

Features

- * Identical to ISO6432 $\phi 8 \sim \phi 25$.
- * Adjustable cushion at both ends is able to absorb vibration from high speed impact and provide stable movement.
- * Built in magnet for sensor use.
- * Caps are rolled and polished, which provides stable quality.
- * Stainless steel SUS304 barrel provides stable movement and features high quality and durable life.
- * Stainless steel SUS304 barrel features corrosion resistance and strongly mechanical strength.



How to order

PC	32	B	50	C	SF	1	FA	Y
Type	Bore size	Magnet	Stroke	Cushion	Sensor type	Number of sensor	Mounting parts	Rod end joint
PC	Standard integrated clevis			Blank	W/O sensor		Blank	W/O rod end joint
PCC	Boss-cut			C	W/I cushion $\phi 20 \sim \phi 40$		FA	Front flange
PCD	Double rod				SF	LED in front	FB	Rear flange
PCA	Stroke adjustable 25mm				ST	LED on top	CA	Male devis
PCB	Stroke adjustable 50mm						CB	Female devis
PCH	Hollow double rod						LB	Foot mounting
PCG	Dual stroke/Single rod/Boss-cut							
PCM	Dual stroke/Double rod							
PCF	Dual stroke/Single rod/Standard							
APCC	Single acting/Spring return/Boss-cut							
APDC	Single acting/Spring extended/Boss-cut							
APC	Single acting/Spring return/Standard							
APD	Single acting/Spring extended/Standard							

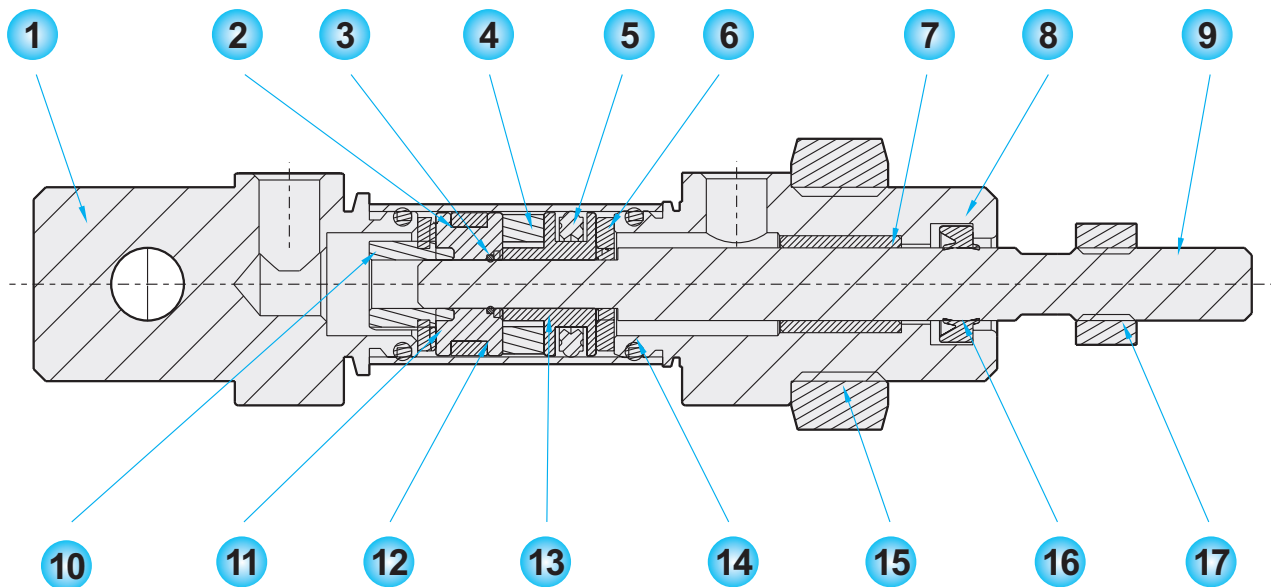
How to order Mounting parts / Rod end joints

ZIP	FA	FY	32
PC series	Mounting parts	Rod end joint	Bore size
	Blank	W/O rod end joint	8 $\phi 8$
	FA	FY	10 $\phi 10$
	FB	FI	12 $\phi 12$
	CA	P	16 $\phi 16$
	CB	T	20 $\phi 20$
	LB	L	25 $\phi 25$
		F	32 $\phi 32$
			40 $\phi 40$

Specifications

Bore size	φ8	φ10	φ12	φ16	φ20	φ25	φ32	φ40
Port size	M 5xP 0.8				1 / 8 "			
Fluid	Compressed air							
Acting	Double acting or single acting							
Cushion	Adjustable type							
Operating pressure range	1.5 ~ 8.5 kgf/cm ²							
Max. operating pressure	9.5 kgf/cm ²							
Barrel material	Stainless steel SUS304							
Magnet	Built-in							
Ambient temperature	-5℃ ~ 60℃							
Piston speed	50~700mm/Sec							

