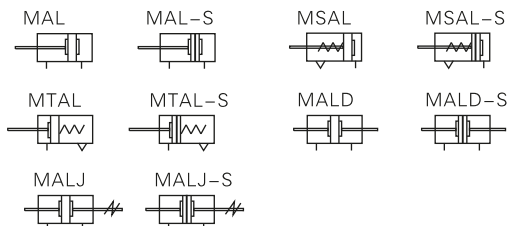


Cylinder

SC
SC(Big)
SCT
SCF
SU
SUF
SI
SIF
DNC
QGB
QGBZ
NCQ2
NCQ2(Big)
NCQ2(Long)
NCQS
NCQM
NRQ
SDA
ADVU
ACE(AND)
MAL
MA
MI
NCM2
NCJ2
NCG1
NCJP
TD
TN(TDA)
NCXS
NCXSW
NMGP
NMGG
NCU
NCUJ
NCY3B
NCY3R
NCY1S
NCY1L
STM
NMXH
NMXS
NMXQ
NMHZ2
NMHC2
NMHL2
NMHY2
NMHT2
NMHW2
NMHF2
NMHS2
NMHS3
NMHS4
NMRHQ
NMSQ
NCRA1
NCRQ2
NCRB2
ACK
SRC
QCK
NCK1



Symbol



Product feature

1. Manufactured by out 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.
4. Front cover adopts self-lubrication bearing guide that has good performance of lubrication.
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.

Ordering code

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

Specifications

Bore size(mm)		20	25	32	40
Acting type	MSAL, MTAL	Single acting			
	Others	Double acting			
Fluid		Air (to be filtered by 40μm filter element)			
Operating pressure	Double acting	0.1~1.0MPa(15~145psi)(1.0~10.0bar)			
	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		Stroke≤100 ^{+1.0} ₀		Stroke>100 ^{+1.5} ₀	
Cushion type		Bumper			
Port size Note)		1/8"			1/4"

Note: PT thread, G thread and NPT thread are available.

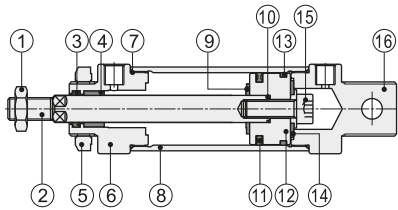
Stroke

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 MALJ	20	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300						300	-
	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300						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.

Inner structure and material of major parts

MAL-CA

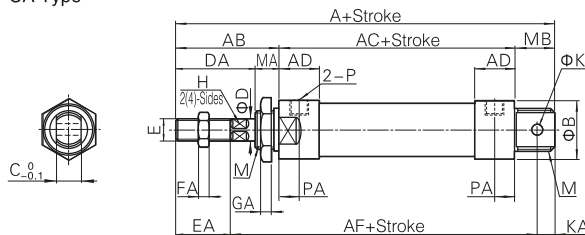


NO.	Item	Material	NO.	Item	Material
1	Rod nut	Carbon steel	9	Bumper	NBR
2	Piston rod	Carbon steel with 20μm chrome plated	10	O-ring	NBR
3	Front cover packing	NBR	11	Piston seal	NBR
4	Bushing	Wear resistant material	12	Piston	Aluminum alloy
5	Front cover nut	Carbon steel	13	Wear ring	Wear resistant material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

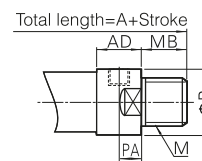
Dimensions

MAL

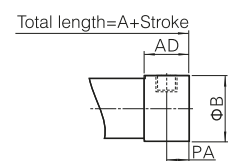
CA Type



CM Type



U Type

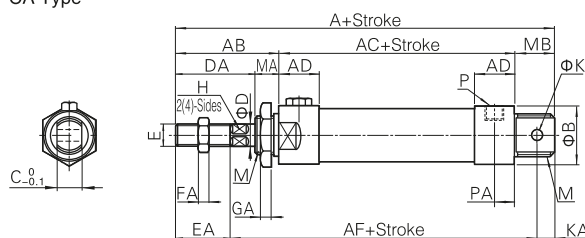


Bore size\Item	A			AB	AC	AD	AF	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
Back cover	CA	CM	U																				CA	CM		
20	131	122	110	40	70	16	102	29	16	8	28	M8×1.25	20	12	6	29	7	6	8	9	M22×1.5	12	21	12	1/8"	8
25	135	128	114	44	70	16	104	34	16	10	30	M10×1.25	22	17	6	29	7	8	8	9	M22×1.5	14	21	14	1/8"	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

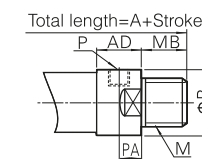
Note: The dimensions or magnet type cylinder are the same as non-magnet type cylinder.

