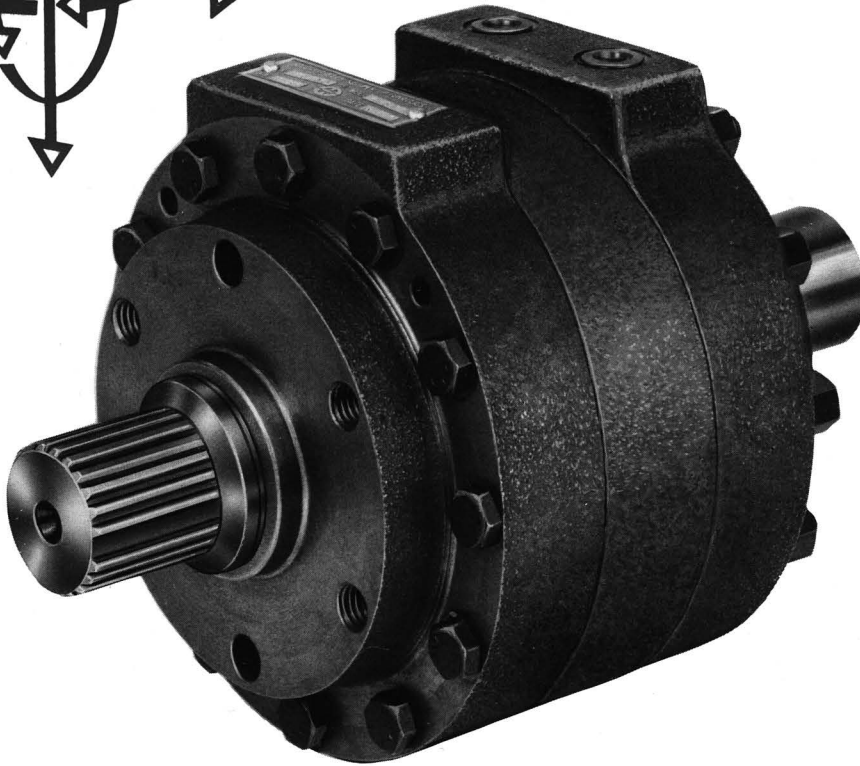
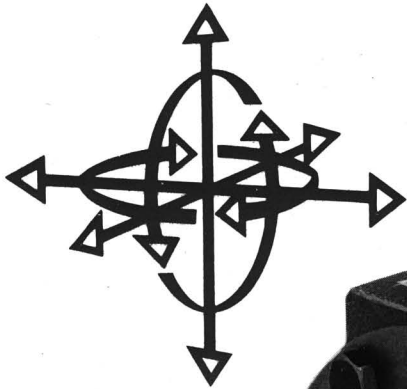
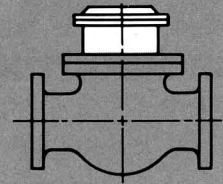


Micro-Precision **TEXTRON**  
**SS MODELS**  
HIGH PRESSURE 3000 PSI MAX

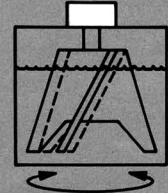
# Rotary Actuators



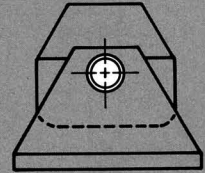
**PROVIDING** the "MUSCLE" for your lifting, turning, indexing, opening, closing, clamping, mixing, bending, testing, steering . . . **applications.**



