

X

Series

Compact Air Cylinder



X Series

Compact Air Cylinder

XG Type is compatible with other switch

Switch is mountable to any 3 sides of the cylinder

Compact design

Unique design with square body slotted for the switch

Rubber magnet as standard

Magnet is suitable for locating the switch

		Standard X Series	Double Rod X□7 Series
		∅10 ~ ∅100 	∅10 ~ ∅100 
Action	Double-acting	☐	☐
	Single-acting (Spring return)	☐	
	Single-acting (Spring extend)	☐	
Cushion	Damper buffer	☐	☐
	Without cushion	☐	☐
Piston rod end spec.	Female threaded	☐	☐
	Male threaded	☐	☐
Model With Switch	M type reed switch	☐	☐
	M type proximity switch	☐	☐

Accessories

Optional

- Rod end nut (A.17)
- M type switch (H.2)

Custom-made Cylinder

- Dual stroke cylinder (A.28)
- Adjustable stroke cylinder (A.30)

A.2

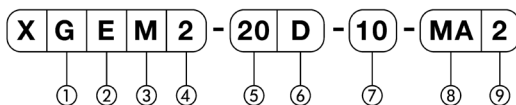
A.18

X Series

Compact Air Cylinder/Standard type

Ø10, Ø16, Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

Ordering Instructions



① Magnet

C: No magnet(without switch available)

G: Cylinder with switch available
with built-in magnet

② Mounting holes

No symbol : Through holes(Standard)

E : Female thread

③ Piston rod end spec.

No symbol : Female threaded

M : Male threaded

④ Action

2: Double-acting

1: Single-acting(Spring return)

0: Single-acting(Spring extend)

⑤ Bore(mm)

10: Ø 10 40 : Ø 40

16: Ø 16 50 : Ø 50

20: Ø 20 63 : Ø 63

25: Ø 25 80 : Ø 80

32: Ø 32 100: Ø 100

⑥ Damper

No symbol : No damper

D : Built-in damper

⑦ Stroke(mm)

Refer to Standard Strokes

⑧ Type of switch

No symbol	No switch	
MA	MA-1 (AC110V, DC24V)	M type reed switch
MB	MD-1 (DC24V)	
MC	MD-3 (DC5, 6V)	
MD	MR (AC, DC5~110V)	
ME	MA-2L (AC110V)	
MF	MA-2H (AC220V)	M type proximity switch
MG	MT-3 (DC5~30V)	
MH	MT-3U (DC5~30V)	
MJ	MT-2 (DC24V)	
MK	MT-2U (DC24V)	

⑨ Number of switch

No symbol : No switch

2 : with 2 units

1 : with 1 unit

Model No. of Switch Mounting Bracket

Bore(mm)	M type switch
Ø 10	X10-MJ
Ø 16	X16-MJ
Ø 20, Ø 25, Ø 32, Ø 40, Ø 50	X20-MJ
Ø 63, Ø 80, Ø 100	K63-MJ

Model No. of Packing Kit

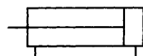
Bore(mm)	Packing Kit
Ø 10	X10-PS
Ø 16	X16-PS
Ø 20	X20-PS
Ø 25	X25-PS
Ø 32	X32-PS
Ø 40	X40-PS
Ø 50	X50-PS
Ø 63	X63-PS
Ø 80	X80-PS
Ø 100	X100-PS



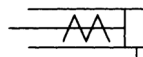
Specifications

Action	Unit		Double-acting	Single-acting
Fluid			Non-lubricated air (Lubricated air)	
Pressure range	∅10~ ∅50	MPa (kgf/cm ²)	0.1~0.7 (1.0~7.1)	0.25~0.7 (2.6~7.1)
	∅63~ ∅100		0.05~0.7 (0.5~7.1)	0.2~0.7 (2.0~7.1)
Temperature range	°C		5~60	
Piston speed range	mm/s		50~500	
Cushion			unavailable	
Piston stroke allowance	mm		+1.0 0	
Mounting			basic	

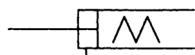
JIS Label



Double acting



Single acting (Spring return)



Single acting (Spring extend)

Value shown in this catalog is shown in SI unit. However, value within this output table is in generic unit. Use the following formula to convert to SI unit :

$$\text{Pressure } Y(\text{MPa}) = X(\text{kgf/cm}^2) \times 9.80665 \times 10^{-2}$$

$$\text{Force } Y(\text{N}) = X(\text{kgf}) \times 9.80665$$

Standard Stroke

(Unit: mm)

Action	Bore	Standard Stroke	Max. Stroke
Double-acting	Ø10	5, 10	30 (25)
	Ø16		
	Ø20		
	Ø25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	100 (95)
	Ø32		
	Ø40		
	Ø50	10, 25, 30, 40, 50	150 (140)
	Ø63		
	Ø80		
Single-acting	Ø100	5, 10	20 (15)
	Ø10		
	Ø16		
	Ø20		
	Ø25		
	Ø32		
	Ø40		
	Ø50	5, 10, 15, 20	50 (45)
	Ø63		

Note: Value within bracket is the maximum stroke with damper

Theoretical output**Double acting**

(Unit: mm)

Bore	Direction of rod	Operating pressure(kgf/cm ²)		
		3	5	7
Ø10	Out stroke	2.3	3.9	5.4
	In stroke	1.7	2.9	4.1
Ø16	Out stroke	6	10	14
	In stroke	5	8.5	12
Ø20	Out stroke	9	15	21
	In stroke	7	13	18
Ø25	Out stroke	14	24	24
	In stroke	12	20	28
Ø32	Out stroke	24	40	56
	In stroke	20	34	48
Ø40	Out stroke	37	62	87
	In stroke	31	52	73
Ø50	Out stroke	58	98	137
	In stroke	49	82	115
Ø63	Out stroke	93	155	218
	In stroke	84	140	196
Ø80	Out stroke	150	251	351
	In stroke	136	226	317
Ø100	Out stroke	235	392	549
	In stroke	214	357	500

Note: Effective output = Theoretical output x 0.85

Single acting(Spring return)

(Unit: mm)

Bore (mm)	Direction of rod	Operating pressure(kgf/cm ²)		
		3	5	7
Ø10	Out stroke	1.4	2.9	4.5
Ø16		5	9	13
Ø20		7	13	19
Ø25		11.5	21.5	31.5
Ø32		18.5	34.5	50.5
Ø40		29	54	79
Ø50		45	85	124

Single acting(Spring extend)

(Unit: mm)

Bore (mm)	Direction of rod	Operating pressure(kgf/cm ²)		
		3	5	7
Ø10	In stroke	0.9	2.1	3.3
Ø16		4	7.5	11
Ø20		5	11	16
Ø25		9.5	17.5	25.5
Ø32		14.5	28.5	42.5
Ø40		23	44	65
Ø50		36	69	102

Note: The output of single acting cylinder is calculated by subtracting the spring tension.

Model With Switch**M Type Reed Switch****Lead With Wire**

Model No.	Rated voltage(V)	Rated current range(mA)	Pilot lamp (Lights up at ON)	Application
MA-1	AC110	5~45	○	Relay PLC
	DC24	5~45		
MD-1	DC24	25~65	○	Relay
MD-3	DC5,6	Max.50(Inductive load) Max.300(Resistive load)	○	IC circuit
MR	AC DC 5~110	Max.50(Inductive load) Max.300(Resistive load)		Relay PLC
MA-2L	AC110	5~150	○	Relay
MA-2H	AC220	5~150	○	Relay

Note: The MA-2L is the same as the MA-1 except that MA-2L is also equipped with protective circuit SS-2L.

The MA-2H is the same as the MA-1 except that MA-2H is also equipped with protective circuit SS-2H.

