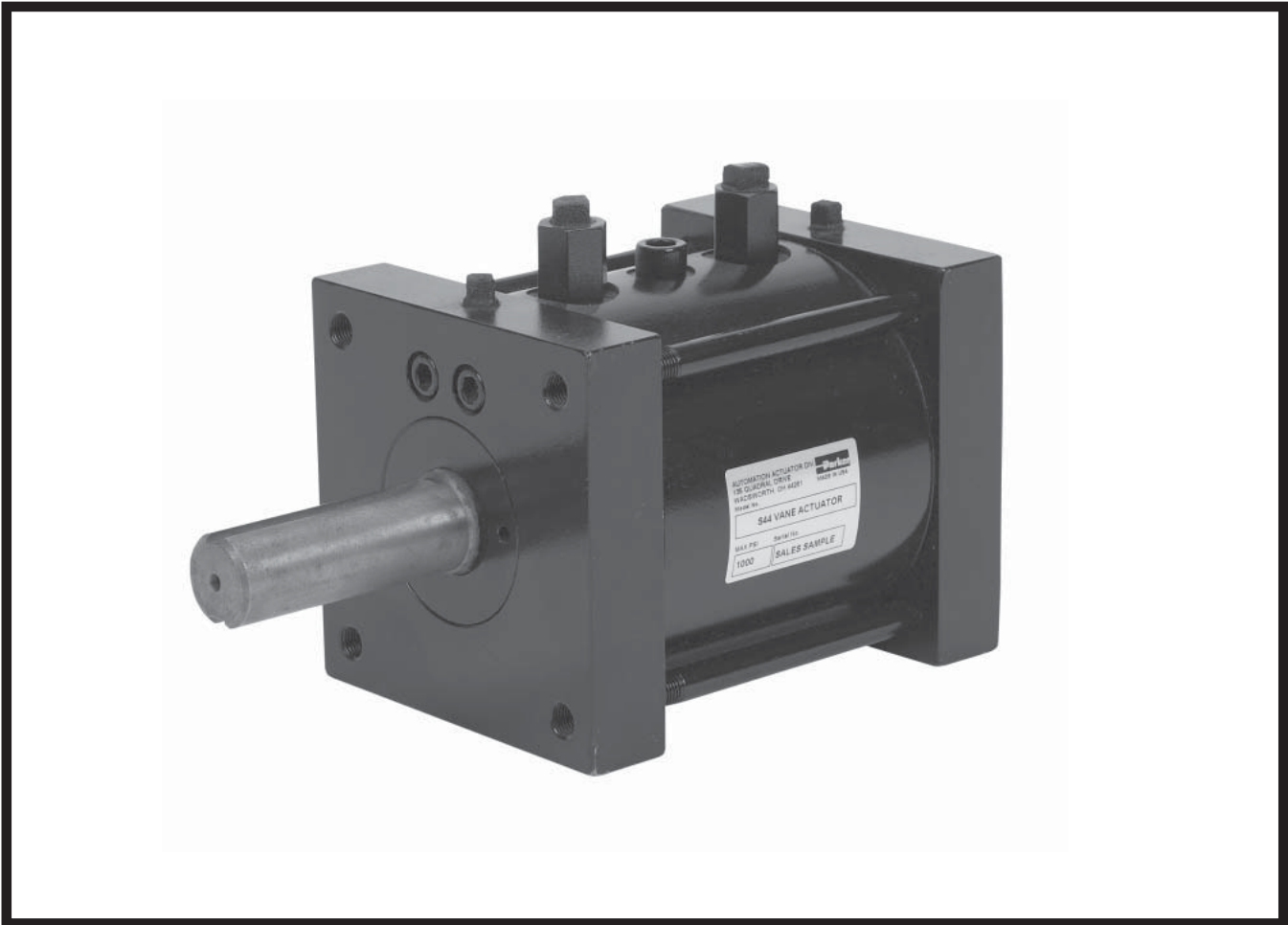




Tork-Mor Series

Vane Style Hydraulic
Rotary Actuators



Vane Actuators

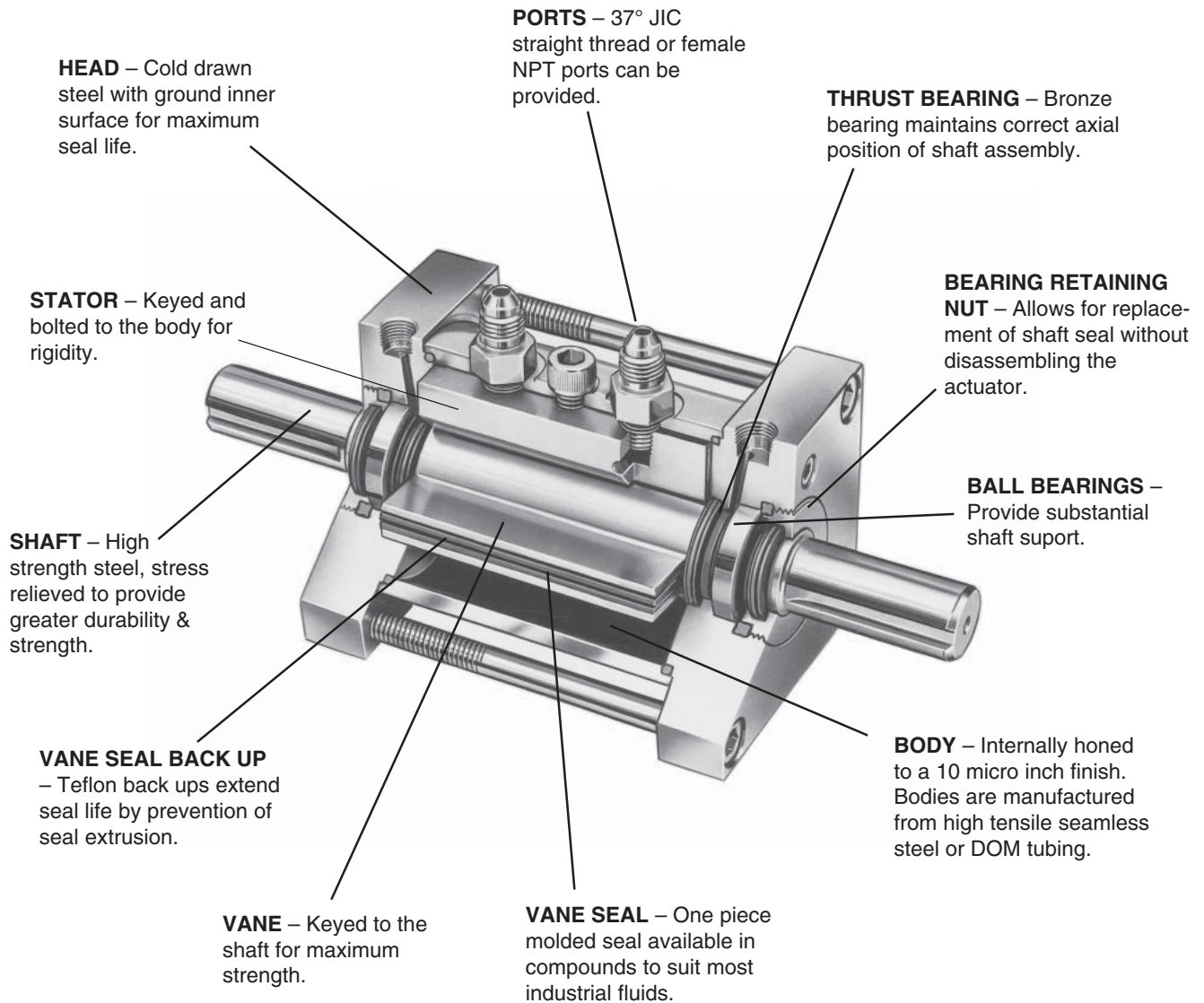
HRN

Tork-Mor

Contents

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- Ordering Information 3
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- Options
 - Mounting Options 6-7
 - Shaft Options 7
 - Limit Switch Actuator 7
 - Taper Lock Stop 8
 - Thrust Bearings 8





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.