Material of parts



No.	Description	Material	Qty.	No.	Description	Material	Qty.
1	Rear cover	Aluminum alloy	1	10	Nut	Fe+Ni	1
2	Wear ring	Teflon +Graphite	1	11	Rear piston	Aluminum alloy	1
3	O-ring	NBR	1	12	Barrel	SUS304	1
4	Magnet	Rubber	1	13	Front piston	Aluminum alloy	1
5	U piston seal	NBR	1	14	O-ring	NBR	2
6	Bumper	NBR	2	15	Fixing nut	SS41+Ni	1
7	Bush bearing	Brass	1	16	Rod seal	NBR	1
8	Front cover	Aluminum alloy	1	17	Nut	Fe+Ni	1
9	Piston rod	S45C+Cr	1				

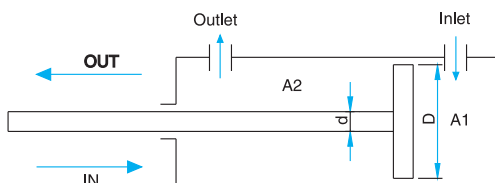
Stroke table

Bore size	Acting	Standard stroke (mm)
φ 8	Double acting	15, 25, 50, 75, 100, 125, 150
φ 10	Double acting	15, 25, 50, 75, 100, 125, 150
φ 12	Double acting	15, 25, 50, 75, 100, 125, 150
φ 16	Double acting	15, 25, 50, 75, 100, 125, 150
φ 20	Single acting	25, 50
φ 20	Double acting	25, 50, 75, 100, 125, 150, 200
φ 25	Single acting	25, 50
φ 25	Double acting	25, 50, 75, 100, 125, 150, 200, 250, 300
φ 32	Single acting	25, 50
φ 32	Double acting	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500
φ 40	Single acting	25, 50
φ 40	Double acting	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500

Note: Please contact our sales for non-standard stroke.

Theoretical force

Bore size		φ 8		φ 10		φ 12		φ 16		φ 20		φ 25		φ 32		φ 40	
Rod diameter		φ 4		φ 4		φ 6		φ 6		φ 8		φ 10		φ 12		φ 16	
Acting		Double acting		Double acting		Double acting		Double acting		Double acting		Double acting		Double acting		Double acting	
		Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull
Operating pressure (kgf/cm ²)	1	0.5	0.38	0.79	10.5	1.13	0.9	2.01	1.81	3	2	4	3	8	8	12	10
	2	1	0.75	1.57	21	2.26	1.81	4.02	3.62	6	5	9	8	16	13	25	21
	3	1.51	1.13	2.36	31.5	3.39	2.27	6.03	5.44	9	7	14	12	24	20	37	31
	4	2.01	1.51	3.14	42	4.62	3.63	8.04	7.25	12	10	19	16	32	27	50	42
	5	2.51	1.89	3.93	52.5	5.65	4.54	10.05	9.07	15	13	24	20	40	34	62	52
	6	3.01	2.27	4.71	63	6.78	5.45	12.06	10.88	18	15	29	24	48	47	75	63
	7	3.51	2.64	5.49	73.5	7.91	6.36	14.07	12.69	21	18	34	28	56	48	87	73
	8	4.02	3.02	6.28	84	9.04	7.27	16.07	14.47	25	21	39	32	64	55	100	84
	9	4.52	3.40	7.07	94.5	10.17	8.18	18.08	16.28	28	23	44	37	72	62	113	94
	10	5.03	3.78	7.85	105	11.3	9.09	20.08	18.09	31	26	49	41	80	69	126	105



A : Cylinder sectional area (cm²)

D : Diameter of bore (cm)

d : Diameter of piston (cm)

F : Theoretical force (kg)

P : Operating pressure (kgf/cm²)

N : Newton

Q : Air consumption l/min

A1 : Head end effective piston area (cm²)

A2 : Rod end effective piston area (cm²)

L : Stroke (cm)

P : Pressure (kgf/cm²)

N : Number of strokes per minute

K : Safety factor=2

Actual in force

$$A = \frac{\pi L}{4} (D^2 - d^2) \times P - R$$

Actual out force

$$F = \frac{\pi L D^2}{4} \times P - R$$

Theoretical force

$$A = \frac{\pi L D^2}{4}$$

$$F = A \times P$$

$$N = F \times 9.81 \text{ N/kg}$$

Output efficiency:

The output efficiency of air cylinder is depended upon the size of piping tubes, size of control valves, cylinder internal friction, and operating speed. It is difficult in solving these factors precisely so we must put more tolerance in design.

