

MAL Series Aluminum Cylinder

MAL Cylinder



Ordering Code

MAL - U - 20 X 50 - S - 25

MAL - Double Acting Cylinder
MALD - Double Acting Thru Rod Cylinder
MALJ - Double Acting with Adjustable Stroke Cylinder
MALS - Single Acting Cylinder Normally Retracted
MALSE - Single Acting Cylinder Normally Extended

U - Flat End Mounting
CM - Round End Mounting
Blank - Standard Mounting

20 - Bore Diameter (mm)

50 - Stroke (mm)

S - Magnetic Piston
Blank - Non-Magnetic Piston

25 - Stroke Adjustment for MALJ (mm)

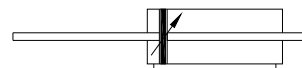
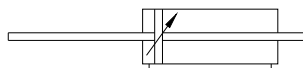
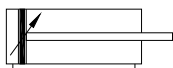
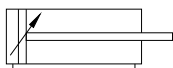
MAL Pneumatic Cylinder head, piston and barrel made of aluminum alloy; piston rod made of chromed plated high carbon steel; seals are made of NBR for standard working temperature; for higher working temperature seals are made of viton or teflon.

With Cushioning

W/ Cushioning & Magnet

Thru Rod w/ Cushioning

Thru Rod w/ Cushioning & Magnet



MAL Pneumatic Cylinder Specification

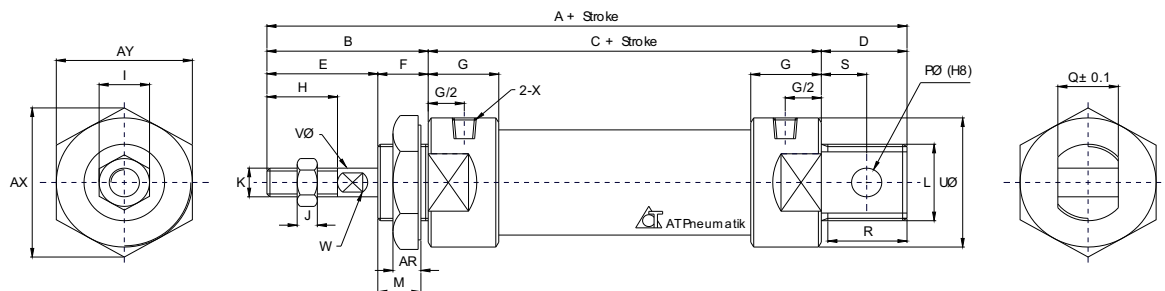
Bore Diameter (mm)	16	20	25	32	40
Type	Double Acting / Single Acting				
Working Medium	Air				
Working Pressure	10 kg/cm ²				
Test Pressure	13 Kg/cm ²				
Working Temperature	0 - 70 °C				
Working Speed Range	50~800 mm/sec				
Cushioning	Rubber Bumper				
Port Size	M05	G 1/8"			G 1/4"

Theoretical Force Table Nm

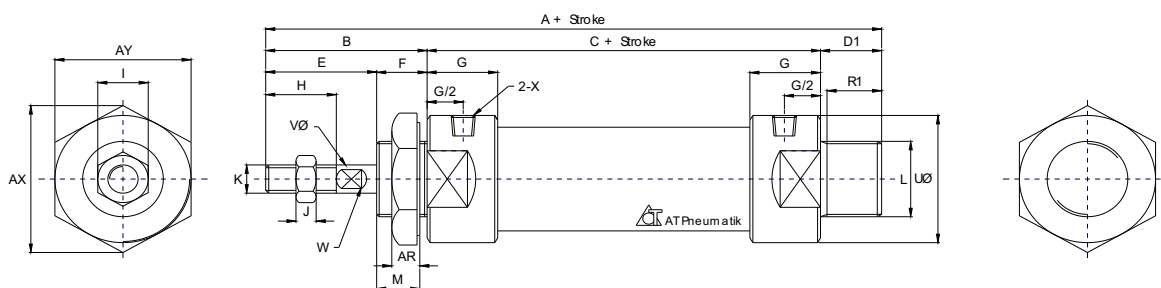
Bore Diameter (mm)		16		20		25		32		40						
Piston Rod Diameter		6		8		10		12		16						
Motion Pattern		Single Acting	Double Acting		Single Acting	Double Acting		Single Acting	Double Acting		Single Acting	Double Acting				
			Push Side	Pull Side		Push Side	Pull Side		Push Side	Pull Side		Push Side	Pull Side			
Air Pressure (Kgf/cm ²)	1	-	2	1.8	-	3.1	2.6	-	4.9	4.1	-	8	6.9	-	12.6	10.6
	2	-	4	3.6	1.6	6.3	5.3	2.5	9.8	8.2	4	16.1	13.8	6.3	25.1	21.1
	3	2	6	5.4	4.7	9.4	7.9	7.4	14.7	12.4	12.1	24.1	20.7	18.8	37.7	31.7
	4	4	8	7.2	7.9	12.6	10.6	12.3	19.6	16.5	20.1	32.2	27.6	31.4	50.2	42.2
	5	6	10.1	9.1	11.0	15.7	13.2	17.2	24.5	20.6	28.1	40.2	34.5	44	62.8	52.8
	6	8	12.1	10.9	14.1	18.8	15.8	22.1	29.4	24.7	36.2	48.2	41.4	56.5	75.4	63.3
	7	10	14.1	12.7	17.3	22	18.5	27	34.3	28.8	44.2	56.3	48.3	69.1	87.9	73.9
	8	-	-	-	20.4	25.1	21.1	31.9	39.2	33	52.3	64.3	55.2	81.6	100.5	84.4
	9	-	-	-	23.6	28.3	23.8	36.8	44.1	37.1	60.3	72.4	62.1	94.2	113	95

