



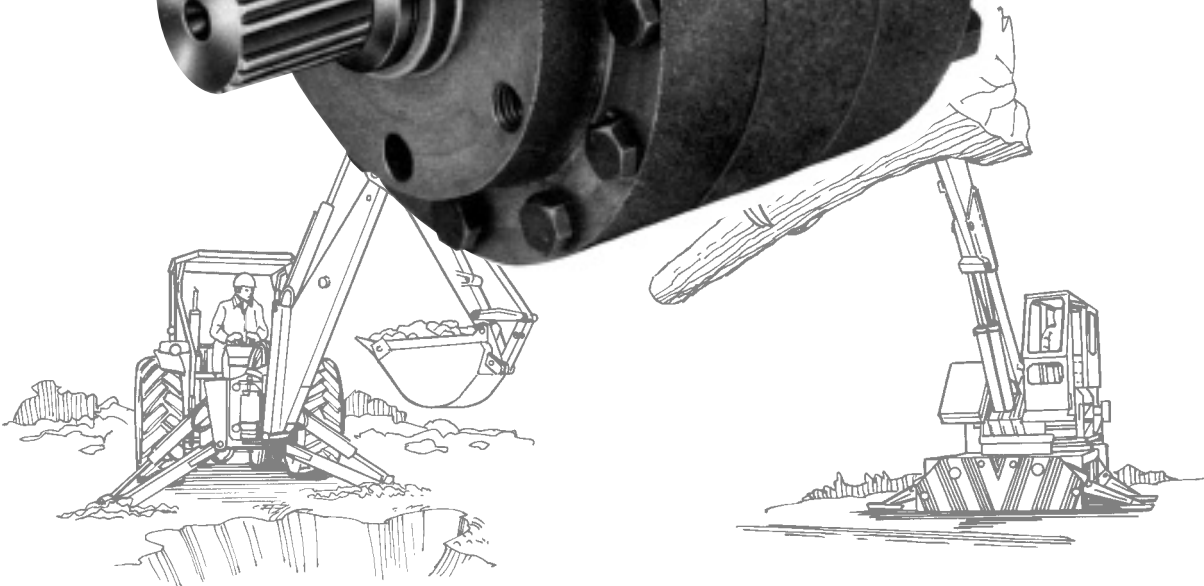
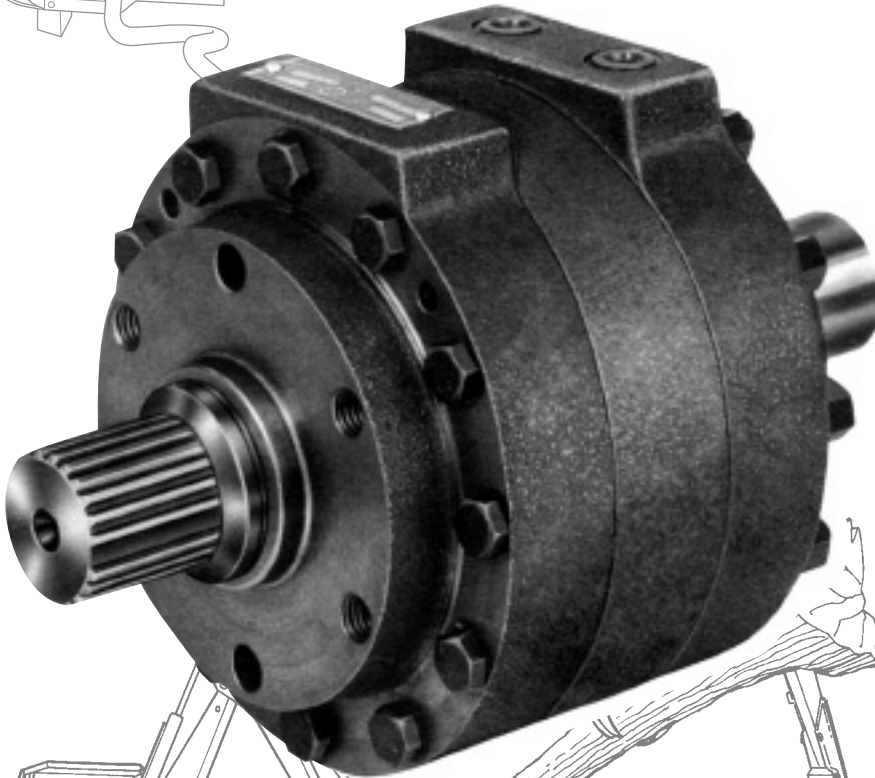
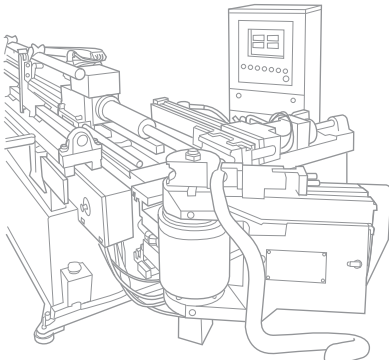
## Micromatic

