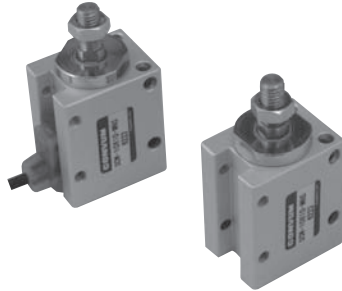
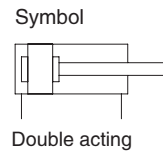


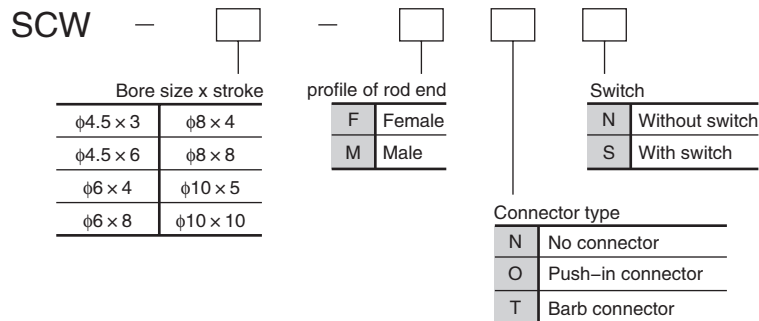
Miniature cylinders/Block type SCW series



- All types can be mounted with a switch.
A no contact switch is mountable on all sizes from $\phi 4.5$ through $\phi 10$.
- Two sides are available for mounting.
The rectangular housing has made it possible to mount on any of the two faces.
- The profile of the end of the rod is selectable.
Either a male thread or female thread can be selected.



How to order



Specifications

Bore size	mm	$\phi 4.5$	$\phi 6$	$\phi 8$	$\phi 10$
Operating type		Double acting			
Fluid		Non lubricated compressed air			
Proof pressure	MPa	0.9			
Max.operating pressure	MPa	0.6			
Min.operating pressure	MPa	0.2			
Ambient and fluid temp.	$^{\circ}\text{C}$	0 ~ 60 *1)			
Cushion		Without			
Stroke allowance	mm	0 ~ +1.0			
Piston speed range	mm / s	50 ~ 750			

*1) When using under 5°C , dry air should be supplied to prevent drain from freezing.

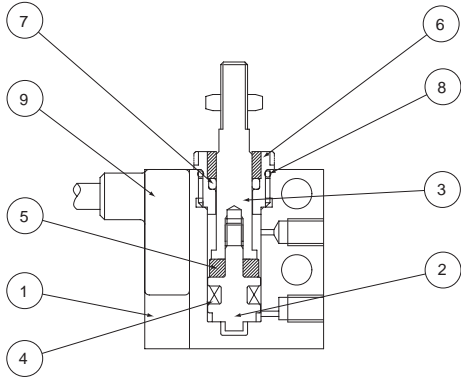
Standard stroke/applicable switch

Bore size (mm)	Standard stroke (mm)	Standard stroke
4.5	3, 6	SCW-S10
6	4, 8	
8	4, 8	
10	5, 10	

Switch

Model
SCW-S10

Structural drawing



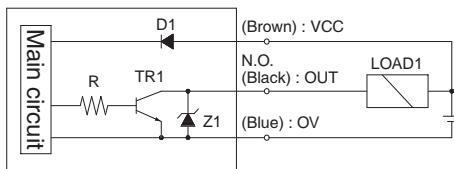
Main parts

No.	Name	material
1	Body	Aluminum
2	Piston	Stainless steel
3	Piston rod	Stainless steel
4	Piston packing	NBR
5	Magnet	—
6	Piston guide	Brass
7	Rod packing	NBR
8	Piston guide packing	NBR
9	Switch	—

Specifications (switch of cylinder)

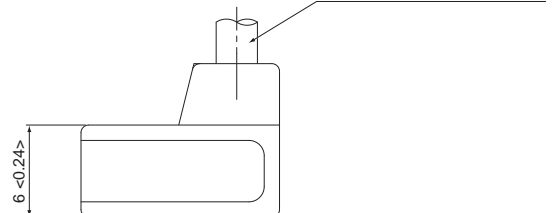
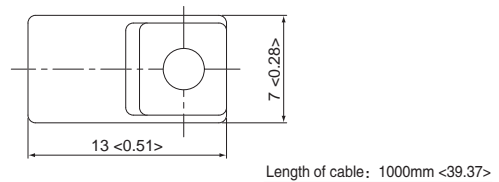
Type	Unit	SCW-S10
Power supply	V	DC12 ~ 24 V ± 10%, Ripple Vp-p 10% or less
Power consumption	mA	10 or less
Load current	mA	max 80
Load voltage	V	DC30V or less
Output system		NPN open collector, normal open
Response time	ms	Maximum driving frequency: Not more than 1
Indicator light		When output is ON, Red LED comes on.
Protection circuit		Power source reverse connection protection circuit
Protection structure		IP67
Operating ambient temperature	°C	-10 ~ +60(without dewing and freezing)
Range of operating humidity	%	35 ~ 85(RH)
Vibration resistance	Hz	10 ~ 150, double amplitude 1.5mm, 2 hours/each direction of XYZ
Shock resistance	m/s ²	100
Cable		Grommrnt: 2.5, 3-cores 1000mm robot cable

Switch internal circuit diagram



Dimensions

Unit : mm <inch>

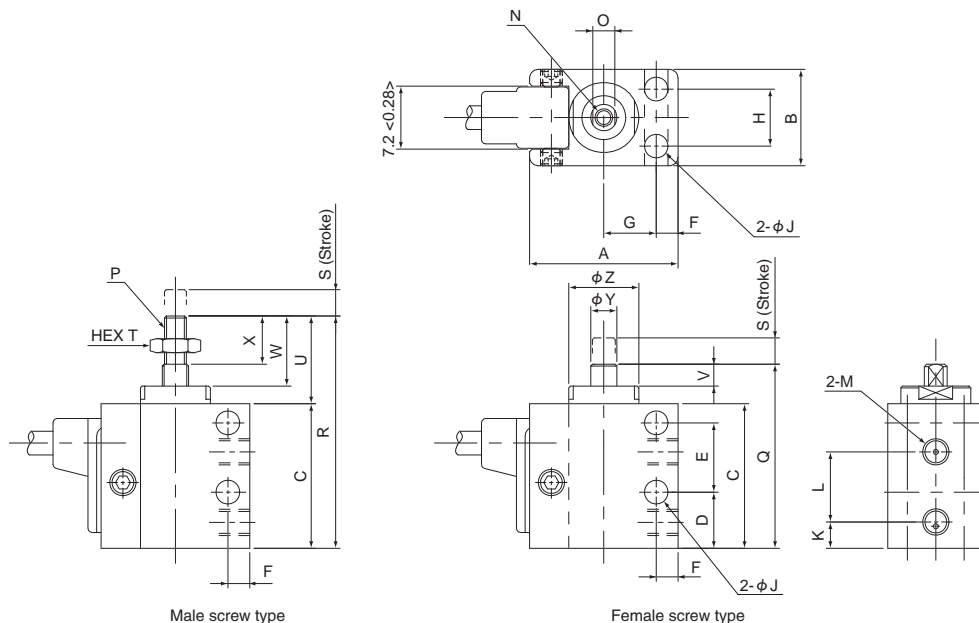


Mounting method of the switch

Mount the cylinder switch in the switch groove, with the side of the body fixed by the screw in it.

Dimensions

Unit : mm <inch>



mm

MODEL	A	B	C	D	E	F	G	H	J	K	L	M
SCW-4.5 × 3	17	11	16.5	6.4	7.9	2.5	6	6.5	2.7	3	8	M3
SCW-4.5 × 6	17	11	19.5	6.4	10.9	2.5	6	6.5	2.7	3	11	M3
SCW-6 × 4	20	13	20	8.8	8.5	3	7	7	3.2	4.5	8.5	M3
SCW-6 × 8	20	13	24	8.8	12.5	3	7	7	3.2	4.5	12.5	M3
SCW-8 × 4	24	16	22.5	8.5	11	3	9	10	3.2	4.5	9.5	M3
SCW-8 × 8	24	16	26.5	8.5	15	3	9	10	3.2	4.5	13.5	M3
SCW-10 × 5	24	18	23.5	9	11.5	3	9	12	3.2	4.5	11	M3
SCW-10 × 10	24	18	28.5	9	16.5	3	9	12	3.2	4.5	16	M3

mm

MODEL	N	P	Q	R	S	T	U	V	W	X	Y	Z
SCW-4.5 × 3	M2 depth 3.5	M2.5	21	26.5	3	5	10	2.5	8	5	3	8
SCW-4.5 × 6	M2 depth 3.5	M2.5	24	29.5	6	5	10	2.5	8	5	3	8
SCW-6 × 4	M3 depth 5	M3	24.5	31.5	4	5.5	11.5	2.7	9.5	7	4	9
SCW-6 × 8	M3 depth 5	M3	28.5	35.5	8	5.5	11.5	2.7	9.5	7	4	9
SCW-8 × 4	M3 depth 5	M4	27	35	4	7	12.5	2.5	10.5	7.5	5	14
SCW-8 × 8	M3 depth 5	M4	31	39	8	7	12.5	2.5	10.5	7.5	5	14
SCW-10 × 5	M3 depth 5	M5	29	39	5	8	15.5	2.5	12.5	8.5	6	16
SCW-10 × 10	M3 depth 5	M5	34	44	10	8	15.5	2.5	12.5	8.5	6	16

inch

MODEL	A	B	C	D	E	F	G	H	J	K	L	M
SCW-4.5 × 3	0.67	0.43	0.65	0.25	0.31	0.1	0.24	0.26	0.11	0.12	0.31	M3
SCW-4.5 × 6	0.67	0.43	0.77	0.25	0.43	0.1	0.24	0.26	0.11	0.12	0.43	M3
SCW-6 × 4	0.79	0.51	0.79	0.35	0.33	0.12	0.28	0.28	0.13	0.18	0.33	M3
SCW-6 × 8	0.79	0.51	0.94	0.35	0.49	0.12	0.28	0.28	0.13	0.18	0.49	M3
SCW-8 × 4	0.94	0.63	0.89	0.33	0.43	0.12	0.35	0.39	0.13	0.18	0.37	M3
SCW-8 × 8	0.94	0.63	1.04	0.33	0.59	0.12	0.35	0.39	0.13	0.18	0.53	M3
SCW-10 × 5	0.94	0.71	0.93	0.35	0.45	0.12	0.35	0.47	0.13	0.18	0.43	M3
SCW-10 × 10	0.94	0.71	1.12	0.35	0.65	0.12	0.35	0.47	0.13	0.18	0.63	M3

