



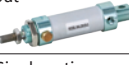





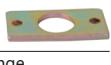
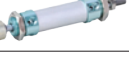



- Cylinder
- Sizing
- SI
- SI A.
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- DSN
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- MAL**
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Ordering Code

MAL	U	20	50	25	S	LB	MT
Series	Series Code	Bore	Stroke	Adjustable Stroke	Magnet	Mountings	Sensor
MAL: Double acting 	Blank: Fishtail type 	16			S: With magnet Blank: Without magnet	Blank: Basic mounting LB: Front and back mounting 	JEL-03 Type 
MTAL: Single acting, spring-out 	CM: Round rear cover 	20					Sensor bend 
MSAL: Single acting, spring-in 	U: Flat rear cover 	25					
MALD: Double-shaft, double acting 		32				FA: Front mounting flange FB: Rear mounting flange 	
MALJ: Double-shaft with adjustable stroke 		40				SDB: Rear hinge 	

Specification

Bore (mm)	16	20	25	32	40
Operation	Double Acting or Single Acting				
Working Medium	Air				
Mountings	Basic LB FA SDB				
Operating Pressure Range	1 ~ 9.0 Kgf/cm ²				
Proof Pressure	13.5 Kgf/cm ²				
Operating Temperature Range	0 ~ 70 °C				
Operating Speed Range	50 ~ 800 mm/s				
Cushion	Gasket Cushioning				
Port Size	M5 × 0.8	G 1/8"			G 1/4"

MAL Series

Aluminum Alloy Mini Cylinder

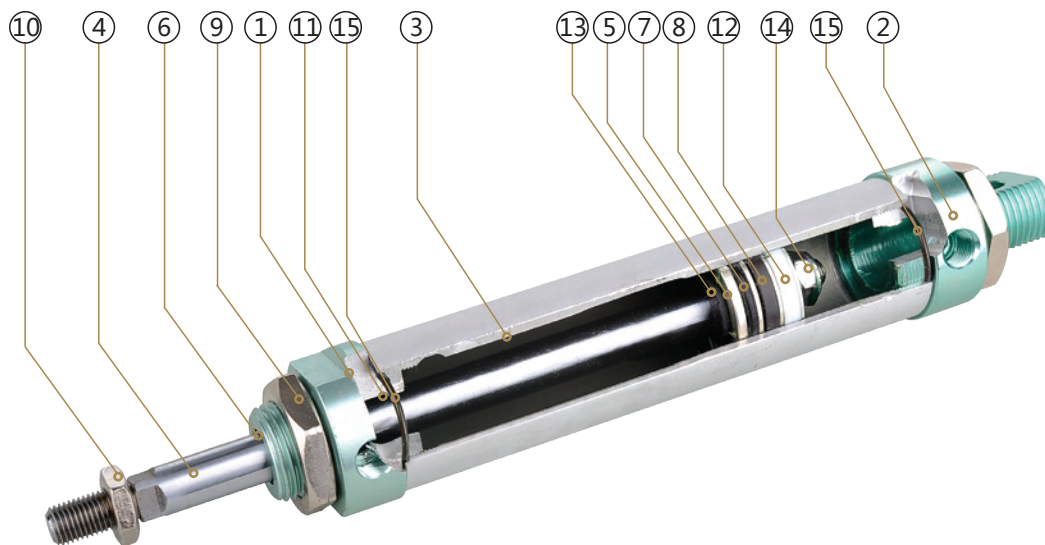


The way to automation

Stroke

Bore	Standard Stroke													Max. Stroke	Allowable Stroke					
16	25	50	75	80	100	125	150	160	175	200				300	500					
20	25	50	75	80	100	125	150	160	175	200	250	300			500	650				
25	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500			500	650
32	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500			500	650
40	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500			500	650