### HIGH PRESSURE

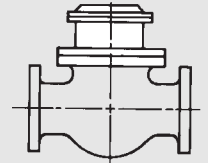
10 Standard Sizes

3,000 PSI

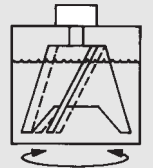
Up to 741,000 in/lbs of Torque



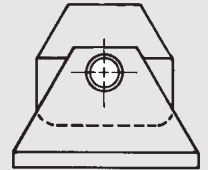
**PROVIDING** the “**MUSCLE**” for your lifting, turning, indexing, opening, closing, clamping, mixing, bending, testing, steering... **applications.**



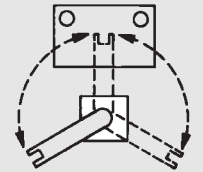
VALVE OPEN—CLOSE



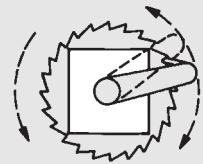
MIX—STIR



TURNOVER—DUMP



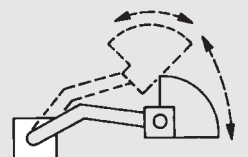
LOAD—POSITION—UNLOAD



CONTINUOUS ROTATION



TURN—OSCILLATE



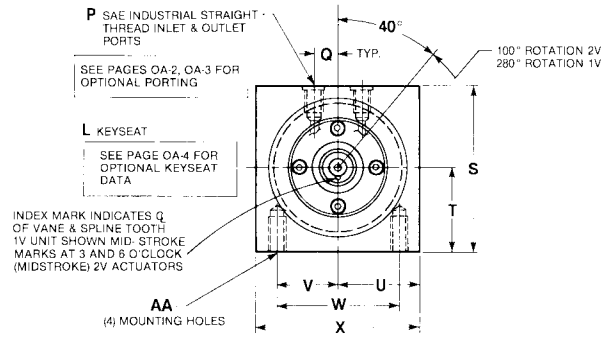
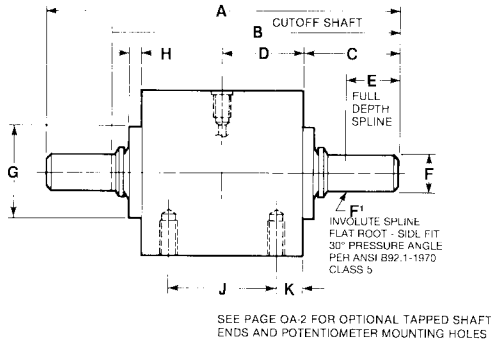
MATERIAL HANDLING

