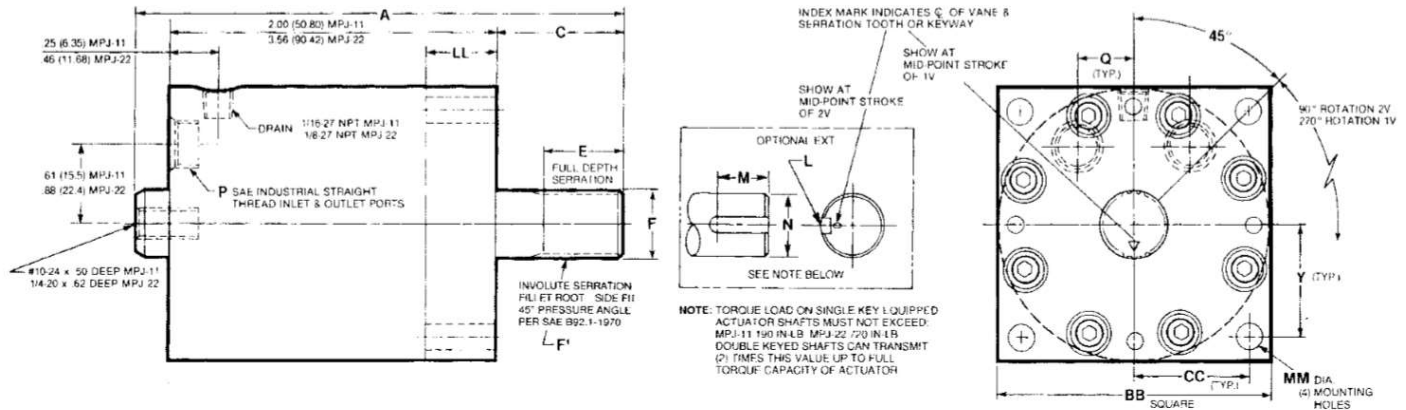


Rotac® Hyd-ro-ac® Products – Rotary Actuator: MPJ-11 & MPJ-22

MPJ-11 & MPJ-22



IMPORTANT NOTES TO AVOID ACTUATOR DAMAGE AND VOIDED WARRANTY:

1. Connections of drains will add significant life to the shaft seals. This is highly recommended.
2. Design considerations should be made to limit the axial and radial loading applied to the actuator. Contact factory if axial and/or radial loading must be applied to the actuator. Unapproved axial and/or radial loading will void the actuator's warranty.
3. External stops must be used to limit shaft rotation for most applications. Using the actuators internal components as rotational stops will cause damage and void the actuators warranty.
4. It is critical that the hydraulic system have pressure relief located in close proximity to the actuator to prevent pressure spikes from damaging the actuator. Hydraulic pressure spikes will rapidly cause damage and void the actuator's warranty.
5. It is recommended the hydraulic fluid be filtered to 5 microns or less (maximum of 10 microns).

DIMENSION IN INCHES (MILLIMETERS)		
	MPJ-11	MPJ-22
A	3.18 (81)	5.25 (133.4)
	1.00 (25.4)	1.42 (36)
C	0.54 (13.7)	0.90 (22.9)
E	0.4997 (12.692)	0.7497 (19.042)
F ₄	19T 40/80P 0.4750PD	29T 40/80P 0.7250PD
F ₁	1/8 X 1/16 (3 X 1.6)	3/16 X 3/32 (4.8 X 2.4)
L ₂	0.60 (15.2)	1.00 (25.4)
M	0.4985 (12.662)	0.7485 (19.012)
N ₄	3/8-24	1/2-20
P ₃		

Q Y BB CC LL MM	0.42 (10.67)	0.65 (16.51)
	0.84 (21.34)	1.25 (31.75)
	2" SQ. (50.8) SQ.	3" SQ. (76.20) SQ.
	0.84 (21.34)	1.25 (31.75)
	0.50 (12.70)	0.74 (18.80)
	0.22 (5.59)	0.28 (7.11)

