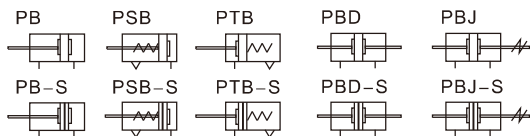


Pen size cylinder

PB Series



Symbol



Product feature

1. JIS standard is implemented.
2. It belongs to mini cylinder that has compact structure, small volume and light weight.
3. The guide precision of piston rod is high and no additional lubricant is needed.
4. PB4 and PB6 can only be front mounted. PB10, PB12 and PB16 has the flexibility of both front and rear mount.
5. Piston rod stainless steel barrel make the cylinder adapt general corrosive working environment.
6. There are cylinders and accessories with several specifications for installation for your choice.
7. It has small cylinder diameter and quick reaction, suitable for the working environment with higher frequency.

Specification

Bore size(mm)	4	6	10	12	16
Acting type	Double acting□ Single acting_Push		Double acting、Single acting		
Fluid	Air(to be filtered by 40 μm filter element)				
Operating pressure	Double acting	0.2~0.7MPa(28~100psi)(2.0~7.0bar)		0.15~0.7MPa(22~100psi)(1.5~7.0bar)	
	Single acting	0.3~0.7MPa(36~100psi)(3.0~7.0bar)		0.2~0.7MPa(28~100psi)(2.0~7.0bar)	
Proof pressure	1.2MPa(175psi)(12bar)				
Temperature °C	-20~70				
Speed range mm/s	50~500		50~800		
Stroke tolerance	+0.5 0		0~150 ^{+1.0} ₀ >150 ^{+1.5} ₀		
Cushion type	No cushion		Bumper		
Port size	Tube		M5 × 0.8		

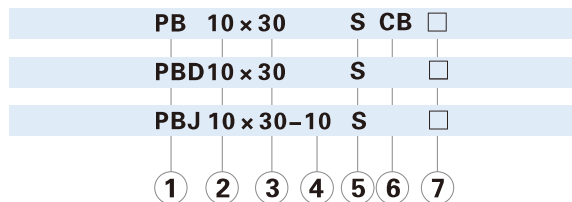
Add) Refer to P451 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)										Max. std stroke	Max. stroke	
PB	4	5 10 15 20										20	20
	6	10 15 20 25 30 40 50 60										60	60
	10	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200										200	200
	12	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200										200	300
	16	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300										300	300
PBD	6	5 10 15 20 25 30 40 50										50	-
PBD PBJ	10	10 15 20 25 30 40 50 60 75 80 100										100	-
	12	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200										200	-
	16	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200										200	-
PSB PTB	4	5 10 15 20										-	-
	6	5 10 15 20 25 30 40 50 60										-	-
	10	5 10 15 20 25 30 40 50 60										-	-
	12	5 10 15 20 25 30 40 50 60										-	-
PTB	16	5 10 15 20 25 30 40 50 60										-	-

[Note] Consult us for non-standard stroke.

Ordering code



① Model	② Bore size	③ Stroke	④ Adjustable stroke	⑤ Magnet	⑥ Back cover			⑦ Mounting type[Note 1]					
PB: Pen size cylinder (Double acting) PSB: Pen size cylinder (Single acting_push)	4	Refer to stroke table for details	No this code	Blank: Without magnet S: With magnet	Model	Back cover		Model	Mounting type				
	6					CB: Double clevis	Bore size			PB PSB PTB	Blank: No accessories FA: FA type LB: LB type CJ: CJ type		
	10					U: Perpendicular 90°	Φ10~Φ16						
	12					R: Axial air-in	Φ6~Φ16						
16	CB: Double clevis				Φ10~Φ16								
PTB: Pen size cylinder (Single acting_pull) PBD: Pen size cylinder (Double rod)	6				10 20 30 40 50 75 100			PTB	R: Axial air-in				
	10									Φ6~Φ16			
PBJ: Pen size cylinder (Adjustable stroke)	10							PBD PBJ	No this code			PBD PBJ	
	12									-			Blank: No accessories FA: FA type LB: LB type
	16									-			