M Type Proximity Switch**Lead With Wire**

Model No.	Rated voltage (V)	Rated current range(mA)	Pilot lamp (Lights up at ON)	Application
MT-2 MT-2U	DC24 (DC10~30)	5~100	○	Relay PLC
MT-3 MT-3U	DC5~30	5~200	○	Relay PLC IC circuit

Minimum Stroke with M Type Switch

(Unit: mm)

Bore	Number of switches	
	With 2 units	With 1 unit
Ø10	10	5
Ø16		
Ø20		
Ø25		
Ø32		
Ø40		
Ø50		
Ø63		
Ø80		
Ø100		

Cylinder Mass Double acting

(Unit: g)

Bore (mm)	Stroke(mm)									
	5	10	15	20	25	30	35	40	45	50
Ø10	28	35	—	—	—	—	—	—	—	—
Ø16	48	56	—	—	—	—	—	—	—	—
Ø20	80	93	105	117	130	142	155	167	180	192
Ø25	113	129	146	162	179	195	212	228	245	261
Ø32	180	205	230	250	275	295	320	345	370	390
Ø40	280	310	340	370	400	430	460	490	520	550
Ø50	460	500	540	580	625	670	710	750	795	840
Ø63	—	900	—	1000	—	1100	—	1200	—	1300
Ø80	—	1700	—	1900	—	2100	—	2300	—	2500
Ø100	—	2500	—	2750	—	3000	—	3250	—	3500

Single acting(Spring return)

(Unit: g)

Bore (mm)	Stroke(mm)			
	5	10	15	20
Ø10	28	35	—	—
Ø16	48	56	—	—
Ø20	83	96	—	—
Ø25	118	134	—	—
Ø32	180	205	—	—
Ø40	285	315	—	—
Ø50	440	480	525	570

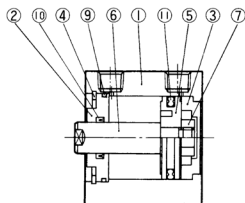
Single acting(Spring extend)

(Unit: g)

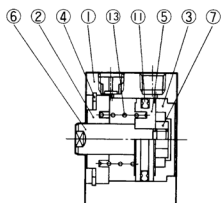
Bore (mm)	Stroke(mm)			
	5	10	15	20
Ø10	28	34	—	—
Ø16	48	56	—	—
Ø20	82	95	—	—
Ø25	115	131	—	—
Ø32	185	210	—	—
Ø40	285	315	—	—
Ø50	460	500	545	590

Mounting screw

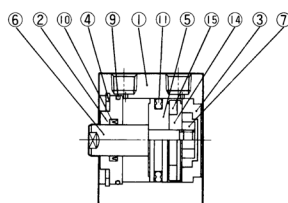
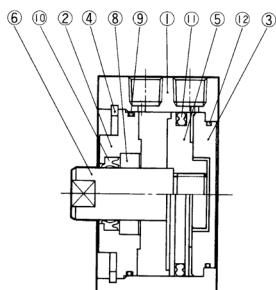
1. When mounting the compact cylinder with switch XG ※※-10, please use special screws(SUS) M3.
2. For others, simply use standard mounting screws.

Double-acting $\phi 10 \sim \phi 50$ 

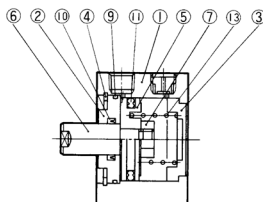
Single-acting(spring extend)



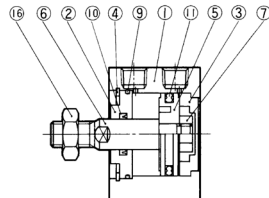
With switch

Double-acting $\phi 63 \sim \phi 100$ 

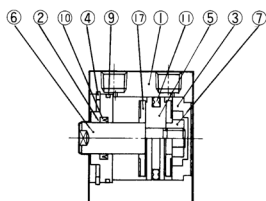
Single-acting(spring extend)



Outer threaded shaft



Built-in gasket



List of Parts

No.	Name	No.	Name	No.	Name
1	Body	7	Lock nut	13	Return spring
2	Bushing	8	Bearing	14	Magnet holder
3	End cover	9	Bushing gasket	15	Magnet
4	C clip	10	Rod packing	16	Rod end nut
5	Piston	11	Piston packing	17	Damper
6	Piston rod	12	End cover gasket		

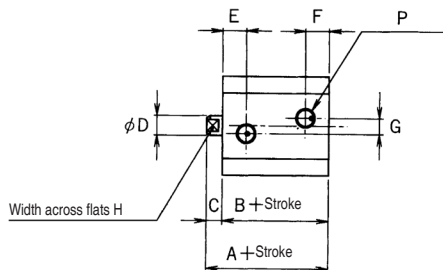
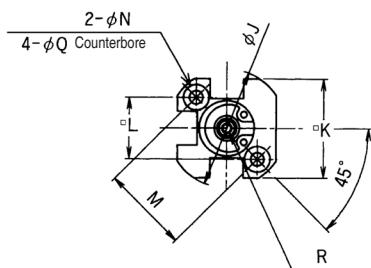
Packing List

No.	Name	Bore(mm)									
		$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
1	Bushing gasket	SO-013-7	IN-15	IN-18	SO-015-25	SO-015-29	KG-40	KG-50	IN-56	IN-75	IN-95
2	Rod packing	MYN-5	MYN-6	MYN-8	MYN-10A	MYN-12	MYN-16	MYN-20	PDU-20	PDU-25	PDU-30
3	Piston packing	PSD-10	PSD-16	PSD-20	PSD-25	PSD-32	PSD-40	PSD-50	PSD-63	PSD-80	PSD-100
4	End cover gasket	—	—	—	—	—	—	—	AS568-033	AS568-038	AS568-043

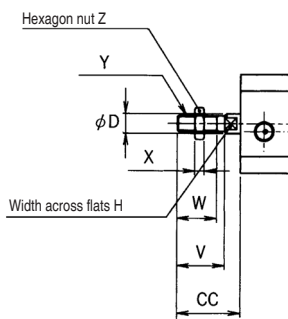
Note: Seal repair and assembly kits are also available for purchase.

Double-acting $\varnothing 10$, $\varnothing 16$ / X□2

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

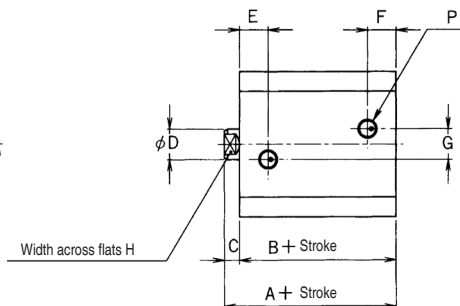
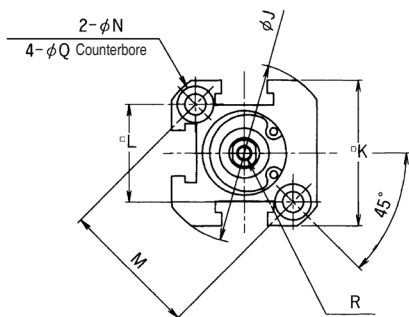
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 10$	21 31	17 27	4	5	6	6	4	4	30	25	15.6	22	3.4	M5×0.8	6.5 depth 4
$\varnothing 16$	22.5 32.5	18.5 28.5	4	6	6.5	6.5	6	5	38	30	20	28.3	3.4	M5×0.8	6.5 depth 4

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 10$	M2.6×0.45 depth 5	16	12	10	2.4	M4×0.7	7
$\varnothing 16$	M3×0.5 depth 5	16	12	10	2.4	M4×0.7	7

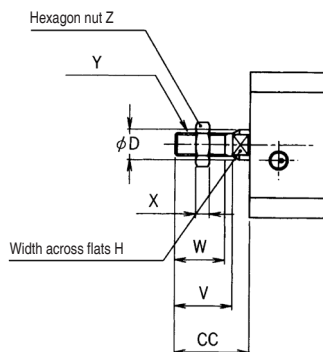
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: For over standard stroke range, please follow the 5mm unit.
- 5mm stroke with magnet: The same size as 10mm stroke length.

