

MACQ Actuators

Engineering Specifications

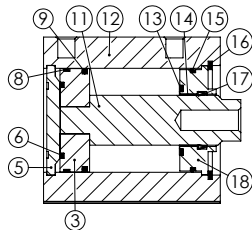
Bore Size (mm)		0.47	0.63	0.79	0.98	1.26	1.57	1.97	2.48	3.15	3.94
Fluid		Air (Clean/Dry)									
Action		Double Acting									
Pressure Range		14 to 145 PSI (0.1 to 1.0 MPa)									
Proof Pressure		215 PSI (1.5 MPa)									
Temperature Range		-4 °F to 176 °F (-20 °C to 80 °C)									
Cushion Type		Bumper									
Speed Range		30 to 500 mm/s									
Stroke Tolerance		+1.0 / -0									
Port Size		M5 X 0.8		1/8 NPT		1/4 NPT		3/8 NPT			
Thrust, N (lbs) ¹	Pushing Force	68 (15)	121 (27)	189 (42)	295 (66)	483 (108)	754 (169)	1178 (264)	1870 (420)	3016 (678)	4712 (1059)
	Pulling Force	51 (11)	91 (20)	141 (32)	227 (51)	362 (81)	633 (142)	990 (222)	1682 (378)	2721 (611)	4230 (950)
Sensor Switch Compatibility ²	Reed Switch	MCS1-G									
	Solid State Switch	MDS1-G									



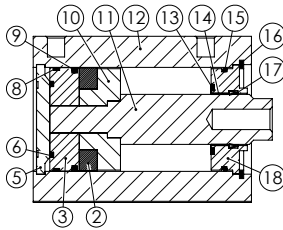
¹ Thrust at 0.6 MPa (87psi) inlet pressure.

² See Switch chapter for switch specifications.
See page 286 for male thread adapter.

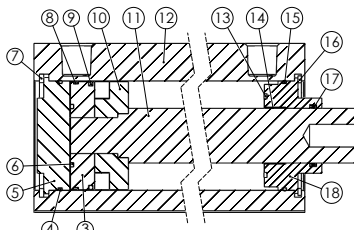
Stroke ≤100mm, No Magnet



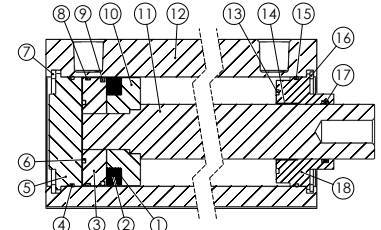
Stroke ≤100mm, With Magnet



Stroke >100mm, No Magnet



Stroke >100mm, With Magnet

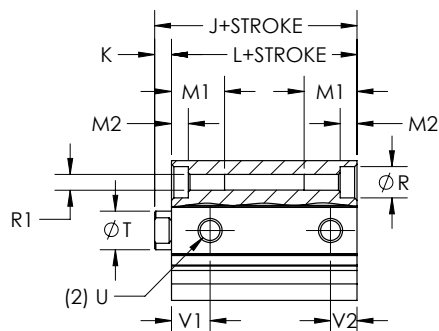
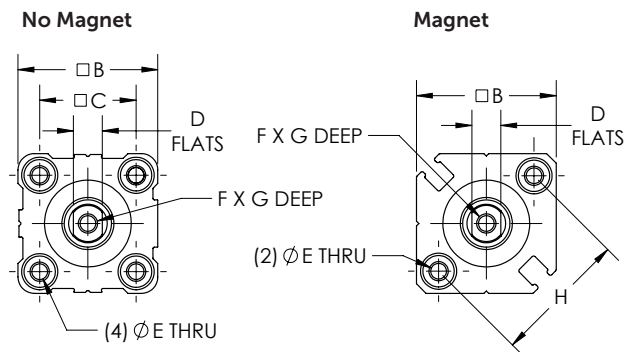