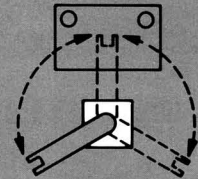
VALVE OPEN—CLOSE



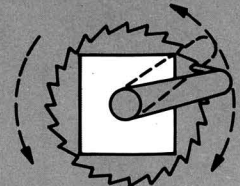
MIX—STIR



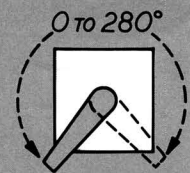
TURNOVER—DUMP



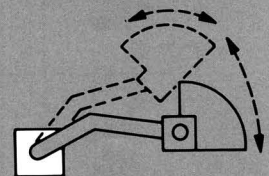
LOAD—POSITION—UNLOAD



CONTINUOUS ROTATION

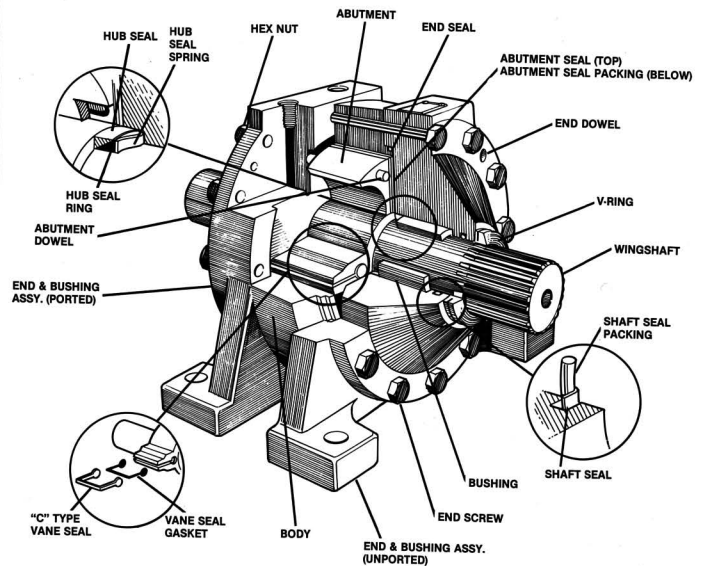
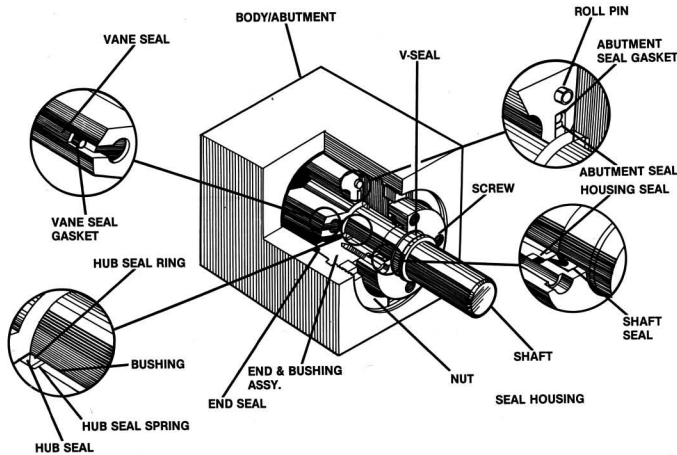


TURN—OSCILLATE



MATERIAL HANDLING

High Pressure  
Solid Shaft



## HOW TO ORDER

Please fill in ALL blocks in accordance with the KEY numbers and letters shown below.

**Block #**

**1 2 3 4 5 6 7 8**

### Block 1 (STYLE)

SS Solid shaft  
PP Special

### Block 2 (SIZE)

\*0.2  
\*0.5  
\*1  
\*4  
\*8  
12  
25  
40  
65  
130

### Block 3 (NO. OF VANES)

1V Single vane  
2V Double vane

### Block 4 (MOUNTING)

E End  
F Foot  
B Base  
Z Special

### Block 5 (SEALS)

B Buna "N" Standard shaft seal  
V Viton Standard shaft seal  
E Ethylene propylene  
X Two piece end—Viton shaft seal buna seals  
Y Two piece end—Viton shaft seal viton seals  
Z Special

### Block 6 (SHAFT CONFIGURATION)

A Standard (Involute spline & plain for SS)  
B Plain end cut off  
C Plain both ends  
D Plain one end—Single key other end  
E Plain one end—Double key other end  
F Plain end cut off—Single key other end  
G Plain end cut off—Double key other end  
H Single key both ends  
J Double key both ends  
K Spline one end—Single key other end  
L Spline one end—Double key other end  
N Splined both ends  
Z Special

### Block 7 (SHAFT MODIFICATION)

A Standard (None)  
B Drill, tap drive end of shaft  
C Drill, tap both ends of shaft  
\*\*D Potentiometer shaft hole opp drive end  
E Drill & tap end opposite drive end  
Z Special