# SS MODELS

**HIGH PRESSURE \*1**  
**3000 PSI MAX**

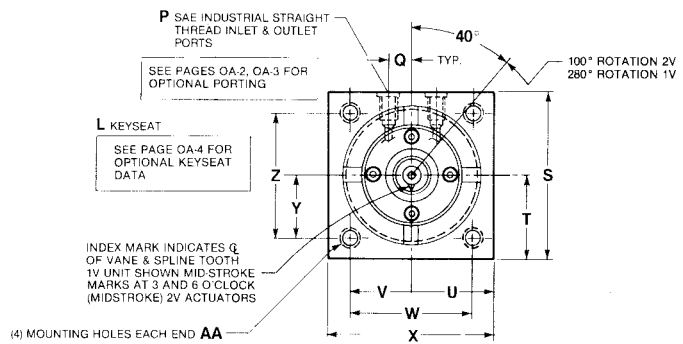
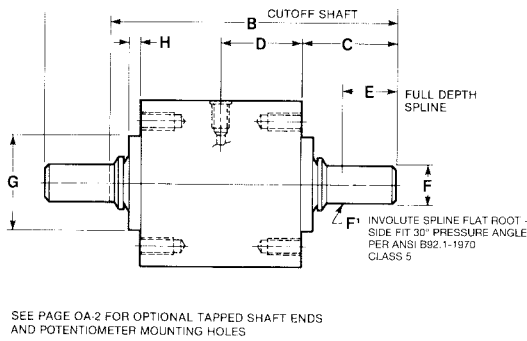
## BASE MOUNTING SS-2A & SS-5A

For larger aluminum units, please consult factory.

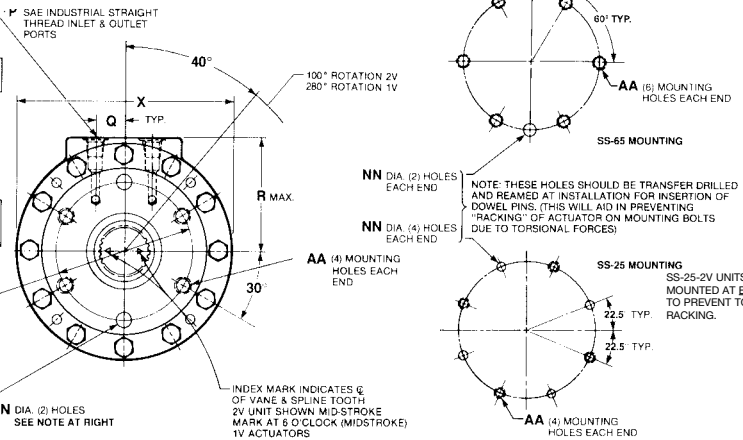
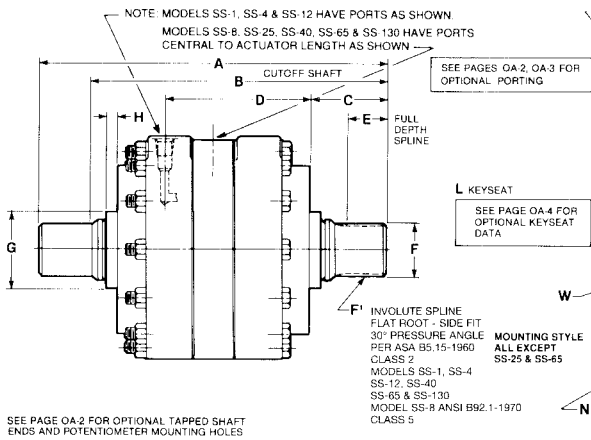