Internal Structure



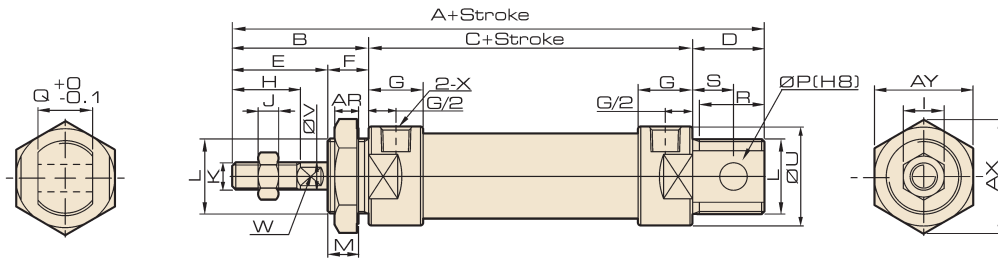
Parts

Number	Name	Material	Quantity
1	Front Cover	Hard Anodised Aluminium	1
2	Back Cover	Hard Anodised Aluminium	1
3	Barrel	Stainless Steel	1
4	Piston Rod	Chromed Carbon Steel	1
5	Piston	Aluminium	1
6	Piston Rod Seal	NBR	1
7	Piston Seal	NBR	1
8	Magnet	Plastic	1
9	Front and Rear Cover	Carbon Steel	1
10	Piston Rod Screw	Carbon Steel	1
11	Bearing	Non-lub Bearing	1
12	Anti-friction Ring	PTFE	1
13	Cushioning Gasket	NBR	2
14	Fixing Screw	Carbon Steel	1
15	Cover Seal	NBR	2

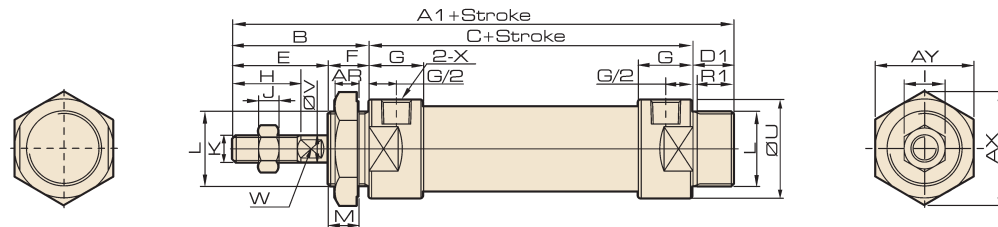
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Overall Dimension

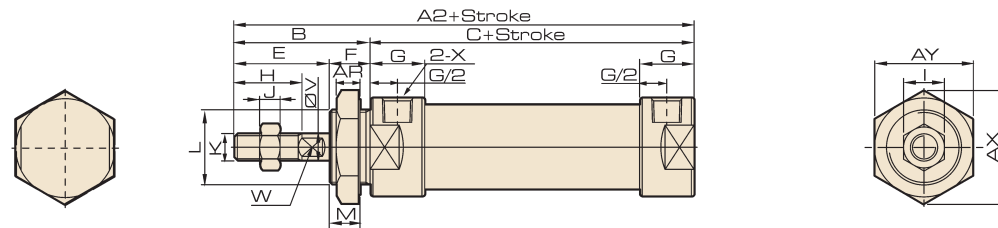
MAL-CA



MAL-CM



MAL-U



Dimension

Bore Symbol	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	M6 × 1	M16 × 1.5
20	131	122	110	40	70	21	12	28	12	16	20	12	6	M8 × 1.25	M22 × 1.5
25	135	128	114	44	70	21	14	30	14	16	22	17	6	M10 × 1.25	M22 × 1.5
32	141	128	114	44	70	27	14	30	14	16	22	17	6	M10 × 1.25	M24 × 2.0
40	165	152	138	46	92	27	14	32	14	22	24	17	7	M12 × 1.25	M30 × 2.0

Bore Symbol	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
16	8	6	12	13	13	6	20	6	/	M5	7	24	27.5
20	10	8	16	19	10	12	29	8	6	G 1/8	7	33	29
25	12	8	16	19	12	12	34	10	8	G 1/8	7	33	29
32	12	10	16	25	12	15	39.5	12	10	G 1/8	8	37	32
40	12	12	20	25	12	15	49.5	16	14	G 1/4	9	47	41

