

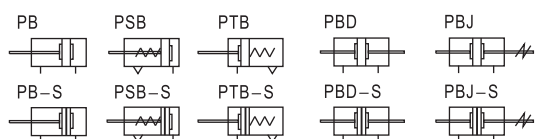
Pen size cylinder



PB Series



Symbol



PB

Product feature

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

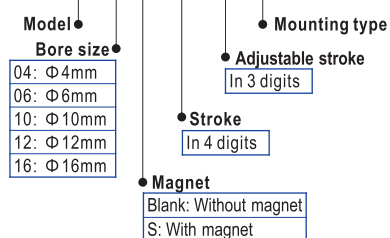
Ordering code

Model can to be changed Ordering code. Example:

Production type: PBJ
 Bore size: 16mm
 Stroke: 30mm
 Adjustable stroke: 10mm
 Magnet: With magnet
 Mounting type: LB

Model: PBJ-16 × 30-10-S-LB

Ordering code: PBJ 16 S 0030 010 LB



Specification

Bore size(mm)	4	6	10	12	16
Acting type	Double acting, Single acting_push		Double acting, Single acting_push, Single acting_pull		
Fluid	Air(to be filtered by 40 μ m filter element)				
Operating pressure	Double acting	0.2~0.7MPa(28~100psi)(2.0~7.0bar)		0.1~0.7MPa(15~100psi)(1.0~7.0bar)	
	Single acting	0.3~0.7MPa(36~100psi)(3.0~7.0bar)		0.2~0.7MPa(28~100psi)(2.0~7.0bar)	
Proof pressure	1.1MPa(160psi)(11bar)				
Temperature °C	-20~70				
Speed range mm/s	50~500		50~800		
Stroke tolerance	+0.5 0		0~150 ^{+1.0} ₀ >150 ^{+1.4} ₀		
Cushion type	No cushion		Bumper		
Port size	Tube		M5 × 0.8		

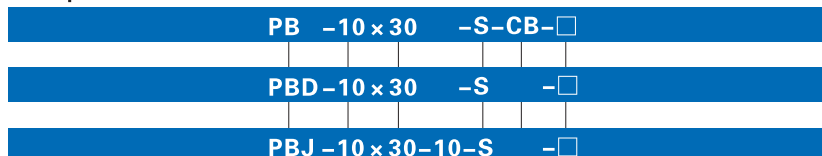
Add) Refer to P403-426 for detail of sensor switch.

Stroke

Bore size (mm)	Standard stroke (mm)															Max. std stroke	Max. stroke			
	4	5	10	15	20	25	30	40	50	60	75	80	100	125	150			160	175	200
Double acting	4	5	10	15	20	25	30	40	50	60									20	20
	6	10	15	20	25	30	40	50	60	75	80	100	125	150	160	175	200	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
Single acting	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								-	-	
	16	5	10	15	20	25	30	40	50	60								-	-	

Note) Consult us for non-standard stroke.

Explain of model



Model

Model	Model
PB: Pen size cylinder(Double acting)	Blank: No accessories
PSB: Pen size cylinder(Single acting_push)	FA: FA type
PTB: Pen size cylinder(Single acting_pull)	LB: LB type
PBD: Pen size cylinder(Double rod)	CJ: CJ type
PBJ: Pen size cylinder(Adjustable stroke)	Blank: No accessories
	FA: FA type
	LB: LB type

Bore size

Model	Bore size
PB, PSB	4 6 10 12 16
PTB, PBD	6 10 12 16
PBJ	10 12 16

Stroke

Refer to stroke table for details

Adjustable stroke

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

Mounting type

Model	Mounting type
PB	Blank: No accessories
PSB	FA: FA type
PTB	LB: LB type
	CJ: CJ type
PBD	Blank: No accessories
PBJ	FA: FA type
	LB: LB type

Back cover

Model	Back cover	Bore size
PB	CB: Double clevis	Φ10~Φ16
	U: Perpendicular 90°	Φ10~Φ16
PSB	R: Axial air-in	Φ6~Φ16
PTB	CB: Double clevis	Φ10~Φ16
	R: Axial air-in	Φ6~Φ16
PBD, PBJ	No this code	

Magnet

Bore size	Magnet
Φ4	Blank: Without magnet
Φ6~Φ16	Blank: Without magnet
	S: With magnet

① Please refer to page 238 for accessory parts.