- 1 SEE NOTE ABOVE FOR SPLINE TYPE
2 SEE BELOW FOR OPTIONAL SHAFT FEATURES
3 SEE BELOW FOR OTHER PORT OPTIONS
4 TOLERANCE ± 0.0005 (0.01)

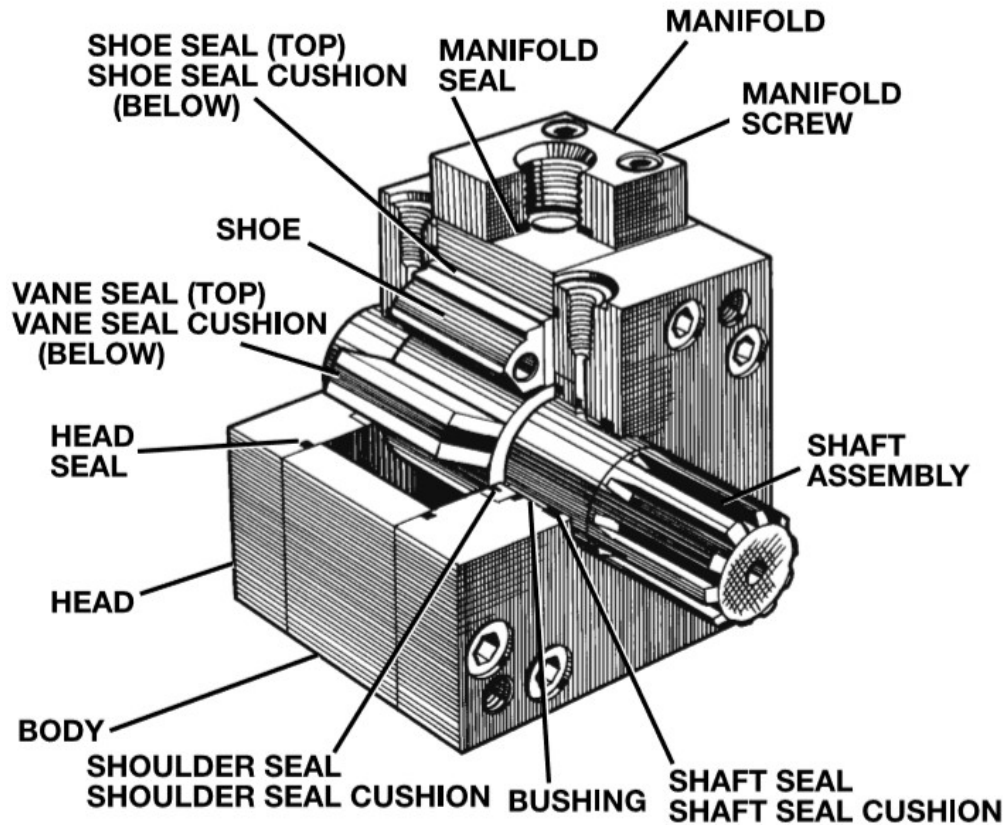
OPTIONAL NPT AND BSPP PORTING			OPTIONAL SHAFT HOLES	
MODEL	NATIONAL PIPE THREAD (NPT)	BRITISH STANDARD PIPE THREAD (BSPP)	POTENTIOMETER SHAFT HOLE (in)	SHAFT END TAPPED HOLE (in)
MPJ-11	1/8-27 NPT	1/8-28 BSPP	$\frac{0.187}{0.186}$ X 0.38 DP	10-32 UNF-2B X 0.38 DP
MPJ-22	1/4-18 NPT	1/4-19 BSPP	$\frac{0.187}{0.186}$ X 0.38 DP	10-32 UNF-2B X 0.38 DP

SINGLE VANE 270° ROTATION ($\pm 5^\circ$)						
MODEL	TORQUE in-lbs (N-m)			VOLUMETRIC DISPLACEMENT in ³ (cm ³)		APPROX. WEIGHT lb (kg)
	100 psi (6.9 bar)	500 psi (34.5 bar)	1000 psi (69.0 bar)	PER 270°	PER Radian	
MPJ-11	8 (0.90)	56 (6.33)	117 (13.22)	0.835 (13.69)	0.178 (2.92)	0.75 (0.34)
MPJ-22	56 (6.33)	333 (37.63)	679 (76.73)	3.82 (62.61)	0.815 (13.36)	3 (1.36)