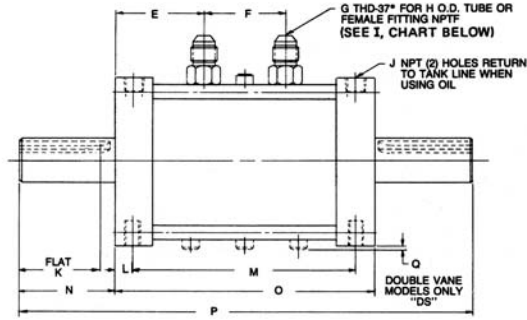
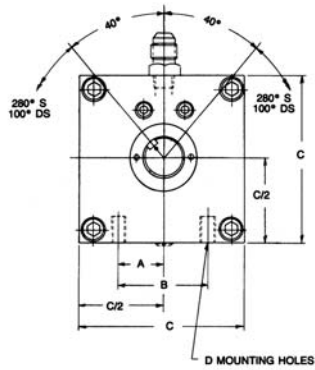
Radial Loads: External radial loads are not recommended and can reduce the life of the unit. Consult factory before applying.

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

Model Quick Reference

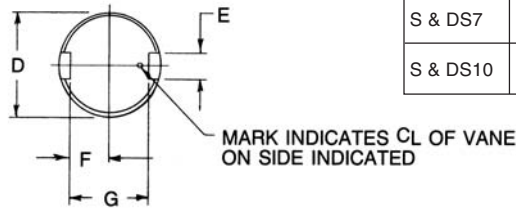
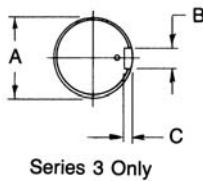
Model		Rated Pressure (psi)		Output Torque						Capacity (cu. in.)	Max. Bypass Leakage		Max. Breakaway Pressure (psi)	Unit Weights (lbs)
280° Rotation	100° Rotation	Normal Operating	Non-Shock	50 psi	100 psi	250 psi	500 psi	750 psi	1000 psi		100 psi Air (cfm)	500 psi Oil* (cu.in./min)		
S33	—	350	500	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)



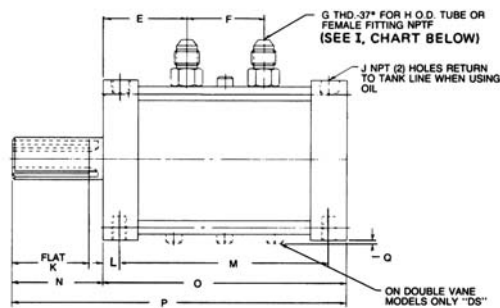
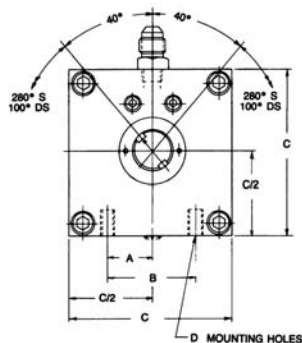
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S & DS33	0.813	1.625	3.00	5/16-18 NC x .47 DP	1 5/8	1 1/2	7/16 - 20	1/4	1/8	1/8-27	1.50	.38	4	1.75	4 3/4	8 1/4	1/4
S & DS42	1.188	2.375	4.50	3/8-16 NC x .56 DP	1 5/8	1	9/16-18	3/8	1/4	1/8-27	2.50	.50	3 1/4	3.00	4 1/4	10 1/4	9/32
S & DS44	1.188	2.375	4.50	3/8-16 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 +.000 -.001	.188 +.001 -.000	.093 +.000 -.003	N/A	N/A	N/A	N/A
S & DS4	N/A	N/A	N/A	.999 +.000 -.001	.250 +.000 -.001	.390 +.000 -.001	.780 +.000 -.002
S & DS7	N/A	N/A	N/A	1.749 +.000 -.001	.375 +.002 -.000	.730 +.000 -.002	1.460 +.000 -.010
S & DS10	N/A	N/A	N/A	2.999 +.000 -.001	.750 +.002 -.000	1.200 +.000 -.003	2.400 +.000 -.010