inch

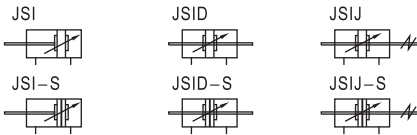
MODEL	N	P	Q	R	S	T	U	V	W	X	Y	Z
SCW-4.5 × 3	M2 depth 0.14	M2.5	0.83	1.04	0.12	0.2	0.39	0.1	0.31	0.2	0.12	0.31
SCW-4.5 × 6	M2 depth 0.14	M2.5	0.94	1.16	0.24	0.2	0.39	0.1	0.31	0.2	0.12	0.31
SCW-6 × 4	M3 depth 0.2	M3	0.96	1.24	0.16	0.22	0.45	0.11	0.37	0.28	0.16	0.35
SCW-6 × 8	M3 depth 0.2	M3	1.12	1.4	0.31	0.22	0.45	0.11	0.37	0.28	0.16	0.35
SCW-8 × 4	M3 depth 0.2	M4	1.06	1.38	0.16	0.28	0.49	0.1	0.41	0.3	0.2	0.55
SCW-8 × 8	M3 depth 0.2	M4	1.22	1.54	0.31	0.28	0.49	0.1	0.41	0.3	0.2	0.55
SCW-10 × 5	M3 depth 0.2	M5	1.14	1.54	0.2	0.31	0.61	0.1	0.49	0.33	0.24	0.63
SCW-10 × 10	M3 depth 0.2	M5	1.34	1.73	0.39	0.31	0.61	0.1	0.49	0.33	0.24	0.63

Cylinders

JSI Series



Symbol



Product feature

1. JIS standard cylinder.
2. The seal of piston adopts heterogeneous two way seal structure. It's dimension is tight and it has the function of greasel reservation.
3. The Mickey Mouse-shaped aluminum barrel of JSI series has no tie rod and good performance of corrosion resistance.
4. Compared with ISO15552 standard cylinder, the cylinder of JSI series with the same cylinder diameter is shorter.
5. The buffer adjustment of cylinder is smooth and steady.
6. Cylinders and mounting accessories for installation with several specifications are optional.
7. The seal material with high temperature resistance is adopted to guarantee the normal operation of cylinder at 150°C.

Specification

Bore size(mm)	32	40	50	63	80	100	125
Acting type	Double acting						
Fluid	Air(to be filtered by 40 μ m filter element)						
Mounting type	JSI		Basic FA FB CA CB CR LB TC TCM1 TCM2				
	JSID, JSIJ		Basic FA LB TC TCM1 TCM2				
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)						
Proof pressure	1.5MPa(215psi)(15bar)						
Temperature °C	-20~80						
Speed range mm/s	30~800						30~500
Stroke tolerance	0~250 ^{+1.0} ₀		251~1000 ^{+1.5} ₀		1001~1500 ^{+2.0} ₀		
Cushion type	Variable cushion						
Adjustable cushion stroke mm	24		32		37.5		40
Port size ①	1/8"		1/4"		3/8"		1/2"

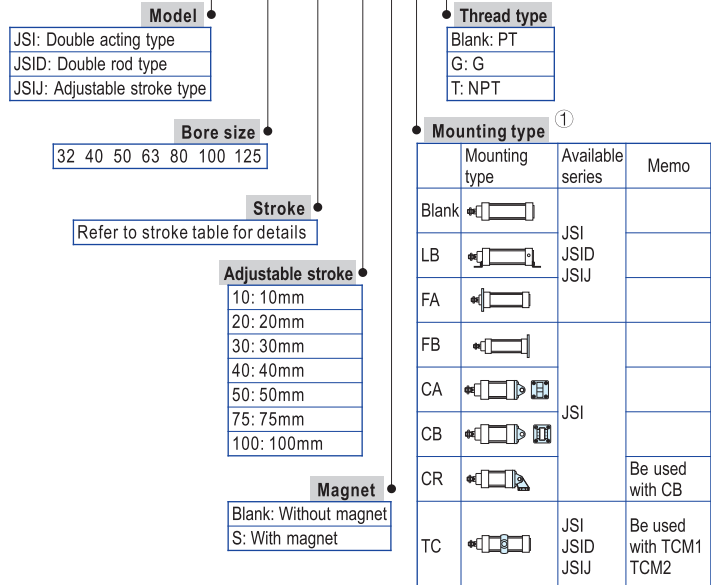
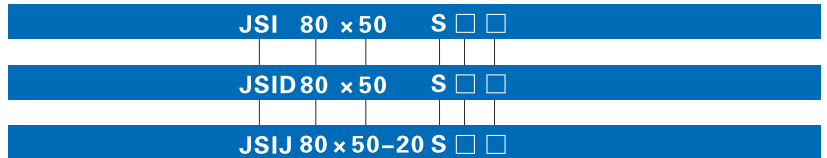
① PT thread, G thread and NPT thread are available.
Add) Refer to P457~480 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)																Max. std stroke	Max. stroke					
32	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	1000	1800					
40	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1800
50	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1800
63	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1500	1800
80	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1500	1800
100	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1500	1800
125	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000	1500	1800

Note) Consult us for non-standard stroke.

Ordering code



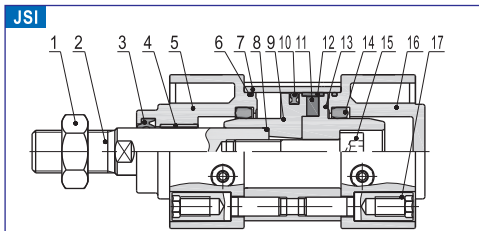
① Please refer to page 216~218 for accessory parts.



Standard cylinder

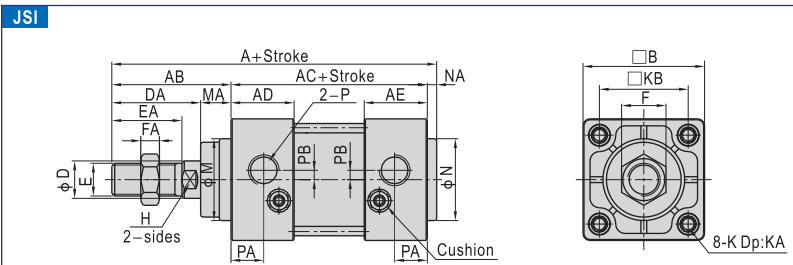
JSI Series

Inner structure and material of major parts



NO.	Item	Material
1	Rod nut	Carbon steel\Stainless steel
2	Piston rod	Carbon steel with 20 μ m chrome plated or Stainless steel
3	Front cover packing	NBR
4	Bushing	Wear resistant material
5	Front cover	Aluminum alloy
6	O-ring	NBR
7	Barrel	Aluminum alloy
8	O-ring	NBR
9	Piston	Aluminum alloy
10	Piston seal	NBR
11	Magnet	Plastic
12	Wear ring	Wear resistant material
13	Magnet holder	Aluminum alloy
14	Buffer gasket	NBR
15	Screw	Carbon steel
16	Back cover	Aluminum alloy
17	Tie-rod nut	Carbon steel

Dimensions

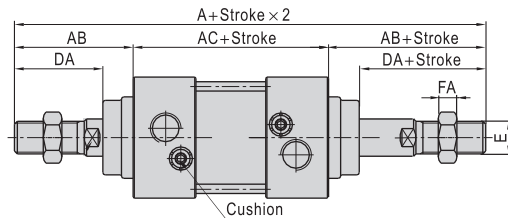


Bore size\Item	A	AB	AC	AD	AE	B	D	DA	E	EA	F	FA	H	M	MA
32	135	47	84	27	27	46	12	34	M10×1.25	22	17	6	10	30	13
40	139	51	84	27	27	52	16	38	M14×1.5	30	19	8	14	35	13
50	156	58	94	31.5	31.5	65	20	44	M18×1.5	35	27	11	18	40	14
63	156	58	94	30.5	30.5	75	20	44	M18×1.5	35	27	11	18	45	14
80	190	72	114	38	38	95	25	52	M22×1.5	40	32	13	22	45	20
100	190	72	114	38	38	114	30	52	M26×1.5	40	36	13	26	55	20
125	223	97	120	38	38	137	32	70	M27×2.0	54	41	13.5	27	60	27

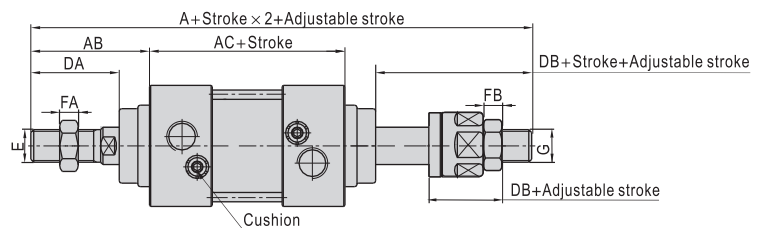
Bore size\Item	K(Without TC)	K(With TC)	KA(Without TC)	KA(With TC)	KB	N	NA	P	PA	PB
32	M6	M5	16	14	32.5	30	4	1/8"	13	4
40	M6	M5	16	14	38	35	4	1/4"	14	4
50	M8	M6	16	16	46.5	40	4	1/4"	15.5	5
63	M8	M6	16	16	56.5	45	4	3/8"	16.5	9
80	M10	M8	16	16	72	45	4	3/8"	19	11.5
100	M10	M8	16	16	89	55	4	1/2"	19	17
125	M12	M12	20	18	110	60	6	1/2"	19	17

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

JSID



JSIJ



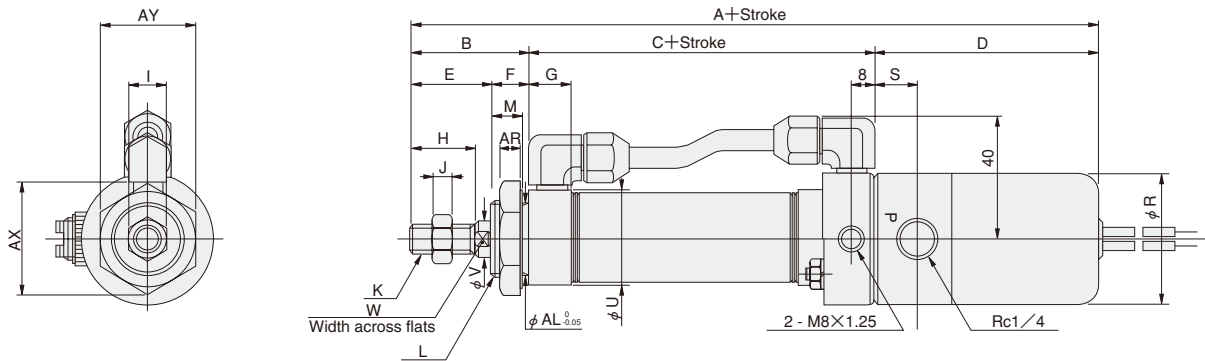
Bore size\Item	A	AB	AC	DA	DB	E	FA	FB	G	
32	178	171	47	84	34	27	M10X1.25	6	6	M10X1.25
40	186	176	51	84	38	28	M14X1.5	8	7	M12X1.25
50	210	195	58	94	44	29	M18X1.5	11	8	M16X1.5
63	210	195	58	94	44	29	M18X1.5	11	8	M16X1.5
80	258	241.5	72	114	52	35.5	M22X1.5	13	10	M20X1.5
100	258	248.5	72	114	52	42.5	M26X1.5	13	13.5	M27X2.0
125	314	286.5	97	120	70	42.5	M27X2.0	13.5	13.5	M27X2.0

Remark:

- The dimensions of magnet type cylinder are the same as non-magnet type cylinder.
- The unmarked dimension is the same as JSI standard type.

