

Pen size cylinder

PBR Series

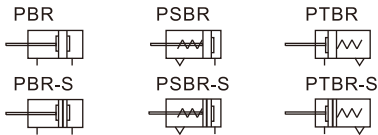


Specification

Bore size(mm)	6	8	10	12	16
Acting type	Double acting、Single acting				
Fluid	Air(to be filtered by 40μm filter element)				
Operating pressure	Double acting	0.15~0.7MPa(22~100psi)(1.5~7.0bar)			
	Single acting	0.2~0.7MPa(28~100psi)(2.0~7.0bar)			
Proof pressure	1.2MPa(175psi)(12bar)				
Temperature °C	-20~70				
Speed range mm/s	50~800				
Stroke tolerance	0~150 ^{+1.0} ₀ >150 ^{+1.5} ₀				
Cushion type	Bumper				
Port size	M5×0.8				

Add) Refer to P365 for detail of sensor switch.

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. Screw holes are designed for mounting directly at the front cover without any accessories.
5. Piston rod stainless steel barrel make the cylinder adapt general corrosive working environment.
6. It has small cylinder diameter and quick reaction, suitable for the working environment with higher frequency.

Stroke

Bore size (mm)	Standard stroke (mm)	Max.std	Max.
		stroke	stroke
PBR	6	10 15 20 25 30 40 50 60	60 60
	8	10 15 20 25 30 40 50 60 75 80 100 125 150	150 200
	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
PSBR PTBR	6	5 10 15 20 25 30 40 50 60	- -
	8	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 75	- -
	16	5 10 15 20 25 30 40 50 60 75 100	- -

[Note] Consult us for non-standard stroke.

Ordering code

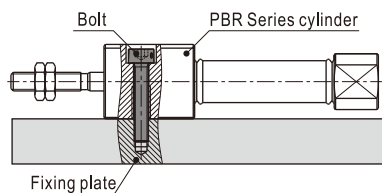
PBR 16 × 30 S U



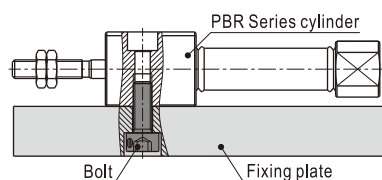
① Model	② Bore size	③ Stroke	④ Magnet	⑤ Back cover		
PBR: Pen size cylinder(Double acting) PSBR: Pen size cylinder (Single acting_push) PTBR: Pen size cylinder(Single acting_pull)	6	Refer to stroke table for details	Blank: Without magnet S: With magnet	Model	Back cover	Bore size
	8			PBR	U: Perpendicular 90°	Φ8~Φ16
	10			PSBR	R: Axial air-in	Φ6~Φ16
	12			PTBR	R: Axial air-in	Φ6~Φ16
16						

Mounting type

Top bolt mounting



Bottom bolt mounting



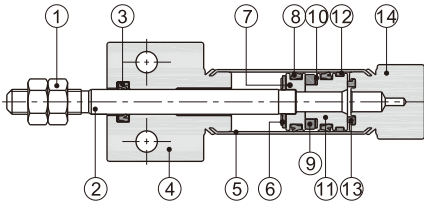
Note: Select appropriate bolt based on actual working conditions when mounting from the bottom.

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Inner structure and material of major parts

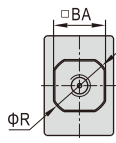
Double acting with magnet



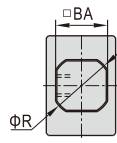
NO.	Item	Material	NO.	Item	Material
1	Rod nut	Carbon steel	8	Piston seal	NBR
2	Piston rod	SUS304	9	Magnet	Sintered metal(Neodymium-iron-boron)
3	Front cover O-ring	NBR	10	Magnet washer	NBR
4	Front cover	Aluminum alloy	11	Magnet holder	SUS303/Aluminum alloy
5	Barrel	SUS316L	12	Wear ring	Wear resistant material
6	Bumper	TPU	13	Bumper	TPU
7	Piston	SUS303/Aluminum alloy	14	Back cover	Aluminum alloy

Dimensions

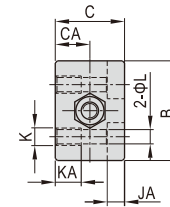
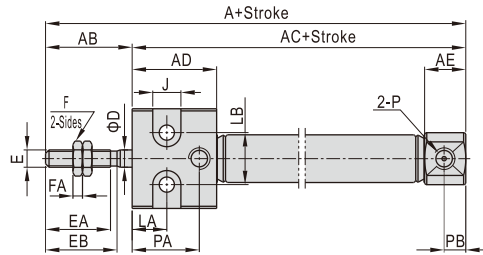
PBR