Low speed takes 80 percent.

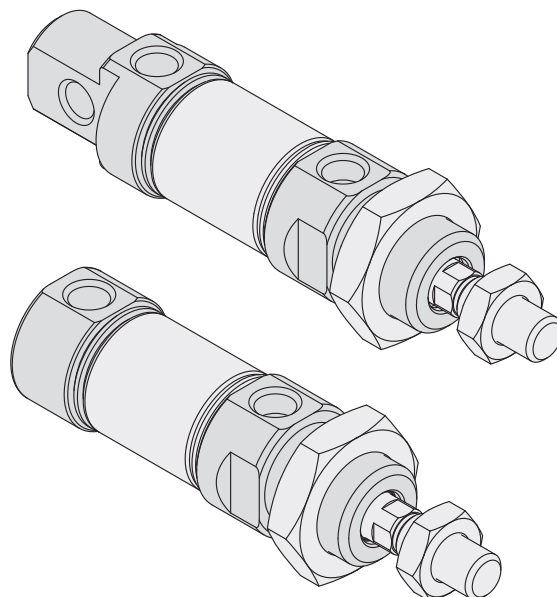
High speed takes less than 50 percent.

Normal operating speed takes 65 percent.

Calculate of air consumption:

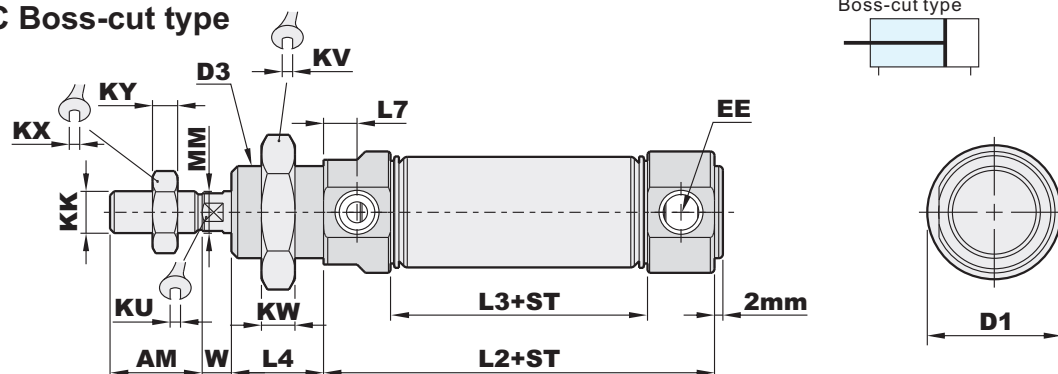
The air consumption is an amount of air to be consumed in cylinder or in the inside of tubing between the cylinder and the selector valve when the selector valve operates in an equipment used with cylinder and it is required to select a compressor.

$$Q = \frac{(A1 + A2)L(P+1)N}{1000} \text{ (l/min)} \times K$$

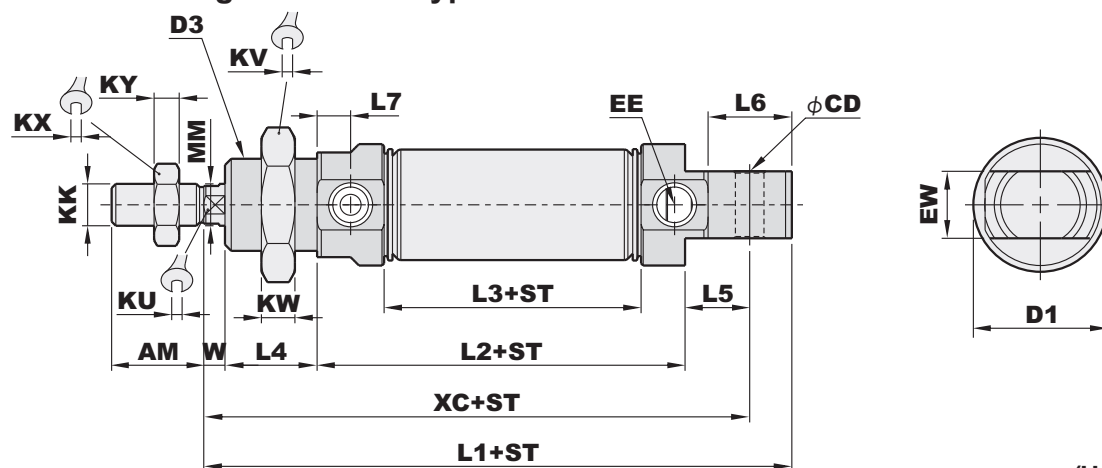


Dimensions

PCC Boss-cut type



PC Standard integrated clevis type



(Unit : mm)