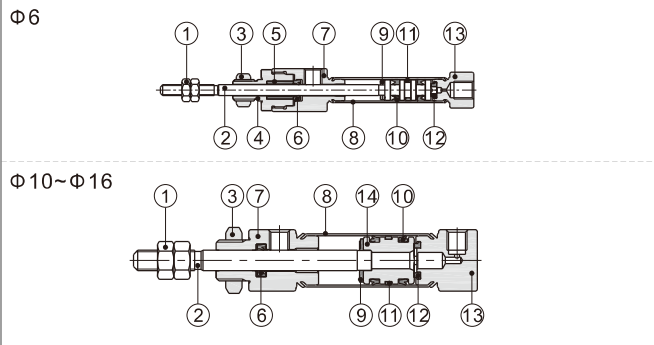
[Note 1] Please refer to page 230 for accessory parts.

Pen size cylinder

PB Series

Inner structure and material of major parts

Double acting without magnet

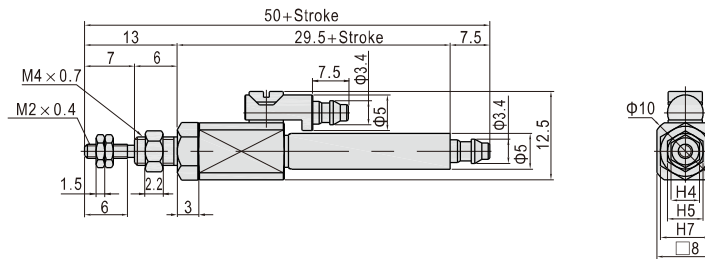


NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	SUS304
3	Front cover nut	Carbon steel
4	Packing retainer	Brass(Φ4)\Aluminum alloy(Others)
5	Bushing	Wear resistant material
6	Front cover O-ring	NBR
7	Front cover	Brass(Φ4)\Aluminum alloy(Others)
8	Barrel	Bronze(Φ4)\SUS304(Others)
9	Bumper	TPU
10	Piston seal	NBR
11	Wear ring	Wear resistant material
12	Bumper	TPU
13	Back cover	Brass(Φ4)\Aluminum alloy(Others)

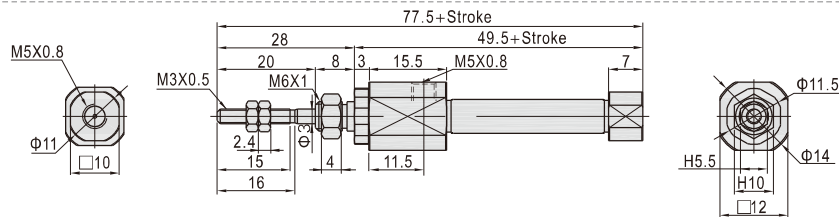
Dimensions

PB

Φ4(Without magnet)(R Type)



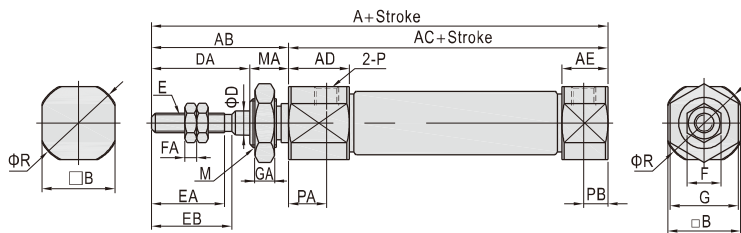
Φ6(R Type)



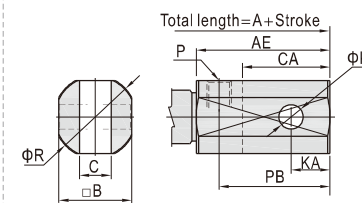
Note) Only axial air intake type of back cover is available for Φ4, Φ6mm bore size.