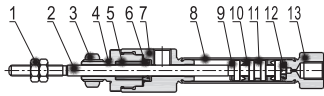
Pen size cylinder



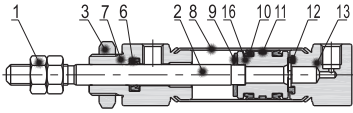
PB Series

Inner structure and material of major parts

Double acting without magnet(Φ6)



Double acting without magnet(Φ10~Φ16)

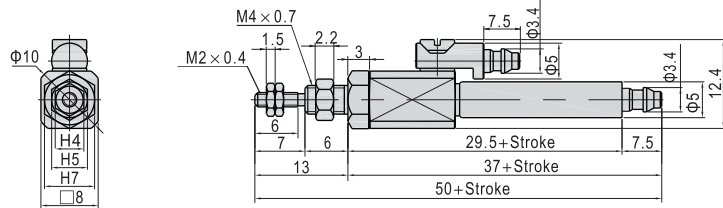


NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	SUS304
3	Front cover nut	Carbon steel
4	Packing retainer	Brass(Φ4)\Aluminum alloy(Others)
5	Bushing	Wear resistant material
6	Front cover O-ring	NBR
7	Front cover	Brass(Φ4)\Aluminum alloy(Others)
8	Barrel	Bronze(Φ4)\SUS304(Others)
9	Bumper	TPU
10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

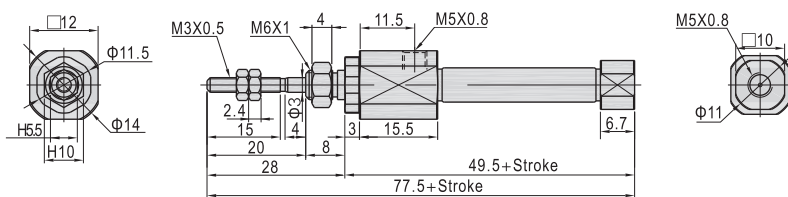
Dimensions

PB

Φ4(Without magnet)(R Type)



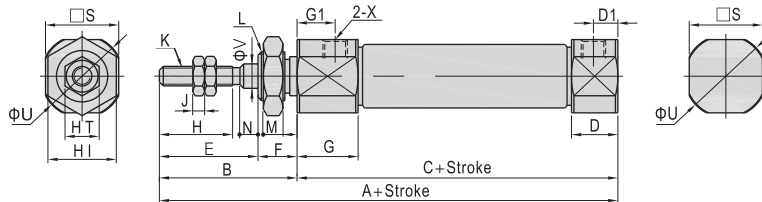
Φ6(R Type)



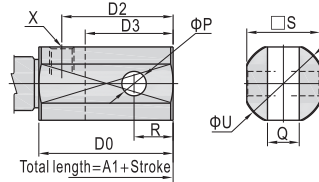
Note) Only axial air intake type of back cover is available for Φ4, Φ6mm bore size.

Φ10~Φ16

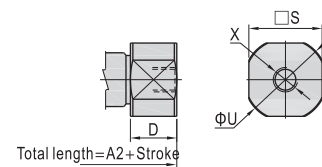
U Type(Perpendicular 90°)



CB Type(Double clevis)



R Type(Axial air-in)



Bore size \ Item	A	A1	A2	B	C	D	D0	D1	D2	D3	E	F	G	G1	H	I	J
10	74	87	74	28	46	9.5	22.5	5	18	13	20	8	11.5	7.5	15	11	2.2
12	74	92	74	28	46	9.5	27.5	5	23	18	20	8	11.5	7.5	15	14	4
16	76	94	76	28	48	9.2	27.2	4.8	22.8	18	20	8	11.8	7.5	15	14	4

Bore size \ Item	K	L	M	N	P	Q	R	S	T	U	V	X
10	M4×0.7	M8×1.0	4	3.5	3.3	3.3	5	12	7	14	4	M5×0.8
12	M5×0.8	M10×1.0	4	3.5	5	6.6	8	15	8	17	5	M5×0.8
16	M5×0.8	M10×1.0	4	3.5	5	6.6	8	18	8	20	5	M5×0.8