### Block 8 (PORTING)

1 N.P.T.  
2 SAE Straight threads standard  
3 Double N.P.T. ports  
4 Double SAE ports  
\*\*5 Front ports—N.P.T. [See manifold porting data for explanation]  
\*\*6 Front ports—SAE data for explanation]  
7 Manifold ports  
8 Body ports—N.P.T.  
9 Double manifold ports  
0 BSPP straight threads  
Z Special

\*For Aluminum units an A is added to the key

Example: SS-4A-1V is an Aluminum Actuator  
SS-4-1V is a Cast Iron Actuator

\*\*\*"Front ports" for end ported SS Series means adjacent to keyed or spline shaft end.

\*\*\*See Page OA-2 for size.

# APPLICATION DATA DIMENSIONS IN INCHES (METRIC)

	SS-2A	SS-5A	SS-1	SS-4	SS-8	SS-12	SS-25	SS-40	SS-65	SS-130
A	5.00 (127.0)	6.50 (165.10)	7.66 (194.56)	10.50 (266.70)	11.69 (296.82)	14.12 (358.90)	—	20.06 (509.52)	23.75 (603.25)	29.75 (755.65)
B	3.89 (98.81)	5.05 (128.27)	6.91 (175.51)	9.05 (229.87)	9.85 (250.19)	11.94 (303.28)	17.06 (433.32)	16.35 (415.29)	19.75 (501.85)	23.50 (596.9)
C	1.38 (35.05)	1.75 (44.45)	1.38 (35.05)	2.34 (59.43)	2.84 (72.14)	3.31 (84.07)	5.81 (147.57)	5.06 (128.52)	5.50 (139.70)	8.12 (206.25)
C <sub>F</sub>	—	—	2.19 (55.63)	2.94 (74.68)	—	4.00 (101.60)	—	5.38 (136.65)	—	8.75 (222.25)
D	1.13 (28.70)	1.50 (38.10)	3.35 (85.09)	4.40 (111.76)	3.00 (76.2)	5.75 (146.05)	4.81 (122.17)	4.96 (125.90)	6.38 (162.05)	6.75 (171.45)
D <sub>F</sub>	—	—	4.69 (119.13)	6.75 (171.45)	—	9.06 (230.12)	—	10.03 (254.76)	—	14.87 (377.70)
E	.90 (22.86)	1.10 (27.94)	.59 (14.99)	1.22 (30.98)	1.75 (44.45)	1.89 (48.00)	3.27 (83.05)	3.27 (83.06)	3.88 (98.55)	5.50 (139.70)
F*	.5935 (15.075)	.7145 (18.148)	1.0355 (26.302)	1.5452 (39.249)	1.9362 (49.181)	2.1962 (55.785)	3.3445 (84.950)	3.3445 (84.950)	3.8435 (97.625)	5.2935 (134.455)
F <sub>1</sub>	18T 32/64P 5625PD	22T 32/64P 6075PD	20T 20/40P 1.000PD	24T 16/32P 1.500PD	30T 16/32P 1.875PD	26T 12/24P 2.1667PD	30T 8/16P 3.2500PD	26T 8/16P 3.2500PD	30T 8/16P 3.7500PD	31T 6/12P 5.1667PD
G	1.44 (36.57)	1.70 (43.18)	1.63 (41.40)	2.25 (57.15)	3.25 (82.55)	3.25 (82.55)	6.00 (152.40)	4.75 (120.65)	6.50 (165.10)	10.25 (260.35)
H	.27 (6.86)	.22 (5.58)	.13 (3.30)	.34 (8.64)	.44 (11.18)	.56 (14.22)	1.38 (35.05)	.69 (17.53)	.75 (19.05)	1.13 (28.70)
J	1.75 (44.45)	2.00 (50.80)	3.27 (83.06)	4.62 (117.35)	—	6.12 (155.45)	—	9.3 (236.22)	—	12.25 (311.15)