DOUBLE VANE 100° ROTATION ($\pm 5^\circ$)						
MODEL	TORQUE in-lbs (N-m)			VOLUMETRIC DISPLACEMENT in ³ (cm ³)		APPROX. WEIGHT lb (kg)
	100 psi (6.9 bar)	500 psi (34.5 bar)	1000 psi (69.0 bar)	PER 100°	PER Radian	
MPJ-11	23 (2.60)	156 (17.63)	322 (36.39)	0.557 (9.13)	0.357 (5.85)	0.84 (0.38)
MPJ-22	121 (13.67)	728 (82.26)	1,487 (168.03)	2.56 (41.96)	1.63 (26.72)	3.2 (1.45)

TEST PARAMETERS - OIL			
MODEL	MAX BREAK IN psi (bar)	BY-PASS LEAKAGE-MAX ALLOWABLE	
		in ³ /min AT 3000 psi (206.9 bar)	cm ³ /min AT 3000 psi (206.9 bar)
MPJ-11	60 (4.14)	9	148
MPJ-22	50 (3.44)	11	180

HOW TO ORDER MPJ-11 & MPJ-22



HOW TO ORDER

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

EXAMPLE: **MPJ** - **22** - **1V** - **SE** - **K** - **FLG** - **2**

- - - - - -

BLOCK # 1 2 3 4 6 7 8

Block 1 (MODEL)

MPJ

Block 2 (SIZE)

11

22

Block 3 (VANES)

1V Single Vane

2V Double Vane

Block 4 (SHAFT EXTENSION)

SE Single Extension

Block 6 (SHAFT TYPE)

ISER 10-B Spline

K Keyed

Z Special

Block 7 (MOUNTING)

FLG Flange

Z Special

Block 8 (PORTING)

1 NPT

2 SAE Straight Threads (Standard)

0 BSPP Straight Threads

Z Special

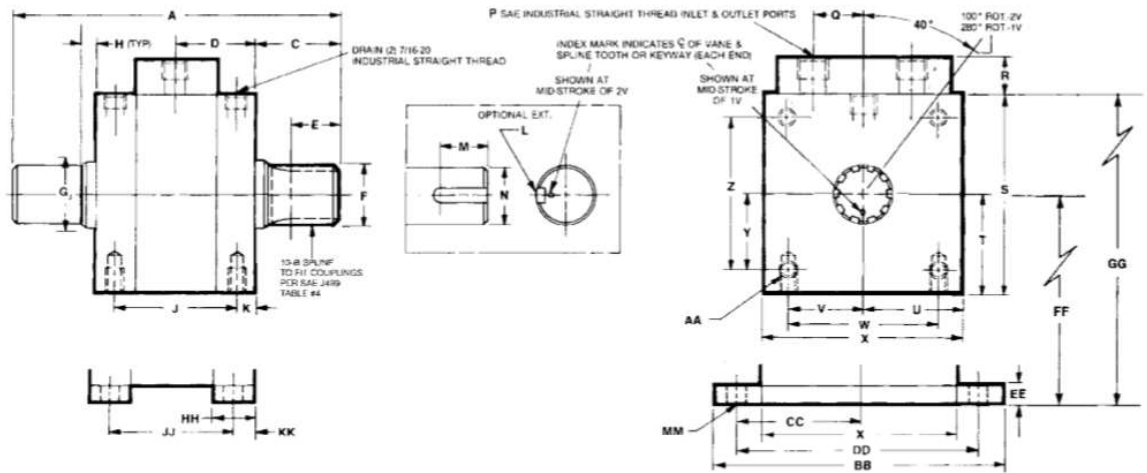
NOTES: 1. Block "5" isn't used for MPJ models

2. All "Z" (non-standard feature request) requires a "Request a Quote" to be filled out for Micromatic to review requirements

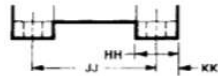
Rotac® Hyd-ro-ac® Products – Rotary Actuator: MPJ-32 THRU MPJ-128