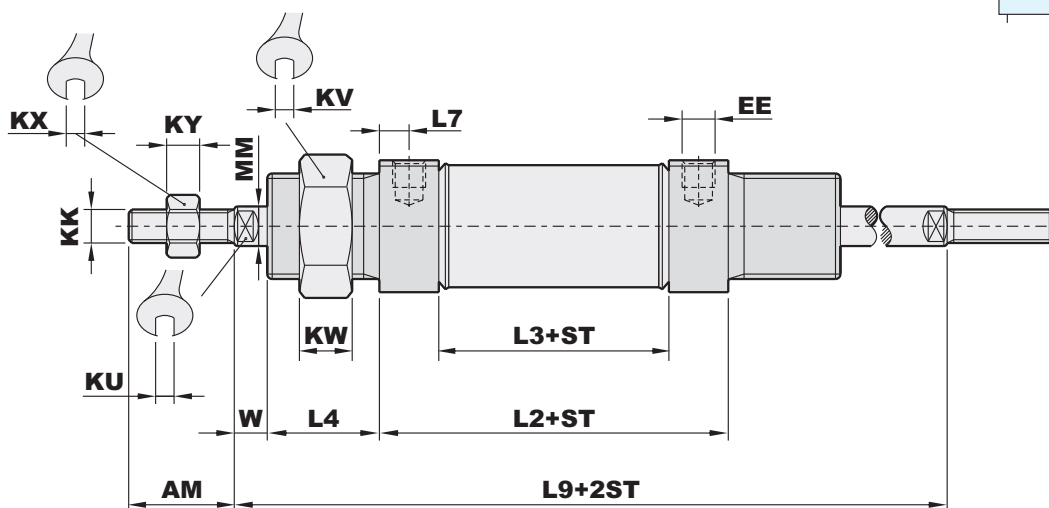
Bore size	AM	D1	φCD	D3	L1	L2	L3	L4	L5	L6	L7
φ8	12	17	φ 4	M12xP1.25	71.4	43.4	25.4	12	6	13.4	4.5
φ10	12	17	φ 4	M12xP1.25	71.4	43.4	25.4	12	6	13.4	4.5
φ12	16	20	φ 6	M16xP1.5	84.4	45	27.4	17	9	18.4	4.5
φ16	16	20	φ 6	M16xP1.5	90	50.5	31	17	9	17	5
φ20	20	29	φ 8	M22xP1.5	109	67.5	37.5	18	12	18	7.75
φ25	22	29	φ 8	M22xP1.5	117.5	69.5	37.5	20	12	20	8
φ32	22	37	φ 10	M27xP2.0	133	83.5	47	20	13.5	22	9
φ40	24	45	φ 10	M33xP2.0	138	85	49	20	13.5	22	9

Bore size	KK	KU	KV	KW	KX	KY	MM	W	EW	XC	EE
φ8	M4xP0.7	3.4	19	6	7	3.2	φ 4	4	8	64	M5xP0.8
φ10	M4xP0.7	3.4	19	6	7	3.2	φ 4	4	8	64	M5xP0.8
φ12	M6xP1.0	5	24	8	10	5	φ 6	5	12	75	M5xP0.8
φ16	M6xP1.0	5	24	8	10	5	φ 8	5	12	82	M5xP0.8
φ20	M8xP1.25	7	32	8	13	6	φ 8	6	16	95	PS 1/8
φ25	M10xP1.25	9	32	8	17	6	φ 10	8	16	104	PS 1/8
φ32	M10xP1.25	10	35	9.5	17	6	φ 12	8	22	120	PS 1/8
φ40	M12xP1.25	14	41	9.5	22	8	φ 16	11	26	125	PS 1/8