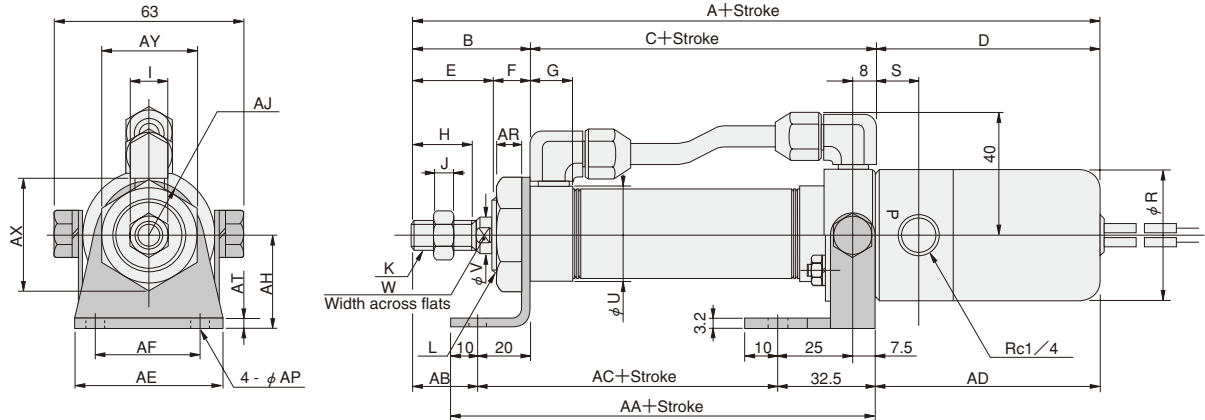
Dimensions of Valpack Cylinder (mm)

● Basic type DV Bore size × Stroke



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	W	AR	AX	AY	AL
062 series	20	[0.787]	196	35	88	73	23	12	16	15	12	5	M 8×1	M20×1.5	10	42	14.5	27	8	6	7.5	31.2	27	20
	25	[0.984]	201	40	88	73	26	14	16	18	14	6	M10×1.25	M22×1.5	12	42	14.5	29	10	8	9.5	34.6	30	22
	32	[1.260]	206	45	88	73	31	14	16	23	14	6	M10×1.25	M27×2	12	42	14.5	35	12	10	9.5	41.6	36	27
	40	[1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	16	14	9.5	47.3	41	33
125 series	40	[1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	16	14	9.5	47.3	41	33

● Foot mounting type DV Bore size × Stroke -1



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	R	S	U	V	W
062 series	20	[0.787]	196	35	88	73	23	12	16	15	12	5	M 8×1	42	14.5	27	8	6
	25	[0.984]	201	40	88	73	26	14	16	18	14	6	M10×1.25	42	14.5	29	10	8
	32	[1.260]	206	45	88	73	31	14	16	23	14	6	M10×1.25	42	14.5	35	12	10
	40	[1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	42	14.5	41.6	16	14
125 series	40	[1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	46	16.5	41.6	16	14

Solenoid valve	Bore mm [in.]	Code	AA	AB	AC	AD	AE	AF	AH	AJ	AP	AR	AT	AX	AY
062 series	20	[0.787]	117.5	15	75	73.5	55	40	25	15.5	6.8	7.5	3.2	31.2	27
	25	[0.984]	117.5	20	75	73.5	55	40	30	17	6.8	9.5	3.2	34.6	30
	32	[1.260]	117.5	25	75	73.5	55	40	35	20	6.8	9.5	3.2	41.6	36
	40	[1.575]	122.5	25	80	73.5	75	55	40	23.5	9	9.5	4	47.3	41
125 series	40	[1.575]	122.5	25	80	83.5	75	55	40	23.5	9	9.5	4	47.3	41

SLIM CYLINDERS

Mini cylinder(Stainless steel)

MF Series



Specification

Bore size(mm)	20	25	32	40
Acting type	Double acting, Double acting with cushion, Single acting_push, Single acting_pull			
Fluid	Air(to be filtered by 40 μm 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	0~250 ^{+1.0} ₀ >250 ^{+1.5} ₀			
Cushion type	MFC、MFCD、MFCJ Series: Adjustable cushion		Other series: Bumper	
Port size ①	1/8"		1/4"	

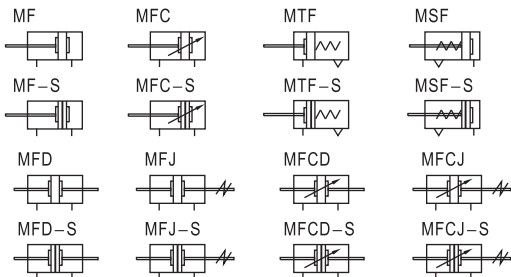
① PT thread, G thread and NPT thread are available.
Add) Refer to P457~480 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)																Max. std stroke	Max. stroke	Bore size (mm)	Standard stroke (mm)																								
	20	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160				175	200	250	300	350	400	450	500	20	25	10	15	20	25	30	40	50	60	75	80	100	125	150		
MF	20	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	800	MF	20	25	10	15	20	25	30	40	50	60	75	80	100	125	150		
MFC	32	40	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	800	MSF	25	32	10	15	20	25	30	40	50	60	75	80	100	125	150		
	40	50	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	800	MTF	32	40	10	15	20	25	30	40	50	60	75	80	100	125	150		
MFD	20	25	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300					300	-		40	50	10	15	20	25	30	40	50	60	75	80	100	125	150		
MFJ	25	32	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300					300	-				10	15	20	25	30	40	50	60	75	80	100	125	150		
MFCD	32	40	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	-																		
MFCJ	40	50	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	-																		

Note) Consult us for non-standard stroke.

Symbol



Product feature

- JIS standard is implemented.
- Piston adopts heterogeneous two way seal structure. It has compact size and has the function of oil reservation.
- Front cover owns fixed anti-impact pad which can reduce the impact of direction-change of the cylinder.
- There are several modes of back cover, which makes the installation of cylinder more convenient.
- Front and back cover and stainless steel block adopt riveted rolling packed structure to form a reliable connection.
- The cylinder body has stainless steel pipes with high precision to produce high strength and corrosion resistance.
- With the same bore size and stroke, cylinders of MF series are shorter than ISO6432 standard cylinders.
- There are cylinders and mounting accessories with several specifications for your choice.

Ordering code

MF	32 × 50	S	CM	<input type="checkbox"/>	<input type="checkbox"/>
MFD	32 × 50	S		<input type="checkbox"/>	<input type="checkbox"/>
MFJ	32 × 50-20	S		<input type="checkbox"/>	<input type="checkbox"/>

Model

- MF: Mini cylinder(Double acting)
- MSF: Mini cylinder(Single acting_push)
- MTF: Mini cylinder(Single acting_pull)
- MFD: Mini cylinder(Double rod)
- MFJ: Mini cylinder(Adjustable stroke)
- MFC: Mini cylinder (Double acting with cushion)
- MFCD: Mini cylinder (Double rod with cushion)
- MFCJ: Mini cylinder (Adjustable stroke with cushion)

Thread type

- Blank: PT
- G: G
- T: NPT

Mounting type ①

Model	Mounting type
MF	Blank: No accessories
MFC	FA: FA type
MSF	SDB: SDB type
MTF	LB: LB type
	TC: TC type
MFD	Blank: No accessories
MFCD	FA: FA type
MFJ	LB: LB type
MFCJ	TC: TC type

Back cover

Model	Back cover
MF, MFC	CA: Pivot type
MSF	U: Flat-end type
MTF	CM: Round-end type
Others	No this code

Magnet

- Blank: Without magnet
- S: With magnet

Bore size

20 25 32 40

Stroke

Refer to stroke table for details

Adjustable stroke

Model	Adjustable stroke
MFJ MFCJ	10: 10mm
	20: 20mm
	30: 30mm
	40: 40mm
	50: 50mm
	75: 75mm
100: 100mm	
Others	No this code

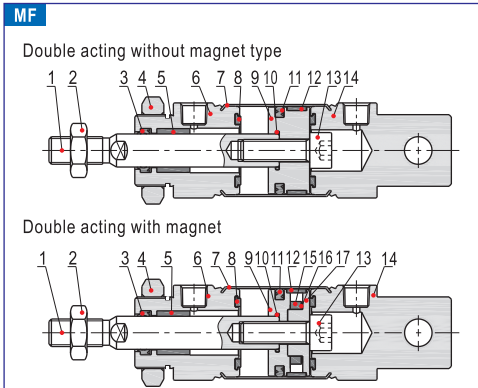
① Please refer to page 237 for accessory parts.