## END MOUNTING SS-2A & SS-5A

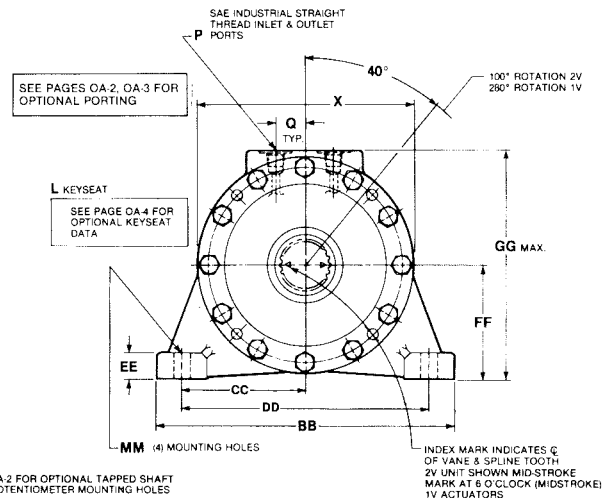
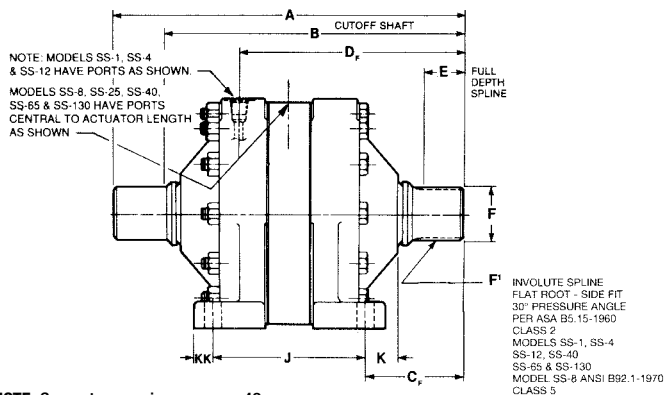
For larger aluminum units, please consult factory.



## END MOUNTING SS-1 THRU SS-130



## FOOT MOUNTING SS-1 THRU SS-130



NOTE: See cut away view on page 42

NOTE: See pages 55 and 56 for optional manifolds and shaft couplings.