Dimensions

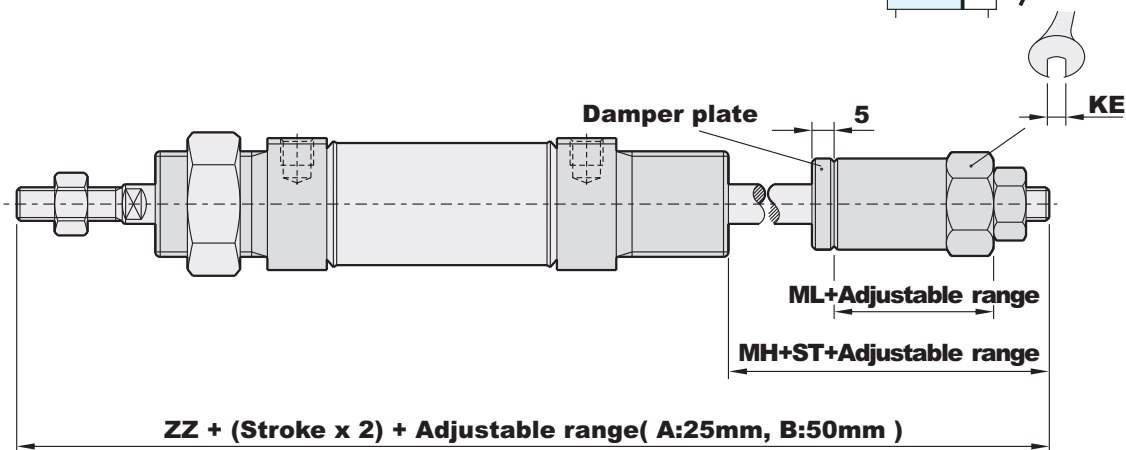
PCD Double rod type

PCD, PCH
Double rod,
Hollow double rod type



PCA Stroke adjustable 25mm PCB Stroke adjustable 50mm

PCA, PCB
Stroke adjustable
25mm, 50mm



(Unit : mm)

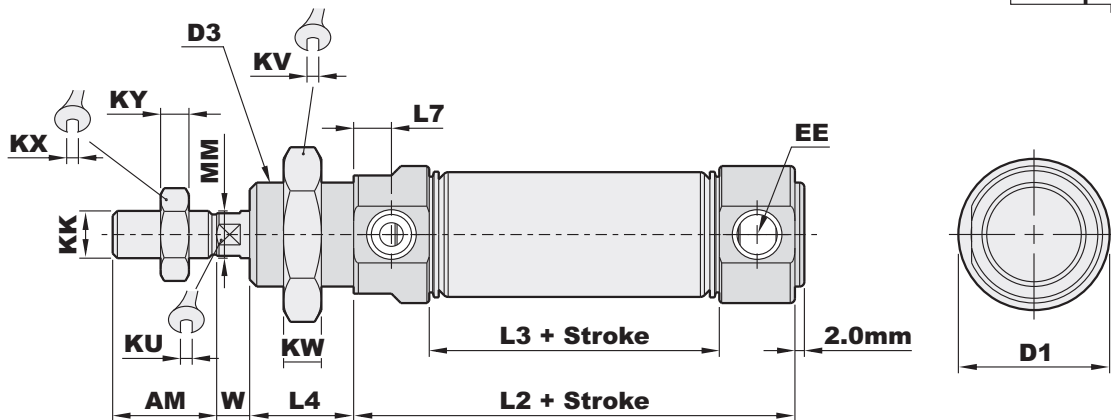
Bore size	AM	L2	L3	L4	L7	L9	EE	KU	KV	KW	KX
φ20	20	67.5	37	18	7.6	116	PS 1/8	7	32	8	13
φ25	22	69.5	37.5	20	8	126	PS 1/8	9	32	8	17
φ32	22	83	47	20	9	139	PS 1/8	10	35	9.5	17
φ40	24	85	49	20	9	147	PS 1/8	14	41	9.5	22

Bore size	KY	MM	W	KK	ZZ	MH	ML	KE
φ20	4	φ 8	4	M8xP1.25	165	33	9	19
φ25	6	φ 10	6	M10xP1.25	175	33	13	19
φ32	6	φ 12	8	M10xP1.25	188	35	15	21
φ40	8	φ 16	11	M12xP1.25	196	36	18	26