MP-32 THRU MP-128

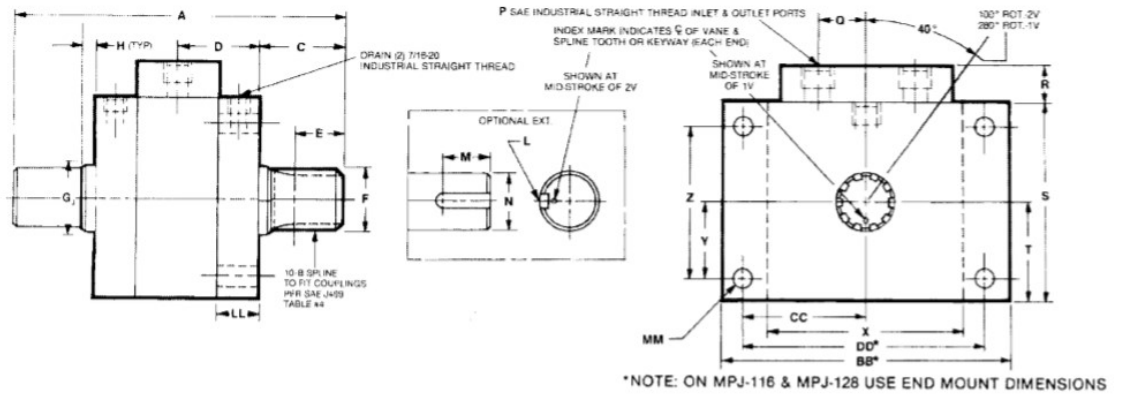
END BASE MOUNTING



FOOT MOUNTING



FLANGE MOUNTING



IMPORTANT NOTES TO AVOID ACTUATOR DAMAGE AND VOIDED WARRANTY:

1. Connections of drains will add significant life to the shaft seals. This is highly recommended.
2. Design considerations should be made to limit the axial and radial loading applied to the actuator. Contact factory if axial and/or radial loading must be applied to the actuator. Unapproved axial and/or radial loading will void the actuator's warranty.
3. External stops must be used to limit shaft rotation for most applications. Using the actuators internal components as rotational stops will cause damage and void the actuators warranty.
4. It is critical that the hydraulic system have pressure relief located in close proximity to the actuator to prevent pressure spikes from damaging the actuator. Micromatic offers Cross Port Relief (CPR) manifolds that can be used with the actuator if the customer's hydraulic system does not have pressure relief (contact factory for details). Hydraulic pressure spikes will rapidly cause damage and void the actuator's warranty.
5. It is recommended the hydraulic fluid be filtered to 5 microns or less (maximum of 10 microns).