Double-acting Ø20, Ø25, Ø32 / X□2

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

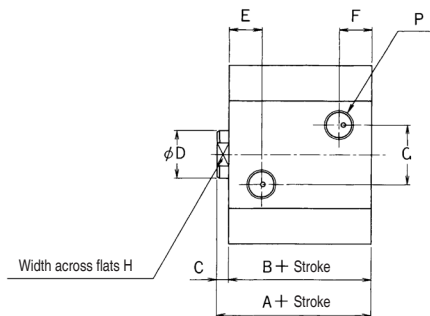
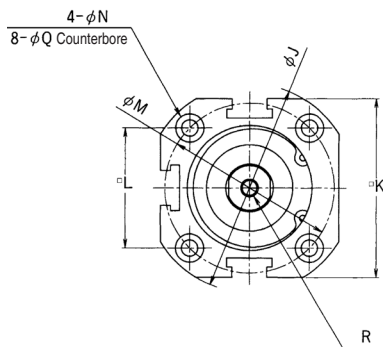
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Ø20	25 30	21 26	4	8	7.5	7.5	8	6	47	38	25.5	36	5.5	M5×0.8	9.5 depth 5.5
Ø25	26.5 31.5	22.5 27.5	4	10	8	8	8	8	52	43	28	39.6	5.5	M5×0.8	9.5 depth 5.5
Ø32	29 34	25 30	4	12	9.5	9.5	15	10	60	51	34	48	5.5	Rc(PT)⅔	9.5 depth 5.5

Model No.	R	CC	V	W	X	Y	Z
Ø20	M4×0.7 depth 6	19.5	15	13	3.6	M6×1	10
Ø25	M5×0.8 depth 10	21	16	14	5	M8×1.25	13
Ø32	M6×1 depth 11	22.5	17	15	6	M10×1.25	17

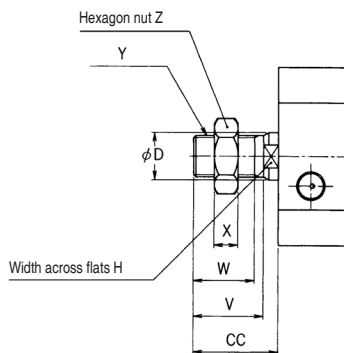
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
Please add 1mm to A and B size for the cylinder without magnet and the stroke upper than 60mm or with magnet the 55mm stroke.
- Non-standard stroke: For over standard stroke range, please follow the 5mm unit.
- 5mm stroke with magnet: The same size as 10mm stroke length.

Double-acting $\varnothing 40$, $\varnothing 50$ /X□2

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

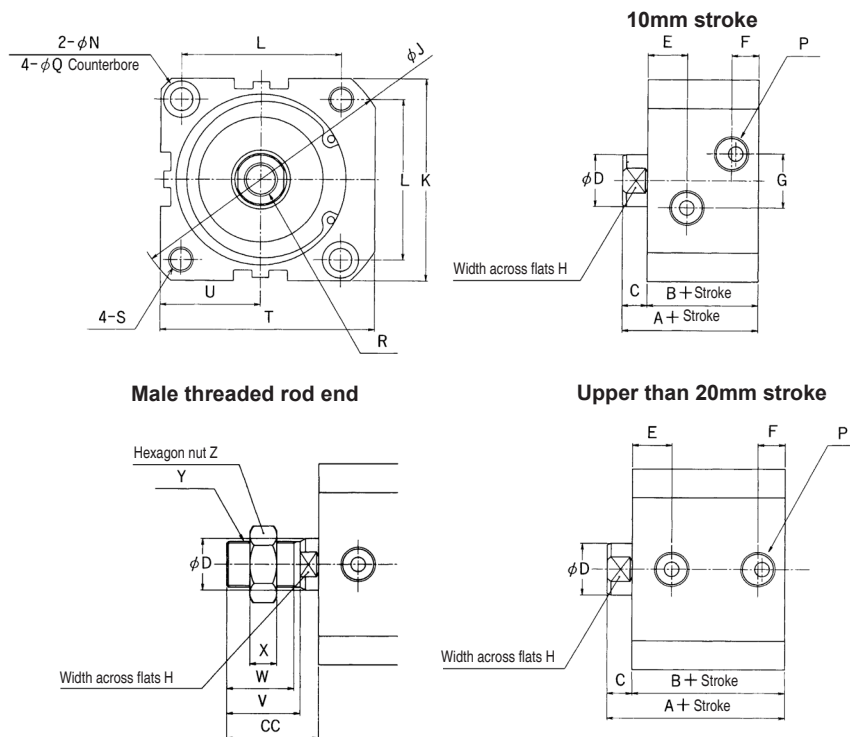
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 40$	32 37	28 33	4	16	11	11	20	14	70	60	40.3	57	5.5	Rc(PT)½	9.5 depth 5.5
$\varnothing 50$	34 39	30 35	4	20	11.5	11.5	20	16	80	70	47.4	67	6.6	Rc(PT)½	11 depth 6.5

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 40$	M6×1 depth 11	28.5	23.5	20.5	8	M14×1.5	22
$\varnothing 50$	M8×1.25 depth 13	33.5	28.5	26	11	M18×1.5	27

- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
Please add 1mm to A and B size for the cylinder without magnet and the stroke upper than 60mm or with magnet the 55mm stroke.
- Non-standard stroke: For over standard stroke range, please follow the 5mm unit.
- 5mm stroke with magnet: The same size as 10mm stroke length.

Double-acting $\varnothing 63$, $\varnothing 80$, $\varnothing 100$ /X□2

(Unit: mm)



Damper

For damper, please add 5mm each to dimensions A and B.

Model No.	A	B	C	D	E	F	G	H	J	K	L	N	P	Q
$\varnothing 63$	46 56	36 46	10	20	18	11	20	17	102	76	60	9	Rc(PT)¼	14 depth 9
$\varnothing 80$	55.5 65.5	43.5 53.5	12	25	19	13	26	22	130	97	77	11	Rc(PT)½	17.5 depth 11
$\varnothing 100$	67 77	53 63	14	30	24.5	13	26	27	154	115	94	11	Rc(PT)¾	17.5 depth 11

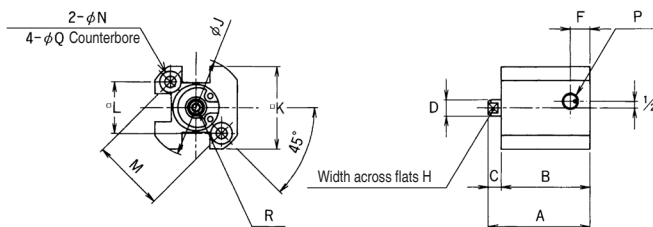
Model No.	R	S	T	U	CC	V	W	X	Y	Z
$\varnothing 63$	M10×1.5 depth 15	M10×1.5 depth 15	83	38	36	28.5	26	11	M18×1.5	27
$\varnothing 80$	M16×2 depth 21	M12×1.75 depth 20	103.5	48.5	44.5	35.5	32.5	13	M22×1.5	32
$\varnothing 100$	M20×2.5 depth 27	M14×2 depth 20	122.5	57.5	46.5	35.5	32.5	16	M26×1.5	41

- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
Please add 1mm to A and B size for the cylinder without magnet and the stroke upper than 70mm or with magnet the 60mm stroke.
- Non-standard stroke: For over standard stroke range, please follow the 10mm unit.
- 10mm stroke with magnet: The same size as 20mm stroke length.

Single-acting $\varnothing 10$, $\varnothing 16$

(Unit: mm)

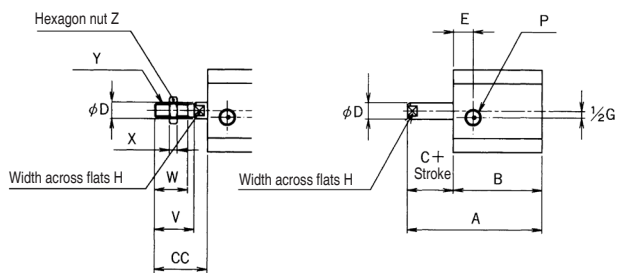
Single acting(spring return) / X□1



Bore		A	B
$\varnothing 10$	5st	26 41	22 37
	10st	31 41	27 37
$\varnothing 16$	5st	27.5 42.5	23.5 38.5
	10st	32.5 42.5	28.5 38.5

Male threaded rod end

Single acting(spring extend) / X□0



Bore		A	B
$\varnothing 10$	5st	26 + Stroke 41 + Stroke	22 37
	10st	31 + Stroke 41 + Stroke	27 37
$\varnothing 16$	5st	27.5 + Stroke 42.5 + Stroke	23.5 38.5
	10st	32.5 + Stroke 42.5 + Stroke	28.5 38.5

Damper

For damper, please add 5mm each to dimensions A and B.