Materials

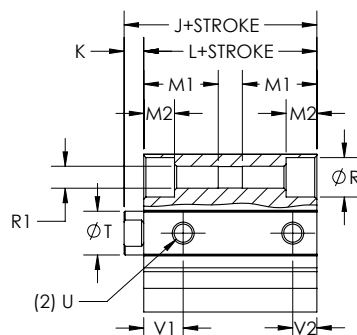
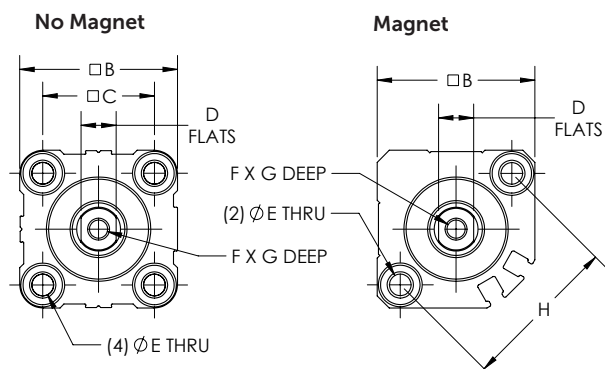
Number	Item	Material
1	Washer	No Washer (Ø0.47-Ø0.98 and Ø1.26-Ø3.94 with stroke ≤3.94mm); NBR (Ø1.26-Ø3.94 with stroke >3.94mm)
2	Magnet	Sintered Metal (Neodymium-Iron-Boron) (Ø0.47-Ø0.98); Plastic (Ø1.26-Ø3.94)
3	Piston	Brass (Ø0.47, Ø0.63); Aluminum Alloy (Ø0.79-Ø3.94)
4	O-Ring	NBR
5	Back Cap	Cap incorporated into body (Ø0.47, Ø0.63); Hard Anodized Aluminum Alloy
6	Bumper	TPU (Ø0.47-Ø0.98); NBR (Ø1.26-Ø3.94)
7	Retaining Ring	Spring Steel
8	Wear Ring	No Wear Ring (Ø0.47-Ø1.26); Polymer Bearing Material (Ø1.57-Ø3.94)
9	Piston Seal	NBR
10	Magnet Holder	Brass (Ø0.47, Ø0.63); Aluminum Alloy (Ø0.79-Ø3.94)
11	Piston Rod	Carbon Steel with 20µm Chrome Plating
12	Body	Hard Anodized Aluminum Alloy
13	Bumper	NBR
14	Bearing	No Bearing (Ø0.47-Ø1.26); Bearing Alloy (Ø1.57-Ø3.94)
15	O-Ring	NBR
16	Retaining Ring	Spring Steel
17	Rod Seal	NBR
18	Front Cap	Aluminum Alloy

MACQ Cylinder Dimensions (in)

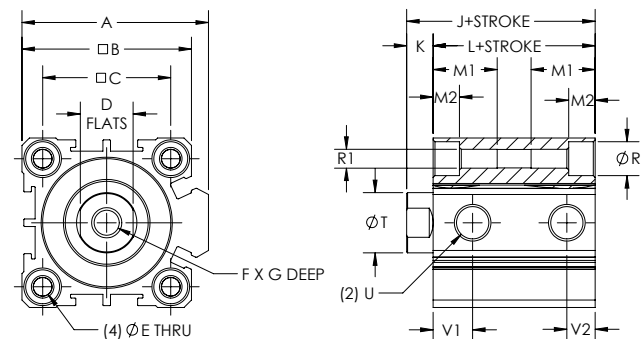
Ø0.47, Ø0.63



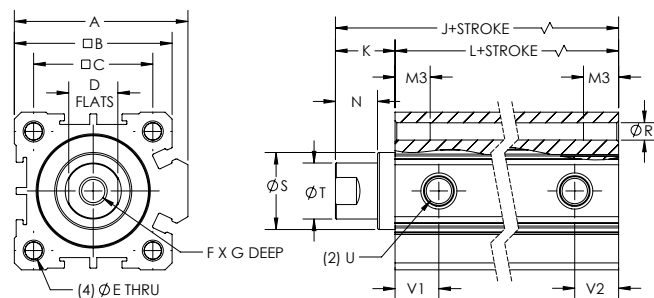
Ø0.79, Ø0.98



Ø1.26 - Ø3.94 (Stroke ≤ 3.94)



Ø1.26 - Ø3.94 (Stroke > 3.94)



Dimensions (in)