R Type
(Axial air-in)



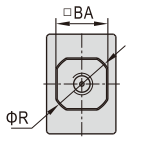
U Type
(Perpendicular 90°)



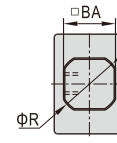
Bore size\Item	A	AB	AC	AD	AE	B	BA	C	CA	D	E	EA	EB	F	FA	J	JA	K	KA	L	LA	LB	P	PA	PB	R
6	70	20	50	19	7	17	10	14	7	3	M3×0.5	15	16	5.5	2.4	6.5	4	M4×0.7	7	3.3	8	10	M5×0.8	14	-	11
8	74	20	54	19.5	9.5	19	12	16	8	4	M4×0.7	15	16.5	7	3	6.5	4	M4×0.7	7	3.3	8	12	M5×0.8	15	5	14
10	74	20	54	19.5	9.5	19	12	16	8	4	M4×0.7	15	16.5	7	3	6.5	4	M4×0.7	7	3.3	8	12	M5×0.8	15.5	5	14
12	74	20	54	19.5	9.5	24	15	20	10	5	M5×0.8	15	16.5	8	4	8	5	M5×0.8	8	4.3	8	16	M5×0.8	15.5	5	17
16	76	20	56	20	9.5	24	18	20	10	6	M5×0.8	15	16.5	8	4	8	5	M5×0.8	8	4.3	8	16	M5×0.8	15.5	5	20

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Only axial air intake type of back cover is available for Φ6mm bore size.

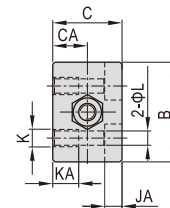
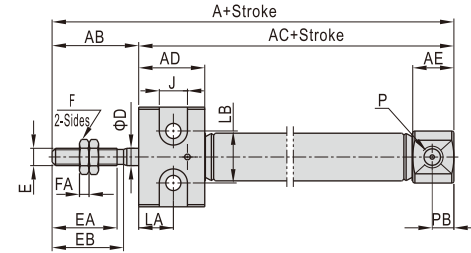
PSBR



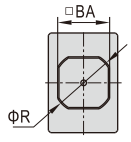
R Type
(Axial air-in)



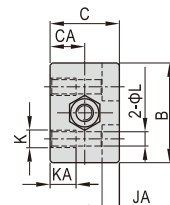
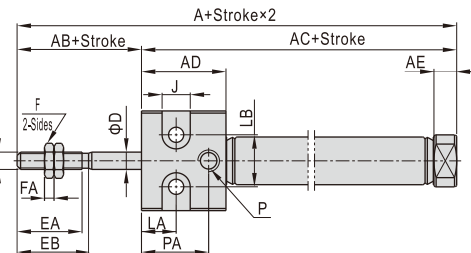
U Type
(Perpendicular 90°)



PTBR



R Type
(Axial air-in)



Bore size\Item	A												AC												
	PSBR						PTBR						PSBR						PTBR						
Model	Stroke	5-15	16-30	31-45	46-60	61-75	76-100	5-15	16-30	31-45	46-60	61-75	76-100	5-15	16-30	31-45	46-60	61-75	76-100	5-15	16-30	31-45	46-60	61-75	76-100
6	70	79	83	97	-	-	74.5	83.5	87.5	101.5	-	-	50	59	63	77	-	-	54.5	63.5	67.5	81.5	-	-	-
8	76.5	82.5	93.5	101.5	-	-	78.5	84.5	95.5	103.5	-	-	56.5	62.5	73.5	81.5	-	-	58.5	64.5	75.5	83.5	-	-	-
10	73.5	81	93	105	-	-	76.5	84	96	108	-	-	53.5	61	73	85	-	-	56.5	64	76	88	-	-	-
12	73.5	81	93	105	111.5	-	76.5	84	96	108	114.5	-	53.5	61	73	85	91.5	-	56.5	64	76	88	94.5	-	-
16	74.5	83	95	107	113	119	77.5	86	98	110	116	122	54.5	63	75	87	93	99	57.5	66	78	90	96	102	-