K	25 (6.35)	50 (12.70)	94 (23.88)	94 (23.88)	—	1.25 (31.75)	—	1.00 (25.4)	—	1.75 (44.45)
L	1/8 x 1/16 (3.17 x 1.58)	3/16 x 3/32 (4.76 x 2.38)	1/4 x 1/8 (6.35 x 3.17)	3/8 x 3/16 (9.52 x 4.76)	1/2 x 1/4 (12.70 x 6.35)	3/4 x 3/8 (19.05 x 9.52)	1 x 3/8 (25.4 x 12.70)	1 1/2 x 5/8 (31.75 x 15.87)	1 x 1/2 (25.4)	1 1/4 x 5/8 (31.75 x 15.87)
P	.75 (19.05)	.70 (17.78)	.75 (19.05)	1.25 (31.75)	1.88 (47.75)	2.00 (50.80)	3.25 (83.05)	3.25 (83.05)	3.88 (98.55)	5.50 (139.70)
Q	.375 (9.53)	.438 (11.12)	.50 (12.70)	.88 (22.35)	1.12 (28.45)	1.25 (31.75)	1.78 (45.21)	1.88 (47.75)	2.13 (54.10)	2.75 (69.85)
R	—	—	2.62 (66.55)	3.53 (89.66)	4.25 (107.95)	4.81 (122.17)	5.53 (140.46)	6.88 (174.75)	7.75 (196.85)	10.12 (257.85)
S	2.25 (57.15)	3.00 (76.20)	—	—	—	—	—	—	—	—
T	1.13 (28.70)	1.50 (38.10)	—	—	—	—	—	—	—	—
U	1.13 (28.70)	1.50 (38.10)	—	—	—	—	—	—	—	—
V	.88 (22.35)	1.13 (28.70)	—	—	—	—	—	—	—	—
W	1.75 (44.45)	2.25 (57.15)	2.63 (66.80)	4.13 (104.90)	5.00 (127.00)	5.63 (143.00)	9.00 (228.60)	8.75 (222.25)	9.00 (228.60)	13.50 (342.90)
X	2.25 (57.15)	3.00 (76.2)	4.88 (123.95)	6.65 (168.91)	8.41 (213.61)	9.15 (232.41)	10.44 (265.18)	13.50 (342.90)	15.00 (381.00)	20.50 (520.70)
Y	.88 (22.35)	1.13 (28.70)	—	—	—	—	—	—	—	—
Z	1.75 (44.45)	2.25 (57.15)	—	—	—	—	—	—	—	—
AA	1/4-20 31DP (7.87)	3/8-18 62DP (15.75)	1/2-13 75DP (19.05)	5/8-11 1.00P (25.40)	3/4-11 1.00P (25.40)	7/8-11 1.25DP (31.75)	1-11 1.25DP (31.75)	1 1/8-10 1.50DP (38.10)	1 1/4-10 1.25DP (31.75)	1 1/2-8 2.00P (50.80)
BB	—	—	6.50 (165.10)	9.00 (228.60)	—	11.88 (301.75)	—	15.25 (387.35)	—	25.25 (641.35)
CC	—	—	2.75 (69.85)	3.75 (95.25)	—	5.06 (128.52)	—	6.50 (165.10)	—	11.00 (279.40)
DD	—	—	5.50 (139.70)	7.50 (190.50)	—	10.13 (257.30)	—	13.00 (330.20)	—	22.00 (558.80)
EE	—	—	.63 (16.00)	.75 (19.05)	—	.94 (23.87)	—	1.13 (28.70)	—	1.50 (38.10)
FF**	—	—	2.50 (63.50)	3.38 (85.85)	—	4.63 (117.60)	—	6.88 (174.75)	—	10.13 (257.30)
GG	—	—	5.13 (130.30)	6.91 (175.51)	—	9.44 (239.70)	—	13.75 (348.25)	—	20.25 (514.35)
KK	—	—	.50 (12.70)	.63 (16.00)	—	.88 (22.35)	—	1.00 (25.40)	—	1.75 (44.45)
MM	—	—	.41 (10.41)	.53 (13.46)	—	.78 (19.81)	—	1.06 (26.92)	—	1.56 (39.62)
NN***	—	—	.41 (10.41)	.47 (11.94)	.47 (11.94)	.59 (14.98)	.62 (15.75)	.84 (21.3)	.84 (21.3)	1.22 (30.99)
	—	—	.75DP (19.05)	.75DP (19.05)	.75DP (19.05)	1.25DP (31.75)	1.75DP (44.45)	1.75DP (44.45)	1.50DP (38.10)	2.00DP (50.80)