Mini cylinder(Stainless steel)

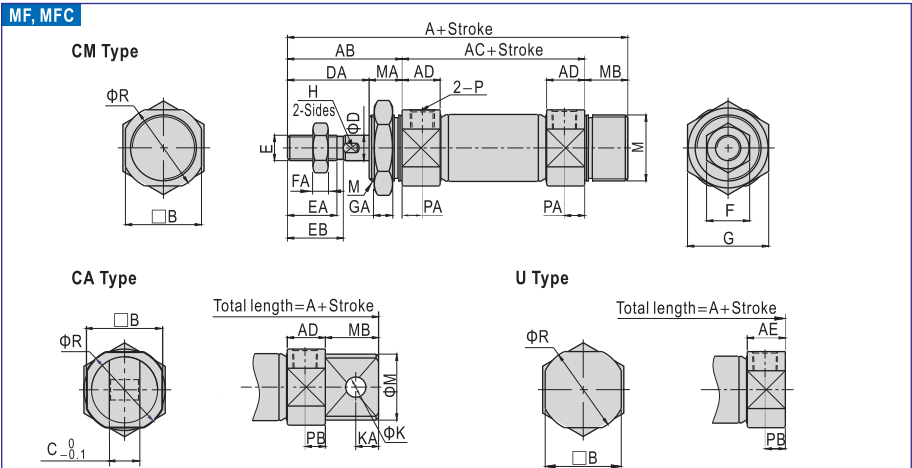
MF Series

Inner structure and material of major parts



NO.	Item	Material
1	Piston rod	Carbon steel with 20 μ m chrome plated
2	Rod nut	Carbon steel
3	Front cover packing	NBR
4	Front cover nut	Carbon steel
5	Bushing	Wear resistant material
6	Front cover	Aluminum alloy
7	Barrel	SUS304
8	Bumper	TPU
9	Piston	Aluminum alloy
10	O-ring	NBR
11	Piston seal	NBR
12	Wear ring	Wear resistant material
13	Screw	Carbon steel
14	Back cover	Aluminum alloy
15	Magnet	Sintered metal (Neodymium-iron-boron)
16	Magnet washer	NBR
17	Magnet holder	Aluminum alloy

Dimensions

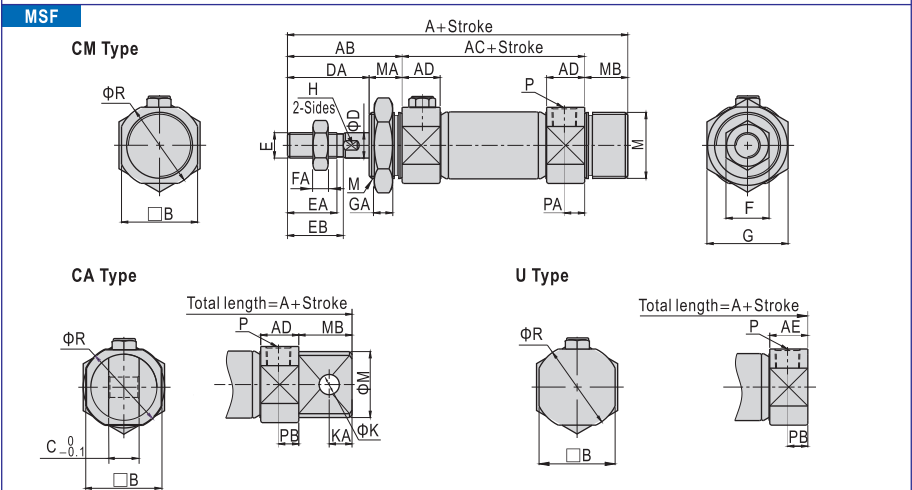


Bore size\Item	A		AB	AC	AD	AE	B	C	M		MA	MB		
Back cover	CM	CA	U						CM	CA	CA	CM		
20	116	124	103	41	62	14.5	14.5	25	12	M20 × 1.5	20	14	21	13
25	120	128	108	45	62	14.5	15.5	30	12	M26 × 1.5	26	14	21	13
32	122	136	110	45	64	14.5	15.5	34.5	20	M26 × 1.5	26	14	27	13
40	154	165	138.5	50	88	21.5	22	42.5	20	M32 × 2.0	32	16	27	16

Bore size\Item	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA	P	PA	PB	R
20	8	27	M8 × 1.25	15.5	18	13	5	26	8	6	8	9	1/8"	7.5	7.5	29
25	10	31	M10 × 1.25	19.5	22	17	6	32	8	8	8	9	1/8"	7.5	8	33.5
32	12	31	M10 × 1.25	19.5	22	17	6	32	8	10	10	12	1/8"	7.5	8	37.5
40	16	34	M14 × 1.5	21	24	19	8	41	10	14	10	12	1/4"	11	11.5	46.5

Remark:

- The dimensions of magnet type cylinder are the same as non-magnet type cylinder.
- The dimensions of MFC series are the same as MF series.



Bore size\Item	A		CA		U		AC					
Back cover	CM	U	CA	U	U	U	U	U				
Stroke	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150			
20	141	166	191	149	174	199	128	153	178	87	112	137
25	145	170	195	153	178	203	133	158	183	87	112	137
32	147	172	197	161	186	211	135	160	185	89	114	139
40	179	204	229	190	215	240	163.5	188.5	213.5	113	138	163

Bore size\Item	AB	AD	AE	B	C	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA
20	41	14.5	14.5	25	12	8	27	M8 × 1.25	15.5	18	13	5	26	8	6	8	9
25	45	14.5	15.5	30	12	10	31	M10 × 1.25	19.5	22	17	6	32	8	8	8	9
32	45	14.5	15.5	34.5	20	12	31	M10 × 1.25	19.5	22	17	6	32	8	10	10	12
40	50	21.5	22	42.5	20	16	34	M14 × 1.5	21	24	19	8	41	10	14	10	12

Bore size\Item	M		MB		P	PA	PB	R	
Back cover	CM	CA	CA	CM					
20	M20 × 1.5	20	14	21	13	1/8"	7.5	7.5	29
25	M26 × 1.5	26	14	21	13	1/8"	7.5	8	33.5
32	M26 × 1.5	26	14	27	13	1/8"	7.5	8	37.5
40	M32 × 2.0	32	16	27	16	1/4"	11	11.5	46.5

Remark:

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

Compact cylinder

ACQ Series



Specification

Bore size(mm)	12	16	20	25	32	40	50	63	80	100
Acting type	Double acting									
	Single acting-Push type, Single acting-Pull type									-
Fluid	Air(to be filtered by 40 μ m 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	-20~80									
Speed range mm/s	Double acting: 30~500					Single acting: 50~500				
Stroke tolerance	0~100 ^{+1.0} ₀					>100 ^{+1.5} ₀				
Cushion type	Bumper									
Port size ①	M5 × 0.8				1/8"		1/4"		3/8"	

① PT thread, G thread and NPT thread are available. Add) Refer to P457~480 for detail of sensor switch.

Stroke

Bore size (mm)		Standard stroke (mm)	Max. std stroke	Max. stroke	
				Without magnet	With magnet
12	Double acting	5 10 15 20 25 30 35 40 45 50	50	80	70
	Single acting	5 10 15 20	20	-	-
16	Double acting	5 10 15 20 25 30 35 40 45 50 55 60	60	80	70
	Single acting	5 10 15 20	20	-	-
20	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	140	130
	Single acting	5 10 15 20 25 30	30	-	-
25	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
32	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
40	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
50	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
63	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
80	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
100	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

Ordering code

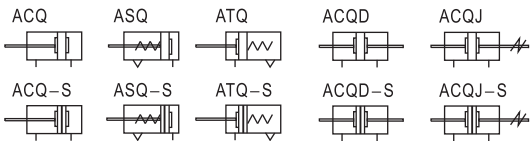
ACQ	20 × 30	S	B	<input type="checkbox"/>	<input type="checkbox"/>
ACQD	20 × 30	S	B	<input type="checkbox"/>	<input type="checkbox"/>
ACQJ	20 × 30-30	S	B	<input type="checkbox"/>	<input type="checkbox"/>

Model ACQ: Compact cylinder(Double acting) ASQ: Compact cylinder (Single acting-push) ATQ: Compact cylinder (Single acting-pull) ACQD: Compact cylinder(Double rod) ACQJ: Compact cylinder (Adjustable stroke)	Thread type ② Blank: PT G: G T: NPT																								
Bore size <table border="1"> <thead> <tr> <th>Model</th> <th>Bore size</th> </tr> </thead> <tbody> <tr> <td>ACQ</td> <td>12 16 20 25 32 40 50 63 80 100</td> </tr> <tr> <td>ASQ</td> <td>12 16 20 25 32 40 50 63</td> </tr> <tr> <td>ATQ</td> <td>12 16 20 25 32 40 50 63</td> </tr> <tr> <td>ACQD</td> <td>12 16 20 25 32 40 50 63 80 100</td> </tr> <tr> <td>ACQJ</td> <td>12 16 20 25 32 40 50 63 80 100</td> </tr> </tbody> </table>	Model	Bore size	ACQ	12 16 20 25 32 40 50 63 80 100	ASQ	12 16 20 25 32 40 50 63	ATQ	12 16 20 25 32 40 50 63	ACQD	12 16 20 25 32 40 50 63 80 100	ACQJ	12 16 20 25 32 40 50 63 80 100	Mounting type ① <table border="1"> <thead> <tr> <th>Model</th> <th>Mounting type</th> </tr> </thead> <tbody> <tr> <td>ACQ</td> <td>Blank: No accessories FA: FA type</td> </tr> <tr> <td>ASQ</td> <td>FB: FB type</td> </tr> <tr> <td>ATQ</td> <td>CB: CB type LB: LB type</td> </tr> <tr> <td>ACQD</td> <td>Blank: No accessories</td> </tr> <tr> <td>ACQJ</td> <td>FA: FA type FB: FB type LB: LB type</td> </tr> </tbody> </table>	Model	Mounting type	ACQ	Blank: No accessories FA: FA type	ASQ	FB: FB type	ATQ	CB: CB type LB: LB type	ACQD	Blank: No accessories	ACQJ	FA: FA type FB: FB type LB: LB type
Model	Bore size																								
ACQ	12 16 20 25 32 40 50 63 80 100																								
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ACQD	12 16 20 25 32 40 50 63 80 100																								
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ACQD	Blank: No accessories																								
ACQJ	FA: FA type FB: FB type LB: LB type																								
Stroke Refer to stroke table for details	Rod type Blank: Female thread B: Male thread																								
Adjustable stroke <table border="1"> <thead> <tr> <th>Model</th> <th>Adjustable stroke</th> </tr> </thead> <tbody> <tr> <td rowspan="6">ACQJ</td> <td>10: 10mm</td> </tr> <tr> <td>20: 20mm</td> </tr> <tr> <td>30: 30mm</td> </tr> <tr> <td>40: 40mm</td> </tr> <tr> <td>50: 50mm</td> </tr> <tr> <td>75: 75mm</td> </tr> <tr> <td>100: 100mm</td> </tr> <tr> <td>Others</td> <td>No this code</td> </tr> </tbody> </table>	Model	Adjustable stroke	ACQJ	10: 10mm	20: 20mm	30: 30mm	40: 40mm	50: 50mm	75: 75mm	100: 100mm	Others	No this code	Magnet Blank: Without magnet S: With magnet												
Model	Adjustable stroke																								
ACQJ	10: 10mm																								
	20: 20mm																								
	30: 30mm																								
	40: 40mm																								
	50: 50mm																								
	75: 75mm																								
100: 100mm																									
Others	No this code																								

① Please refer to page 279 for accessory parts.