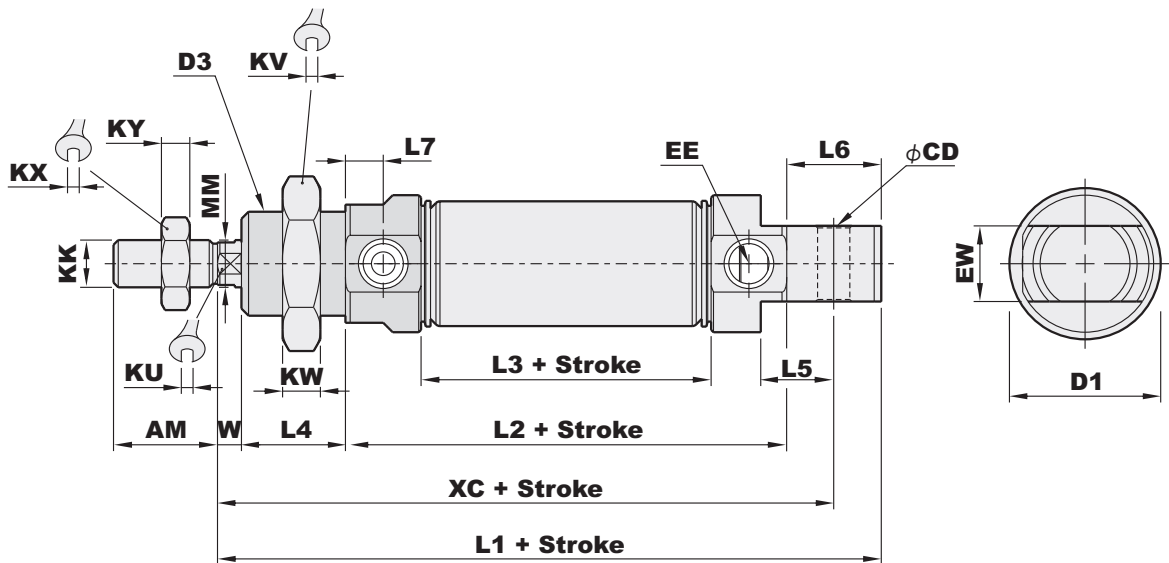
Dimensions

APCC Single acting/Spring return/Boss-cut

APCC, APC
Single acting/Spring return



APC Single acting/Spring return/Standard integrated clevis



(Unit : mm)

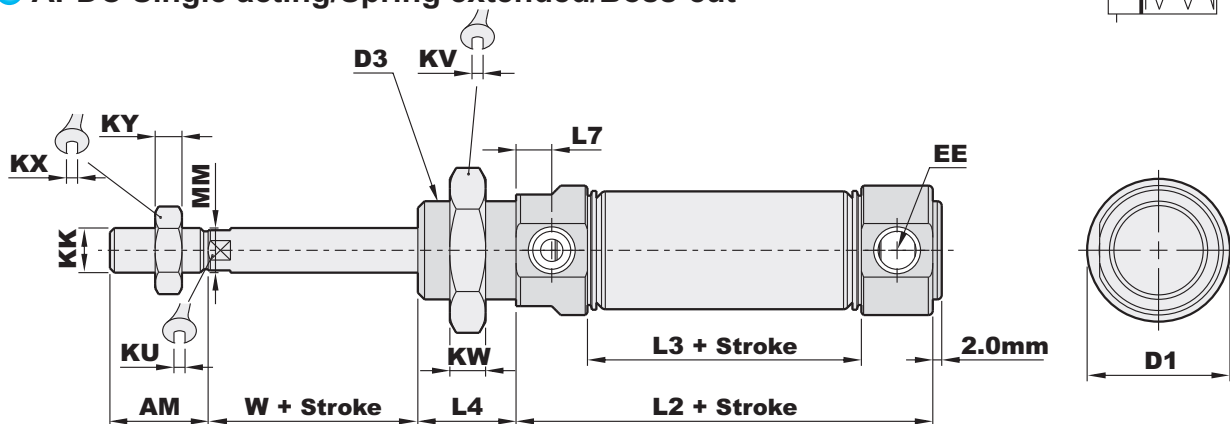
Bore size	AM	D1	φCD	D3	L1		L2		L3		L4	L5	L6
					25	50	25	50	25	50			
φ20	20	29	φ 8	M22xP1.5	137		92.5		61		18	12	18
φ25	22	29	φ 8	M22xP1.5	142.5		94.5		62.5		20	12	20
φ32	22	37	φ 10	M27xP2.0	158		108.5		72		20	13.5	22
φ40	24	45	φ 10	M33xP2.0	163		110		74		20	13.5	22

Bore size	L7	KK	KU	KV	KW	KX	KY	MM	W	EW	XC		EE
											25	50	
φ20	7.75	M8xP1.25	7	32	8	13	6	φ 8	6	16	120		PS 1/8
φ25	8	M10xP1.25	9	32	8	17	6	φ 10	8	16	129		PS 1/8
φ32	9	M10xP1.25	10	35	9.5	17	6	φ 12	8	22	145		PS 1/8
φ40	9	M12xP1.25	14	41	9.5	22	8	φ 16	11	26	150		PS 1/8