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



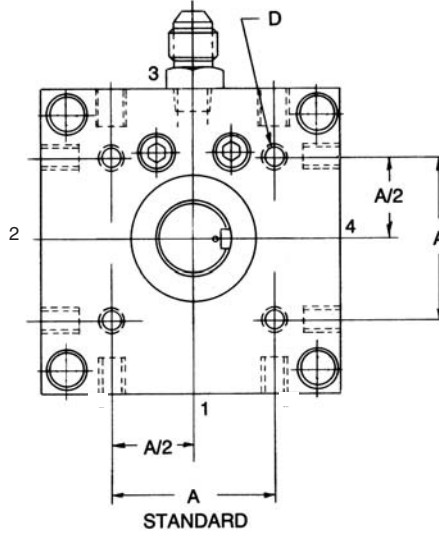
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S & DS74	1.875	3.750	8.00	3/4-10 NC x 1.13 DP	2 11/16	1 5/8	1 1/16 - 12	3/4	3/4	1/8-27	5.00	.69	5 5/8	5.50	7	12.50	5/8
S & DS77	1.875	3.750	8.00	3/4-10 NC x 1.13 DP	3 3/8	3 1/4	1 1/16 - 12	3/4	3/4	1/8-27	5.00	.69	8 5/8	5.50	10	15.50	5/8
S & DS105	3.000	6.000	12.25	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



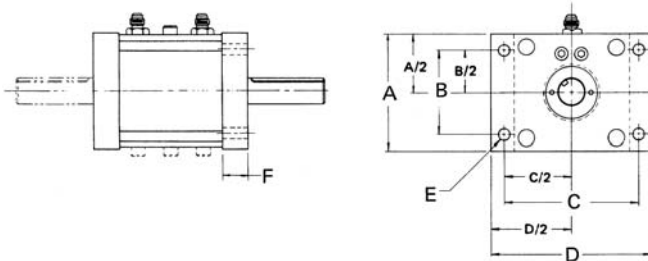
Face Mount (A)
Base Mount (B, C, D, E)

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.



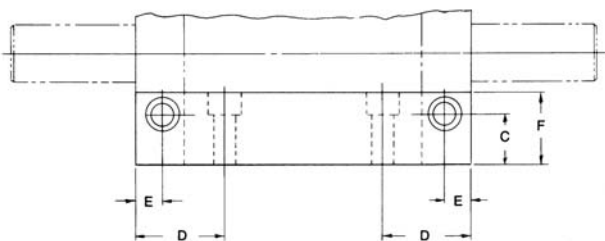
Model	A	D
S & DS33	1 5/8	5/16 -18 x .47 DP
S & DS4	2 3/8	3/8 -16 x .56 DP
S & DS7	3 3/4	3/4 -10 x 1.13 DP
S & DS10	6	1-14 x 1.50 DP

Front Flange Mount (F)

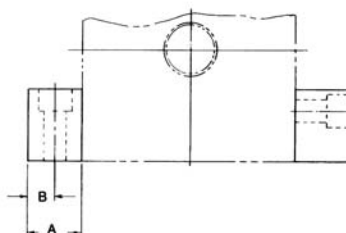
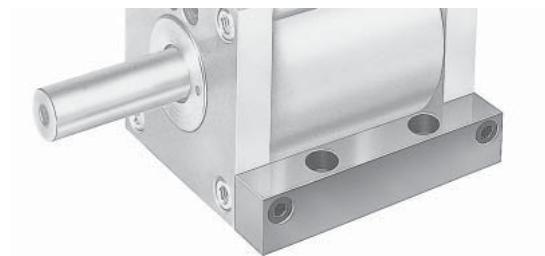