② Standard thread is blank here.

Symbol



Product feature

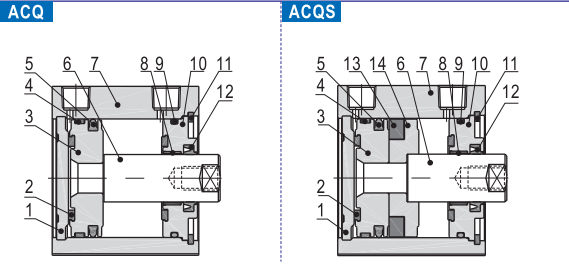
- JIS standard is implemented.
- C clip is adopted to connect the cylinder body and back cover or front cover, and riveted structure is adopted to connect piston and piston rod to make it compact and reliable.
- The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
- The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of grease reservation.
- Compact structure can effectively save installation space.
- There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.
- Installing accessories with various specifications are optional.



Compact cylinder

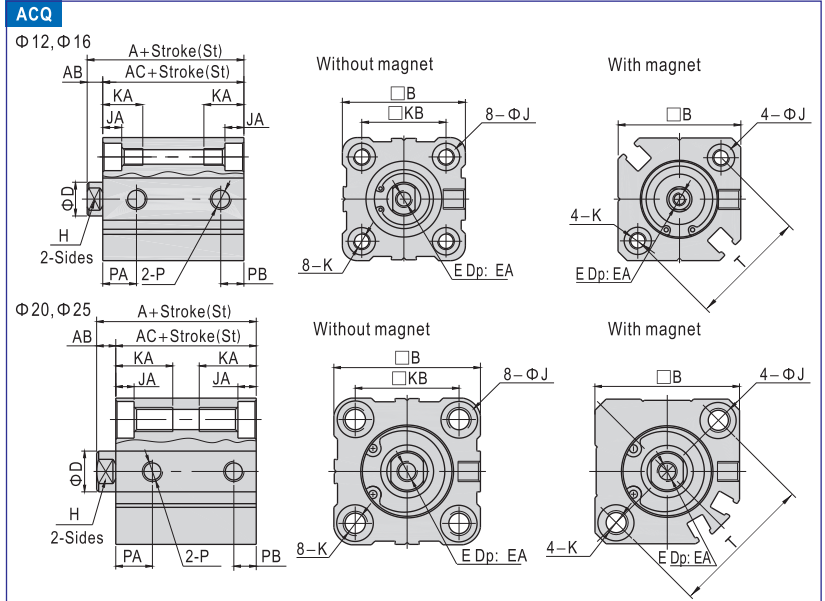
ACQ Series

Inner structure and material of major parts



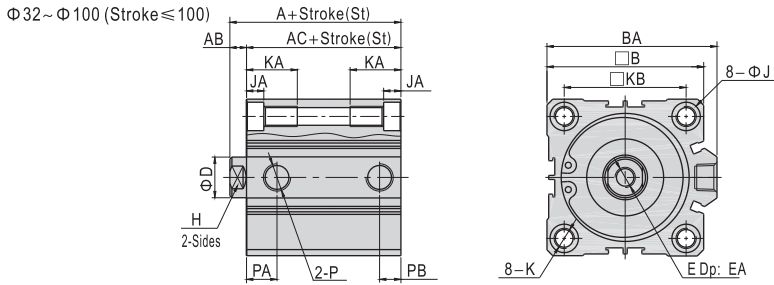
NO.	Item	Material	
1	Back cover	No (Φ 12, 16) \ Aluminum alloy (Others)	
2	Bumper	TPU (Φ 12~25) \ NBR (Others)	
3	Piston	Brass (Φ 12, 16) \ Aluminum alloy (Others)	
4	Wear ring	No (Φ 12~32) \ Wear resistant material (Others)	
5	Piston seal	NBR	
6	Piston rod	Carbon steel with 20 μ m chrome plated	
7	Body	Aluminum alloy	
8	Bushing	No (Φ 12~32) \ Wear resistant material (Others)	
9	O-ring	NBR	
10	Front cover	Aluminum alloy	
11	C clip	Spring steel	
12	Front cover packing	NBR	
13	Magnet	Φ 12~25	Sintered metal (Neodymium-iron-boron)
		Others	Plastic
14	Magnet holder	Brass (Φ 12, 16) \ Aluminum alloy (Others)	

Dimensions



Bore size \ Item	A		AC				PA	PB	A	AC	PA	PB	AB
	Without magnet		With magnet				With magnet						
	St ≤ 50	St ≥ 60	St ≤ 50	St = 55	St ≥ 60	-	-	-	-	-	-		
12	20.5	-	-	17	-	-	7.5	5	31.5	28	9	7	3.5
16	22	22	-	18.5	18.5	-	8	5.5	34	30.5	9.5	5.5	3.5
20	24	-	34	19.5	-	29.5	9	5.5	36	31.5	9.5	5.5	4.5
25	27.5	-	37.5	22.5	-	32.5	11	5.5	37.5	32.5	11	5.5	5

Bore size \ Item	B	D	E	EA	H	J	JA	K	KA	KB	P	T	
12	25	6	M3 × 0.5	6	5	6.5	3.5	M4 × 0.7	Thru.hole: Φ 3.4	11	15.5	M5 × 0.8	22
16	29	8	M4 × 0.7	8	6	6.5	3.5	M4 × 0.7	Thru.hole: Φ 3.4	11	20	M5 × 0.8	28
20	36	10	M5 × 0.8	7	8	9	7	M6 × 1.0	Thru.hole: Φ 5.2	17	25.5	M5 × 0.8	36
25	40	12	M6 × 1.0	12	10	9	7	M6 × 1.0	Thru.hole: Φ 5.2	17	28	M5 × 0.8	40



Item	A		AC		A	AC	AB	B	BA	D	E	EA
	Without magnet		With magnet		-	-						
Bore size \ Stroke	St ≤ 50	St ≥ 60	St ≤ 50	St ≥ 60	-	-	-	-	-	-	-	
32	30	40	23	33	40	33	7	45	49.5	16	M8 × 1.25	13
40	36.5	46.5	29.5	39.5	46.5	39.5	7	53	57	16	M8 × 1.25	13
50	38.5	48.5	30.5	40.5	48.5	40.5	8	64	71	20	M10 × 1.5	15
63	44	54	36	46	54	46	8	77	84	20	M10 × 1.5	15
80	53.5	63.5	43.5	53.5	63.5	53.5	10	98	104	25	M16 × 2.0	20
100	65	75	53	63	75	63	12	117	123.5	32	M20 × 2.5	26

Bore size \ Item	H	J	JA	K	KA	KB	P	Without magnet		With magnet		
								PA	PB	PA	PB	
32	14	9	7	M6 × 1.0	Thru.hole: Φ 5.2	17	34	1/8"	7.5	6.5	10.5	7.5
									10.5	7.5	11	8
40	14	9	7	M6 × 1.0	Thru.hole: Φ 5.2	17	40	1/8"	11	8	11	8
									9	9	10.5	10.5
50	17	11	8	M8 × 1.25	Thru.hole: Φ 6.8	22	50	1/4"	10.5	10.5	10.5	10.5
									14	9.5	15	10.5
63	17	14	10.5	M10 × 1.5	Thru.hole: Φ 8.5	28.5	60	1/4"	16	14	16	14
									15	10.5	15	10.5
80	22	17.5	13.5	M12 × 1.75	Thru.hole: Φ 10.3	35.5	77	3/8"	16	14	16	14
									20	17.5	20	17.5
100	27	17.5	13.5	M12 × 1.75	Thru.hole: Φ 10.3	35.5	94	3/8"	20	17.5	20	17.5
									20	17.5	20	17.5



ACQ

Multi-mount cylinder

MD Series



Specification

Bore size(mm)	6	10	16	20	25	32
Acting type	MD, MDD, MDJ	Double acting				
	MSD, MTD	Single acting-Push type, Single acting-Pull type				
Fluid	Air(to be filtered by 40 μ m filter element)					
Operating pressure	Double acting	0.1~1.0MPa(14~145psi)				
	Single acting	0.2~1.0MPa(28~145psi)				
Proof pressure	1.5MPa(215psi)					
Temperature °C	-20~80					
Speed range mm/s	Double acting: 30~500			Single acting: 50~500		
Stroke tolerance	+1.0 0					
Cushion type	Bumper					
Port size ①	M5 × 0.8					1/8"

① PT thread, G thread and NPT thread are available. Add) Refer to P457~480 for detail of sensor switch.

Stroke

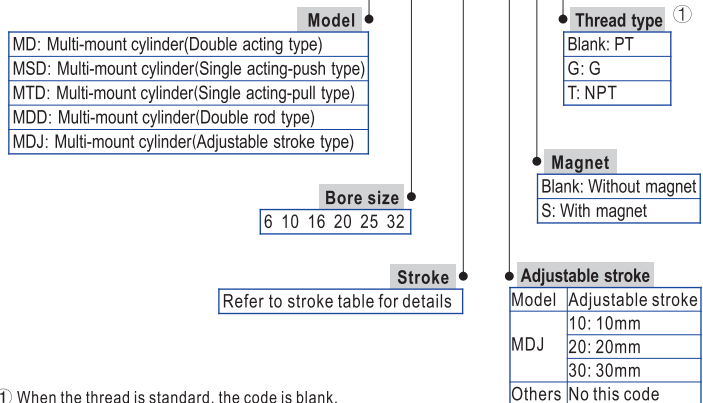
Bore size (mm)		Standard stroke (mm)						Max. std stroke	Max. stroke			
6	Double acting	5	10	15	20	25	30	35	35	40		
	Single acting	5	10	15	20					20	-	
10	Double acting	5	10	15	20	25	30	35	35	40		
	Single acting	5	10	15	20					20	-	
16	Double acting	5	10	15	20	25	30	40	50	50	70	
	Single acting	5	10	15	20					20	-	
20	Double acting	5	10	15	20	25	30	40	50	60	60	80
	Single acting	5	10	15	20					20	-	
25	Double acting	5	10	15	20	25	30	40	50	60	60	80
	Single acting	5	10	15	20					20	-	
32	Double acting	5	10	15	20	25	30	40	50	60	60	80
	Single acting	5	10	15	20					20	-	

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

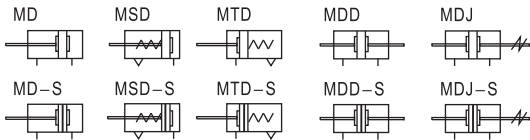
Ordering code

MD 32 × 30 S <input type="checkbox"/>
MDD32 × 30 S <input type="checkbox"/>
MDJ 32 × 30-30 S <input type="checkbox"/>



① When the thread is standard, the code is blank.