SEE PAGE OA-2 FOR OPTIONAL TAPPED SHAFT ENDS AND POTENTIOMETER MOUNTING HOLES

## 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	6.50	7.66	10.50	11.69	14.12	21.28	20.06	23.75	29.75
B	(127.0)	(165.10)	(194.56)	(266.70)	(296.92)	(358.90)	(540.51)	(509.52)	(603.25)	(755.65)
C	3.89	5.05	6.91	9.05	9.85	11.94	17.06	16.35	19.75	23.50
D	(98.81)	(128.27)	(175.51)	(229.87)	(250.19)	(303.28)	(433.32)	(415.29)	(501.65)	(596.9)
E	1.38	1.75	1.38	2.34	3.28	3.31	5.81	5.06	6.26	8.12
F	(35.05)	(44.45)	(35.05)	(59.43)	(83.31)	(84.07)	(147.57)	(128.52)	(159.00)	(206.25)
G	—	—	2.19	2.94	3.28	4.00	5.52	5.38	6.26	8.75
H	—	—	(55.63)	(74.68)	(83.31)	(101.60)	(140.21)	(136.65)	(159.00)	(222.25)
I	1.13	1.50	3.35	4.40	3.00	5.75	4.81	4.96	6.38	6.75
J	(28.70)	(38.10)	(85.09)	(111.76)	(76.2)	(146.05)	(122.17)	(125.98)	(162.05)	(171.45)
K	—	—	4.69	6.75	5.64	9.06	10.64	10.03	11.95	14.87
L	—	—	(119.13)	(171.45)	(148.34)	(230.12)	(270.26)	(254.76)	(303.53)	(377.70)
M	.90	1.10	.59	1.22	1.75	1.89	3.27	3.27	3.88	5.50
N	(22.86)	(27.94)	(14.98)	(30.98)	(44.45)	(48.00)	(83.05)	(83.06)	(98.55)	(138.70)
O	.5935	.7145	1.0355	1.5452	1.9362	2.1962	3.3445	3.3445	3.8435	5.2935
P	(15.075)	(18.148)	(26.302)	(39.249)	(49.181)	(55.785)	(84.950)	(84.950)	(97.625)	(134.455)
Q	18T	22T	20T	24T	30T	26T	26T	26T	30T	31T
R	32/64P	32/64P	20/40P	16/32P	16/32P	12/24P	8/16P	8/16P	8/16P	8/12P
S	.5625PD	.5875PD	1.000PD	1.500PD	1.8750PD	2.1667PD	3.2500PD	3.2500PD	3.7500PD	5.1667PD
T	1.44	1.70	1.63	2.25	3.25	3.25	6.00	4.75	6.50	10.25
U	(36.57)	(43.18)	(41.40)	(57.15)	(82.55)	(82.55)	(152.40)	(120.65)	(165.10)	(260.35)
V	.27	.22	.13	.34	.44	.56	1.38	.69	.75	1.13
W	(6.86)	(5.58)	(3.30)	(8.64)	(11.18)	(14.22)	(35.05)	(17.53)	(19.05)	(28.70)
X	1.75	2.00	3.27	4.62	5.12	6.12	10.25	9.3	11.38	12.25
Y	(44.45)	(50.80)	(83.06)	(117.35)	(130.05)	(155.45)	(260.35)	(236.22)	(289.05)	(311.15)
Z	.25	.50	.94	.94	.87	1.25	1.07	1.00	1.44	1.75
AA	(6.35)	(12.70)	(23.88)	(23.88)	(22.10)	(31.75)	(27.18)	(25.4)	(36.58)	(44.45)
AB	$\frac{1}{8} \times \frac{1}{16}$	$\frac{3}{16} \times \frac{3}{32}$	$\frac{1}{4} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{3}{16}$	$\frac{1}{2} \times \frac{1}{4}$	$\frac{1}{2} \times \frac{1}{4}$	$\frac{3}{4} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{1}{2}$	$1 \times \frac{1}{2}$	$1 \frac{1}{4} \times \frac{3}{8}$
AC	(3.17 x 1.58)	(4.76 x 2.38)	(6.35 x 3.17)	(9.52 x 4.76)	(12.70 x 6.35)	(12.70 x 6.35)	(19.05 x 9.52)	(19.05 x 9.52)	(25.4 x 12.70)	(31.75 x 15.87)
AD	.75	.70	.75	1.25	1.88	2.00	3.25	3.25	3.88	5.50
AE	(19.05)	(17.78)	(19.05)	(31.75)	(48.00)	(50.80)	(82.55)	(82.55)	(98.55)	(138.70)
