

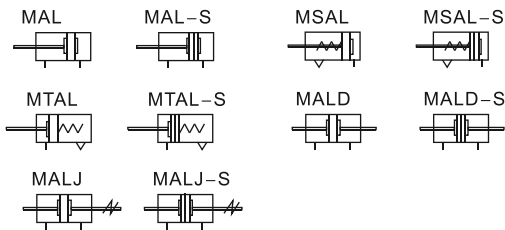
Mini cylinder(Aluminum barrel)



MAL Series



Symbol



Product feature

1. Manufactured by our enterprise.
2. Front and back cover and cylinder tube are connected by threads.
3. Piston adopts heterogeneous two-way seal structure. It has compact size and has the function of grease reservation.
4. Front cover adopts self-lubrication bearing guide that has good performance of lubrication and guide.
5. There are several modes of back cover, which makes the installation of cylinder more convenient.
6. There are cylinders and mounting accessories with several specifications for your choice.

Specification

Bore size(mm)		20	25	32	40
Acting type	MSAL/MTAL	Single acting			
	Others	Double acting			
Fluid		Air(to be filtered by 40 μ m filter element)			
Operating pressure	Double acting	0.15~1.0MPa(22~145psi)(1.5~10.0bar)			
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)			
Proof pressure		1.5MPa(215psi)(15bar)			
Temperature °C		-20~70			
Speed range mm/s		Double acting: 30~800 Single acting: 50~800			
Stroke tolerance		0~150 ^{+1.0} ₀ >150 ^{+1.5} ₀			
Cushion type		Bumper			
Port size [Note1]		1/8"			1/4"

[Note1] PT thread, G thread thread and NPT thread are available.
Add) Refer to P313 for detail of sensor switch.

Stroke

Bore size (mm)		Standard stroke (mm)																						Max.std stroke	Max. stroke
MAL	20	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	1000
	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	1000
	32	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	1500
	40	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	1500
MALD	20	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	300	-
	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	300	-
	32	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	-
	40	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	-
MSAL	20	10	15	20	25	30	40	50	60	75	80	100	125	150										-	-
	25	10	15	20	25	30	40	50	60	75	80	100	125	150										-	-
	32	10	15	20	25	30	40	50	60	75	80	100	125	150										-	-
	40	10	15	20	25	30	40	50	60	75	80	100	125	150										-	-
MTAL	20	10	15	20	25	30	40	50	60	75	80	100												-	-
	25	10	15	20	25	30	40	50	60	75	80	100												-	-
	32	10	15	20	25	30	40	50	60	75	80	100												-	-
	40	10	15	20	25	30	40	50	60	75	80	100												-	-

[Note] Consult us for non-standard stroke.

Ordering code

MAL	20 × 50	S	CM	☐	☐		
MALD	20 × 50	S		☐	☐		
MALJ	20 × 50-20	S		☐	☐		
①	②	③	④	⑤	⑥	⑦	⑧

① Model	② Bore size	③ Stroke	④ Adjustable Stroke	⑤ Magnet	⑥ Back cover	⑦ Mounting type [Note1]	⑧ Thread type
MAL: Mini cylinder(Double acting) MSAL: Mini cylinder (Single acting_push) MTAL: Mini cylinder (Single acting_pull)	20 25 32 40	Refer to stroke table for details	No this code	Blank: Without magnet S: With magnet	CA: Pivot type U: Flat-end type CM: Round-end type	Blank: No accessories FA: FA type SDB: SDB type LB: LB type	Blank: PT G: G T: NPT
MALD: Mini cylinder (Double rod)					No this code	Blank: No accessories FA: FA type LB: LB type	
MALJ: Mini cylinder (Adjustable stroke)			10 20 30 40 50 75 100				

[Note1] Please refer to page 99~100 for accessory parts.