	Stroke (mm)	Bore Size (in)									
		0.47	0.63	0.79	0.98	1.26	1.57	1.97	2.48	3.15	3.94
A		-	-	-	-	1.95	2.24	2.8	3.31	4.09	4.86
B		0.98	1.14	1.42	1.57	1.77	2.09	2.52	3.03	3.86	4.61
C		0.61	0.79	1	1.1	1.34	1.57	1.97	2.36	3.03	3.7
D		0.2	0.24	0.31	0.39	0.55	0.55	0.67	0.67	0.87	1.06
E		0.13	0.13	0.2	0.2	0.2	0.2	0.27	0.33	0.41	0.41
F		M0.12 X 0.02	M0.16 X 0.03	M0.2 X 0.03	M0.24 X 0.04	M0.31 X 0.05	M0.31 X 0.05	M0.39 X 0.06	M0.39 X 0.06	M0.63 X 0.08	M0.79 X 0.1
G	0.2-3.94	0.24	0.31	0.28	0.47	0.51	0.51	0.59	0.59	0.79	1.02
	4.92+	-	-	-	-	0.51	0.51	0.59	0.59	0.83	1.06
H		0.87	1.1	1.42	1.57	-	-	-	-	-	-
J	0.2-1.97	0.81* 1.24**	0.87* 1.34**	0.94* 1.42**	1.08* 1.48**	1.18* 1.57**	1.44* 1.83**	1.52* 1.91**	1.73* 2.13**	2.11* 2.5**	2.56* 2.95**
	2.95-3.94	-	-	1.34* 1.42**	1.48	1.57	1.83	1.91	2.13	2.5	2.95
	4.92+	-	-	-	-	2.46	2.83	2.89	2.95	3.39	3.84
K	0.2-1.97	0.14	0.14	0.18	0.2	0.28	0.28	0.31	0.31	0.39	0.47
	4.92+	-	-	-	-	0.67	0.67	0.71	0.71	0.79	0.87
L	0.2-1.97	0.67* 1.1**	0.73* 1.2**	0.77* 1.24**	0.89* 1.28**	0.91* 1.3**	1.16* 1.56**	1.2* 1.59**	1.42* 1.81**	1.71* 2.11**	2.09* 2.48**
	2.95-3.94	-	-	1.16* 1.24**	1.28	1.3	1.56	1.59	1.81	2.11	2.48
	4.92+	-	-	-	-	1.79	2.17	2.19	2.24	2.6	2.97
M1		0.43	0.43	0.67	0.67	0.67	0.67	0.87	1.12	1.4	1.4
M2		0.14	0.14	0.28	0.28	0.28	0.28	0.31	0.41	0.53	0.53
M3		-	-	-	-	0.67	0.67	0.87	1.06	1.26	1.3
N	0.2-3.94	-	-	-	-	-	-	-	-	-	-
	4.92+	-	-	-	-	0.47	0.47	0.51	0.51	0.59	0.67
P		0.14	0.12	0.16	0.18	0.24	0.24	0.26	0.26	0.33	0.37
R	0.2-3.94	0.26	0.26	0.35	0.35	0.35	0.35	0.43	0.55	0.69	0.69
R1		M0.16 X 0.03	M0.16 X 0.03	M0.24 X 0.04	M0.24 X 0.04	M0.24 X 0.04	M0.24 X 0.04	M0.31 X 0.05	M0.39 X 0.06	M0.47 X 0.07	M0.47 X 0.07
S	0.2-3.94	-	-	-	-	-	-	-	-	-	-
	4.92+	-	-	-	-	0.87	1.1	1.38	1.38	1.69	2.32
T		0.24	0.31	0.39	0.47	0.63	0.63	0.79	0.79	0.98	1.26
U		M0.2 X 0.03	M0.2 X 0.03	M0.2 X 0.03	M0.2 X 0.03	0.04/0.31 NPT	0.04/0.31 NPT	0.00.16/4 NPT	0.00.16/4 NPT	0.12/0.31 NPT	0.12/0.31 NPT
V1	0.2	0.3* 0.35**	0.31* 0.37**	0.35* 0.37*	0.43	0.3* 0.41**	0.43	0.35* 0.41**	0.55* 0.59**	0.63	0.79
	0.39-3.94	0.3* 0.35**	0.31* 0.37**	0.35* 0.37**	0.43	0.41	0.43	0.41	0.59	0.63	0.79
	4.92+	-	-	-	-	0.49	0.55	0.55	0.65	0.75	0.91
V2	0.2	0.2* 0.28**	0.22	0.22	0.22	0.26* 0.3**	0.31	0.35* 0.41**	0.37* 0.41**	0.55	0.69
	0.39-3.94	0.2* 0.28**	0.22	0.22	0.22	0.3	0.31	0.41	0.41	0.55	0.69
	4.92+	-	-	-	-	0.49	0.55	0.55	0.65	0.75	0.91

See page 286 for male thread adapter.