\* ± .0005 in. (0.013 mm) SS-2A, SS-5A, SS-1 ± .00075 in. (0.019 mm) SS-4, SS-8, SS-12 ± .0015 in. (0.038 mm) SS-25, SS-40 ± .0025 in. (0.064 mm) SS-65, SS-130

\*\* ± .010 (.025 mm)

\*\*\* Model SS-25 has (4) holes on a 90° pattern rotated 22½° counter-clockwise

\*1 2000 PSI maximum is recommended for severe duty applications, such as operating at maximum torque at high cycle rates for extended periods. Please consult factory for applications beyond 2000 PSI.

NOTE: See how to order on page SS-4.

# PERFORMANCE

SINGLE VANE 280° ROTATION (±5°)						
MODEL	TORQUE IN-LBS (N-m)			VOLUMETRIC DISPLACEMENT IN <sup>3</sup> (cm <sup>3</sup> )		APPROX WEIGHT Lb (kg)
	1000PSI (69.0 BAR)	2000PSI (137.9 BAR)	3000PSI (206.9 BAR)	PER 280°	PER RAD	
SS-2A	170 (19)	340 (38)	510 (58)	.95 (15.57)	.2 (3.27)	1.6 (.73)
SS-5A	380 (43)	760 (86)	—	2.18 (35.73)	.45 (7.37)	3.0 (1.36)
SS-1	1080 (122)	2160 (244)	3240 (366)	5.85 (95.88)	1.20 (19.66)	21.5 (9.75)
SS-4	3430 (388)	6860 (775)	10300 (1164)	18.59 (304.69)	3.81 (62.44)	48.5 (22)
SS-8	7200 (814)	14400 (1627)	21600 (2440)	39.04 (639.86)	8.00 (131.12)	78 (35)
SS-12	11210 (1266)	22420 (2533)	33615 (3798)	60.75 (995.69)	12.45 (204.05)	121.5 (55)
SS-25	22410 (2532)	44820 (5065)	67230 (7597)	121.51 (1991.54)	24.90 (408.11)	220 (100)
SS-40	36000 (4068)	72000 (8136)	108000 (12204)	195.20 (3199.32)	40.00 (655.80)	355 (161)
SS-65	58500 (6611)	117000 (13221)	175500 (19831)	317.20 (5198.90)	65.00 (1065.35)	560 (254)
SS-130	117000 (13221)	234000 (26442)	351000 (39663)	634.40 (10397.81)	130 (2130.70)	975 (442)

DOUBLE VANE 100° ROTATION (±5°)						
MODEL	TORQUE IN-LBS (N-m)			VOLUMETRIC DISPLACEMENT IN <sup>3</sup> (cm <sup>3</sup> )		APPROX WEIGHT Lb (kg)
	1000PSI (69.0 BAR)	2000PSI (137.9 BAR)	3000PSI (206.9 BAR)	PER 100°	PER RAD	
SS-2A	—	—	—	—	—	—
SS-5A	810 (91)	1620 (183)	—	1.57 (25.73)	.90 (14.75)	3.2 (1.45)
SS-1	2280 (257)	4560 (515)	6840 (773)	4.18 (68.51)	2.40 (39.33)	22 (10)
SS-4	7230 (817)	14460 (1634)	21700 (2452)	13.29 (217.82)	7.62 (124.89)	50 (23)
SS-12	23660 (2673)	47320 (5347)	70965 (8019)	43.45 (712.14)	24.90 (408.11)	125 (57)
SS-40	76000 (8588)	152000 (17176)	228000 (25764)	139.61 (2288)	80.00 (1311)	370 (168)
SS-65	123500 (13955)	247000 (27911)	370500 (41866)	226.87 (3718)	130 (2130)	582 (264)
SS-130	247000 (27911)	494000 (55822)	741000 (83733)	453.75 (7436)	260 (4261)	1035 (469)