MSAL

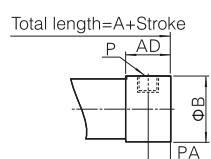
CA Type



CM Type



U Type



Item	A									AC ≥10-1			AF		
Back cover	CA			CM			U			-			-		
Bore size\Stroke	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101
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	AC	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

Note: The dimensions or magnet type cylinder are the same as non-magnet type cylinder.

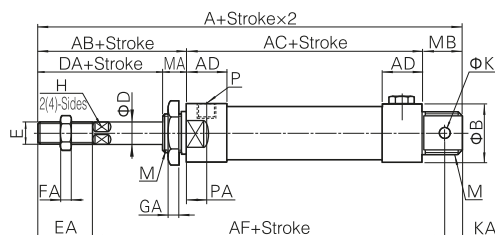
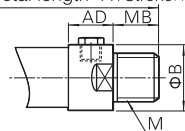
Cylinder

SC
SC(Big)
SCT
SCF
SU
SUF
SI
SIF
DNC
QGB
QGBZ
NCQ2
NCQ2(Big)
NCQ2(Long)
NCQS
NCQM
NRQ
SDA
ADVU
ACE(AND)

MAL

MA
MI
NCM2
NCJ2
NCG1
NCJP
TD
TN(TDA)
NCXS
NCXSW
NMGP
NMGG
NCU
NCUJ
NCY3B
NCY3R
NCY1S
NCY1L

STM
NMXH
NMXS
NMXQ
NMHZ2
NMHC2
NMHL2
NMHY2
NMHT2
NMHW2
NMHF2
NMHS2
NMHS3
NMHS4
NMRHQ
NMSQ
NCRA1
NCRQ2
NCRB2
ACK
SRC
QCK
NCK1


$$\text{Total length} = A + \text{Stroke} \times 2$$

$$\text{Total length} = A + \text{Stroke} \times 2$$


Item	A												AC				AF			
Back cover	CA				CM				U				-				-			
Bore size\Stroke	0-25	26-50	51-75	76-100	0-25	26-50	51-75	76-100	0-25	26-50	51-75	76-100	0-25	26-50	51-75	76-100	0-25	26-50	51-75	76-100
20	146	156	171	181	137	147	162	172	125	135	150	160	85	95	110	120	117	127	142	152
25	150	160	175	185	143	153	168	178	129	139	154	164	85	95	110	120	121	131	146	156
32	156	166	186	196	143	153	173	183	129	139	159	169	85	95	115	125	122	132	152	162
40	180	190	210	220	167	177	197	207	153	163	183	193	107	117	137	147	144	154	174	184

Bore size/Item	AB	AC	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
																		CA	CM		
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

Note: The dimensions or magnet type cylinder are the same as non-magnet type cylinder.

Technical drawing of a double-acting hydraulic cylinder. The main view is a longitudinal section showing the cylinder barrel, piston, and end caps. Dimensions are indicated as follows:

- A**: Piston rod diameter.
- Stroke**: The distance the piston travels from one end to the other.
- AB**: Distance from the center of the piston rod to the center of the end cap.
- AC + Stroke**: Total length of the cylinder.
- AB + Stroke**: Distance from the center of the piston rod to the center of the opposite end cap.
- DA**: Distance from the center of the piston rod to the center of the end cap (for the left side).
- MA**: Distance from the center of the piston rod to the center of the end cap (for the right side).
- AD**: Distance from the center of the piston rod to the center of the end cap (for the right side).
- 2-P**: Two ports per side.
- H**: Height of the cylinder.
- 2(4)-Sides**: Two (or four) sides of the cylinder.
- FA**: Flange diameter.
- EA**: End cap diameter.
- GA**: Gland diameter.
- PA**: Port diameter.
- M**: Mounting flange.
- Q**: Port diameter.
- Q/2**: Port diameter (for the right side).
- Q/4**: Port diameter (for the right side).

A cross-sectional view of the end cap is shown on the right, with dimensions **F** (flange diameter) and **G** (end cap diameter).

[illegible]

Bore size/Item	A		AB	AC	AD	B	D	DA	DB	E	EA	F	FA	G	GA	H	M	MA	P	PA
Model	MALD	MALJ																		
20	150	147	40	70	16	29	8	28	25	M8x1.25	20	12	6	29	7	6	M22x1.5	12	1/8"	8
25	158	155	44	70	16	34	10	30	27	M10x1.25	22	17	6	29	7	8	M22x1.5	14	1/8"	8
32	158	155	44	70	16	39.5	12	30	27	M10x1.25	22	17	6	32	8	10	M24x2.0	14	1/8"	8
40	184	180	46	92	22	49.5	16	32	28	M12x1.25	24	17	7	41	9	14	M30x2.0	14	1/4"	11

Note: The dimensions or magnet type cylinder are the same as non-magnet type cylinder.