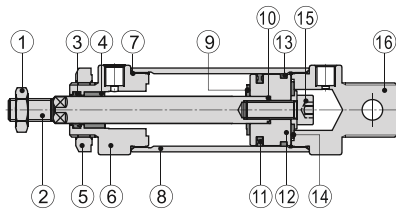
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MAL Series

Inner structure and material of major parts

MAL-CA

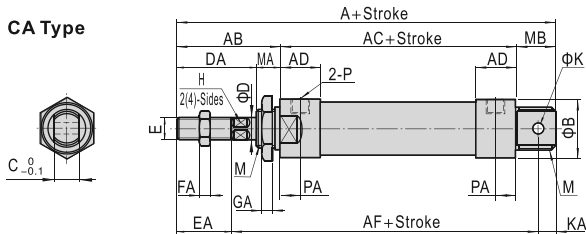


NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Carbon steel with 20 μm chrome plated
3	Front cover packing	NBR
4	Bushing	Wear resistant material
5	Front cover nut	Carbon steel
6	Front cover	Aluminum alloy
7	O-ring	NBR
8	Barrel	Aluminum alloy
9	Bumper	NBR
10	O-ring	NBR
11	Piston seal	NBR
12	Piston	Aluminum alloy
13	Wear ring	Wear resistant material
14	Washer	Free cutting material
15	Bolt	Carbon steel
16	Back cover	Aluminum alloy

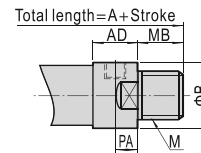
Dimensions

MAL

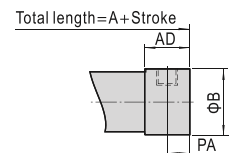
CA Type



CM Type



U Type

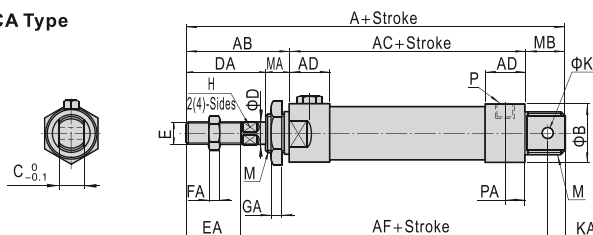


Bore size\Item Back cover	A				AB	AC	AD	AF	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
	CA	CM	U	CA																				CM			
20	131	122	110	40	70	16	102	29	16	8	28	M8×1.25	20	12	6	29	7	6	8	9	M22×1.5	12	21	12	1/8"	8	
25	135	128	114	44	70	16	104	34	16	10	30	M10×1.25	22	17	6	29	7	8	8	9	M22×1.5	14	21	14	1/8"	8	
32	141	128	114	44	70	16	107	39.5	16	12	30	M10×1.25	22	17	6	32	8	10	10	12	M24×2.0	14	27	14	1/8"	8	
40	165	152	138	46	92	22	129	49.5	20	16	32	M12×1.25	24	17	7	41	9	14	12	12	M30×2.0	14	27	14	1/4"	11	

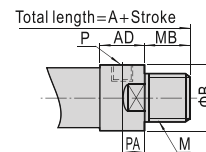
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MSAL

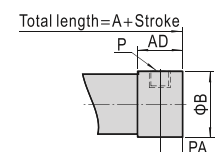
CA Type



CM Type



U Type



Item Back cover	CA			A			U			AC			AF		
	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101
Bore size\Stroke															
20	156	181	206	147	172	197	135	160	185	95	120	145	127	152	177
25	160	185	210	153	178	203	139	164	189	95	120	145	129	154	179
32	166	191	216	153	178	203	139	164	189	95	120	145	132	157	182
40	190	215	240	177	202	227	163	188	213	117	142	167	154	179	204

Bore size\Item	AB	AD	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB(CA)	MB(CM)	P	PA
20	40	16	29	16	8	28	M8×1.25	20	12	6	29	7	6	8	9	M22×1.5	12	21	12	1/8"	8
25	44	16	34	16	10	30	M10×1.25	22	17	6	29	7	8	8	9	M22×1.5	14	21	14	1/8"	8
32	44	16	39.5	16	12	30	M10×1.25	22	17	6	32	8	10	10	12	M24×2.0	14	27	14	1/8"	8
40	46	22	49.5	20	16	32	M12×1.25	24	17	7	41	9	14	12	12	M30×2.0	14	27	14	1/4"	11

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