AF	.375	.438	.50	.88	1.12	1.25	1.78	1.88	2.13	2.75
AG	(9.53)	(11.12)	(12.70)	(22.35)	(28.45)	(31.75)	(45.21)	(47.75)	(54.10)	(69.85)
AH	—	—	2.62	3.53	4.25	4.81	5.53	7.00	7.75	10.12
AI	—	—	(66.55)	(89.66)	(107.95)	(122.17)	(140.46)	(177.80)	(196.85)	(257.05)
AJ	2.25	3.00	—	—	—	—	—	—	—	—
AK	(57.15)	(76.20)	—	—	—	—	—	—	—	—
AL	1.13	1.50	—	—	—	—	—	—	—	—
AM	(28.70)	(38.10)	—	—	—	—	—	—	—	—
AN	1.13	1.50	—	—	—	—	—	—	—	—
AO	(28.70)	(38.10)	—	—	—	—	—	—	—	—
AP	.88	1.13	—	—	—	—	—	—	—	—
AQ	(22.35)	(28.70)	—	—	—	—	—	—	—	—
AR	1.75	2.25	2.63	4.13	5.00	5.63	9.00	8.75	9.00	13.50
AS	(44.45)	(57.15)	(66.80)	(104.90)	(127.00)	(143.00)	(228.60)	(222.25)	(228.60)	(342.90)
AT	2.25	3.00	4.88	6.65	8.41	9.15	10.44	13.50	15.00	20.00
AU	(57.15)	(76.2)	(123.95)	(168.91)	(213.61)	(232.41)	(265.18)	(342.90)	(381.00)	(508.00)
AV	.88	1.13	—	—	—	—	—	—	—	—
AW	(22.35)	(28.70)	—	—	—	—	—	—	—	—
AX	1.75	2.25	—	—	—	—	—	—	—	—
AY	(44.45)	(57.15)	—	—	—	—	—	—	—	—
AZ	$\frac{1}{4}$ -20	$\frac{3}{16}$ -18	$\frac{3}{8}$ -16	$\frac{1}{2}$ -13	$\frac{1}{2}$ -13	$\frac{3}{8}$ -11	$\frac{3}{8}$ -11	$\frac{3}{4}$ -10	$\frac{3}{4}$ -10	1-8
BA	.31DP	.62DP	.75DP	1.0DP	1.0DP	1.25DP	1.25DP	1.50DP	1.25DP	2.0DP
BB	(7.87)	(15.75)	(19.05)	(25.40)	(25.40)	(31.75)	(31.75)	(38.10)	(31.75)	(50.80)
BC	—	—	6.50	9.00	11.00	11.88	13.00	15.25	19.00	25.25
BD	—	—	(165.10)	(228.60)	(279.40)	(301.75)	(330.20)	(387.35)	(482.60)	(641.35)
BE	—	—	2.75	3.75	4.75	5.06	5.00	6.50	8.00	11.00
BF	—	—	(69.85)	(95.25)	(120.65)	(128.52)	(127.00)	(165.10)	(203.20)	(279.40)
BG	—	—	5.50	7.50	9.50	10.13	10.00	13.00	16.00	22.00
BH	—	—	(139.70)	(190.50)	(241.30)	(257.30)	(254.00)	(330.20)	(405.40)	(558.80)
BI	—	—	.63	.75	.94	.94	1.25	1.13	1.69	1.50
BJ	—	—	(16.00)	(19.05)	(23.88)	(23.88)	(31.75)	(28.70)	(42.93)	(38.10)
BK	—	—	2.50	3.38	4.375	4.63	5.38	6.88	7.875	10.13
BL	—	—	(63.50)	(85.85)	(111.13)	(117.60)	(136.65)	(174.75)	(200.03)	(257.30)
BM	—	—	5.13	6.91	8.63	9.44	10.75	13.75	15.63	20.25
BN	—	—	(130.30)	(175.51)	(219.20)	(239.78)	(273.05)	(349.25)	(397.00)	(514.35)
BO	—	—	.50	.63	.91	.88	1.07	1.00	1.44	1.62
BP	—	—	(12.70)	(16.00)	(23.11)	(22.35)	(27.18)	(25.40)	(36.58)	(41.11)
BQ	—	—	.41	.53	.69	.78	.97	1.06	1.31	1.56
BR	—	—	(10.41)	(13.46)	(17.53)	(19.81)	(23.88)	(26.92)	(33.27)	(39.62)
BS	—	—	.41	.47	.47	.59	.62	.84	.84	1.22
BT	—	—	(10.41)	(11.94)	(11.94)	(14.98)	(15.75)	(21.3)	(21.3)	(30.99)
BU	—	—	.75DP	.75DP	.75DP	1.25DP	1.25DP	1.50DP	1.50DP	2.00DP
BV	—	—	(19.05)	(19.05)	(19.05)	(31.75)	(44.45)	(44.45)	(38.10)	(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