TEST PARAMETERS — OIL					
MODEL	MAX BREAK IN PSI (BAR)	BY-PASS LEAKAGE-MAX ALLOWABLE			
		CUBIC IN. PER MIN AT 3000 PSI (206.9 BAR)		CUBIC CM. PER MIN AT 3000 PSI (206.9 BAR)	
		1V	2V	1V	2V
SS-2A	125 (8.6)	12.2	N/A	200	N/A
†SS-5A	125 (8.6)	11.0	12.2	180	200
SS-1	50 (3.44)	16.8	18.0	275	295
SS-4	50 (3.44)	21.4	22.6	350	370
SS-8	50 (3.44)	24.4	N/A	400	N/A
SS-12	50 (3.44)	27.5	28.7	450	470
SS-25	50 (3.44)	45.8	N/A	750	N/A
SS-40	50 (3.44)	64.7	65.9	1060	1080
SS-65	50 (3.44)	82.4	83.6	1350	1370
SS-130	50 (3.44)	93.0	94.6	1525	1550

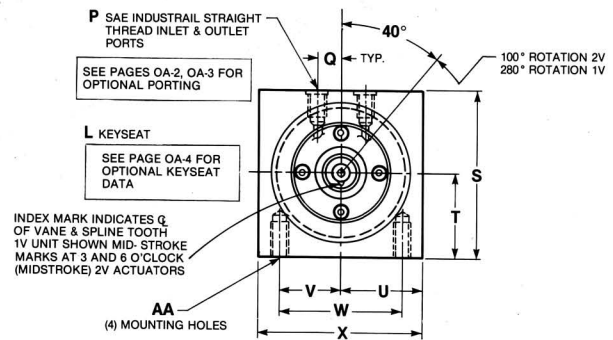
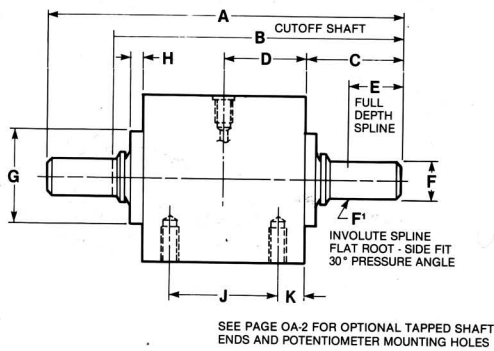
†TESTED AT 2250 PSI.

High Pressure Solid Shaft

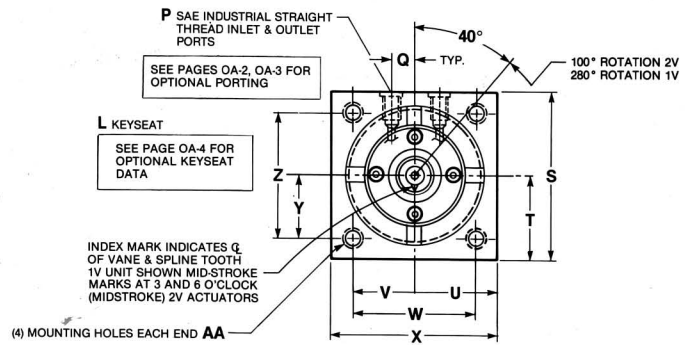
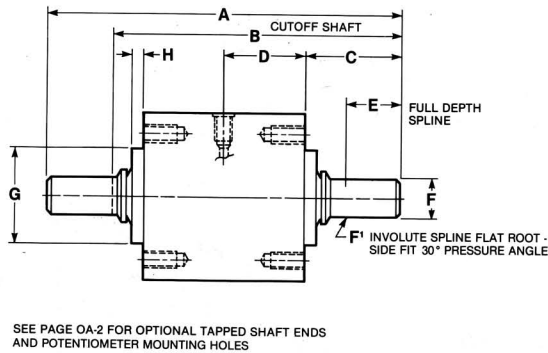
# SS MODELS HIGH PRESSURE \*1