Model No.	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 10$	4	5	6	6	4	4	30	25	15.6	22	3.4	M5×0.8	6.5 depth 4
$\varnothing 16$	4	6	6.5	6.5	6	5	38	30	20	28.3	3.4	M5×0.8	6.5 depth 4

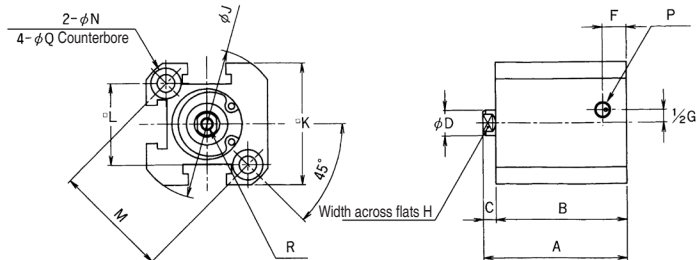
Model No.	R	CC	V	W	X	Y	Z
$\varnothing 10$	M2.6×0.45 depth 5	16	12	10	2.4	M4×0.7	7
$\varnothing 16$	M3×0.5 depth 5	16	12	10	2.4	M4×0.7	7

- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: For over standard stroke range, consult FONTAL first to avoid malfunction

Single-acting $\varnothing 20$, $\varnothing 25$, $\varnothing 32$

(Unit: mm)

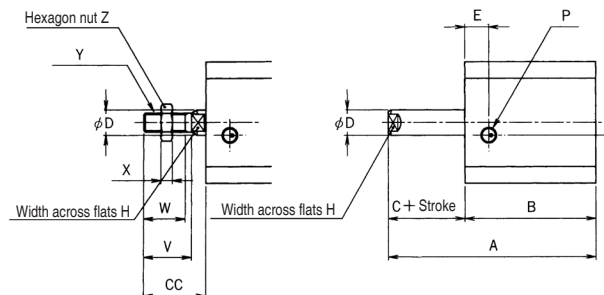
Single acting(spring return) / X□1



Bore		A	B
$\varnothing 20$	5st	30 40	26 36
	10st	35 40	31 36
$\varnothing 25$	5st	31.5 41.5	27.5 37.5
	10st	36.5 41.5	32.5 37.5
$\varnothing 32$	5st	34 44	30 40
	10st	39 44	35 40

Male threaded rod end

Single acting(spring extend) X□0



Bore		A	B
$\varnothing 20$	5st	30 + Stroke 40 + Stroke	26 36
	10st	35 + Stroke 40 + Stroke	31 36
$\varnothing 25$	5st	31.5 + Stroke 41.5 + Stroke	27.5 37.5
	10st	36.5 + Stroke 41.5 + Stroke	32.5 37.5
$\varnothing 32$	5st	34 + Stroke 44 + Stroke	30 40
	10st	39 + Stroke 44 + Stroke	35 40

Damper

For damper, please add 5mm each to dimensions A and B.

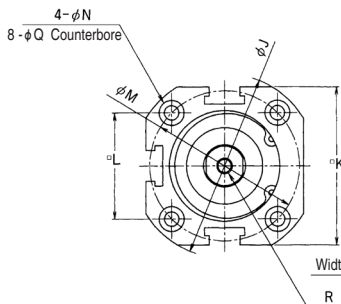
Model No.	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 20$	4	8	7.5	7.5	8	6	47	38	25.5	36	5.5	M5×0.8	9.5 depth 5.5
$\varnothing 25$	4	10	8	8	8	8	52	43	28	39.6	5.5	M5×0.8	9.5 depth 5.5
$\varnothing 32$	4	12	9.5	9.5	15	10	60	51	34	48	5.5	Rc(PT)½	9.5 depth 5.5

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 20$	M4×0.7 depth 6	19.5	15	13	3.6	M6×1	10
$\varnothing 25$	M5×0.8 depth 10	21	16	14	5	M8×1.25	13
$\varnothing 32$	M6×1 depth 11	22.5	17	15	6	M10×1.25	17

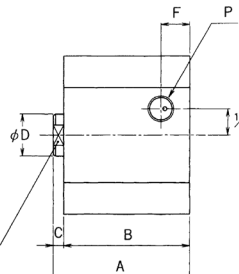
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: For over standard stroke range, consult FONTAL first to avoid malfunction

Single-acting $\varnothing 40$, $\varnothing 50$

(Unit: mm)

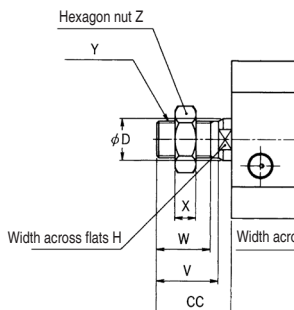


Single acting(spring return) / X□1

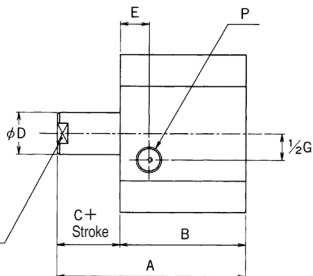


Bore		A	B
$\varnothing 40$	5st	37	33
		47	43
	10st	42	38
$\varnothing 50$		47	43
	5st	39	35
		49	45
	10st	44	40
		49	45
	15st	49	45
		54	50
	20st	54	50
		59	55

Male threaded rod end



Single acting(spring extend) / X□0



Bore		A	B
$\varnothing 40$	5st	37 + Stroke	33
		47 + Stroke	43
	10st	42 + Stroke	38
$\varnothing 50$		47 + Stroke	43
	5st	39 + Stroke	35
		49 + Stroke	45
	10st	44 + Stroke	40
		49 + Stroke	45
	15st	49 + Stroke	45
		54 + Stroke	50
	20st	54 + Stroke	50
		59 + Stroke	55

Damper

For damper, please add 5mm each to dimensions A and B.

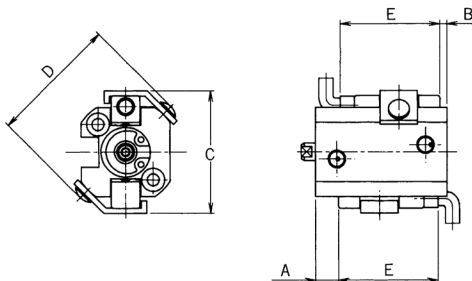
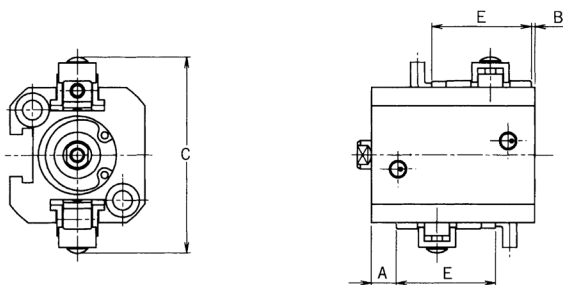
Model No.	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 40$	4	16	11	11	20	14	70	60	40.3	57	5.5	Rc(PT)1/8	9.5 depth 5.5
$\varnothing 50$	4	20	11.5	11.5	20	17	80	70	47.4	67	6.6	Rc(PT)1/2	11 depth 6.5

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 40$	M6×1 depth 11	28.5	23.5	20.5	8	M14×1.5	22
$\varnothing 50$	M8×1.25 depth 13	33.5	28.5	26	11	M18×1.5	27

- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: For over standard stroke range, consult FONTAL first to avoid malfunction

Switch installation position: M type switch/XG

(Unit: mm)

 $\varnothing 10, \varnothing 16$

 $\varnothing 20 \sim \varnothing 32$


Action	Bore	M type reed switch				M type proximity switch			
		A	B	C	D	A	B	C	D
Double acting Single acting (Spring return)	$\varnothing 10$	6.5	2	37	37	10	5.5	37	37
	$\varnothing 16$	6.5	4.5	40	45	10	8	40	45
	$\varnothing 20$	7	1	54	—	10.5	4.5	54	—
	$\varnothing 25$	8.5	1.5	59	—	12	5	59	—
	$\varnothing 32$	9.5	2.5	67	—	12	6	67	—
Single acting (spring extend)	$\varnothing 10$	6.5	2	37	37	10	5.5	37	37
	$\varnothing 16$	6	5	40	45	9.5	8.5	40	45
	$\varnothing 20$	2	6	54	—	5.5	9.5	54	—
	$\varnothing 25$	2.5	7.5	59	—	6	11	59	—
	$\varnothing 32$	3.5	8.5	67	—	6	12	67	—

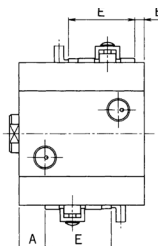
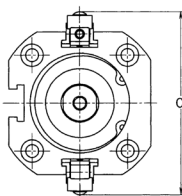
Switch	E
M type reed switch	28
M type proximity switch	26.5 (24)

Note : the parenthesized dimension is of the MT-*U type.