Φ10~Φ16

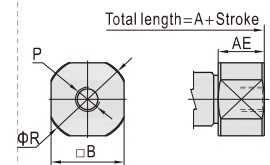
U Type(Perpendicular 90°)



CB Type(Double clevis)



R Type(Axial air-in)



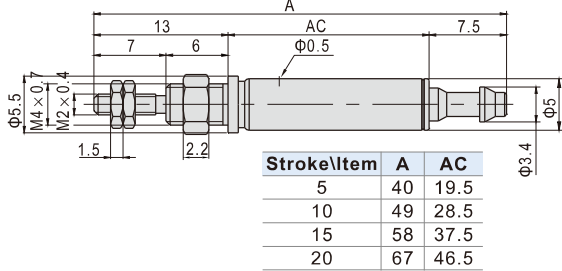
Bore size\Item	A			AB	AC	AD	AE		B	C	CA	D	DA	E	EA	EB	F	FA	G	GA	K	KA	M	MA	P	PA	PB		R
	U	CB	R				U/R	CB																			U	CB	
10	74	87	74	28	46	11.5	9.5	22.5	12	3.3	13	4	20	M4×0.7	15	16.5	7	2.2	11	4	3.3	5	M8×1.0	8	M5×0.8	7.5	5	18	14
12	74	92	74	28	46	11.5	9.5	27.5	15	6.6	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	7.5	5	23	17
16	76	94	76	28	48	12	9.5	27.5	18	6.6	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	7.5	5	23	20

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

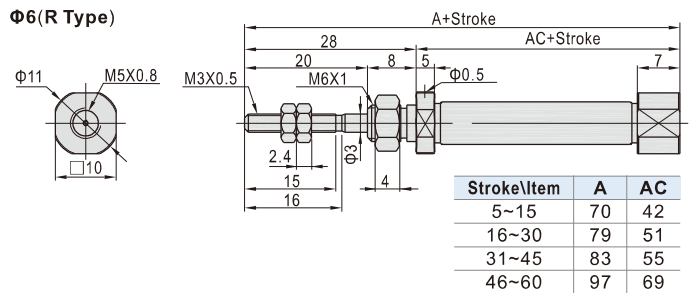
Pen size cylinder

PB Series

PSB $\Phi 4$ (Without magnet)(R Type)



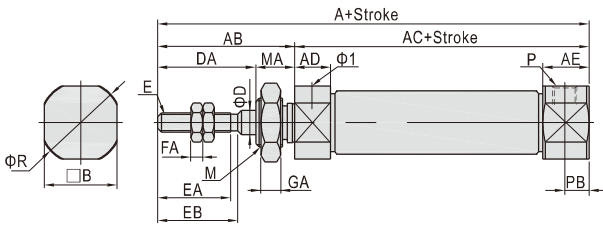
$\Phi 6$ (R Type)



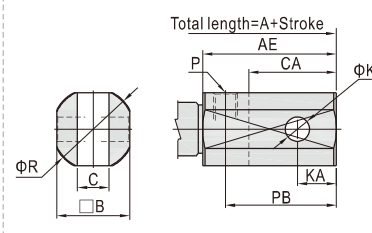
Note) Only axial air intake type of back cover is available for $\Phi 4$, $\Phi 6$ mm bore size.