List for ordering code of accessories

Accessories	Mounting accessory			Knuckle				Sensor switch	
Bore size	LB	FA	SDB	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle	CS1-M□	DS1-M□
20	F-MA20LB	F-MA20FA	F-MA20SDB	F-MA20I	F-MA20Y	F-M8×125F	F-M8×125U	CS1-M-A20	DS1-M-A20
25				F-MA25I	F-MA25Y	F-M10×125F	F-M10×125U	CS1-M-A25	DS1-M-A25
32	F-MA32LB	F-MA32FA	F-MA20SDB					CS1-M-A32	DS1-M-A32
40	F-MA40LB	F-MA40FA	F-MA20SDB	F-MA40I	F-MA40Y	F-M12×125F	F-M12×125U	CS1-M-A40	DS1-M-A40

Accessory selection

Accessories	Mounting accessory			Knuckle			Sensor switch		
Cylinder model	LB	FA	SDB	I	Y	U	F	CS1-M	DS1-M
MAL	Standard	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●
MSAL	Standard	●	●	●	●	●	●	×	×
MTAL	With magnet	●	●	●	●	●	●	●	●
MALD	Standard	●	×	●	●	●	●	×	×
MALJ	With magnet	●	×	●	●	●	●	●	●

Material of accessories selection

Accessories	Mounting accessory			Knuckle		
Bore size	LB	FA	SDB	I	Y	U
20~40	○	○	□	□	□	□

○—Low carbon steel, □—Carbon steel

Note: Floating joint (F) and fisheye joint (U) are common parts.

Dimensions

LB

Bore size\Item	AA (MAL)	AA(MSAL)			AC (MAL)	AC(MSAL)		
Stroke	0~50	51~100	101~150	0~50	51~100	101~150		
20	116	141	166	191	100	125	150	175
25	116	141	166	191	100	125	150	175
32	136	161	186	211	120	145	170	195
40	158	183	208	233	142	167	192	217

Bore size\Item	B	F	AB	AE	AF	AL	AQ	AP	AT	AH
20	40	12	25	54	40	15	8	6.5	3	25
25	44	14	29	54	40	15	8	6.5	3	25
32	44	14	19	59	45	25	8	7	3.5	32
40	46	14	21	64	50	25	8	7	3.5	36

FA

Φ16~Φ25 Φ32~Φ40

Bore size\Item	B	C (MAL)	C(MSAL)			BB	BC	BD	BE	BF	BP	F
Stroke	0~50	51~100	101~150	0~50	51~100	101~150						
20	40	70	95	120	145	4	38	-	64	50	6.5	12
25	44	70	95	120	145	4	38	-	64	50	6.5	14
32	44	70	95	120	145	4	47	33	72	58	6.5	14
40	46	92	117	142	167	4	50	36	84	70	6.5	14

SDB

Bore size\Item	D	S	Q	CA	CB (MAL)	CB(MSAL)			CD	CE	CF	CH	CT	CP	CQ
Stroke	0~50	51~100	101~150	0~50	51~100	101~150									
20	21	12	16	51	122	147	172	197	48	67	32	32	2.5	7	22
25	21	12	16	51	126	151	176	201	48	67	32	32	2.5	7	22
32	27	15	16	51	129	154	179	204	52	67	36	36	3	7	24
40	27	15	20	55	153	178	203	228	56	71	40	40	3	7	28

Y Knuckle

Type\Item	A	B	C	D	E	F	G	H	I
F-MA20Y	42	32	16	16	M8×1.25	14	21	8	8
F-MA25Y	52	40	20	19	M10×1.25	18	25	10	10

I Knuckle

Type\Item	NC	ND	NE	NF	NG	NH	NM
F-MA20I	8	30	40	11	15	M8×1.25	8
F-MA25I	10	40	50	15	20	M10×1.25	10
F-MA40I	10	45	57	16	23	M12×1.25	14

Type\Item	NA	NC	ND	NP	NQ	NM	NH	PA	PB
F-MA40Y	25.4	10	45	20	57	14	M12×1.25	32	26.2

Cylinder
SC
SC(Big)
SCT
SCF
SU
SUF
SI
SIF
DNC
QGB
QGBZ
NCQ2
NCQ2(Big)
NCQ2(Long)
NCQS
NCQM
NRQ
SDA
ADVU
ACE(AND)
MAL
MA
MI
NCM2
NCJ2
NCG1
NCJP
TD
TN(TDA)
NCXS
NCXSW
NMGP
NMGG
NCU
NCUJ
NCY3B
NCY3R
NCY1S
NCY1L
STM
NMXH
NMXS
NMXQ
NMHZ2
NMHC2
NMHL2
NMHY2
NMHT2
NMHW2
NMHF2
NMHS2
NMHS3
NMHS4
NMRHQ
NMSQ
NCRA1
NCRQ2
NCRB2
ACK
SRC
QCK
NCK1