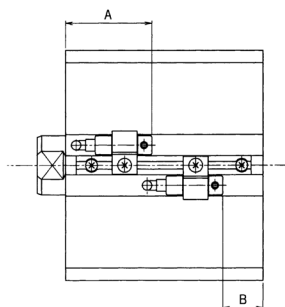
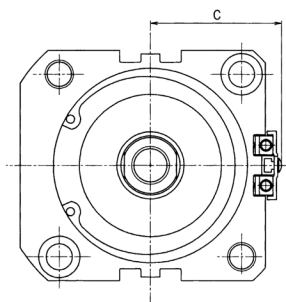
Switch installation position: M type switch/XG

(Unit: mm)

Ø40, Ø50



Ø63 ~ Ø100



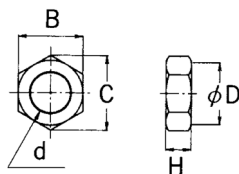
Action	Bore	M type reed switch			M type proximity switch		
		A	B	C	A	B	C
Double acting Single acting (Spring return)	Ø40	11	4	76	14.5	7.5	76
	Ø50	12.5	4.5	86	16	8	86
	Ø63	34	12	47.5	30.5	15.5	47.5
	Ø80	36.5	17	56.5	33	20.5	56.5
	Ø100	42	21	67	38.5	24.5	67
Single acting (spring extend)	Ø40	5	10	76	9.5	12.5	76
	Ø50	5.5	11.5	86	9	15	86
Switch	E						
M type reed switch	28						
M type proximity switch	26.5 (24)						

Note : the parenthesized dimension is of the MT-*U type.

Accessories

(Unit: mm)

Rod end nut (Mounting at the front-tip of the cylinder axis)



Model No.	Bore	d	H	B	C	D
Z10-RN	∅10, ∅16	M4×0.7	2.4	7	8.1	6.8
X20-RN	∅20	M6×1	3.6	10	11.5	9.8
J20-RN	∅25	M8×1.25	5	13	15	12.5
X32-RN	∅32	M10×1.25	6	17	19.6	16.5
J40-RN	∅40	M14×1.5	8	22	24.5	21
K50-RN	∅50, ∅63	M18×1.5	11	27	31.2	26
K80-RN	∅80	M22×1.5	13	32	37	31
K100-RN	∅100	M26×1.5	16	41	47.3	39

Note :

Bore of 10mm and 16mm can be used in common with Z Series.

Bore of 20mm and 40mm can be used in common with J Series.

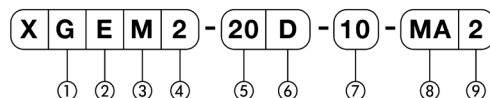
Bore of 50mm ~ 100mm can be used in common with K Series.

X□7 Series

Compact Air Cylinder/Double Rod Type

∅10, ∅16, ∅20, ∅25, ∅32, ∅40, ∅50, ∅63, ∅80, ∅100

Ordering Instructions



① Magnet

C: No magnet (switch unavailable)

G: Cylinder with switch available with built-in magnet

② Mounting holes

No symbol: Through holes (Standard)

E : Female thread

③ Piston rod end spec.

No symbol: Female threaded (Standard)

M : Male threaded

④ Action

7: Double-acting, double rod

⑤ Bore(mm)

10: ∅10 40: ∅40

16: ∅16 50: ∅50

20: ∅20 63: ∅63

25: ∅25 80: ∅80

32: ∅32 100: ∅100

⑥ Damper

No symbol: No damper

D : Built-in damper

⑦ Stroke(mm)

Refer to Standard Strokes.

⑧ Provision of rod cap

No symbol	No switch		M type Reed switch
MA	MA-1	(AC100V, DC24V)	
MB	MD-1	(DC24V)	
MC	MD-3	(DC5, 6V)	
MD	MR	(AC, DC5~110V)	
ME	MA-2L	(AC110V)	M type Proximity switch
MF	MA-2H	(AC220V)	
MG	MT-3	(DC5~30V)	
MH	MT-3U	(DC5~30V)	
MJ	MT-2	(DC24V)	
MK	MT-2U	(DC24V)	

⑨ Number of switch

No symbol: No switch

2 : with 2 units

1 : with 1 unit

Model No. of Switch Mounting Bracket

Bore(mm)	M type switch
∅10	X10-MJ
∅16	X16-MJ
∅20, ∅25, ∅32, ∅40, ∅50	X20-MJ
∅63, ∅80, ∅100	X63-MJ

Model No. of Packing Kit

Bore(mm)	Packing Kit
∅10	X710-PS
∅16	X716-PS
∅20	X720-PS
∅25	X725-PS
∅32	X732-PS
∅40	X740-PS
∅50	X750-PS
∅63	X763-PS
∅80	X780-PS
∅100	X7100-PS



Specifications

Action	Unit		Double-acting
Fluid			Non-lubricated air/ Lubricated air
Pressure range	Ø10~ Ø50	MPa (kg/cm ²)	0.1~0.7 (1.0~7.1)
	Ø63~ Ø100		0.05~0.7 (0.5~7.1)
Temperature range	°C		5~60
Piston speed range	mm/s		50~500
Cushion			unavailable
Piston stroke allowance	mm		+1.0 0
Mounting			basic

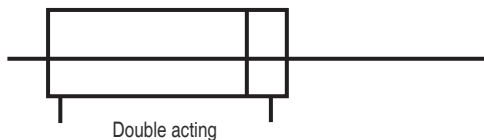
Standard Stroke

(Unit: mm)

Action	Bore	Standard Stroke	Max. Stroke
Double-acting	Ø10	5, 10	30 (25)
	Ø16		
	Ø20		
	Ø25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	100 (95)
	Ø32		
	Ø40		
	Ø50		
	Ø63	10, 25, 30, 40, 50	150 (140)
	Ø80		
	Ø100		

Note : Value within bracket is the maximum stroke with gasket

JIS Label



Value shown in this catalog is shown in SI unit. However, value within this output table is in generic unit. Use the following formula to convert to SI unit :

$$\text{Pressure } Y(\text{MPa}) = X(\text{kgf/cm}^2) \times 9.80665 \times 10^{-2}$$

$$\text{Force } Y(\text{N}) = X(\text{kgf}) \times 9.80665$$

Model With Switch

M Type Reed Switch Lead With Wire



Model No.	Rated voltage(V)	Rated current range(mA)	Pilot lamp (Lights up at ON)	Application
MA-1	AC110	5~45	○	Relay PLC
	DC24	5~45		
MD-1	DC24	25~65	○	Relay
MD-3	DC5,6	Max.50(Inductive load) Max.300(Resistive load)	○	IC circuit
MR	AC 5~110 DC	Max.50(Inductive load) Max.300(Resistive load)		Relay PLC
MA-2L	AC110	5~150	○	Relay
MA-2H	AC220	5~150	○	Relay

Note: The MA-2L is the same as the MA-1 except that MA-2L is also equipped with protective circuit SS-2L.

The MA-2H is the same as the MA-1 except that MA-2H is also equipped with protective circuit SS-2H.

M Type Proximity Switch Lead With Wire



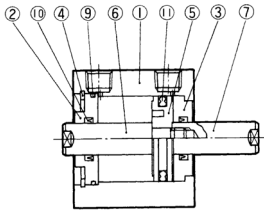
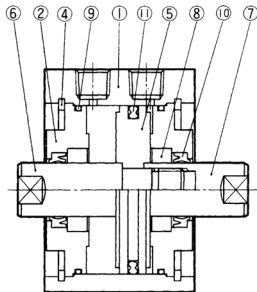
Model No.	Rated voltage (V)	Rated current range(mA)	Pilot lamp (Lights up at ON)	Application
MT-2 MT-2U	DC24 (DC10~30)	5~100	○	Relay PLC
MT-3 MT-3U	DC5~30	5~200	○	Relay PLC IC circuit

Minimum Stroke with M Type Switch (Unit: mm)

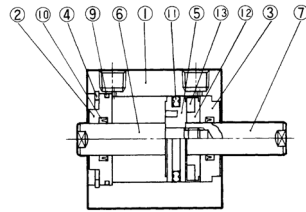
Bore	Number of switches	
	With 2 units	With 1 unit
Ø10	10	5
Ø16		
Ø20		
Ø25		
Ø32		
Ø40		
Ø50		
Ø63		
Ø80		
Ø100		

Mounting screw

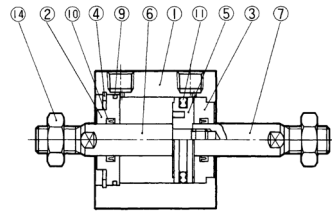
- When mounting the compact cylinder with switch
XG ※※-10
- For others, simply use standard mounting screws.