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MAL Series

Aluminum Alloy Mini Cylinder

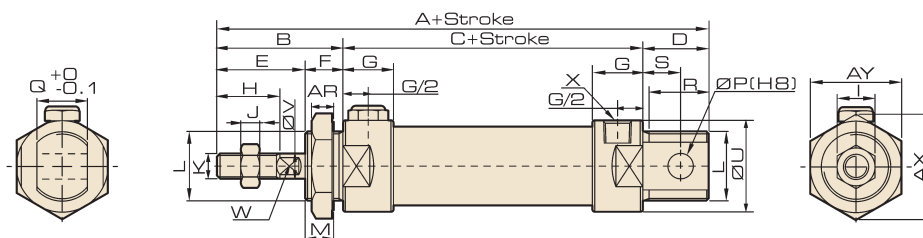


The way to automation

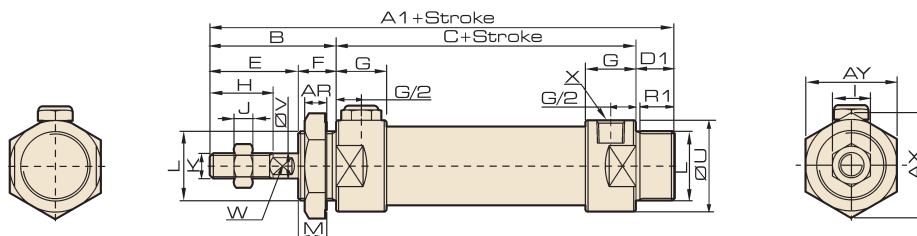
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Overall Dimension

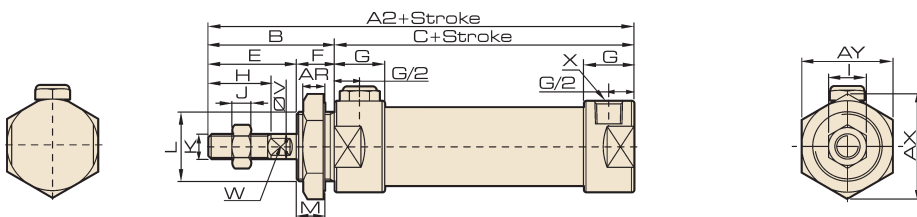
MSAL-CA



MSAL-CM



MSAL-U



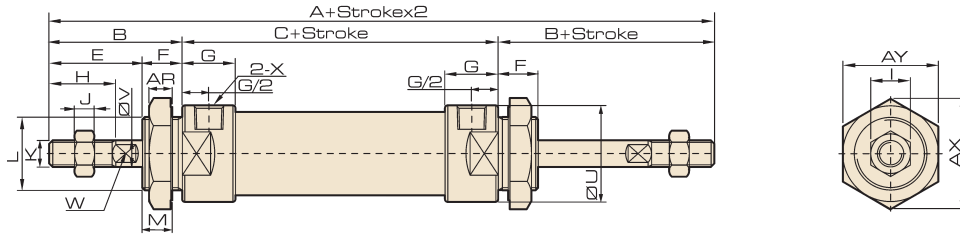
Dimension

Symbol	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

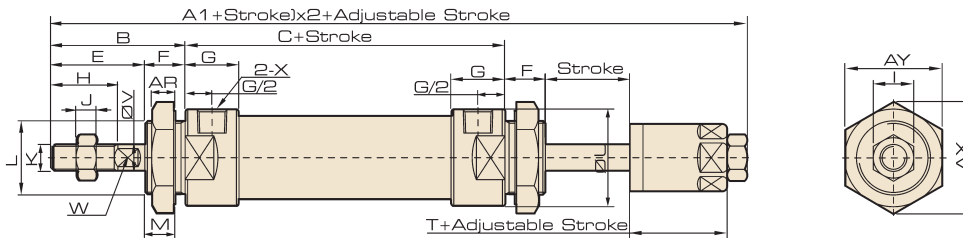
Bore Symbol	K	L	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
20	M8 ×1.25	M22 ×1.5	10	8	16	19	10	12	29	8	6	G1/8	7	33	29
25	M10 ×1.25	M22 ×1.5	12	8	16	19	12	12	34	10	8	G1/8	7	33	29
32	M10 ×1.25	M24 ×2.0	12	10	16	25	12	15	39.5	12	10	G1/8	8	37	32
40	M12 ×1.25	M30 ×2.0	12	12	20	25	12	15	49.5	16	14	G1/4	9	47	41