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



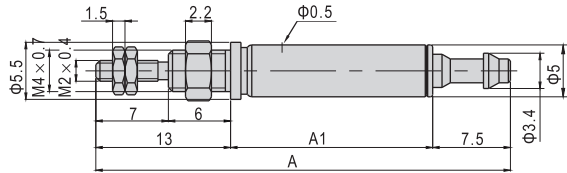
Pen size cylinder



PB Series

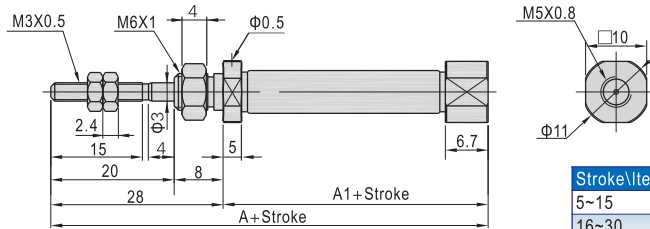
PSB

Φ4(Without magnet)(R Type)



Stroke\Item	A	A1
5	40	19.5
10	49	28.5
15	58	37.5
20	67	46.5

Φ6(R Type)

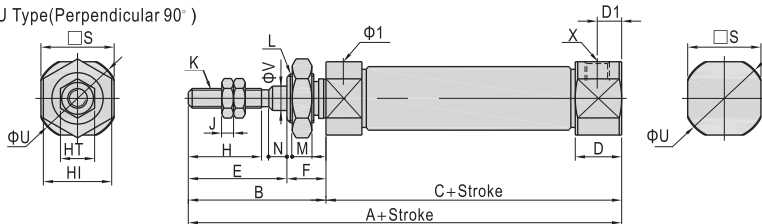


Stroke\Item	A	A1
5~15	70	42
16~30	79	51
31~45	83	55
46~60	97	69

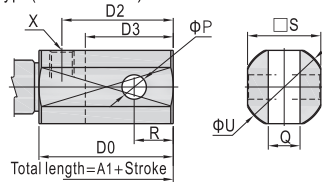
Note) Only axial air intake type of back cover is available for Φ4, Φ6mm bore size.

Φ10~Φ16

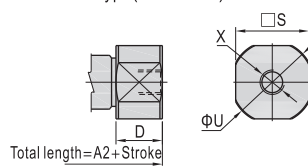
U Type(Perpendicular 90°)



CB Type(Double clevis)



R Type(Axial air-in)



Bore size \ Item	A				A1				A2			
	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 10	73.5	81	93	105	86.5	94	106	118	73.5	81	93	105
12	73.5	81	93	105	91.5	99	111	123	73.5	81	93	105
16	74.5	83	95	107	92.5	101	113	125	74.5	83	95	107

Bore size \ Item	Stroke	C				D	D0	D1	D2	D3	E	F	H	I	J
		5~15	16~30	31~45	46~60										
10	28	45.5	53	65	77	9.5	22.5	5	18	13	20	8	15	11	2.2
12	28	45.5	53	65	77	9.5	27.5	5	23	18	20	8	15	14	4
16	28	46.5	55	67	79	9.2	27.2	4.8	22.8	18	20	8	15	14	4

Bore size \ Item	Stroke	K	L	M	N	P	Q	R	S	T	U	V	X
12	M5×0.8	M10×1.0	4	3.5	5	6.6	8	15	8	17	5	M5×0.8	
16	M5×0.8	M10×1.0	4	3.5	5	6.6	8	18	8	20	5	M5×0.8	

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

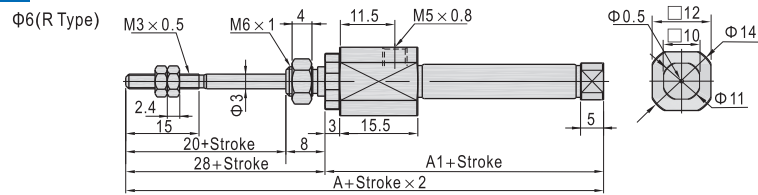


Pen size cylinder

PB Series



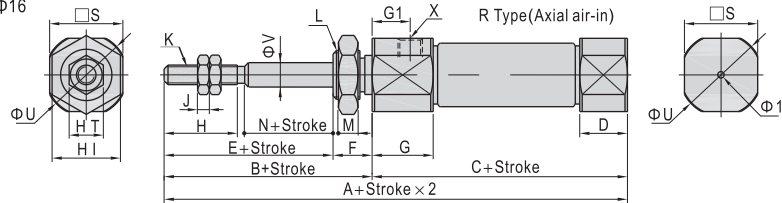
PTB



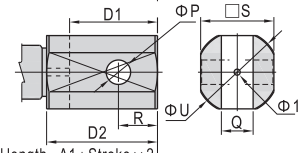
Stroke\Item	A	A1
5-15	82	54
16-30	91	63
31-45	95	67
46-60	109	81

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

Φ10~Φ16



CB Type(Double clevis)



Note) Φ10~Φ16 bore sized don't have perpendicular(90°) air-in.