Double-acting $\phi 10 \sim \phi 50$ Double-acting $\phi 63 \sim \phi 100$ 

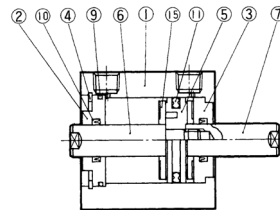
With switch



External threaded rod end



With built-in damper



List of Parts

No.	Name	No.	Name	No.	Name
1	Body	6	Axis A	11	Piston seal
2	Rod cover	7	Axis B	12	Magnet holder
3	End cover	8	Bearing	13	Magnet
4	C clip	9	Bushing gasket	14	Rod end nut
5	Piston	10	Rod packing	15	Damper

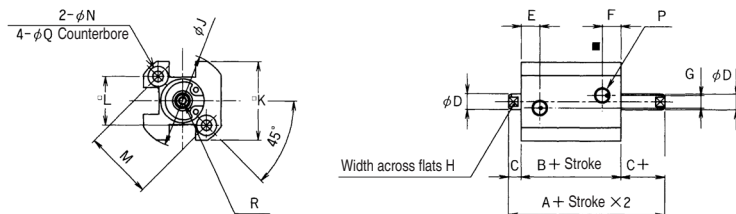
Packing List

No.	Name	Bore (mm)									
		$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
9	Bushing gasket	SO-013-7	IN-15	IN-18	SO-015-25	SO-015-29	KG-40	KG-50	IN-56	IN-75	IN-95
10	Rod packing	MYN-5	MYN-6	MYN-8	MYN-10A	MYN-12	MYN-16	MYN-20	PDU-20	PDU-25	PDU-30
11	Piston packing	PSD-10	PSD-16	PSD-20	PSD-25	PSD-32	PSD-40	PSD-50	PSD-63	PSD-80	PSD-100

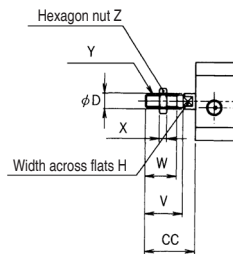
Note : Seal repair and assembly kits are also available for purchase.

Double-acting $\varnothing 10$, $\varnothing 16$ / X $\square$ 7

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

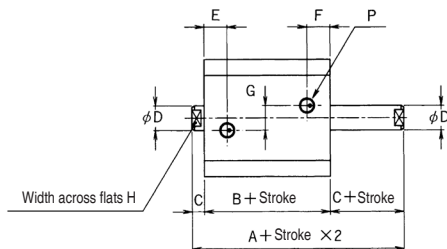
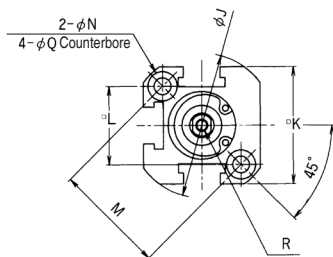
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 10$	30 40	22 32	4	5	6	6	4	4	30	25	15.6	22	3.4	M5×0.8	6.5 depth 4
$\varnothing 16$	31.5 41.5	23.5 33.5	4	6	6.5	6.5	6	5	38	30	20	28.3	3.4	M5×0.8	6.5 depth 4

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 10$	M2.6×0.45 depth 5	16	12	10	2.4	M4×0.7	7
$\varnothing 16$	M3×0.5 depth 5	16	12	10	2.4	M4×0.7	7

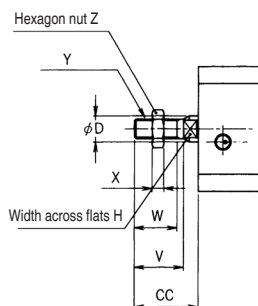
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: Longer than the standard lengths available at increment of 5 mm
- 5 mm stroke with magnet: Same dimensions as 10 mm stroke length

Double-acting $\varnothing 20$, $\varnothing 25$, $\varnothing 32$ / X□7

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

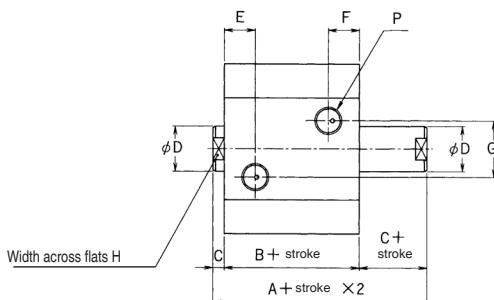
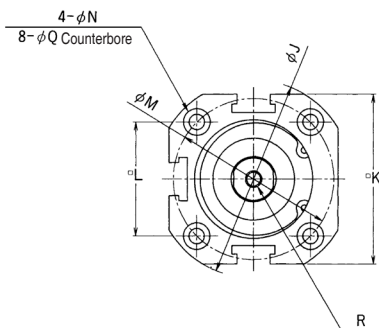
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 20$	29 34	21 26	4	8	7.5	7.5	8	6	47	38	25.5	36	5.5	M5×0.8	9.5 depth 5.5
$\varnothing 25$	30.5 35.5	22.5 27.5	4	10	8	8	8	8	52	43	28	39.6	5.5	M5×0.8	9.5 depth 5.5
$\varnothing 32$	33 38	25 30	4	12	9.5	9.5	15	10	60	51	34	48	5.5	Rc(PT) $\frac{1}{8}$	9.5 depth 5.5

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 20$	M4×0.7 depth 6	19.5	15	13	3.6	M6×1	10
$\varnothing 25$	M5×0.8 depth 10	21	16	14	5	M8×1.25	13
$\varnothing 32$	M6×1 depth 11	22.5	17	15	6	M10×1.25	17

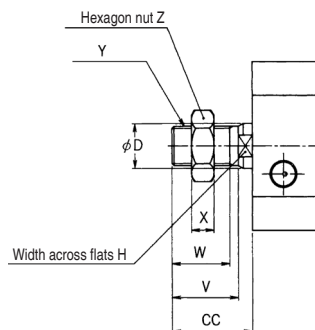
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
Please add 1mm to Size A and B for cylinders with no magnet and stroke greater than 60mm, or cylinders with magnet and stroke of 55mm.
- Non-standard stroke: For over standard stroke range, please follow the 5mm unit.
- 5mm stroke with magnet: the same size as 10mm stroke length.

Double-acting $\varnothing 40$, $\varnothing 50$ / X□7

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 5mm each to dimensions A and B.

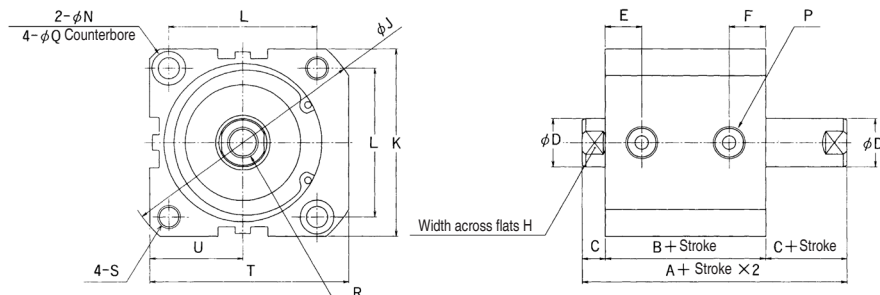
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
$\varnothing 40$	36 41	28 33	4	16	11	11	20	14	70	60	40.3	57	5.5	Rc(PT)1/8	9.5 depth 5.5
$\varnothing 50$	38 43	30 35	4	20	11.5	11.5	20	17	80	70	47.4	67	6.6	Rc(PT)1/2	11 depth 6.5

Model No.	R	CC	V	W	X	Y	Z
$\varnothing 40$	M6×1 depth 11	28.5	23.5	20.5	8	M14×1.5	22
$\varnothing 50$	M8×1.25 depth 13	33.5	28.5	26	11	M18×1.5	27

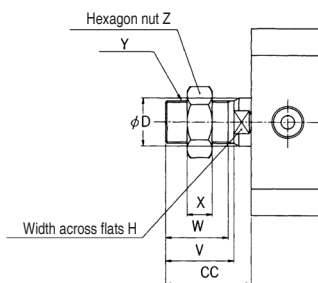
- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
Please add 1mm to Size A and B for cylinders with no magnet and stroke greater than 60mm, or cylinders with magnet and stroke of 55mm.
- Non-standard stroke: For over standard stroke range, please follow the 5mm unit.
- 5mm stroke with magnet: the same size as 10mm stroke length.