Symbol



Product feature

1. Manufactured by our enterprise.
2. There are several ways to fix the cylinder and it is convenient to install and use.
3. Several cylinders can be assembled together to effectively save the installation space.
4. The guide precision of piston rod is high and no additional lubricant is needed.
5. Cylinders of various specifications are optional.
6. The seal material with high temperature resistance is adopted to guarantee the normal operation of cylinder at 150°C(Option).

MD, MK



Multi-mount cylinder

MD Series

Inner structure and material of major parts

MD-S

NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Stainless steel
3	Rod packing	NBR
4	Body	Aluminum alloy
5	Bumper	TPU
6	Magnet holder	Aluminum alloy
7	Magnet washer	NBR
8	Magnet	Sintered metal(Neodymium-iron-boron)
9	Piston seal	NBR
10	Wear ring	Wear resistant material
11	Piston	Aluminum alloy
12	O-ring	NBR
13	C-clip	Spring steel
14	Back cover	Aluminum alloy
15	Bumper	TPU

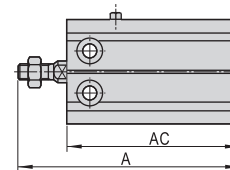
Dimensions

MD

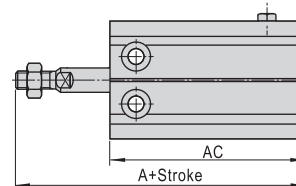
Bore size\Item	A	AC	A	AC	B	C	D	DA	E	EA	EB	F
	Without magnet	With magnet	Without magnet	With magnet								
6	46	33	46	33	16.5	22	3	13	M3 × 0.5	7	8	5.5
10	52	36	52	36	16.5	24	4	16	M4 × 0.7	10	11	7
16	46	30	56	40	20	32	6	16	M5 × 0.8	11	12.5	8
20	55	36	65	46	26	40	8	19	M6 × 1.0	12	14	10
25	63	40	73	50	32	50	10	23	M8 × 1.25	15.5	18	12
32	69	42	79	52	40	62	12	27	M10 × 1.25	19.5	22	17

Bore size\Item	FA	H	J	JA	JB	JC	K	KB	L	LA	LB	P	PA	PB	PC
	6	2.5	-	6	5	10	7	3.3	7	M3 × 0.5	5	17	M5 × 0.8	14	10
10	2	-	6	5.5	11	7	3.3	9	M3 × 0.5	5	18	M5 × 0.8	15.5	10	-
16	4	5	7.5	6.5	14	7	4.5	12	M4 × 0.7	5	25	M5 × 0.8	14.5	10	3
20	5	6	9.5	8	16	9	5.5	16	M5 × 0.8	7.5	30	M5 × 0.8	19	11	9
25	6	8	9.5	9	20	10	5.5	20	M5 × 0.8	8	38	M5 × 0.8	21.5	8.5	12
32	6	10	11	11.5	24	11	6.5	24	M6 × 1.0	9	48	1/8"	23	12.5	13

MSD



MTD



Item	A(Without magnet)				A(With magnet)				AC(Without magnet)				AC(With magnet)			
	5St	10St	15St	20St	5St	10St	15St	20St	5St	10St	15St	20St	5St	10St	15St	20St
6	56	61	71	76	56	61	71	76	43	48	58	63	43	48	58	63
10	62	67	77	82	62	67	77	82	46	51	61	66	46	51	61	66
16	61	66	81	86	71	76	91	96	45	50	65	70	55	60	75	80
20	70	75	90	95	80	85	100	105	51	56	71	76	61	66	81	86
25	78	83	98	103	88	93	108	113	55	60	75	80	65	70	85	90
32	84	89	104	109	94	99	114	119	57	62	77	82	67	72	87	92


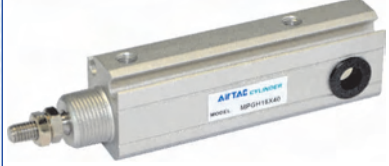
Remark) The unmarked dimension is the same as MD standard type.



MD, MK



Product series

Series	Mounting type				Acting type	Bore size	Collocation of sensor switch	
	Basic	LB	FA	SDB			DS1-H	DS1-HL
Standard type: MPG 	●	●	●		Double acting	6 8 10 12 16	●	●
Hinge mounting type: MPGH 				●			●	●
Page	300		300		457			



Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
- The medium used by cylinder shall be filtered to 40 μm or below.
- As both of the front cover and piston of the cylinder are short, typically too large stroke can not be selected.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend the service life.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust caps shall be added in air inlet and outlet ports. The front and back cover can not be dismantled, which shall be especially noticed.

Criteria for selection: Cylinder thrust

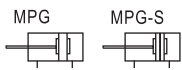
Unit: Newton(N)

Model	Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm ²)	Operating pressure(MPa)						
					0.1	0.2	0.3	0.4	0.5	0.6	0.7
MPG MPGH	6	3	Double acting Push side	28.3	2.8	5.7	8.5	11.3	14.2	17.0	19.8
			Double acting Pull side	21.2	2.1	4.2	6.4	8.5	10.6	12.7	14.8
	8	4	Double acting Push side	50.3	5.0	10.1	15.1	20.1	25.2	30.2	35.2
			Double acting Pull side	37.7	3.8	7.5	11.3	15.1	18.9	22.6	26.4
	10	4	Double acting Push side	78.5	7.9	15.7	23.6	31.4	39.3	47.1	55.0
			Double acting Pull side	65.9	6.6	13.2	19.8	26.4	33.0	39.5	46.1
	12	6	Double acting Push side	113.0	11.3	22.6	33.9	45.2	56.5	67.8	79.1
			Double acting Pull side	84.7	8.5	17.0	25.4	33.9	42.4	50.8	59.3
	16	6	Double acting Push side	201.0	20.1	40.2	60.3	80.4	100.5	120.6	140.7
			Double acting Pull side	172.7	17.3	34.5	51.8	69.1	86.4	103.6	120.9





Symbol



Product feature

1. It is compact, small size and light weight. It is easy to install and dismantle.
2. The guide precision of piston rod is high and no additional lubricant is needed.
3. Advanced rubber coating process is applied to the back cover.
4. Mounting accessories with various specifications are optional.
5. With magnet type is of the feature of position sensing.
6. There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.
7. Cylinders of various specifications are optional.

Specification

Bore size(mm)	6	8	10	12	16
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μm filter element)				
Operating pressure	0.1~0.7MPa(15~100psi)				
Proof pressure	1.05MPa(150psi)				
Mounting type	Basic FA LB SDB				
Temperature °C	-20~80				
Speed range mm/s	30~500				
Stroke tolerance	+1.0 0				
Cushion type	Bumper				
Port size	M3 × 0.5			M5 × 0.8	

Add) Refer to P457~480 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. std stroke
6	5 10 15 20 25	25
8	5 10 15 20 25 30 35 40	40
10	5 10 15 20 25 30 35 40	40
12	5 10 15 20 25 30 35 40	40
16	5 10 15 20 25 30 35 40	40

Note) Consult us for non-standard stroke.

Ordering code

MPG 10 × 30 S N

MPGH 10 × 30 S N

Model

- MPG: Standard plate cylinder (double acting)
- MPGH: Hinge mounting type cylinder (double acting)

Bore size

6 8 10 12 16

Stroke

Refer to stroke table for details

Magnet

- Blank: Without magnet
- S: With magnet

Mounting type

Model	Mounting type
MPG	Blank
	LB
	FA
MPGH	Blank
	SDB

Rod type

- Blank: Male thread
- N: No thread

Inner structure and material of major parts

MPG(Φ8~Φ16)

MPG(Φ8~Φ16)-S

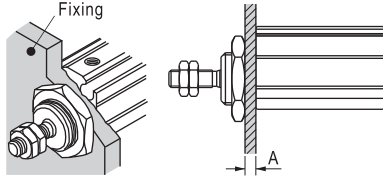
NO. Item	Material
1 Rod nut	Stainless steel
2 Piston rod	Stainless steel
3 Front cover packing	NBR
4 Front cover nut	Carbon steel
5 Body	Aluminum alloy
6 Bumper	TPU
7 Piston seal	NBR
8 Piston	Brass(Others) Aluminum alloy(Φ 16)
9 clip	Spring steel
10 Back cover	Aluminum alloy & Rubber
11 Magnet holder	Φ 6: Stainless steel Φ 8~ Φ 12: Brass Φ 16: Aluminum alloy
12 Magnet washer	NBR
13 Magnet	Sintered metal (Neodymium-iron-boron)



MPG Series

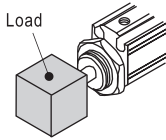
Installation and application

- Select the plate width and tightening torque of the front cover thread according to the table below:



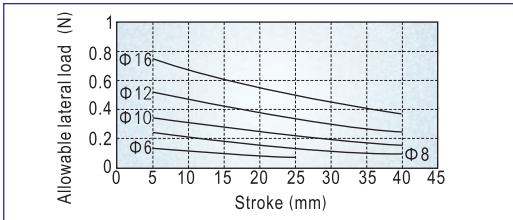
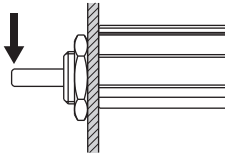
Bore size	Front cover thread	Maximum allowable torque(N.m)	Maximum width(A)
6	M10 × 1.0	12.5	4
8	M12 × 1.0	21.0	4
10	M12 × 1.0	21.0	4
12	M14 × 1.0	34.0	5
16	M14 × 1.0	34.0	5

- The extra torque produced by the load at the piston rod end cannot exceed the allowable value specified in the table below. Otherwise may cause damage to the cylinder or reduce the service life.