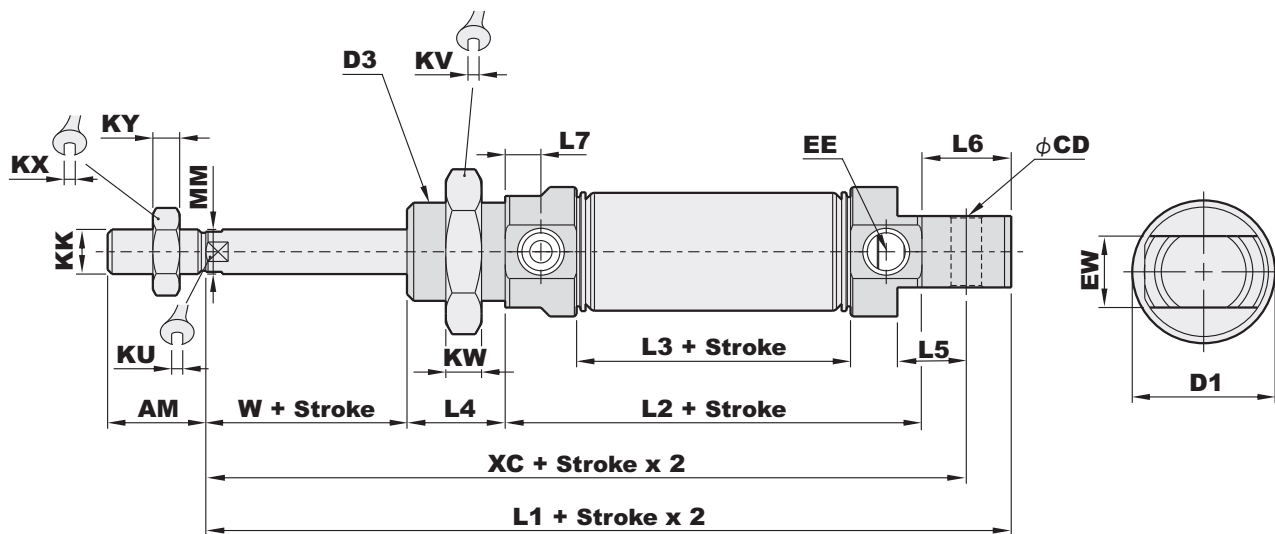
Dimensions

APDC Single acting/Spring extended/Boss-cut

APDC, APD
Single acting/Spring extended



APD Single acting/Spring extended/Standard integrated clevis



(Unit : mm)

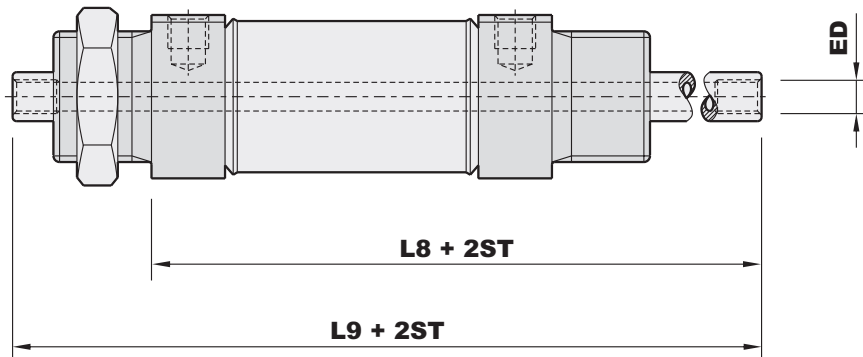
Bore size	AM	D1	φCD	D3	L1		L2		L3		L4	L5	L6
					25	50	25	50	25	50			
φ20	20	29	φ 8	M22xP1.5	137		92.5		61		18	12	18
φ25	22	29	φ 8	M22xP1.5	142.5		94.5		62.5		20	12	20
φ32	22	37	φ 10	M27xP2.0	158		108.5		72		20	13.5	22
φ40	24	45	φ 10	M33xP2.0	163		110		74		20	13.5	22

Bore size	L7	KK	KU	KV	KW	KX	KY	MM	W	EW	XC		EE
											25	50	
φ20	7.75	M8xP1.25	7	32	8	13	6	φ 8	6	16	120		PS 1/8
φ25	8	M10xP1.25	9	32	8	17	6	φ 10	8	16	129		PS 1/8
φ32	9	M10xP1.25	10	35	9.5	17	6	φ 12	8	22	145		PS 1/8
φ40	9	M12xP1.25	14	41	9.5	22	8	φ 16	11	26	150		PS 1/8

Dimensions

PCH Hollow double rod type

PCD, PCH
Double rod, Hollow
double rod type



(Unit : mm)

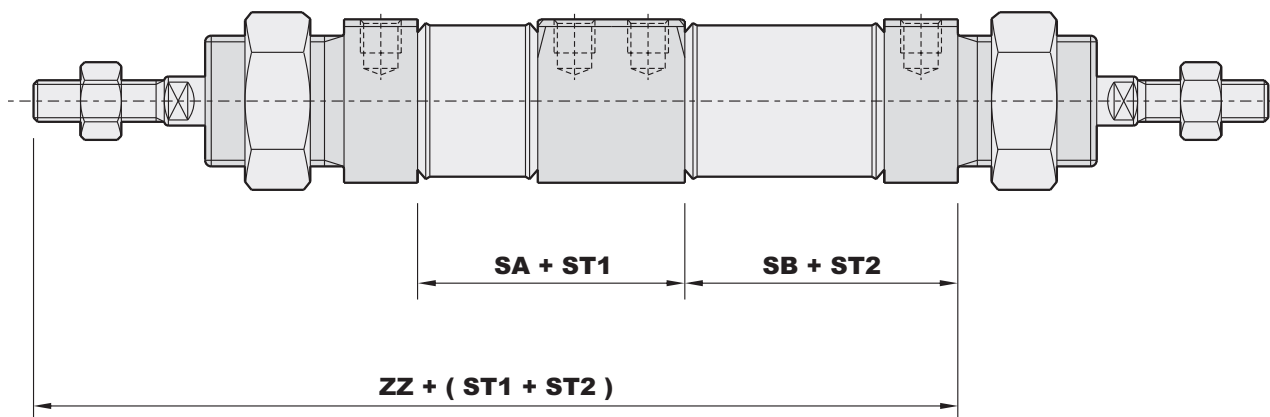
Bore size	L8	L9	ED
φ25	98	126	M5xP0.8x20
φ32	112	140	PT1/8
φ40	116	147	PT1/8