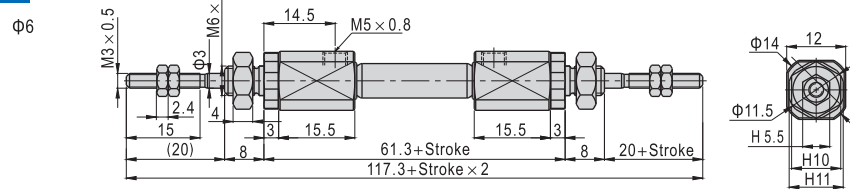
Total length=A1+Stroke x 2

Bore size \ Item	A				A1				B	D	C					
	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 10	76.5	84	96	108	89.5	97	109	121	28	5	48.5	56	68	80		
12	76.5	84	96	108	94.5	102	114	126	28	5	48.5	56	68	80		
16	77.5	86	98	110	95.5	104	116	128	28	5	49.5	58	70	82		

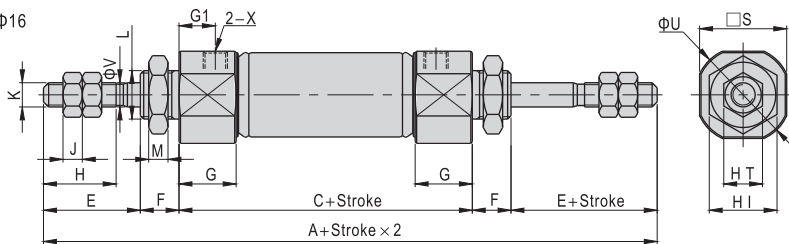
Bore size \ Item	D1	D2	E	F	G	G1	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	X
10	13	18	20	8	11.5	7.5	15	11	2.2	M4x0.7	M8x1.0	4	3.5	3.3	3.3	5	12	7	14	4	M5x0.8
12	18	23	20	8	11.5	7.5	15	14	4	M5x0.8	M10x1.0	4	3.5	5	6.6	8	15	8	17	5	M5x0.8
16	18	23	20	8	11.8	7.5	15	14	4	M5x0.8	M10x1.0	4	3.5	5	6.6	8	18	8	20	5	M5x0.8

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

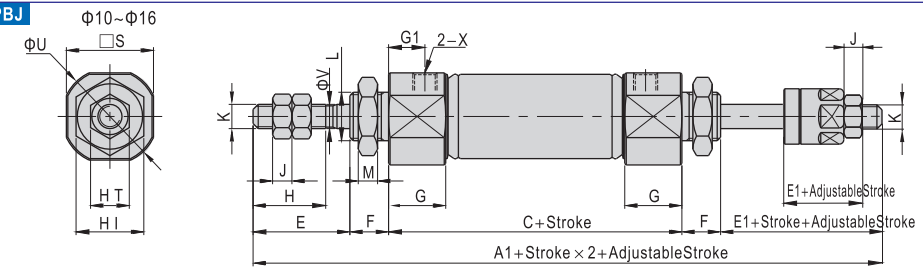
PBD



Φ10~Φ16



PBJ



Bore size \ Item	A	A1	C	E	E1	F	G	G1	H	I	J	K	L	M	S	T	V	X
10	104	98.7	48	20	14.7	8	11.5	7.5	15	11	2.2	M4x0.7	M8x1.0	4	12	7	4	M5x0.8
12	104	101	48	20	17	8	11.5	7.5	15	14	4	M5x0.8	M10x1.0	4	15	8	5	M5x0.8
16	106.6	103.6	50.6	20	17	8	11.8	7.5	15	14	4	M5x0.8	M10x1.0	4	18	8	5	M5x0.8

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



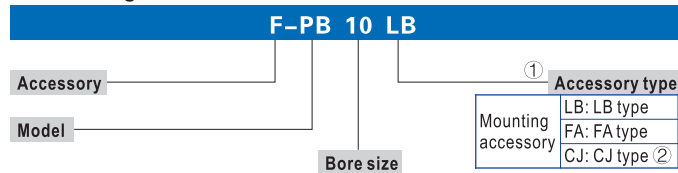
PB

Pen size cylinder



Accessories

Ordering code



- ① Please refer to accessory list for selection and ordering information.
- ② CJ is attached with relevant PIN.

