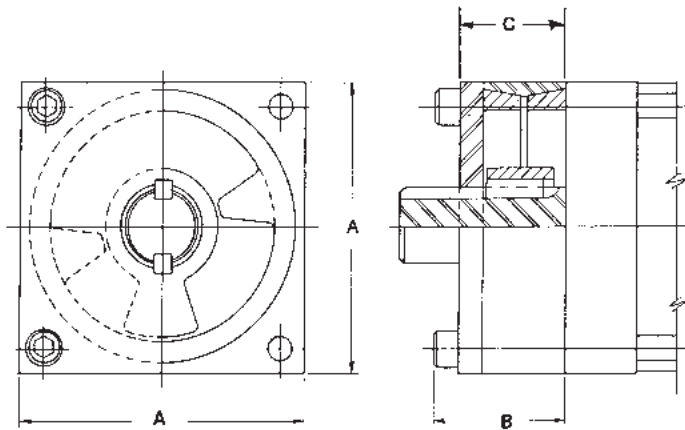
Limit Switch Actuator (L)



| Model | A | B | C | D | E | F | G | H | J |
|-------|-------|-------|-------|-----|-----|-----|-------|------|-----|
| LS-3 | 3/4 | 1 | 7/8 | 3/4 | 1/2 | 1/4 | 5/8 | 3/16 | 5/8 |
| LS-4 | 1 | 1 1/2 | 1 3/8 | 1 | 7/8 | 3/8 | 1 1/8 | 1/4 | 1 |
| LS-7 | 1 3/4 | 2 1/4 | 1 3/4 | 1 | 7/8 | 3/8 | 1 1/8 | 1/4 | 1 |
| LS-10 | 3 | 3 3/4 | 2 5/8 | 1 | 1 | 1/2 | 1 1/4 | 1/4 | 1 |

Taper Lock Stop (S)

This option provides easy adjustment of rotation for light to medium duty applications.

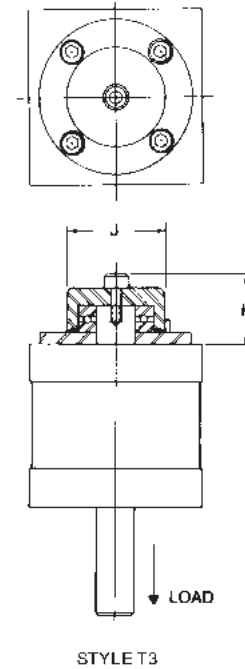
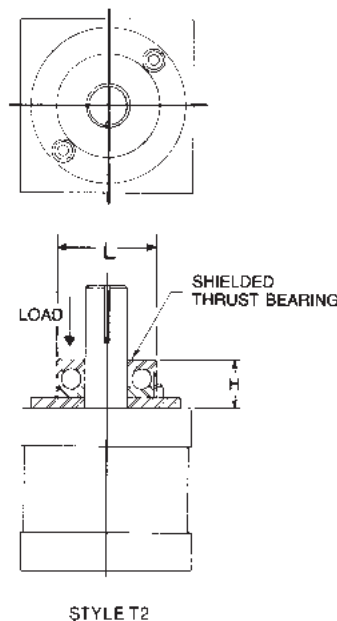
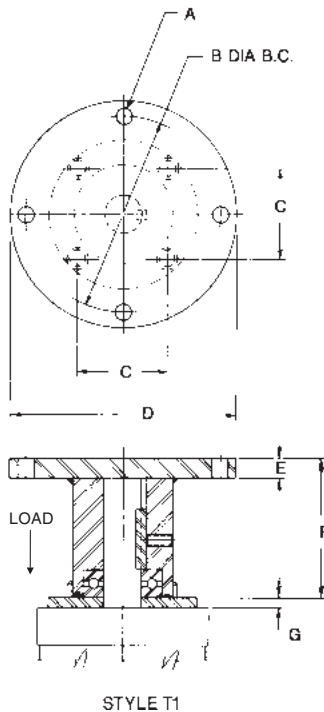


| Model | A | B | C |
|-------|-----------------|-----------------|------------------|
| TLS-3 | 3 | 1 $\frac{3}{8}$ | 1 $\frac{1}{8}$ |
| TLS-4 | 4 $\frac{1}{2}$ | 1 $\frac{5}{8}$ | 1 $\frac{5}{16}$ |
| TLS-7 | 8 | 2 $\frac{1}{2}$ | 2 $\frac{1}{8}$ |

Thrust Bearings (T1, T2, T3)

External thrust bearings are advised for axially loaded applications. This includes applications where actuators are mounted in a vertical position causing the weight of the shaft assembly to exert axial thrust.

| Model | Thrust Capacity (lbs) | A | B | C | D | E | F | G | H | J | K | L |
|-------|-----------------------|------------------|-----------------|-----------------|-----------------|---------------|-----------------|----------------|------------------|-----------------|-----------------|-----------------|
| S3 | 1600 | 1 $\frac{1}{32}$ | 3 $\frac{3}{4}$ | 1 $\frac{5}{8}$ | 4 $\frac{5}{8}$ | $\frac{3}{8}$ | 2 $\frac{1}{8}$ | $\frac{3}{16}$ | 1 $\frac{3}{16}$ | 2 | 1 $\frac{3}{8}$ | 1 $\frac{1}{2}$ |
| S4 | 2500 | 1 $\frac{3}{32}$ | 5 $\frac{1}{4}$ | 2 $\frac{3}{8}$ | 6 | $\frac{1}{2}$ | 3 $\frac{1}{2}$ | $\frac{1}{4}$ | 1 | 2 $\frac{5}{8}$ | 1 $\frac{3}{4}$ | 2 |
| S7 | 4000 | 2 $\frac{1}{32}$ | 7 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 9 | $\frac{5}{8}$ | 4 $\frac{1}{2}$ | $\frac{3}{8}$ | 1 $\frac{1}{4}$ | 3 $\frac{5}{8}$ | 2 $\frac{1}{8}$ | 3 $\frac{1}{8}$ |
| S10 | 7000 | 2 $\frac{5}{32}$ | 10 | 6 | 12 | $\frac{3}{4}$ | 5 $\frac{1}{2}$ | $\frac{1}{2}$ | 1 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 4 $\frac{3}{4}$ |



Additional Options

- Fluorocarbon Seals (V)
- Feedback Potentiometer (J) – Consult factory for limitations