MAL Series Aluminum Double Acting Cylinder

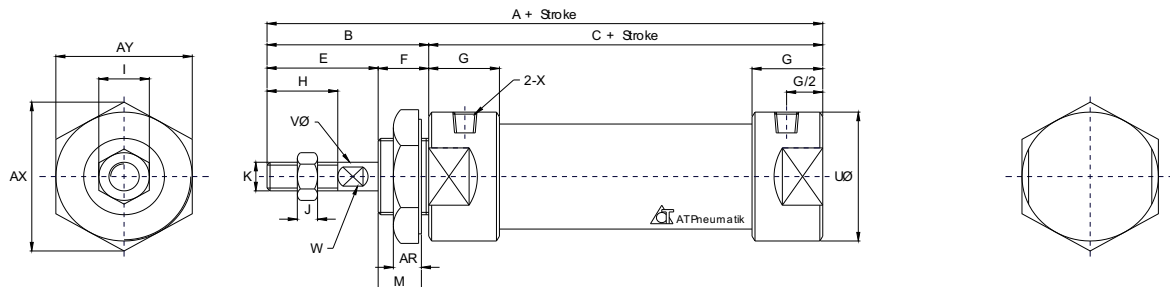
MAL - CA Double Acting Cylinder



MAL - CM Double Acting Cylinder



MAL - U Double Acting Cylinder



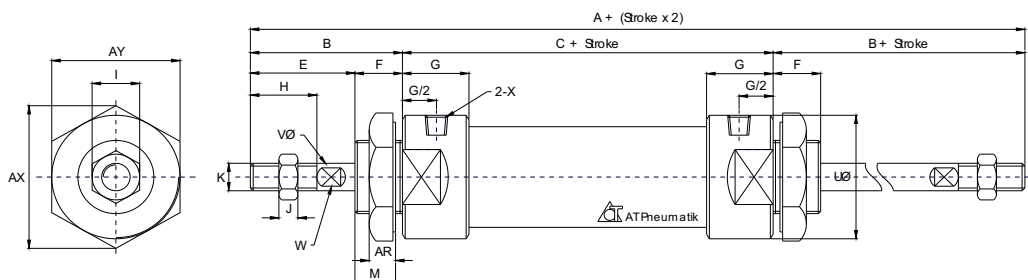
MAL Pneumatic Cylinder Dimension															
Bore Diameter	A	A1	A2	B	C	D	D1	E	F	G	H	I	J	K	L
16	104	104	90	38	52	15	15	24	14	11	16	10	5	M06 X 1.0	M16 X 1.5
20	131	122	110	40	70	21	12	28	12	16	20	12	6	M08 X 1.25	M22 X 1.5
25	135	128	114	44	70	21	14	30	14	16	22	17	6	M10 X 1.25	M22 X 1.5
32	141	128	114	44	70	27	14	30	14	16	22	17	6	M10 X 1.25	M24 X 2.0
40	165	152	138	46	92	27	14	32	14	22	24	17	7	M12 X 1.25	M30 X 2.0

MAL Pneumatic Cylinder Dimension													
Bore Diameter	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
16	8	6	12	13	13	6	20	6	/	M05	7	24	27.5
20	10	8	16	19	12	12	29	8	6	G 1/8"	7	33	29
25	12	8	16	19	14	12	34	10	8	G 1/8"	7	33	29
32	12	10	16	25	14	15	39.5	12	10	G 1/8"	8	37	32
40	12	23	20	25	14	15	39.5	16	14	G 1/4"	9	47	41