Double-acting $\varnothing 63$, $\varnothing 80$, $\varnothing 100$ / X□7

(Unit: mm)



Male threaded rod end



Damper

For damper, please add 10mm each to dimensions A and B.

Model No.	A	B	C	D	E	F	G	H	J	K	L	N	P	Q
$\varnothing 63$	66 76	46 56	10	20	18	18	20	17	102	76	60	9	Rc(PT)¼	14 depth 9
$\varnothing 80$	77.5 87.5	53.5 63.5	12	25	19	19	26	22	130	97	77	11	Rc(PT)½	17.5 depth 11
$\varnothing 100$	91 101	63 73	14	30	24.5	24.5	26	27	154	115	94	11	Rc(PT)¾	17.5 depth 11

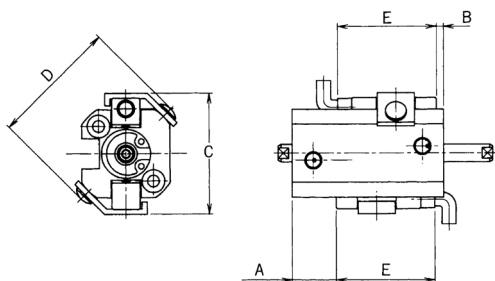
Model No.	R	S	T	U	CC	V	W	X	Y	Z
$\varnothing 63$	M10×1.5 depth 15	M10×1.5 depth 15	83	38	36	28.5	26	11	M18×1.5	27
$\varnothing 80$	M16×2 depth 21	M12×1.75 depth 20	103.5	48.5	44.5	35.5	32.5	13	M22×1.5	32
$\varnothing 100$	M20×2.5 depth 27	M14×2 depth 20	122.5	57.5	46.5	35.5	32.5	16	M26×1.5	41

- Dimensions A and B: Upper value displayed is without magnet
Lower value displayed is with magnet
- Non-standard stroke: For over standard stroke range, please follow the 10mm unit.

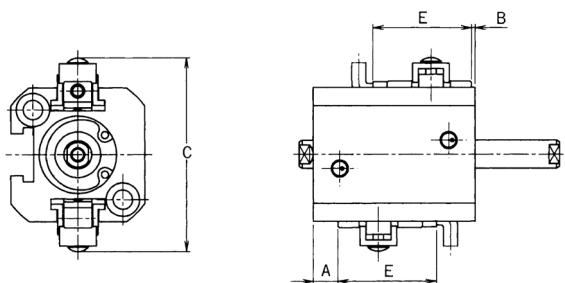
Switch installation position: M type switch/XG

(Unit: mm)

Ø10, Ø16



Ø20, Ø25, Ø32



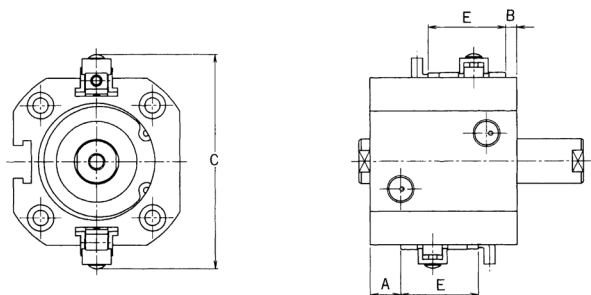
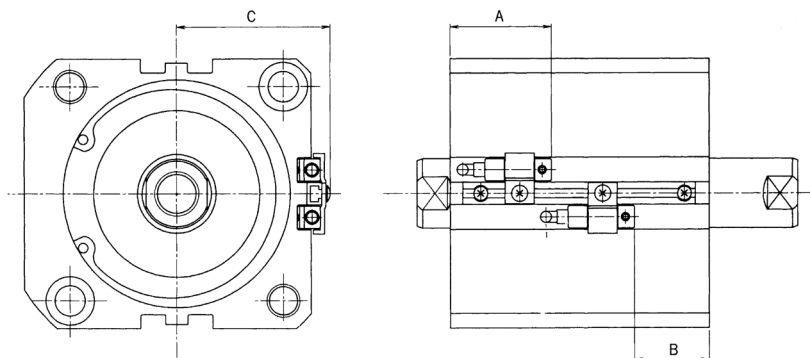
Action	M type reed switch				M type proximity switch			
	A	B	C	D	A	B	C	D
Ø10	6.5	7	37	37	10	10.5	37	37
Ø16	6.5	9.5	40	45	10	13	40	45
Ø20	7	1	54	—	10.5	4.5	54	—
Ø25	8.5	1.5	59	—	12	5	59	—
Ø32	9.5	2.5	67	—	12	6	67	—

Switch	E
M type reed switch	28
M type proximity switch	26.5 (24)

Note : the parenthesized dimension is of the MT-*U type.

Switch installation position: M type switch/XG

(Unit: mm)

 $\varnothing 40$, $\varnothing 50$

 $\varnothing 63$, $\varnothing 80$, $\varnothing 100$


Action	M type reed switch			M type proximity switch		
	A	B	C	A	B	C
$\varnothing 40$	11	4	76	14.5	7.5	76
$\varnothing 50$	12.5	4.5	86	16	8	86
$\varnothing 63$	34	22	47.5	30.5	25.5	47.5
$\varnothing 80$	36.5	27	56.5	33	30.5	56.5
$\varnothing 100$	42	31	67	38.5	34.5	67

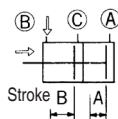
Switch	E
M type reed switch	28
M type proximity switch	26.5 (24)

Note : the parenthesized dimension is of the MT-*U type.

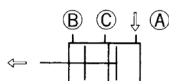
X□D2 Series

Compact Air Cylinder/Single Rod Type Dual Stroke Cylinder
 Ø10, Ø16, Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

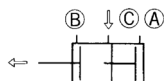
This cylinder is made of two cylinders in series. Strokes can be controlled in the two procedures.



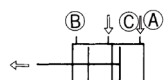
When pressure is supplied from port B, axis will retract back to the stroke between A and B.



When pressure is supplied from port A axis will only be on stroke A.

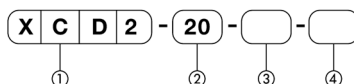


When pressure is supplied from port C axis will only be on stroke B



When pressure is supplied from port A and port C, axis will double output on stroke A

Ordering Instructions



① Magnet

C: No magnet (switch unavailable)

G: Cylinder with switch available with built-in magnet

② Bore(mm)

③ Stroke A(mm)

④ Stroke B(mm)

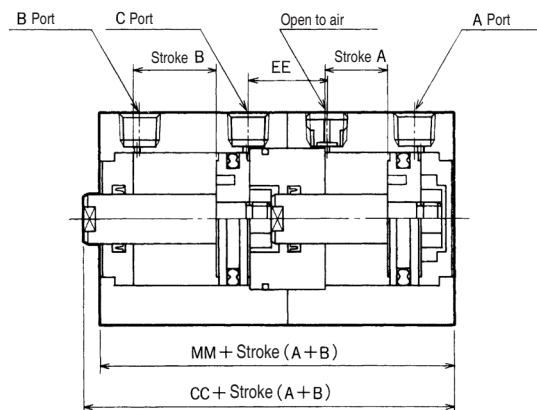
Specifications

Action	Unit	Double-acting
Fluid		Non-lubricated air
Pressure range	MPa [kgf/cm ²]	Ø10-Ø50: 0.1-0.7(1.0-7.1) Ø63-Ø100: 0.05-0.7(0.5-7.1)
Temperature range	°C	5-60
Piston speed range		50-500
Cushion		Unavailable
Mounting		Basic type

Note : converted to SI unit: 0.1Mpa = 1.02kgf/cm²

Construction and Dimensions

(Unit: mm)



Bore	CC	EE	MM
Ø10	43 63	12	39 59
Ø16	46 66	13	42 62
Ø20	46 56	15	42 52
Ø25	49 59	16	45 55
Ø32	54 64	19	50 60
Ø40	61 71	22	57 67
Ø50	65 75	23	61 71
Ø63	92 112	36	82 102
Ø80	109 129	38	97 117
Ø100	130 150	49	116 136

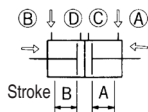


- The size shown in the above-mentioned CC and MM cell represented both the value with magnetic and without. The upper value is the size without magnet, and the lower value is the size with magnet.
- Other shapes and dimensions are the same as those of compact air cylinder/biaxial type.