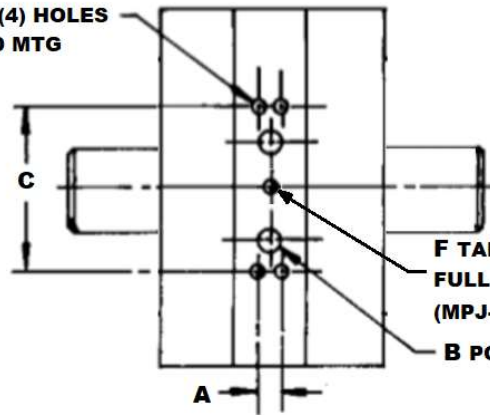
DIMENSION IN INCHES (MILLIMETERS)							
	MPJ-32	MPJ-34	MPJ-63	MPJ-84	MPJ-105	MPJ-116	MPJ-128
A	8.25 (210)	10.25 (260)	13.88 (352)	16.88 (429)	18.88 (480)	22.38 (568)	25.38 (645)
C	2.05 (52)	2.05 (52)	3.49 (88.6)	4.49 (114)	4.49 (114)	5.02 (127.5)	5.50 (140)
D	2.08 (52.8)	3.08 (78)	3.45 (87.6)	3.95 (100.3)	4.95 (125.7)	6.17 (156.7)	7.19 (182.6)
E	1.12 (28.5)	1.12 (28.5)	1.75 (44.5)	2.50 (63.5)	2.75 (69.8)	3.25 (82.6)	4.00 (101.6)
F ₆	Ø1.2455 (Ø 31.636)	Ø 1.2455 (Ø 31.636)	Ø 1.9935 (Ø 50.635)	Ø 2.4935 (Ø 63.335)	Ø 2.9935 (Ø 76.035)	Ø 3.4935 (Ø 88.735)	Ø 3.9935 (Ø 101.435)
G	1.27 (32.26)	1.27 (32.26)	2.02 (51.3)	3.00 (76.2)	3.02 (76.7)	3.74 (95)	N/A
H	0.30 (7.6)	0.30 (7.6)	0.49 (12)	0.49 (12)	0.49 (12)	0.50 (12)	0.09 (2.3)
J	3.25 (82.5)	5.25 (133.4)	5.50 (139.7)	6.00 (152.4)	7.00 (177.8)	9.50 (241.3)	11.25 (285.75)
K	0.45 (11.4)	0.45 (11.4)	0.70 (17.8)	0.95 (24)	1.45 (36.8)	1.44 (36.6)	1.56 (39.6)
L ₂	5/16 X 5/32 (8 X 4)	5/16 X 5/32 (8 X 4)	1/2 X 1/4 (12.7 X 6.4)	5/8 X 5/16 (15.9 X 7.9)	3/4 X 3/8 (19 X 19.5)	1 X 1/2 (25.4 X 12.7)	1 X 1/2 (25.4 X 12.7)
M	1.00 (25.4)	1.00 (25.4)	1.75 (44.5)	2.50 (63.5)	2.75 (69.8)	3.75 (95.25)	4.00 (101.6)
N ₆	1.2485 (31.712)	1.2485 (31.712)	1.9985 (50.762)	2.4985 (63.462)	2.9985 (76.162)	3.4985 (88.862)	3.9985 (101.562)
P ₃	7/8-14	7/8-14	1-1/16-12	1-5/16-12	1-5/8-12	1-7/8-12	1-7/8-12
Q	0.94 (24)	0.94 (24)	1.25 (31.75)	1.63 (41.4)	2.00 (50.8)	2.50 (63.5)	2.50 (63.5)
R	0.75 (19)	0.75 (19)	1.88 (25.4)	1.00 (25.4)	1.00 (25.4)	1.25 (31.75)	1.25 (31.75)
S	4.25 (108)	4.25 (108)	8.00 (203)	10.50 (267)	12.50 (317.5)	14.25 (362)	16.00 (406.4)
T ₄	2.125 (53.98)	2.125 (53.98)	4.00 (101.6)	5.25 (133.35)	6.25 (158.75)	7.125 (180.98)	8.00 (203.2)
U	2.12 (53.85)	2.12 (53.85)	4.00 (101.6)	5.25 (133.4)	6.25 (158.75)	7.12 (180.8)	8.00 (203.2)
V	1.63 (41.4)	1.63 (41.4)	3.00 (76.2)	4.25 (108)	5.00 (127)	6.00 (152.4)	6.75 (171.5)
W	3.25 (82.55)	3.25 (82.55)	6.00 (152.4)	8.50 (216)	10.00 (254)	12.00 (304.8)	13.50 (343)
X	4.25 (108)	4.25 (108)	8.00 (203)	10.50 (267)	12.50 (317.5)	14.25 (362)	16.00 (406.4)
Y	1.63 (41.4)	1.63 (41.4)	3.00 (76.2)	4.25 (108)	5.00 (127)	6.00 (152.4)	6.75 (171.5)
Z	3.25 (82.55)	3.25 (82.55)	6.00 (152.4)	8.50 (216)	10.00 (254)	12.00 (304.8)	13.50 (342.9)