The Model Numbers for all MACQ compact cylinders are configurable. Designate bore size, stroke, magnet, and ports.

MACQ - 16 x 30 - S - T		Stroke Bore Size (in)									
		0.47	0.63	0.79	0.98	1.26	1.57	1.97	2.48	3.15	3.94
		0.2	X	X	X	X	X	X	X	X	X
		0.39	X	X	X	X	X	X	X	X	X
		0.59	X	X	X	X	X	X	X	X	X
		0.79	X	X	X	X	X	X	X	X	X
		0.98	X	X	X	X	X	X	X	X	X
		1.18	X	X	X	X	X	X	X	X	X
		1.57	X	X	X	X	X	X	X	X	X
		1.97	X	X	X	X	X	X	X	X	X
		2.95			X	X	X	X	X	X	X
		3.94			X	X	X	X	X	X	X
		4.92				X	X	X	X	X	X
		5.91				X	X	X	X	X	X

Product
MACQ Compact Cylinder

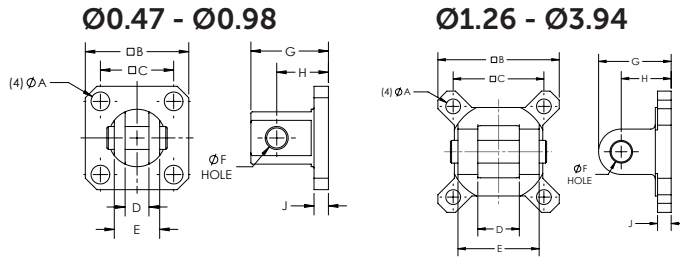
Magnet
Blank No Magnet
S with Magnet

Ports
T Standard ¹

¹ See page 282 for the Port Sizes listed in the Engineering Specifications table.

Product Information

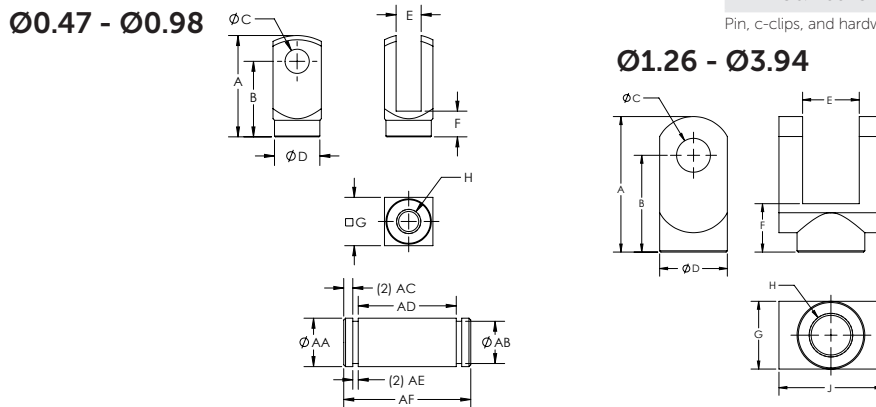
Clevis Brackets for MACQ Series



Model	A	B	C	D	E	F	G	H	J
F-MACQ-12-CB	4.5	25	15.5	5.3	9.8	5	20	14	4
F-MACQ-16-CB	4.5	29	20	6.8	11.8	5	21	15	4
F-MACQ-20-CB	6.5	36	25.5	8.3	15.8	8	27	18	5
F-MACQ-25-CB	6.5	40	28	10.3	19.8	10	30	20	5
F-MACQ-32-CB	6.5	45.5	34	18.3	35.8	10	30	20	5.5
F-MACQ-40-CB	6.5	53.5	40	18.3	35.8	10	32	22	7
F-MACQ-50-CB	8.5	64.5	50	22.3	43.8	14	42	28	8
F-MACQ-63-CB	10.5	77.5	60	22.3	43.8	14	44	30	10
F-MACQ-80-CB	12.5	98.5	77	28.3	55.8	18	56	38	10
F-MACQ-100-CB	12.5	117.5	94	32.3	63.8	22	67	45	13