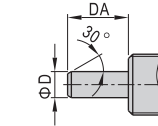
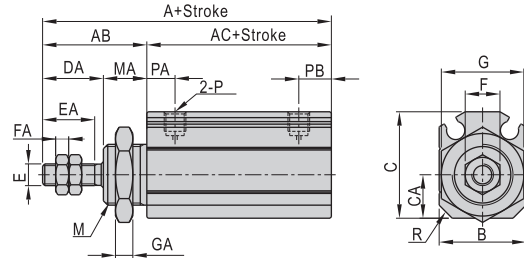
Bore size	Piston rod thread	Maximum allowable torque(N.m)
6	M3 × 0.5	0.3
8	M4 × 0.7	0.8
10	M4 × 0.7	0.8
12	M5 × 0.8	1.6
16	M5 × 0.8	1.6

- Allowable Rod End Lateral Load



Dimensions

Model: MPG/MPG-S

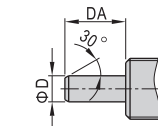
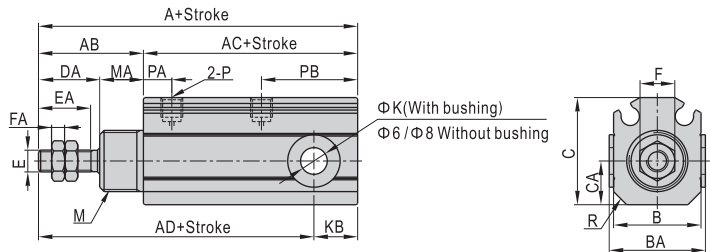


Piston rod without thread

Bore size\Item	A		AB	AC		B	C	CA	D	DA
	Without magnet	With magnet		Without magnet	With magnet					
6	33	38	17	16	21	14	16.5	6	3	9
8	38	43	20	18	23	14.5	17.5	7	4	12
10	39.5	44.5	20	19.5	24.5	15	19	7	4	12
12	43.5	48.5	24	19.5	24.5	17	21.5	8.5	6	14
16	43.5	48.5	24	19.5	24.5	20	24.5	10	6	14

Bore size\Item	E	EA	F	FA	G	GA	M	MA	P	PA	PB	R
6	M3 × 0.5	7	5.5	2.4	13	3	M10 × 1.0	8	M3 × 0.5	5.5	6.5	2
8	M4 × 0.7	10	7	2.2	17	3	M12 × 1.0	8	M3 × 0.5	6	7	2
10	M4 × 0.7	10	7	2.2	17	3	M12 × 1.0	8	M3 × 0.5	6	7	2.5
12	M5 × 0.8	12	8	3	19	4	M14 × 1.0	10	M5 × 0.8	6.5	7.5	2.5
16	M5 × 0.8	12	8	3	19	4	M14 × 1.0	10	M5 × 0.8	6.5	7.5	3

Model: MPGH\MPGH-S



Piston rod without thread

Bore size\Item	A	AC	AD	A		AD	AB	B	BA	C	CA	D	DA
				Without magnet	With magnet								
6	38	21	34	43	26	39	17	14	—	16.5	6	3	9
8	46	26	41	51	31	46	20	14.5	—	17.5	7	4	12
10	50.5	30.5	44	55.5	35.5	49	20	15	17	19	7	4	12
12	58	34	48	63	39	53	24	17	19	21.5	8.5	6	14
16	58	34	48	63	39	53	24	20	22	24.5	10	6	14

Bore size\Item	E	EA	F	FA	K	KB	M	MA	P	PA	PB	R
6	M3 × 0.5	7	5.5	2.4	3 ^{+0.05} ₀	4	M10 × 1.0	8	M3 × 0.5	5.5	11.5	2
8	M4 × 0.7	10	7	2.2	4 ^{+0.05} ₀	5	M12 × 1.0	8	M3 × 0.5	6	15	2
10	M4 × 0.7	10	7	2.2	5 ^{+0.065} ₀	6.5	M12 × 1.0	8	M3 × 0.5	6	18	2.5
12	M5 × 0.8	12	8	3	6 ^{+0.065} ₀	10	M14 × 1.0	10	M5 × 0.8	6.5	22	2.5
16	M5 × 0.8	12	8	3	6 ^{+0.065} ₀	10	M14 × 1.0	10	M5 × 0.8	6.5	22	3

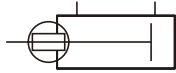


MPG

JIG CYLINDERS WITH GUIDES $\phi 6$, $\phi 8$ and $\phi 10$

Standard Cylinders

Symbol



Specifications

Standard Cylinders

Item	Bore size mm [in.]	6 [0.236]			8 [0.315]			10 [0.394]		
Operation type		Double acting type								
Media		Air								
Operating pressure range	MPa [psi.]	0.2~1.0 [29~145]								
Proof pressure	MPa [psi.]	1.5 [218]								
Operating temperature range	°C [°F]	0~60 [32~140]								
Operating speed range	mm/s [in./sec.]	50~500 ^{Note} [2.0~19.7]								
Cushion		Rubber bumper								
Lubrication		Not required (If lubrication is required, use Turbine Oil Class 1 [ISO VG32] or equivalent.)								
Port size		M3×0.5								
Allowable energy	J [ft·lbf]	0.008 [0.006]			0.014 [0.010]			0.022 [0.016]		
Maximum load mass	kg [lb.]	0.58 [1.28]			1.03 [2.27]			1.6 [3.53]		
Standard strokes	mm	5, 10, 15, 20								
Maximum available stroke	mm	50								
Stroke tolerance	mm [in.]	$+1.5$ [$+0.059$] 0 [0]								

Note: Values are at operating pressure of 0.5MPa without load.

Order Codes

SG DA [] **×** [] - [] - [] [] []

Jig cylinder with guide

Operation type
DA : Double acting type

Bearing specification
Blank : Slide bearing type
Q : Rolling bearing type

Bore size × Stroke

Port direction
Blank : Top side direction
R : Right side as viewed from the end plate
L : Left side as viewed from the end plate

Sensor switch type
ZE135 : Solid state type 2-lead wire DC10~28V Horizontal lead wire
ZE155 : Solid state type 3-lead wire DC4.5~28V Horizontal lead wire
ZE235 : Solid state type 2-lead wire DC10~28V Vertical lead wire
ZE255 : Solid state type 3-lead wire DC4.5~28V Vertical lead wire

Lead wire length
A : 1000mm [39in.]
B : 3000mm [118in.]

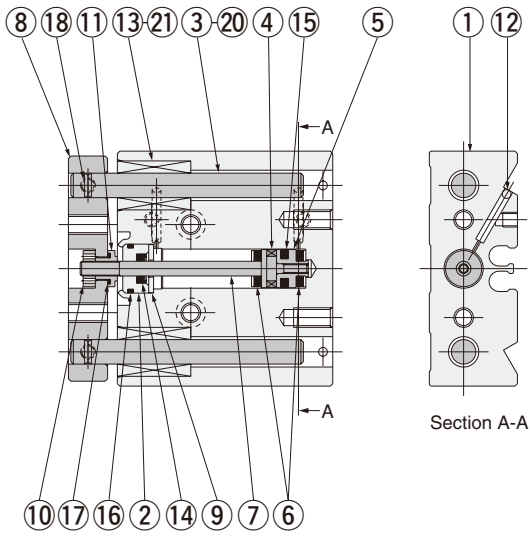
Number of sensor switches
1 : With 1 sensor switch
2 : With 2 sensor switches

Bore size	Strokes
6	5, 10, 15, 20
8	
10	

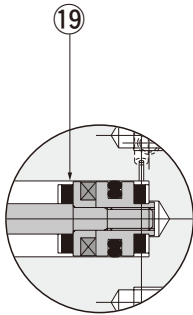
Inner Construction (cannot be disassembled)

Standard Cylinder

- SGDA6, 8
- SGDAQ6, 8



- SGDA10
- SGDAQ10



Major Parts and Materials

Standard Cylinder

No.	Parts	Bore size mm [in.]		
		6 [0.236]	8 [0.315]	10 [0.394]
①	Cylinder body	Aluminum alloy (anodized)		
②	Rod cover	Aluminum alloy (special wear-resistant treatment)		
③	Guide rod (slide bearing type)	Steel (hard chrome plated)	Stainless steel (hard chrome plated)	
④	Magnet	Neodymium magnet		
⑤	Piston	Aluminum alloy (special rust prevention treatment)		
⑥	Bumper	Synthetic rubber (urethane)		
⑦	Piston rod	Stainless steel		
⑧	End plate	Aluminum alloy (anodized)		
⑨	Seal holder	Aluminum alloy (special rust prevention treatment)	Mild steel (zinc plated)	
⑩	Nut A	Stainless steel		
⑪	Nut B	Stainless steel		
⑫	Steel ball	Stainless steel		
⑬	Slide bearing	Aluminum alloy (special wear-resistant treatment)		
⑭	Seal (rod)	Synthetic rubber (NBR)		
⑮	Seal (piston)	Synthetic rubber (NBR)		
⑯	O-ring	Synthetic rubber (NBR)		
⑰	O-ring	Synthetic rubber (NBR)		
⑱	Small screw	Steel	Stainless steel	
⑲	Support	—	—	Aluminum alloy
⑳	Guide rod (rolling bearing type)	Steel		
㉑	Rolling bearing	Steel, plastic		

JIG CYLINDERS WITH GUIDES φ6, φ8, φ10

Mass

Bore size mm [in.]	Stroke mm	Slide bearing	Rolling bearing	Additional mass	
				Sensor switch (with 1 sensor switch)	
				ZE□□□A	ZE□□□B
6 [0.236]	5	66 [0.146]	67 [0.148]	15 [0.033]	35 [0.077]
	10	72 [0.159]	74 [0.163]		
	15	81 [0.179]	83 [0.183]		
	20	88 [0.194]	90 [0.198]		
8 [0.315]	5	100 [0.220]	104 [0.229]	15 [0.033]	35 [0.077]
	10	110 [0.242]	113 [0.249]		
	15	122 [0.269]	126 [0.278]		
	20	131 [0.289]	135 [0.298]		
10 [0.394]	5	140 [0.309]	141 [0.311]	15 [0.033]	35 [0.077]
	10	152 [0.335]	153 [0.337]		
	15	168 [0.370]	169 [0.373]		
	20	180 [0.397]	181 [0.399]		

Air Cylinders

Pen-Style Type (Double Acting)