AA	3/8-16 0.56 DP	3/8-16 0.56 DP	3/4-10 1.12 DP	3/4-10 1.12 DP	1-8 1.75 DP	1-8 1.75 DP	1-1/4-7 2.00 DP
BB	6.25 (159)	6.25 (159)	11.00 (279)	13.50 (343)	16.50 (419)	18.25 (464)	20.50 (521)
CC	2.63 (66.8)	2.63 (66.8)	4.75 (120.7)	6.00 (152.4)	7.25 (184.15)	8.12 (206.2)	9.12 (231.6)
DD	5.25 (133.4)	5.25 (133.4)	9.50 (241.3)	12.00 (304.8)	14.50 (368.3)	16.25 (412.75)	18.25 (463.6)
EE	0.38 (10)	0.38 (10)	1.00 (25.4)	1.50 (38)	1.75 (44.5)	1.75 (44.5)	2.00 (51)
FF₄	2.50 (63.5)	2.50 (63.5)	5.00 (127)	6.75 (171.45)	8.00 (203.2)	8.875 (225.43)	10.00 (254)
GG	4.63 (117.6)	4.63 (117.6)	9.00 (229)	12.00 (305)	14.25 (362)	16.00 (406.4)	18.00 (457)
HH	1.12 (28.5)	1.12 (28.5)	2.00 (50.8)	2.00 (50.8)	2.50 (64)	3.00 (76)	3.00 (76)
JJ	3.06 (77.7)	5.06 (128.5)	5.00 (127)	6.00 (152.4)	7.50 (190.5)	9.50 (241.3)	11.25 (285.75)
KK	0.55 (14)	0.55 (14)	0.95 (24)	0.95 (24)	1.20 (30.5)	1.44 (36.6)	1.56 (40)
LL	1.08 (27.4)	1.08 (27.4)	1.95 (49.5)	1.95 (49.5)	2.45 (62)	2.91 (73.9)	3.19 (81)
MM	0.41 (10.4)	0.41 (10.4)	0.78 (19.8)	0.78 (19.8)	1.03 (26.2)	1.03 (26.2)	1.32 (33.5)

- 1 SEE NOTE ABOVE FOR SPLINE TYPE
- 2 SEE BELOW FOR OPTIONAL SHAFT FEATURES
- 3 SEE BELOW FOR OTHER PORT OPTIONS
- 4 TOLERANCE ± 0.005 (0.013)
- 6 TOLERANCE ± 0.0005 (0.01)

OPTIONAL NPT AND BSPP PORTING			OPTIONAL SHAFT HOLES	
MODEL	NATIONAL PIPE THREAD (NPT)	BRITISH STANDARD PIPE THREAD (BSPP)	POTENTIOMETER SHAFT HOLE (in)	SHAFT END TAPPED HOLE (in)
MPJ-32	3/8-18 NPT	3/8-19 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	3/8-16 UNC X 9/16 DP
MPJ-34	3/8-18 NPT	3/8-19 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	3/8-16 UNC X 9/16 DP
MPJ-63	3/4-14 NPT	3/4-14 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	1/2-13 UNC X 3/4 DP
MPJ-84	3/4-14 NPT	3/4-14 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	1/2-13 UNC X 3/4 DP
MPJ-105	1-11.5 NPT	1-11 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	3/4-10 UNC X 1-1/8 DP
MPJ-116	1-1/4-11.5 NPT	1-11 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	3/4-10 UNC X 1-1/8 DP
MPJ-128	1-1/4-11.5 NPT	1-11 BSPP	$\frac{0.2491}{0.2486} \times 0.50\text{DP}$	1-8 UNC X 1-1/2 DP

D TAP - E DEEP
FULL THREAD (4) HOLES
FOR MANIFOLD MTG



F TAP - G DEEP
FULL THREAD (1) HOLE
(MPJ-84, -105, -116, & -128 ONLY)

B PORT DIA.

MODELS:

MPJ-32
 MPJ-34
 MPJ-63
 MPJ-84
 MPJ-105
 MPJ-116
 MPJ-128

OPTIONAL MANIFOLD PORTING							
MODEL	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)
MPJ-32	1.250	37/64	3-1/8	5/16-18 UNC	1/2	-	-
MPJ-34	1.250	37/64	3-1/8	5/16-18 UNC	1/2	-	-
MPJ-63	2.000	5/8	3-3/4	3/8-16 UNC	9/16	-	-
MPJ-84	2.000	15/16	5	3/8-16 UNC	13/16	3/8-16 UNC	1/2
MPJ-105	2.750	1	5-3/4	1/2-13 UNC	11/16	1/2-13 UNC	11/16
MPJ-116	3.500	1-1/2	6-1/2	5/8-11 UNC	1	5/8-11 UNC	1
MPJ-128	3.500	1-1/2	6-1/2	5/8-11 UNC	1	5/8-11 UNC	1