$\Phi 10 \sim \Phi 16$

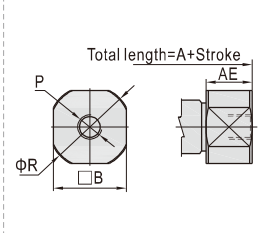
U Type(Perpendicular 90°)



CB Type(Double clevis)



R Type(Axial air-in)

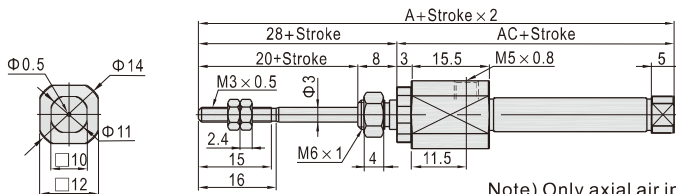


Bore size\Item	A																AB	AC				AD	AE		
	U				CB				R									U/R	CB	B	C				
Back cover	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	-	-	-	-	
Stroke	73.5	81	93	105	86.5	94	106	118	73.5	81	93	105	28	45.5	53	65	77	5	9.5	22.5	12	3.3			
	73.5	81	93	105	91.5	99	111	123	73.5	81	93	105	28	45.5	53	65	77	5	9.5	27.5	15	6.6			
	74.5	83	95	107	92.5	101	113	125	74.5	83	95	107	28	46.5	55	67	79	5	9.5	27.5	18	6.6			

Bore size\Item	CA	D	DA	E	EA	EB	F	FA	G	GA	K	KA	M	MA	P	PB		
																U	CB	R
Back cover	13	4	20	M4×0.7	15	16.5	7	2.2	11	4	3.3	5	M8×1.0	8	M5×0.8	5	18	14
	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	5	23	17
	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	5	23	20

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

PTB $\Phi 6$ (R Type)

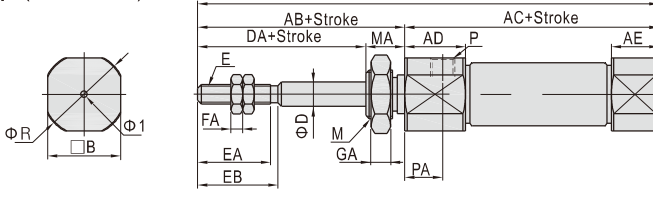


Stroke\Item	A	AC
5~15	82	54
16~30	91	63
31~45	95	67
46~60	109	81

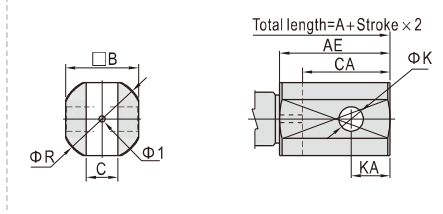
Note) Only axial air intake type of back cover is available for $\Phi 6$ mm bore size.

$\Phi 10 \sim \Phi 16$

R Type(Axial air-in)



CB Type(Double clevis)



Bore size\Item	A												AB	AC				AD			
	R				CB																
Back cover	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	5~15	16~30	31~45	46~60	
Stroke	76.5	84	96	108	89.5	97	109	121	28	48.5	56	68	80	11.5							
	76.5	84	96	108	94.5	102	114	126	28	48.5	56	68	80	11.5							
	77.5	86	98	110	95.5	104	116	128	28	49.5	58	70	82	12							

Bore size\Item	AE	R	CB	B	C	CA	D	DA	E	EA	EB	F	FA	G	GA	K	KA	M	MA	P	PA	R
	5	23	15	6.6	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	7.5	17	
	5	23	18	6.6	18	5	20	M5×0.8	15	16.5	8	4	14	4	5	8	M10×1.0	8	M5×0.8	7.5	20	

Note) $\Phi 10 \sim \Phi 16$ bore sized don't have perpendicular(90°) air-in.

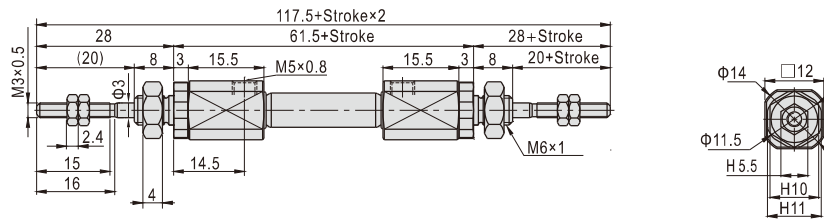
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