Pin, c-clips, and hardware included with all Clevis Brackets

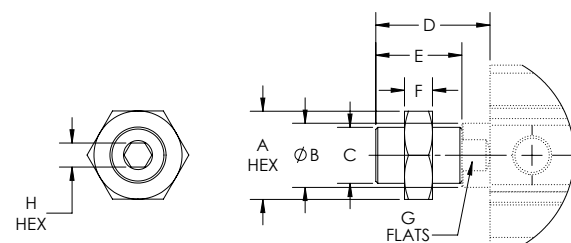
Rod Clevis Brackets for MACQ Series



Model	A	B	C	D	E	F	G	H	J	AA	AB	AC	AD	AE	AF
F-MACQ-12-Y	22	16	5 +.048/-0	9	5.3±0.1	6	10	M5 X 0.8	-	5 -.03/-0.06	4	1.5	10.2	0.7	14.6
F-MACQ-16-Y	28	21	5 +.048/-0	11	6.6±0.1	11	12	M6 X 1.0	-	5 -.03/-0.06	4	1.5	12.4	0.7	16.8
F-MACQ-20-Y	34	25	8 +.058/-0	15	8.3±0.1	8.5	16	M8 X 1.25	-	8 -.04/-0.076	7	1.5	16.2	0.9	21
F-MACQ-25-Y	41	30	10 +.058/-0	19	10.3±0.1	10.5	20	M10 X 1.25	-	10 -.04/-0.076	8	2	20.2	1.1	26.4
F-MACQ-32-Y	42	30	10 +.058/-0	22	18.4±0.1	16	22	M14 X 1.5	36	10 -.04/-0.076	8	2	36.2	1.1	42.4
F-MACQ-40-Y	42	30	10 +.058/-0	22	18.4±0.1	16	22	M14 X 1.5	36	10 -.04/-0.076	8	2	36.2	1.1	42.4
F-MACQ-50-Y	56	40	14 +.07/-0	28	22.4±0.1	20	28	M18 X 1.5	44	14 -.05/-0.093	12	2	44.2	1.1	50.4
F-MACQ-63-Y	56	40	14 +.07/-0	28	22.4±0.1	20	28	M18 X 1.5	44	14 -.05/-0.093	12	2	44.2	1.1	50.4
F-MACQ-80-Y	71	50	18 +.07/-0	38	28.4±0.1	23	38	M22 X 1.5	56	18 -.05/-0.093	15	2	56.2	1.7	63.6
F-MACQ-100-Y	79	55	22 +.084/-0	44	32.4±0.1	22	44	M26 X 1.5	64	22 -.065/-0.117	19	2.5	64.2	1.7	72.6

Pin, c-clips, and male adapter included with all Rod Clevis Brackets

Male Adapter for MACQ Series



Male Adapter includes jam nut (cylinder not included).

Model	A	B	C	D	E	F	G	H
F-MACQ-12-A	8	6	M5 X 0.8	14	10.5	4	5	2.5
F-MACQ-16-A	10	8	M6 X 1.0	15.5	12	5	6	3
F-MACQ-20-A	12	10	M8 X 1.25	18.5	14	6	8	4
F-MACQ-25-A	17	12	M10 X 1.25	22.5	17.5	6	10	5
F-MACQ-32-A	19	16	M14 X 1.5	28.5* / 38.5**	21.5	8	14	6
F-MACQ-40-A	19	16	M14 X 1.5	28.5* / 38.5**	21.5	8	14	6
F-MACQ-50-A	27	20	M18 X 1.5	33.5* / 43.5**	25.5	11	17	8
F-MACQ-63-A	27	20	M18 X 1.5	33.5* / 43.5**	25.5	11	17	8
F-MACQ-80-A	32	25	M22 X 1.5	43.5* / 53.5**	33.5	13	22	10
F-MACQ-100-A	36	32	M26 X 1.5	43.5* / 53.5**	31.5	13	27	10

* Stroke = 5 to 100

** Stroke = 125, 150