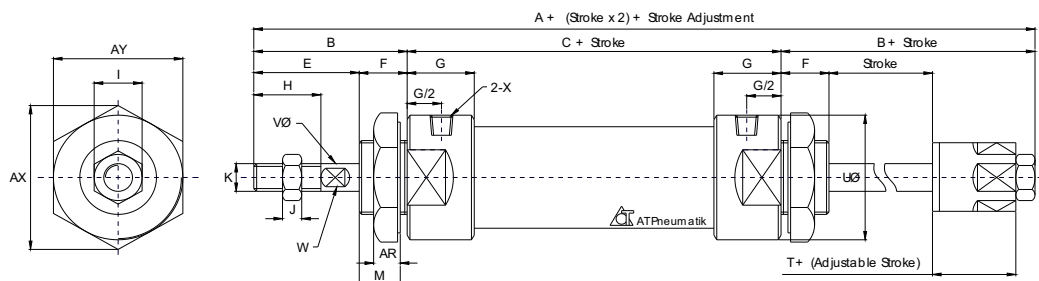
Dimensions are in mm

MAL Series Aluminum Double Acting Cylinder

MALD Thru Rod Cylinder



MALJ Adjustable Stroke Cylinder



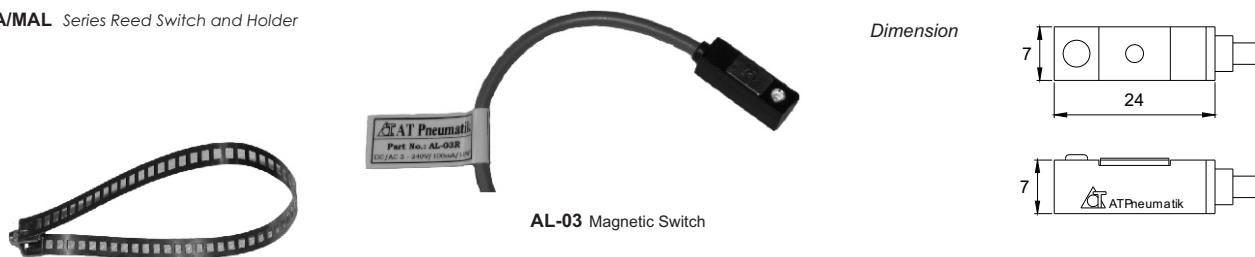
MAL Pneumatic Cylinder Dimension

Bore Diameter	A	A1	B	C	E	F	G	H	I	J	K	L
20	131	122	40	70	28	12	16	20	12	6	M08 X 1.25	M22 X 1.5
25	135	128	44	70	30	14	16	22	17	6	M10 X 1.25	M22 X 1.5
32	141	128	44	70	30	14	16	22	17	6	M10 X 1.25	M24 X 2.0
40	165	152	46	92	32	14	22	24	17	7	M12 X 1.25	M30 X 2.0

MAL Pneumatic Cylinder Dimension

Bore Diameter	M	U	V	W	X	AR	AX	AY	T
20	10	29	8	6	G 1/8"	7	33	29	19
25	12	34	10	8	G 1/8"	7	33	29	21
32	12	39.5	12	10	G 1/8"	8	37	32	21
40	12	49.5	16	14	G 1/4"	9	47	41	21

MA/MAL Series Reed Switch and Holder



AL-03 Magnetic Switch

BK Magnetic Switch Holder
20 to 40mm bore diameter cylinder

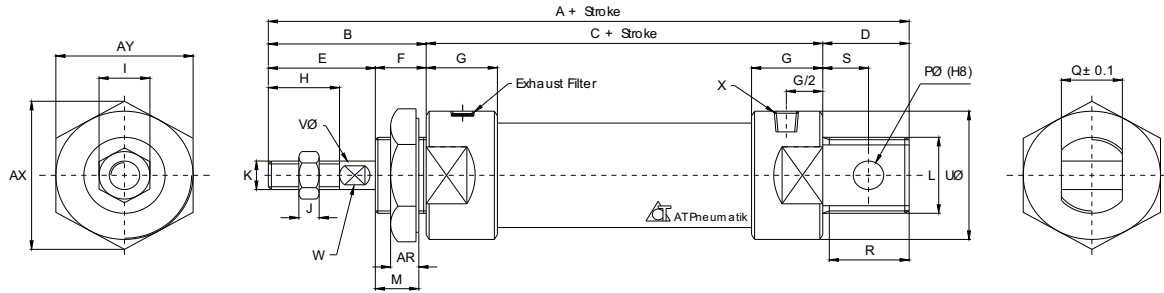
Reed Switch Specification

Model	Output	Current	Response	Indicator	Wire	
AL-03-R	Contact	5-240Vac	5-60mA	1msec max.	LED	2M
		5-110Vdc				
AL-03-NPN	NPN	5-30Vdc				
AL-03-PNP	PNP					