Model	A	B	C	D	E	F
S33	3.00	2.000	3.750	4.625	0.344	0.75
S4	4.50	3.250	5.250	6.25	0.406	1.00
S7	8.00	6.000	9.500	11.00	0.781	1.50
S10	12.25	10.000	14.500	16.50	1.031	2.50

Side Foot Mount (G)

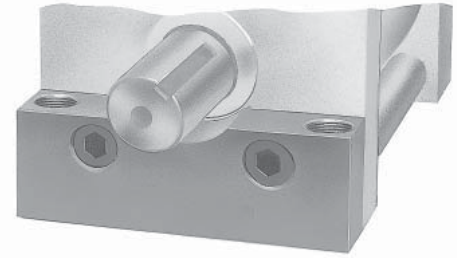
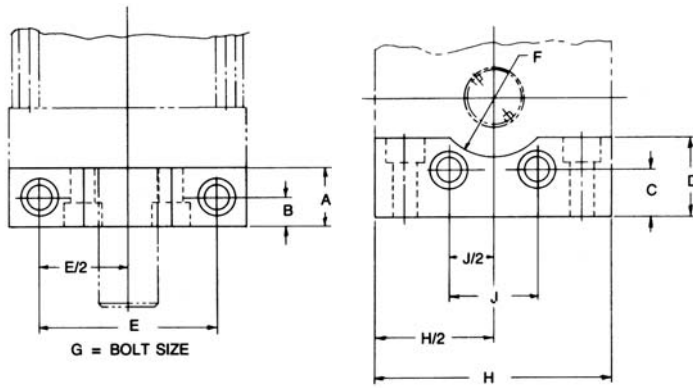


G = BOLT SIZE



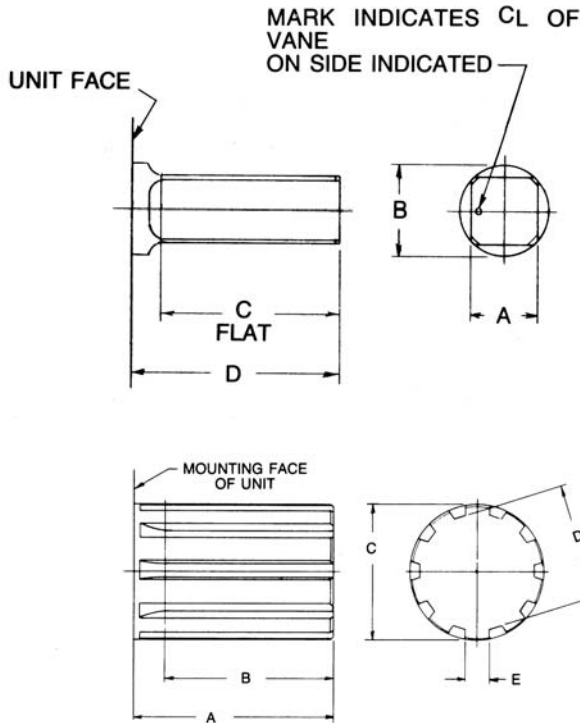
Model	A	B	C	D	E	F	G
SF-3	3/4	3/8	1 1/16	1 1/4	3/8	1	5/16
SF-4	1	1/2	1	1 1/4	1/2	1/2	3/8
SF-7	1 1/2	3/4	2	2	1 1/16	3	3/4
SF-10	2	1	3	3 1/4	1 1/4	4	1

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.