Accessory selection

Accessories	Cylinder model	PB		PSB, PTB		PBD, PBJ	
		Standard	With magnet	Standard	With magnet	Standard	With magnet
Mounting accessory	LB	●	●	●	●	●	●
	FA	●	●	●	●	●	●
	CJ	●	●	●	●	×	×
Knuckle ①	I	●	●	●	●	●	●
	Y	●	●	●	●	●	●
	F	●	●	●	●	●	●
	U	●	●	●	●	●	●
Sensor switch ②	CS1-M	×	●	×	●	×	●
	DS1-M	×	●	×	●	×	●

- ① Please refer to P397-402 for knuckle detail.
- ② Please refer to P403-426 for detail of sensor switch.

Material of accessories

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

△—SPCC, □—Carbon steel.

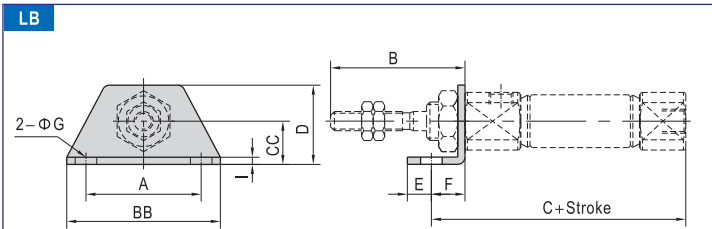
List for ordering code of accessories

Bore size	Accessories		Mounting accessory	
	LB	FA	CJ	
4	-	-	-	-
6	F-PB6LB	F-PB6FA	-	-
10	F-PB10LB	F-PB10FA	F-PB10CJ	
12			F-PB12CJ	
16	F-PB12LB	F-PB12FA	F-PB16CJ	

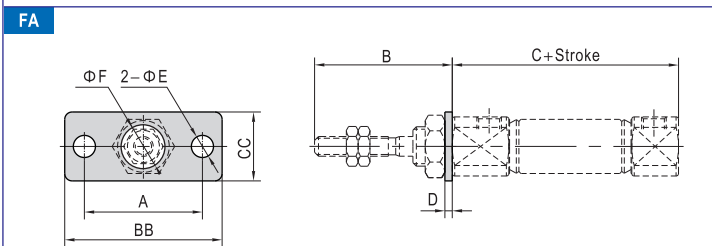
Bore size	Knuckle			
	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
4	-	-	-	-
6	-	-	F-M03040F	-
10	F-M04070IB	F-M04070YB	F-M04070F	F-M04070U
12				
16	F-M05080IB	F-M05080YB	F-M05080F	F-M05080U

Bore size	Accessories		Sensor switch	
	CS1-M□	DS1-M□		
4	-	-	-	-
6	CS1-M-S06	DS1-M-S06		
10	CS1-M-S10	DS1-M-S10		
12	CS1-M-S12	DS1-M-S12		
16	CS1-M-S16	DS1-M-S16		

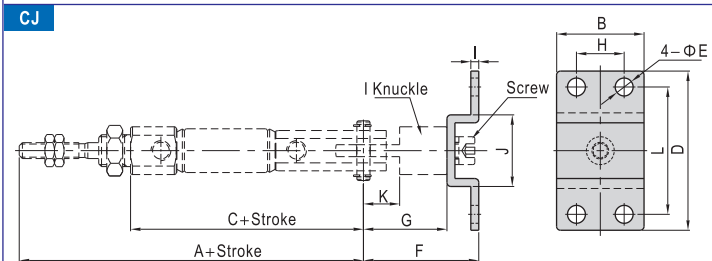
Dimensions



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	1.5
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	1.5	4.5	8.3
12	33	28	42	46	20	2.5	5.5	10.3
16	33	28	42	48	20	2.5	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 need to be matched with I joint and I joint has to be ordered individually.