NOTES:

1. Port locations are symmetrical to manifold mounting holes.
2. See above for port locations and spacing.

OPTIONAL CROSS PORT RELIEF MANIFOLDS

OPTIONAL SPLINED SHAFT COUPLINGS

SINGLE VANE 280° ROTATION (±5°)						
MODEL	TORQUE in-lbs (N-m)			VOLUMETRIC DISPLACEMENT in ³ (cm ³)		APPROX. WEIGHT lb (kg)
	100 psi (6.9 bar)	500 psi (34.5 bar)	1000 psi (69.0 bar)	PER 280°	PER Radian	
MPJ-32	103 (11.64)	705 (79.63)	1,595 (180.24)	9.2 (150.79)	1.88 (30.81)	19 (8.6)
MPJ-34	206 (23.28)	1,410 (159.33)	3,190 (360.47)	18.4 (301.58)	3.76 (61.31)	26 (11.8)
MPJ-63	600 (67.80)	4,090 (462.17)	9,280 (1048.64)	53.30 (873.59)	10.90 (179)	122 (55.2)
MPJ-84	1,430 (161.59)	9,750 (1101.75)	22,100 (2497.30)	127.40 (2088.09)	26.07 (428)	203 (92.1)
MPJ-105	2,850 (322.05)	19,400 (2192.20)	44,000 (4972)	253.3 (4151.59)	51.83 (850)	348 (157.9)

MPJ-116	4,650 (525.45)	31,700 (3582)	71,800 (8113)	412.9 (6767.43)	84.50 (1386)	552 (250.4)
MPJ-128	6,625 (748.63)	45,151 (5102)	102,345 (11565)	588.4 (9643.88)	120.41 (1975)	835 (378.8)

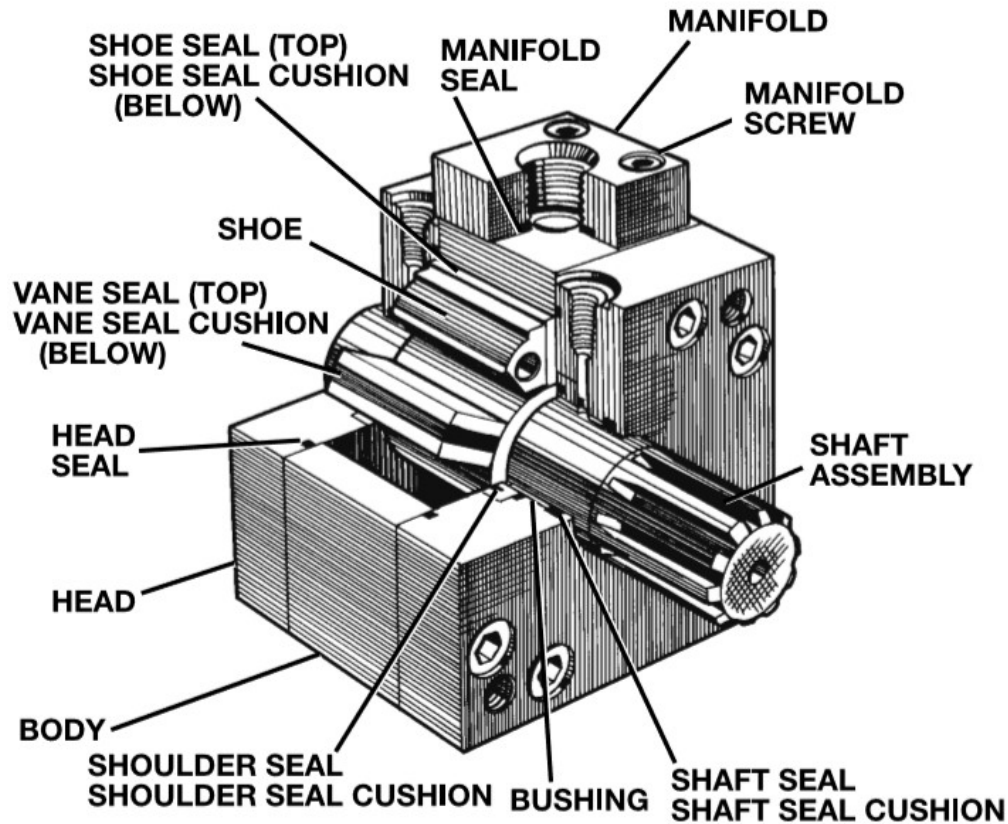
*For 1,500 psi (103.4 BAR) contact factory.