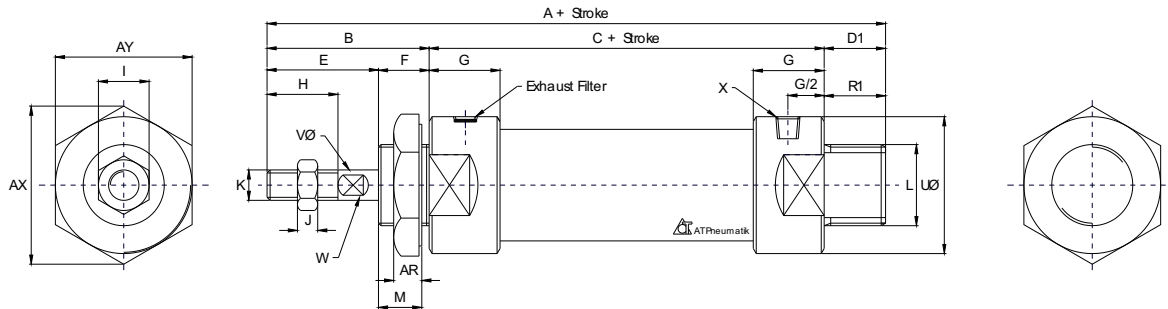
Dimensions are in mm

MAL Series Aluminum Single Acting Cylinder

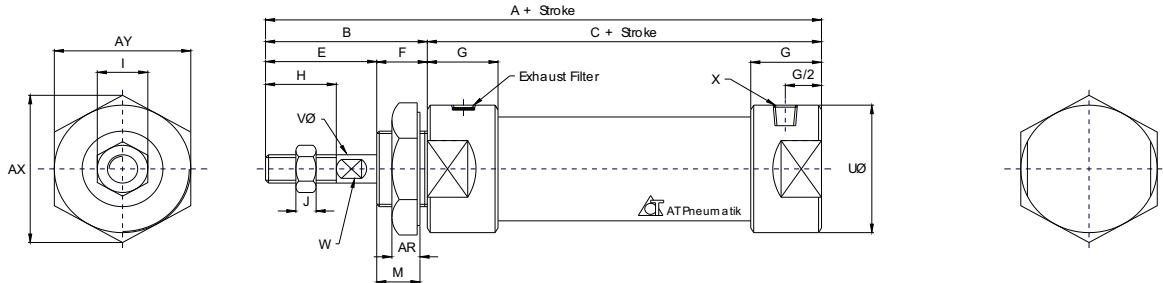
MALS - CA Single Acting Cylinder Normally Retracted



MALS - CM Single Acting Cylinder Normally Retracted



MALS - U Single Acting Cylinder Normally Retracted



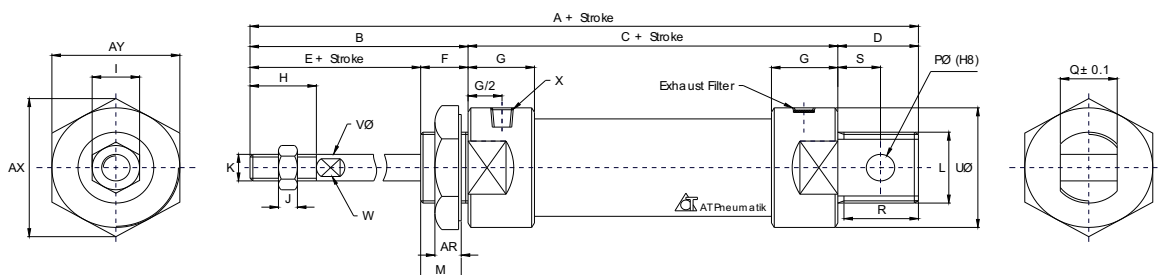
MALS Pneumatic Cylinder Dimension																		
Bore	Stroke	A		A1		A2		B	C		D	D1	E	F	G	H	I	J
		0~50	51~100	0~50	51~100	0~50	51~100		0~50	51~100								
20		131	156	122	147	110	135	40	70	95	21	12	28	12	16	20	12	6
25		135	160	128	153	114	139	44	70	95	21	14	30	14	16	22	17	6
32		141	166	128	153	114	139	44	70	95	27	14	30	14	16	22	17	6
40		165	190	152	177	138	163	46	92	117	27	14	32	14	22	24	17	7