Pen size cylinder

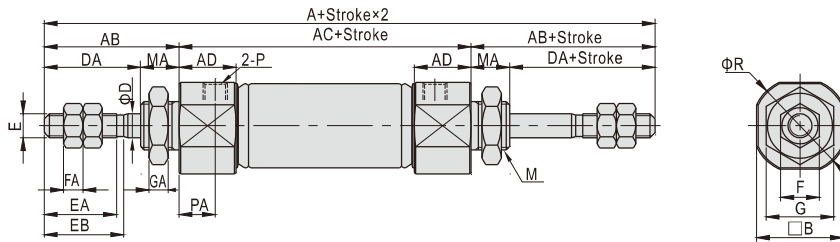
PB Series

PBD

Φ6

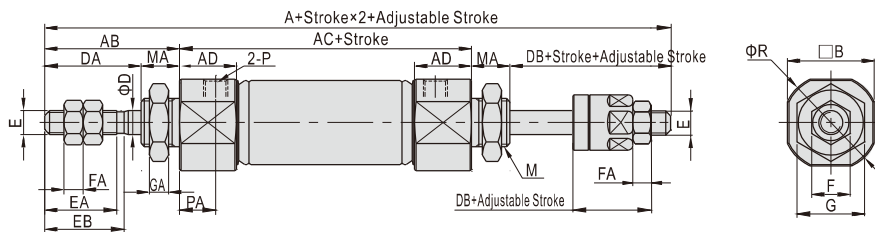


Φ10~Φ16



PBJ

Φ10~Φ16



Bore size\Item	A		AB	AC	AD	B	D	DA	DB	E	EA	EB	F	FA	G	GA	M	MA	P	PA
	PBD	PBJ																		
10	104	99	28	48	11.5	12	4	20	15	M4×0.7	15	16.5	7	2.2	11	4	M8×1.0	8	M5×0.8	7.5
12	104	101	28	48	11.5	15	5	20	17	M5×0.8	15	16.5	8	4	14	4	M10×1.0	8	M5×0.8	7.5
16	107	104	28	51	12	18	5	20	17	M5×0.8	15	16.5	8	4	14	4	M10×1.0	8	M5×0.8	7.5

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

Pen size cylinder

PB Series—Accessories

List for ordering code of accessories

Accessories Bore size	Mounting accessories			Knuckle				Sensor switch	
	LB	FA	CJ	I	Y	F	U	CMSG	DMSG(S)
4	-	-	-	-	-	-	-	-	-
6	F-PB6LB	F-PB6FA	-	F-PB6I	F-PB6Y	F-M3X040F	-	CMSG	DMSG(S)
10	F-PB10LB	F-PB10FA	F-PB10CJ	F-PB10I	F-PB10Y	F-M4X070F	F-M4X070U		
12	F-PB12LB	F-PB12FA	F-PB12CJ	F-PB12I	F-PB12Y	F-M5X080F	F-M5X080U		
16			F-PB16CJ						

Accessory selection

Accessories Cylinder model	Mounting accessories			Knuckle				Sensor switch	
	LB	FA	CJ	I	Y	U [1]	F	CMSG	DMSG(S)
PB	Standard	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●
PSB	Standard	●	●	●	●	●	●	×	×
PTB	With magnet	●	●	●	●	●	●	●	●
PBD	Standard	●	●	×	●	●	●	×	×
PBJ	With magnet	●	●	×	●	●	●	●	●

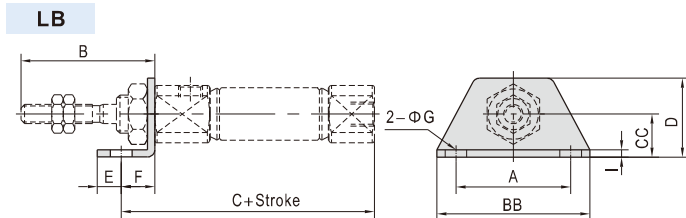
Material of accessories

Accessories Bore size	Mounting accessories			Knuckle			
	LB	FA	CJ	I	Y	F	U
4~16	△	△	△	□	□	□	□