## 3000 PSI MAX

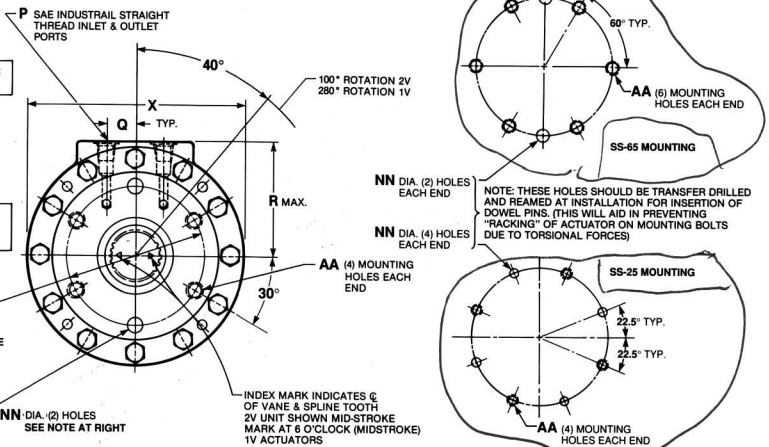
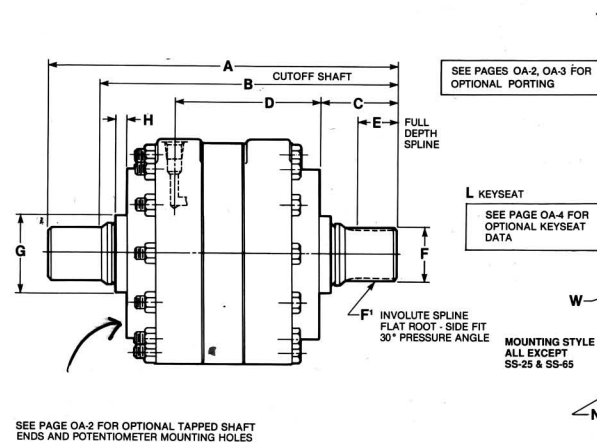
### BASE MOUNTING SS-2A & SS-5A



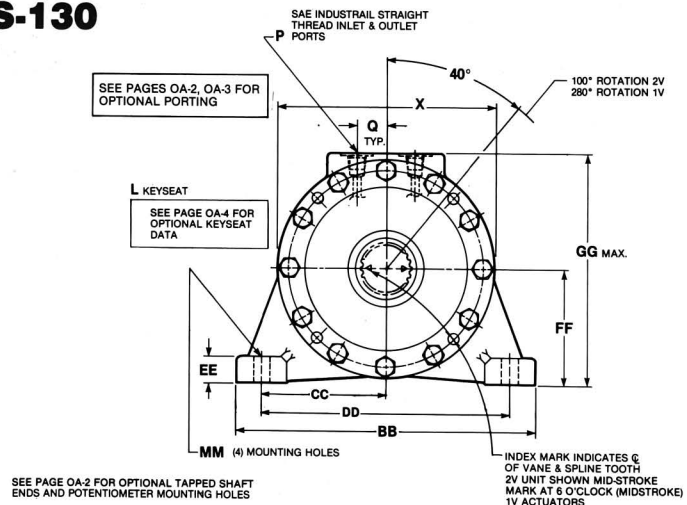
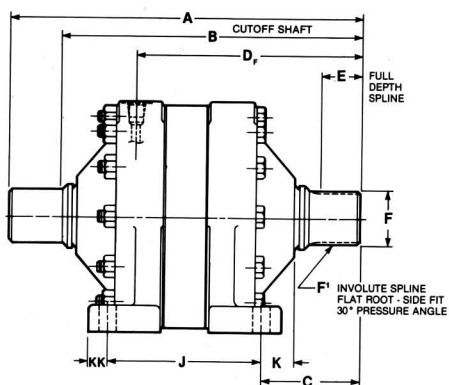
### END MOUNTING SS-2A & SS-5A



### END MOUNTING SS-1 THRU SS-130



### FOOT MOUNTING SS-1 THRU SS-130



NOTE: See cut away view on page SS-4.  
NOTE: See pages OA-5 and OA-6 for optional manifolds and shaft couplings.