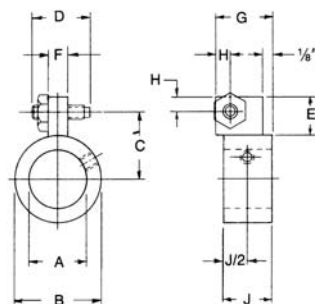
Square Shafts (L, M)

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

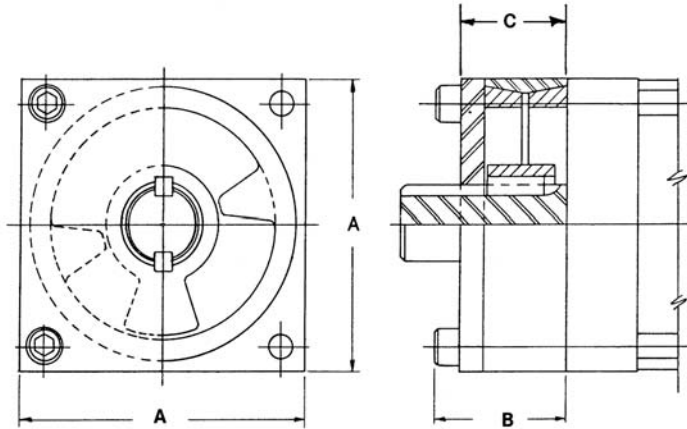
Limit Switch Actuator (L)



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.

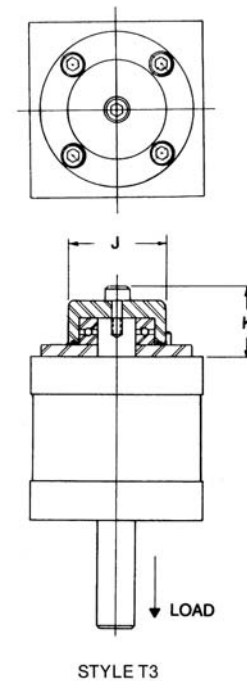
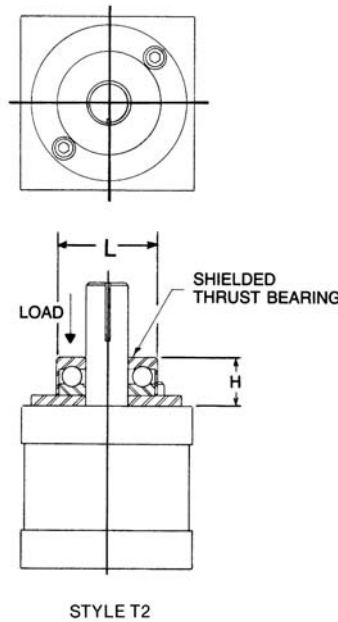
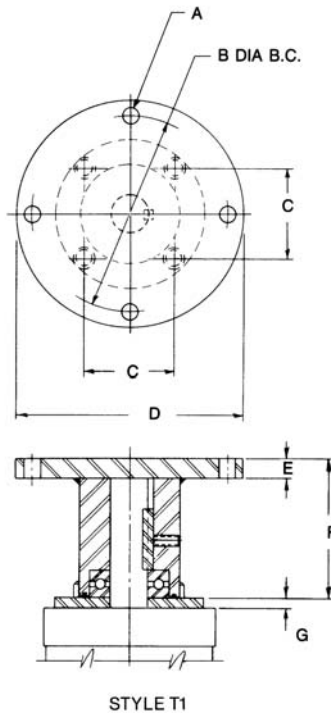


Model	A	B	C
TLS-3	3	1 3/8	1 1/8
TLS-4	4 1/2	1 5/8	1 5/16
TLS-7	8	2 1/2	2 1/8

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 1/32	3 3/4	1 5/8	4 5/8	3/8	2 1/8	3/16	1 3/16	2	1 3/8	1 1/2
S4	2500	1 3/32	5 1/4	2 3/8	6	1/2	3 1/2	1/4	1	2 5/8	1 3/4	2
S7	4000	2 1/32	7 1/2	3 3/4	9	5/8	4 1/2	3/8	1 1/4	3 5/8	2 1/8	3 1/8
S10	7000	2 5/32	10	6	12	3/4	5 1/2	1/2	1 1/2	5 1/2	2 1/2	4 3/4



Additional Options

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