\*\*\* ± .005 (.013 mm)

Model SS-25 has (4) holes on a 90° pattern rotated 22 1/2° 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 42.

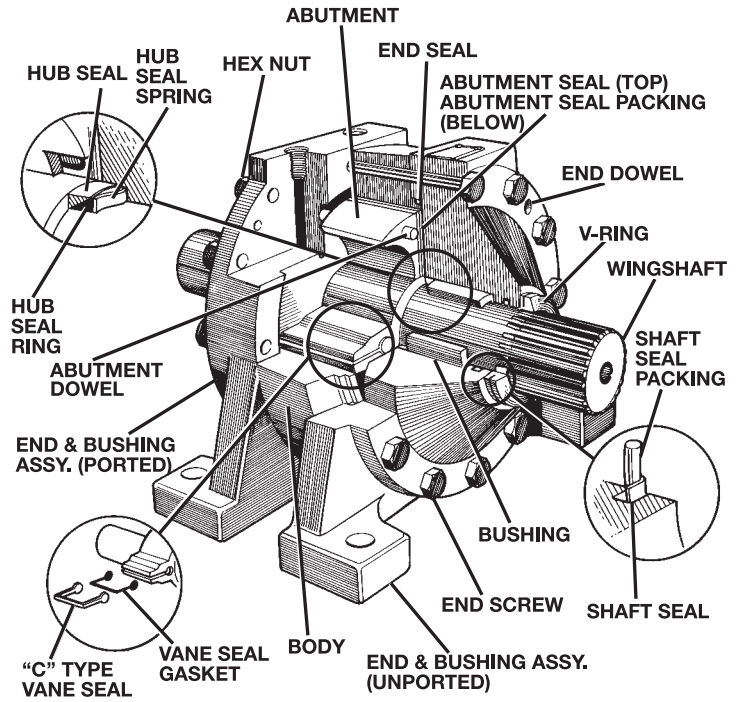
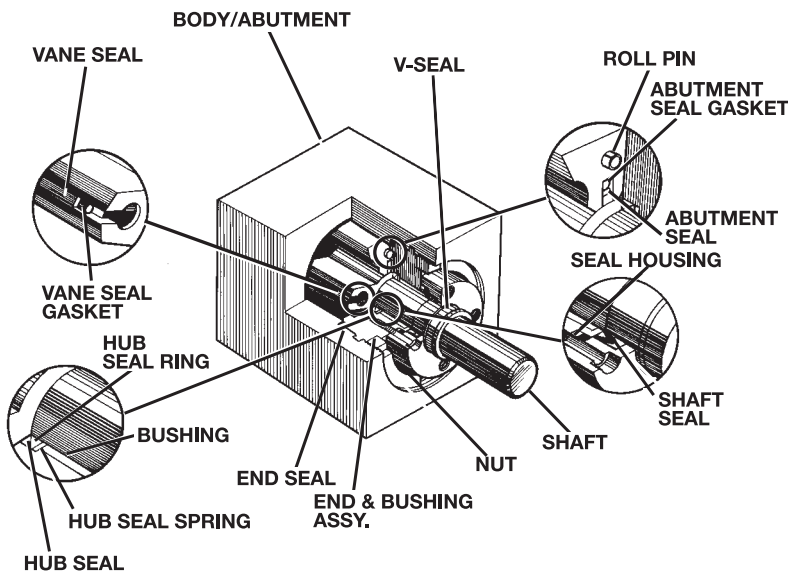
## PERFORMANCE

MODEL	TORQUE IN-LBS (N•m)			VOLUMETRIC DISPLACEMENT IN <sup>3</sup> (CM <sup>3</sup> )		APPROX. WEIGHT LB (Kg)
	1000 PSI (69.0 BAR)	2000 PSI (137.9 BAR)	3000 PSI (206.9 BAR)	PER 280°	PER RAD	
	SINGLE VANE 280° ROTATION (±5°)					
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 (23)
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 (655.60)	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)

MODEL	TORQUE IN-LBS (N•m)			VOLUMETRIC DISPLACEMENT IN <sup>3</sup> (CM <sup>3</sup> )		APPROX. WEIGHT LB (Kg)
	1000 PSI (69.0 BAR)	2000 PSI (137.9 BAR)	3000 PSI (206.9 BAR)	PER 100°	PER RAD	
	DOUBLE VANE 100° ROTATION (±5°)					
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-8	15200 (1718)	30400 (3435)	45600 (5153)	27.92 (457.60)	16 (262.24)	80 (36.29)
SS-12	23660 (2673)	47320 (5347)	70965 (8019)	43.45 (712.14)	24.90 (408.11)	125 (57)
SS-25	47310 (5346)	94620 (10692)	141930 (16038)	86.41 (1416.31)	49.80 (816.22)	230 (104)
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)

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	1V 2V	
SS-2A	125 (8.6)	10	200	N/A
SS-5A	125 (8.6)	12	180	200
SS-1	100 (6.90)	14	229	295
SS-4	50 (3.44)	16	262	370
SS-8	50 (3.44)	18	295	N/A
SS-12	50 (3.44)	20	328	470
SS-25	50 (3.44)	22	360	N/A
SS-40	50 (3.44)	25	410	1080
SS-65	50 (3.44)	28	459	1370
SS-130	50 (3.44)	43	704	1550

† TESTED AT 2250 PSI.



## 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)

\*0.2A  
\*0.5A  
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.  
\*\* 6 Front ports—SAE  
7 Manifold ports (See manifold porting data for explanation)  
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-.05A-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 52 for size.