MALS Pneumatic cylinderDimension															
Bore Diameter	K	L	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
20	M08 X 1.25	M22 X 1.5	10	8	16	19	12	12	29	8	6	G 1/8"	7	33	29
25	M10 X 1.25	M22 X 1.5	12	8	16	19	14	12	34	10	8	G 1/8"	7	33	29
32	M10 X 1.25	M24 X 2.0	12	10	16	25	14	15	39.5	12	10	G 1/8"	8	37	32
40	M12 X 1.25	M30 X 2.0	12	12	20	25	14	15	49.5	16	14	G 1/4"	9	47	41

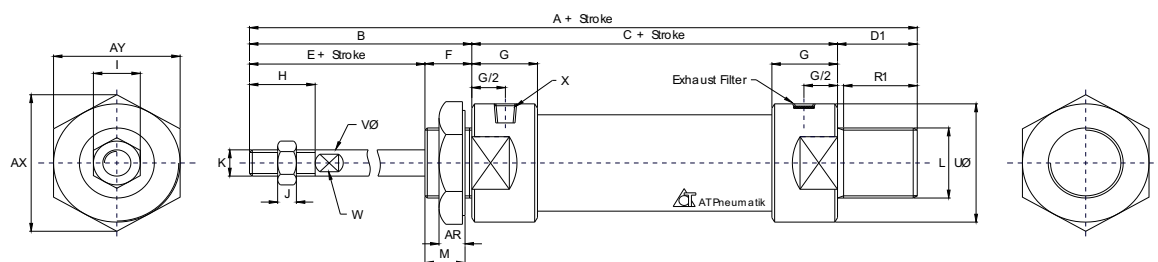
Dimensions are in mm

MAL Series Aluminum Single Acting Cylinder

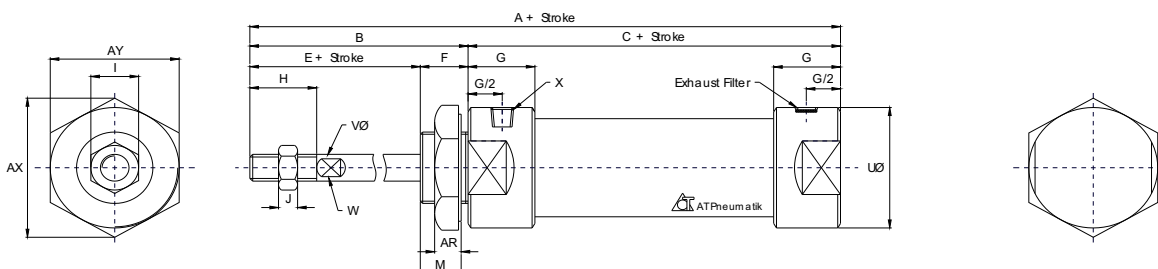
MALSE - CA Single Acting Cylinder Normally Extended



MALSE - CM Single Acting Cylinder Normally Extended



MALSE - U Single Acting Cylinder Normally Extended



MALSE Pneumatic Cylinder Dimension																		
Bore	Stroke	A		A1		A2		B	C		D	D1	E	F	G	H	I	J
		0-50	51-100	0-50	51-100	0-50	51-100		0-50	51-100								
20		131	156	122	147	110	135	40	70	95	21	12	28	12	16	20	12	6
25		135	160	128	153	114	139	44	70	95	21	14	30	14	16	22	17	6
32		141	166	128	153	114	139	44	70	95	27	14	30	14	16	22	17	6
40		165	190	152	177	138	163	46	92	117	27	14	32	14	22	24	17	7

MALSE Pneumatic Cylinder Dimension															
Bore Diameter	K	L	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
20	M08 X 1.25	M22 X 1.5	10	8	16	19	12	12	29	8	6	G 1/8"	7	33	29
25	M10 X 1.25	M22 X 1.5	12	8	16	19	14	12	34	10	8	G 1/8"	7	33	29
32	M10 X 1.25	M24 X 2.0	12	10	16	25	14	15	39.5	12	10	G 1/8"	8	37	32
40	M12 X 1.25	M30 X 2.0	12	12	20	25	14	15	49.5	16	14	G 1/4"	9	47	41

Dimensions are in mm