Overall Dimension

MALD



MALJ



Dimension

Bore Symbol	A	A1	B	C	E	F	G	H	I	J	K	L
20	150	147	40	70	28	12	16	20	12	6	M8 × 1.25	M22 × 1.5
25	158	155	44	70	30	14	16	22	17	6	M10 × 1.25	M22 × 1.5
32	158	155	44	70	30	14	16	22	17	6	M10 × 1.25	M24 × 2.0
40	184	180	46	92	32	14	22	24	17	7	M12 × 1.25	M30 × 2.0

Bore Symbol	M	U	V	W	X	AR	AX	AY	T
20	10	29	8	6	G1/8	7	33	29	19
25	12	34	10	8	G1/8	7	33	29	21
32	12	39.5	12	10	G1/8	8	37	32	21
40	12	49.5	16	14	G1/4	9	47	41	21

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MA / MAL

Mini Cylinder Accessory



The way to automation

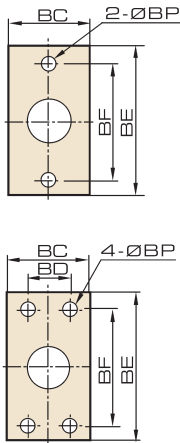
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Overall Dimension

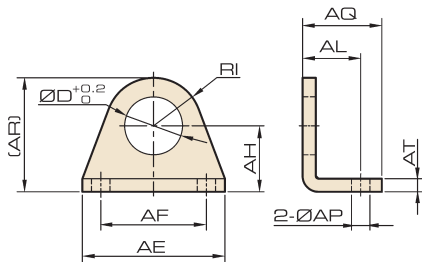
Dimension

FA



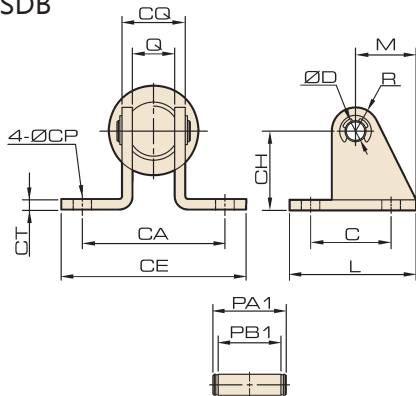
Symbol Bore / Stroke	BC	BD	BE	BF	BP
	16	26	-	52	40
20	33	-	64	50	6.5
25	33	-	64	50	6.5
32	47	33	72	58	6.5
40	50	36	84	70	6.5

LB



Bore / Symbol	AT	AL	AQ	AP	AH	AF	AE	D	AR	RI
16	3	14	20	5.5	19.5	32	44	16	33.5	R14
20	3	16	24	6.5	24.5	40	54	22	41.5	R17
25	3	16	24	6.5	24.5	40	54	22	41.5	R17
32	3	26	34	6.5	31.5	45	59	24	50.5	R19
40	3	27	35	6.5	34	50	64	30	57	R23

SDB



Bore / Symbol	Q	CQ	CP	CT	CA	CE	M	D	CH	C	L	R	PA1	PB2
16	12	18	6	3	43	55	18	6	25	24	36	8	28	19
20	16	22	7	3	51	66	24	8	31	32	48	8	31.5	22.5
25	16	22	7	3	51	66	24	8	31	32	48	8	31.5	22.5
32	16	22	6.5	3	47	63	26	10	36	36	52	12	31.5	22.5
40	20	26	6.5	3	53	69	26	12	39	40	56	12	37.5	23.5