DOUBLE VANE 100° ROTATION (±5°)						
MODEL	TORQUE in-lbs (N-m)			VOLUMETRIC DISPLACEMENT in³ (cm³)		APPROX. WEIGHT lb (kg)
	100 psi (6.9 bar)	500 psi (34.5 bar)	1000 psi (69.0 bar)	PER 100°	PER Radian	
MPJ-32	225 (25.43)	1,540 (174)	3,380 (381.94)	6.60 (108.17)	3.78 (62)	20 (9.1)
MPJ-34	450 (50.85)	3,080 (348.04)	6,750 (762.75)	13.00 (213.07)	7.44 (122)	27 (12.2)
MPJ-63	1,310 (148.03)	8,950 (1011.35)	19,600 (2214.80)	38.0 (622.82)	21.77 (357)	126 (57.2)
MPJ-84	3,120 (352.56)	21,350 (2412.55)	46,700 (5277.00)	91.0 (1491.49)	52.14 (855)	212 (96.2)
MPJ-105	6,220 (702.86)	42,500 (4802.50)	93,300 (10542.90)	181.0 (2966.59)	103.7 (1700)	364 (165.1)
MPJ-116	10,100 (1141.30)	69,300 (7831)	152,100 (17187)	295.0 (4835.05)	169.0 (2772)	581 (263.5)
MPJ-128	14,450 (1633)	98,735 (11157)	216,730 (24490)	420.3 (6888.72)	240.8 (3950)	875 (396.9)

*For 1,500 psi (103.4 BAR) contact factory.

TEST PARAMETERS - OIL			
MODEL	MAX BREAK IN psi (bar)	BY-PASS LEAKAGE-MAX ALLOWABLE	
		in³/min AT 3000 psi (206.9 bar)	cm³/min AT 3000 psi (206.9 bar)
MPJ-32	50 (3.45)	12	197
MPJ-34	50 (3.45)	12	197
MPJ-63	50 (3.45)	13	213
MPJ-84	40 (2.8)	14	229
MPJ-105	40 (2.8)	15	246
MPJ-116	40 (2.8)	16	262
MPJ-128	40 (2.8)	17	279

HOW TO ORDER MPJ-32 THRU MPJ-128



HOW TO ORDER

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

EXAMPLE: **MPJ** - **34** - **1V** - **SE** - **K** - **E/B** - **2**

- - - - - -

BLOCK # **1** **2** **3** **4** **6** **7** **8**

Block 1 (MODEL)

MPJ

Block 2 (SIZE)

32
34
63
84
105
116
128

Block 3 (VANES)

1V Single Vane
2V Double Vane

Block 4 (SHAFT EXTENSION)

SE Single Extension
DE Double Extension

Block 6 (SHAFT TYPE)

SS 10-B Spline
K Keyed
PL Plain
Z Special

Block 7 (MOUNTING)

E/B End/Base
FT Foot
FLG Flange
Z Special

Block 8 (PORTING)

1 NPT
2 SAE Straight Threads (Standard)
7 Manifold Ports
0 BSPP Straight Threads
Z Special

NOTES: 1. Block "5" isn't used for MPJ models

2. All "Z" (non-standard feature request) requires a "Request a Quote" to be filled out for Micromatic to review requirements

Contact Micromatic Customer Service with special feature requests @ CustomerService@micromaticllc.com or 800.333.5752.