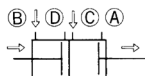
X□D7 Series

Compact Air Cylinder/Double Rod Type Dual Stroke Cylinder
 Ø10, Ø16, Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

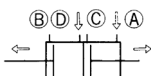
This cylinder is made of two cylinders in series. Strokes can be controlled in the three procedures.



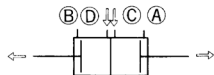
When pressure is supplied to port A and port B, axis will retract back to the original position.



When pressure is supplied to port B and port C, axis will retract to position D and the other to position A.

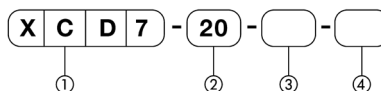


When pressure is supplied to port A and port D, axis will retract back to the stroke A and stretch the stroke A.



When pressure is supplied from port C and port D, axis will be on stroke A and stroke B

Ordering Instructions



① Magnet

C: No magnet (switch unavailable)
 G: Cylinder with switch available with built-in magnet

② Bore (mm)

③ Stroke A (mm)

④ Stroke B (mm)

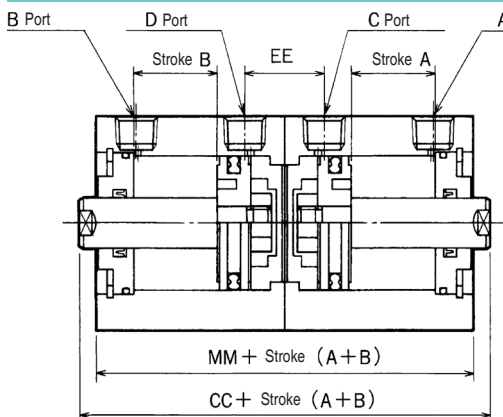
Specifications

Action	Unit	Double-acting
Fluid		Lubricated/Non lubricated air
Pressure range	MPa [kgf/cm ²]	Ø10~Ø50: 0.1~0.7(1.0~7.1) Ø63~Ø100: 0.05~0.7(0.5~7.1)
Temperature range	°C	5~60
Piston speed range		50~500
Cushion		Unavailable
Mounting		Basic type

Note: converted to SI unit: 0.1Mpa = 1.02kgf/cm²

Construction and Dimensions

(Unit: mm)



Bore	CC	EE	MM
Ø10	42 62	12	34 54
Ø16	45 65	13	37 57
Ø20	50 60	15	42 52
Ø25	53 63	16	45 55
Ø32	58 68	19	50 60
Ø40	65 75	22	57 67
Ø50	69 79	23	61 71
Ø63	102 122	29	82 102
Ø80	121 141	32	97 117
Ø100	144 164	37.5	116 136



- The size shown in the above-mentioned CC and MM cell represent both the value with magnetic and without. The upper value is the size without magnet, and the lower value is the size with magnet.
- Other shapes and dimensions are the same as those of compact air cylinder/biaxial type.

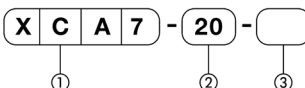
X□A7 Series

Compact Air Cylinder/Adjustable Stroke Cylinder(Adjustable Stroke with Rod extended)
 Ø10, Ø16, Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

Installing brake connector on the front axis to adjust height. When transmitting output shaft, stroke can be adjusted within 0~10mm.



Ordering Instructions



① Magnet

C:No magnet(switch unavailable)

G:Cylinder with switch available
 with built-in magnet

② Bore(mm)

③ Stroke A(mm)

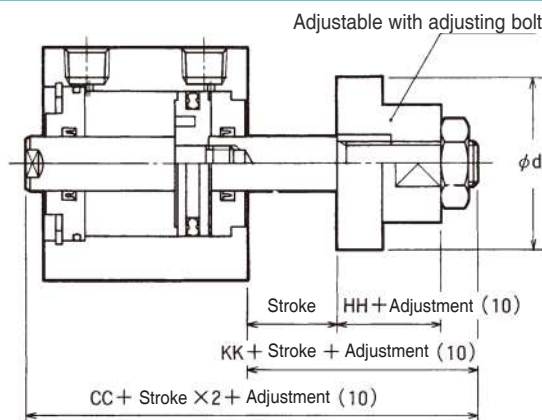
Specifications

Action	Unit	Double-acting
Fluid		Non-lubricated air
Pressure range	MPa[kgf/cm ²]	Ø10~Ø50: 0.1~0.7(1.0~7.1) Ø63~Ø100: 0.05~0.7(0.5~7.1)
Temperature range	°C	5~60
Piston speed range		50~500
Cushion		unavailable
Stroke adjustment		Adjustable with adjusting bolt
Adjustable stroke range		0~10
Mounting		Basic type

Note: converted to SI unit: 0.1Mpa = 1.02kgf/cm²

Construction and Dimensions

(Unit: mm)



Bore	d	CC	HH	KK
Ø10	14	38 48	8	12
Ø16	20	40.5 50.5	9	13
Ø20	24	40 45	10	15
Ø25	29	45.5 50.5	12	19
Ø32	38	50 55	13	21
Ø40	46	58 63	16	26
Ø50	55	64 69	18	30
Ø63	55	96 106	16	30
Ø80	69	117.5 127.5	25	40
Ø100	69	135 145	26	44



- The size shown in the above-mentioned CC cell represented both the value with magnetic and without. The upper value is the size without magnet, and the lower value is the size with magnet.
- Other shapes and dimensions are the same as those of compact air cylinder/biaxial type.

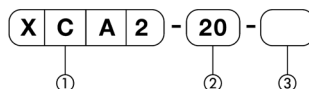
X□A2 Series

Compact Air Cylinder/Adjustable Stroke Cylinder(Adjustable Stroke with Rod Retracted)
 Ø10, Ø16, Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

Installing brake connector on the front axis to adjust height. When transmitting output shaft, stroke can be adjusted within 0~10mm.



Ordering Instructions



① Magnet

C: No magnet (switch unavailable)

G: Cylinder with switch available with built-in magnet

② Bore(mm)

③ Stroke A(mm)

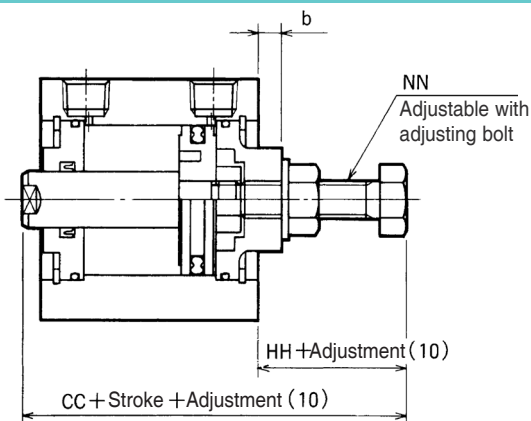
Specifications

Action	Unit	Double-acting
Fluid		Non-lubricated air
Pressure range	MPa[kgf/cm ²]	Ø10~Ø50: 0.1~0.7(1.0~7.1) Ø63~Ø100: 0.1~0.7(1.0~7.1)
Temperature range	°C	5~60
Piston speed range		50~600
Cushion		unavailable
Stroke adjustment		Adjustable with adjusting bolt
Adjustable stroke range		0~10
Mounting		Basic type

Note: converted to SI unit: 0.1Mpa = 1.02kgf/cm²

Construction and Dimensions

(Unit: mm)



Bore	b	CC	HH	KK
Ø10	0	34.5 44.5	12.5	M4×0.7
Ø16	0	35.5 45.5	12	M5×0.8
Ø20	4	46 51	21	M6×1.0
Ø25	4	48.5 53.5	25	M8×1.25
Ø32	5	51.5 56.5	21.5	M8×1.25
Ø40	6.5	60 65	27	M10×1.5
Ø50	9	68.5 73.5	33.5	M12×1.75
Ø63	3.5	91.5 101.5	35.5	M16×2
Ø80	6	112.5 122.5	47	M20×2
Ø100	9	135.5 145.5	58.5	M24×2.5



- The size shown in the above-mentioned CC cell represented both the value with magnetic and without. The upper value is the size without magnet, and the lower value is the size with magnet.
- Other shapes and dimensions are the same as those of compact air cylinder/biaxial type.