Coupling Rods for Air Cylinders / Thread Conversion Adapters

L Selectable / L Configurable / L and F Configurable

Pen-Style Type



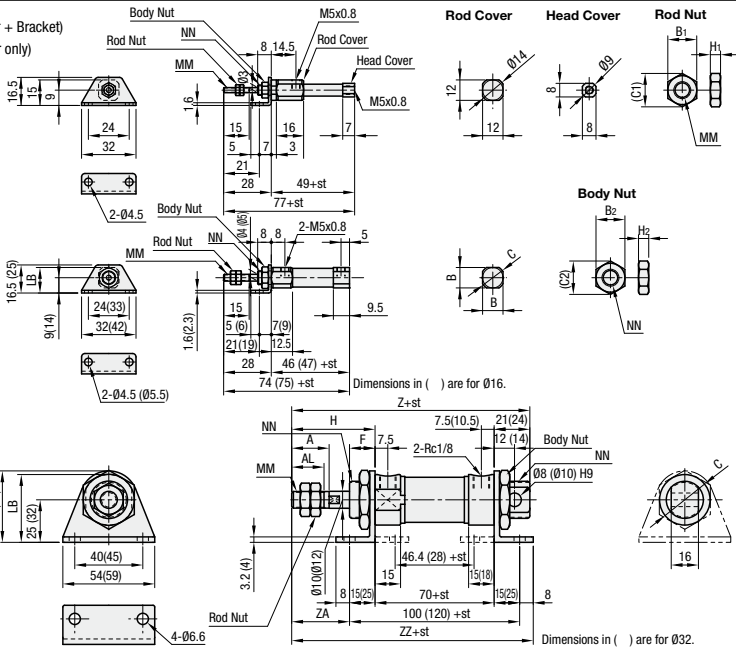
RoHS

MSPCB (Cylinder + Bracket)
MSPCN (Cylinder only)

Tube I.D.
06

010-16

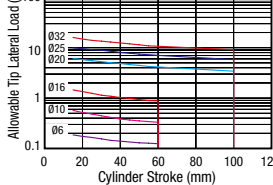
020-32



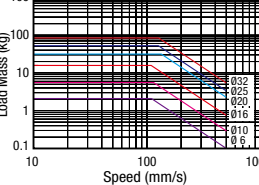
Tube I.D. (mm)	A	AL	B	B1	B2	C	C1	C2	F	H	H1	H2	LB	MM	NN	Z	ZA	ZZ
6	-	-	5.5	8	-	6.4	9.2	-	-	2.4	4	-	M3x0.5	M6x1.0	-	-	-	-
10	-	-	12	7	11	14	8.1	12.7	-	3.2	4	15	M4x0.7	M8x1.0	-	-	-	-
16	-	-	18	8	14	20	9.2	16.2	-	4	4	23	M5x0.8	M10x1.0	-	-	-	-
20	20	18	-	13	30	28	15	34.6	12	38	5	6	38.4	M8x1.25	M22x1.5	129	23	131
25	22	20	-	17	30	33.5	19.6	34.6	15	49	6	6	39.9	M10x1.25	M22x1.5	140	34	142
32	22	20	-	17	32	37.5	19.6	37	18	52	6	8	50	M10x1.25	M24x2.0	146	27	155

Part Number	Tube I.D. (mm)	St. Stroke (mm)	MSPCB Unit Price							MSPCN Unit Price								
			15	25	30	45	50	60	100	15	25	30	45	50	60	100		
(Cylinder + Bracket)	6	15 30 45 60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSPCB	10	15 30 45 60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Cylinder only)	16	15 30 45 60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSPCN	20	15 25 50 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	15 25 50 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	32	15 25 50 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Allowable Tip Lateral Load Table



Allowable Kinetic Energy Table



Theoretical Output

Tube I.D. (mm)	Operating Direction	Operating Pressure (MPa)						
		0.2	0.3	0.4	0.5	0.6	0.7	
6	Push	5.7	8.5	11.3	14.1	17	19.8	
	Pull	4.2	6.4	8.5	10.6	12.7	14.8	
10	Push	15.7	23.8	31.4	39.3	47.1	55	
	Pull	13.2	19.8	26.4	33	39.6	46.2	
16	Push	40	60	80	101	121	141	
	Pull	36	54	73	91	109	127	
20	Push	63	94	126	157	189	220	
	Pull	47	71	94	118	141	165	
25	Push	98	147	196	245	295	344	
	Pull	83	124	165	206	247	289	
32	Push	161	241	322	402	483	563	
	Pull	138	207	277	346	415	484	

Pen-Style Sensors for Cylinders



RoHS

MSRCS (Contact Type)
MSRNS (No Contact Type)

Accessory: 1 pc.
(Mounting Brackets)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

No.	06	010	016	020	025	032
A	43	53	70	84	100	123
B	29	39	56	64	80	103

Accessory: 1 pc.
(Mounting Brackets)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

(No. 6-16)

(No. 20-32)

Part Number	Applicable Cylinder	Unit Price	
		MSRCS	MSRNS
6	MSPC16	-	-
10	MSPC10	-	-
16	MSPC16	-	-
20	MSPC20	-	-
25	MSPC25	-	-
32	MSPC32	-	-

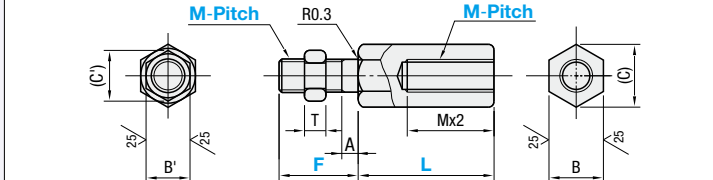
Ordering Example
Part Number - Stroke
MSPCB6 - 30

Extension Rod for Air Cylinders



RoHS

Type	Material	Surface Treatment	Accessory
L Selectable	S45C Equivalent	Black Oxide	SS400 Trivalent Bright Chromate
L Configurable	SUS304	Electroless Nickel Plating	SUS304
L and F Configurable	SUS304	Electroless Nickel Plating	SUS304



Part Number	Type	M-Pitch	L		F		A	B	(C)	B' (C')	T	Qty.	Included Nut							Unit Price							
			Selectable	Configurable (1mm Increment)	Standard	Configurable (1mm Increment)							FJEB	FJER	FJES	FJEB	FJER	FJES	FJEB		FJER						
L Selectable	FJEB	3-0.5	20 25 30 35 40 50 75 100	20-100	17.5	10-15	2.5	6	6.9	5.5	6.4	2.4	2 pcs.														
		4-0.7																		12-20	8	9.2	8	9.2	4		
		5-0.8																		14-20	10	11.5	10	11.5	5		
L Configurable	FJEB	8-1.0	30 35 40 50 75 100 150 200	32-200	18	14-40	3	14(13)	16(21.5)	13	15	5	1 pc.														
		8-1.25																		40-200	22	14-50	17	19.6	17	19.6	6
		10-1.5																		48-200	24	16-60	21(19)	24(21.9)	19	21.9	7
L and F Configurable	FJEB	12-1.5	40 50 75 100 150 200	48-200	24	17-70	5	23(22)	26(25.4)	22	25.4	8															
		14-1.5																		56-200	30	25-80	26(27)	30(31.2)	27	31.2	15
		18-1.5																		72-200	35	30-80	30	34.6	30	34.6	16
		20-1.5																		80-200	40	30-80	32	37	32	37	18
		22-1.5																		75 100 150 200	40	30-80	32	37	32	37	18

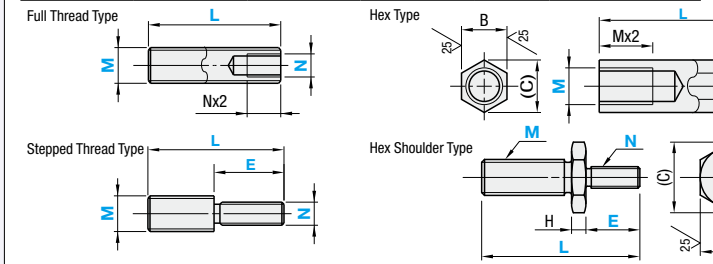
* For M Pitch 10-1.5(M10-1.5)L=30, M Pitch 14-1.5 L=40 and M Pitch 18-1.5 L=40, the effective thread length of Tap is Mx1.5.

Thread Conversion Adapters



RoHS

Type	Material	Surface Treatment
Full Thread	S45C Equivalent	Black Oxide
Stepped Thread	SUS304	Electroless Nickel Plating
Hex	SUS304	Electroless Nickel Plating
Hex Shoulder	SUS304	Electroless Nickel Plating



Part Number	Type	M		L	M (Coarse)	NS (Fine)	E	H	B	(C)
		Coarse	Fine Thread							
SAA	5	-	-	20-100	3 4 *	-	5-16	8	9.2	
SAB	6	-	-	20-100	3 4 5 *	-	6-20	3	10 11.5	
SAC	8	8S	M8x1.0	30-150	4 5 6 *	-	8-24	10	13 15	
SAD	10	10S	M10x1.25	30-150	5 6 * 8 *	8 *	10-32	4	17 19.6	
SAAM	12	12S	M12x1.25	40-200	6 8 10 *	8 10 *	12-40	5	19 21.9	
SABM	14	14S	M14x1.5	40-200	6 8 10 * 12 *	8 10 * 12 *	14-48	6	22 25.4	
SACM	16	16S	M16x1.5	40-200	8 10 12 * 14 *	8 10 12 * 14 *	16-56	7	24 27.7	
SADM	18	18S	M18x1.5	50-200	10 12 14 * 16 *	10 12 14 * 16 *	18-64	8	27 31.2	
SAAS	20	20S	M20x1.5	50-200	10 12 14 16 * 18 *	10 12 14 16 * 18 *	20-72	10	30 34.6	

* marked dimensions are not available for SAA, SAAM and SAAS.

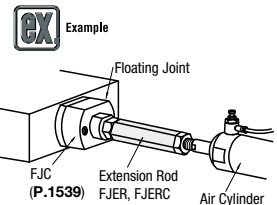
NS (Fine Thread) pitch is same as M Fine Thread (Nominal Thread Dia.).

SAA, SAAM, SAAS are LxNx4 SAB, SABM, SABS are LxMx2+E SAC, SACM, SACS are LxMx2+E SAD, SADM, SADS are M+H+E+LxMx4+H+(N)Sx4

Part Number	L	N	E	F
FJERC10-1.5	-	30	-	-
FJEBF14-1.5	-	100	-	-
SAB16 (Coarse)	-	50	-	E20

Alterations Part Number - L - N - E - F MWC, NWC SABS14 - 100 - N6 - E18 - NWC

M	Unit Price						
	SAA	SAB	SAC	SAD	SAAM	SABM	SADM
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
8	8S	-	-	-	-	-	-
10	10S	-	-	-	-	-	-
12	12S	-	-	-	-	-	-
14	14S	-	-	-	-	-	-
16	16S	-	-	-	-	-	-
18	18S	-	-	-	-	-	-
20	20S	-	-	-	-	-	-



Code	MWC, NWC		
	M	N	W
Spec.	4	5	1
	6	8	1.5
	10	10	2
	12, 14, 16	12, 14, 16	2.5
	18, 20	18, 20	3

Ordering Code MWC, NWC For W dimensions, refer to the table on the right. * Applicable to SAA, SAAM, SAAS, SAB, SABM and SABS.