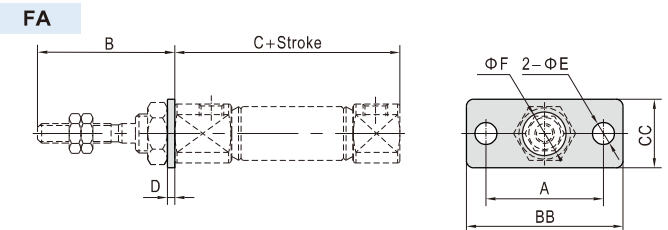
△—SPCC; □—Carbon steel;

[Note 1] Please refer to P447~450 for knuckle detail.

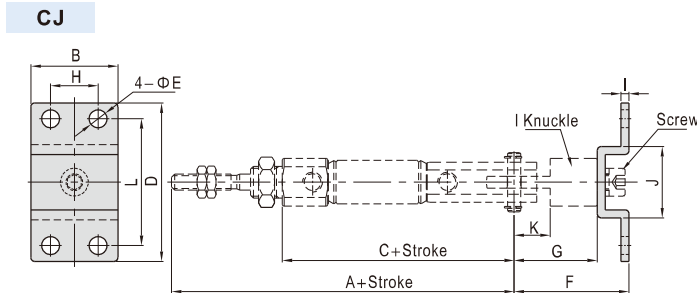
Dimensions



Bore size\Item	A	B	BB	C	CC	D	E	F	G	I
6	24	28	32	56.5	9	16.5	5	7	4.5	1.5
10	24	28	32	53	9	16.5	5	7	4.5	2
12	33	28	42	55	14	25	6	9	5.5	2.5
16	33	28	42	57	14	25	6	9	5.5	2.5

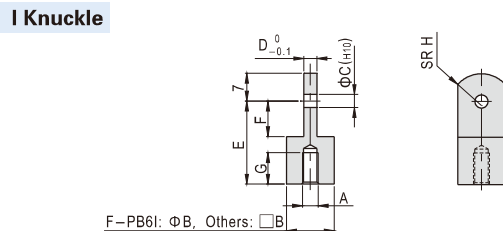


Bore size\Item	A	B	BB	C	CC	D	E	F
6	24	28	32	49.5	14	1.5	4.5	6.3
10	24	28	32	46	14	2	4.5	8.3
12	33	28	42	46	20	3	5.5	10.3
16	33	28	42	48	20	3	5.5	10.3



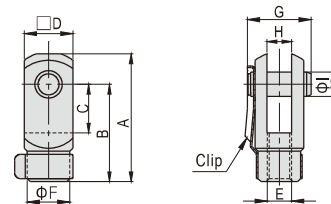
Bore size\Item	A	B	C	D	E	F	G	H	I	J	K	L
10	82	22	54	40	4.5	29	21	12	2	18	9.1	32
12	84	28	56	48	5.5	35	25	16	2.5	20.4	14.1	38
16	86	28	58	48	5.5	35	25	16	2.5	20.4	14.1	38

[Note] CJ type accessories includes I knuckle and PIN. It need to be matched with I knuckle and with relevant PIN.



Bore size\Item	A	B	C	D	E	F	G	H
F-PB6I	M3×0.5	6	3	3	12	5	5	5
F-PB10I	M4×0.7	12	3.3	3	21	9.1	7.5	8
F-PB12I	M5×0.8	12	5	6.3	25	14.1	7.5	12

Y Knuckle



Bore size\Item	A	B	C	D	E	F	G	H	I
F-PB6Y	15.5	12	5	6	M3×0.5	6	9	3	3
F-PB10Y	28	21	10.2	12	M4×0.7	10	15.5	3.2	3.3
F-PB12Y	28	21	10.2	12	M5×0.8	10	15.5	6.5	5