Bore size\Item	AD		AE		B	BA	C	CA	D	E	EA	EB	F	FA	J	JA	K	KA	L	LA	LB	P	PA	PB	R	
	PSBR	PTBR	PSBR	PTBR																						
6	13	19	20	7	5	17	10	14	7	3	M3×0.5	15	16	5.5	2.4	6.5	4	M4×0.7	7	3.3	8	10	M5×0.8	14	-	11
8	13	19.5	20	9.5	5	19	12	16	8	4	M4×0.7	15	16.5	7	3	6.5	4	M4×0.7	7	3.3	8	12	M5×0.8	15	5	14
10	13	19.5	20	9.5	5	19	12	16	8	4	M4×0.7	15	16.5	7	3	6.5	4	M4×0.7	7	3.3	8	12	M5×0.8	15.5	5	14
12	13	19.5	20	9.5	5	24	15	20	10	5	M5×0.8	15	16.5	8	4	8	5	M5×0.8	8	4.3	8	16	M5×0.8	15.5	5	17
16	13	20	20	9.5	5	24	18	20	10	6	M5×0.8	15	16.5	8	4	8	5	M5×0.8	8	4.3	8	16	M5×0.8	15.5	5	20

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Only axial air intake type of back cover is available for Φ6mm bore size.



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	EMSG
4	-	-	-	-	-	-	-	-	-	-
6	F-PB6LB	F-PB6FA	-	F-PB6I	F-PB6Y	F-M3X040F	-	CMSG	DMSG	EMSG
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	EMSG
PB	Standard	•	•	•	•	•	•	×	×	×
	With magnet	•	•	•	•	•	•	•	•	•
PSB PTB	Standard	•	•	•	•	•	•	×	×	×
	With magnet	•	•	•	•	•	•	•	•	•
PBD	Standard	•	•	×	•	•	•	×	×	×
PBJ	With magnet	•	•	×	•	•	•	•	•	•

Material of accessories

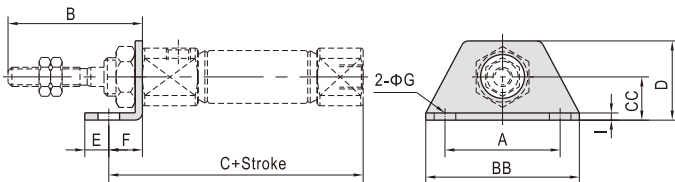
Accessories Bore size	Mounting accessories			Knuckle			
	LB	FA	CJ	I	Y	F	U
4~16	△	△	△	□	□	□	□

△—SPCC ; □—Carbon steel ;

[Note 1] Please refer to P361~364 for knuckle detail.

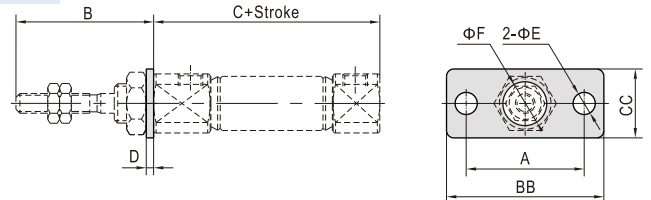
Dimensions

LB



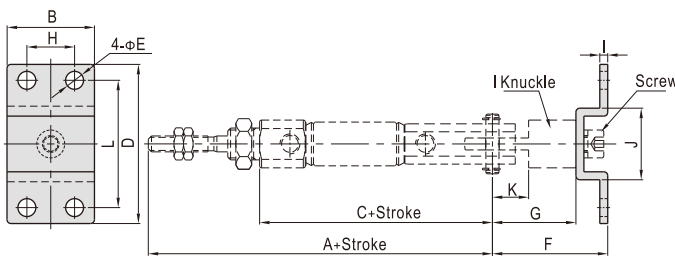
Bore size\Item	A	B	BB	C	CC	D	E	F	G	I
6	24	28	32	56.5	9	16.5	5	7	4.5	1.5
10	24	28	32	53	9	16.5	5	7	4.5	2
12	33	28	42	55	14	25	6	9	5.5	2.5
16	33	28	42	57	14	25	6	9	5.5	2.5

FA



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	8.2
12	33	28	42	46	20	3	5.5	10.2
16	33	28	42	48	20	3	5.5	10.2

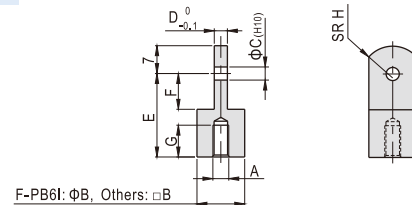
CJ



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

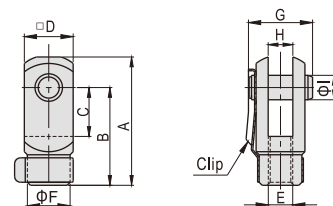
[Note] CJ type accessory includes I knuckle and PIN. It need to be matched with I knuckle and with relevant PIN.

I Knuckle



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