- Suitable for vacuum pad.
- Vacuum pad and other devices could be directly screwed on to rod end.
- Permanent magnetic is built-in.

Please refer to page 5-23 PC standard integrated clevis type for other dimensions.

PCM Dual stroke/Double rod

PCM Dual stroke/Double rod



(Unit : mm)

Bore size	SA	SB	ZZ
φ25	85.5	53.5	239
φ32	101.5	65.5	267
φ40	103	67	280

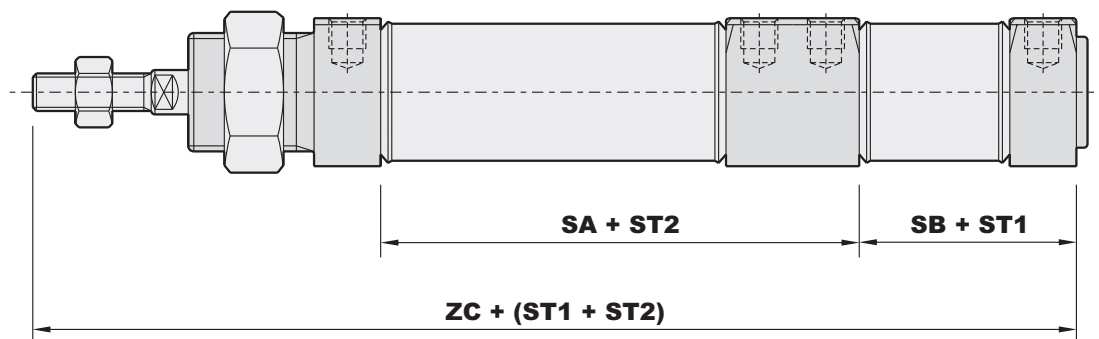
- Two cylinders are constructed as one cylinder in a shrinking back configuration.
- Cylinder stroke could be controlled in three or four steps.
- One end of piston rod is fixed, the cylinder barrel executes the movement, the cylinder must connected with flexible line connections.
- Applicable to positioning transportation, quantitative filling, right and left displacement, capable flow control...etc, which is for accuracy and speedy purpose.

Please refer to page 5-23 PC standard integrated clevis type for other dimensions.

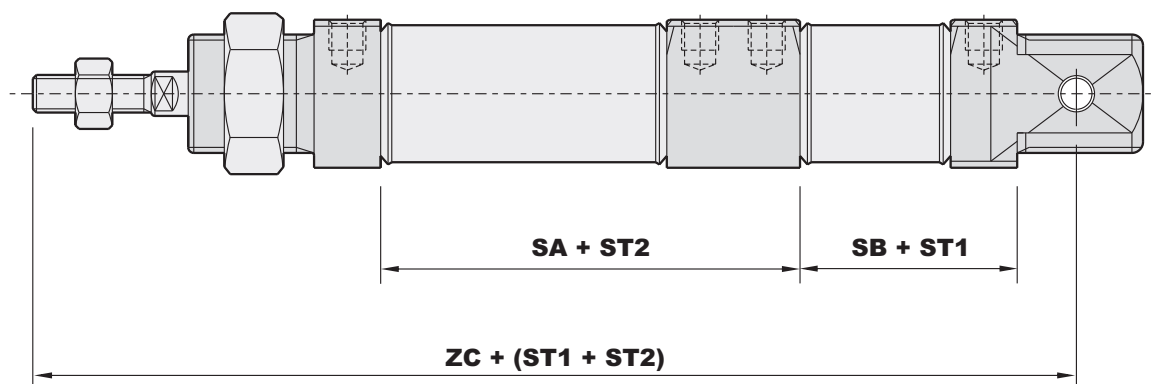
Dimensions

PCG Dual stroke/Single rod/Boss-cut

PCG, PCF
Dual stroke/Single rod/Boss-cut
Dual stroke/Single rod/Standard
integrated clevis



PCF Dual stroke/Single rod/Standard integrated clevis



(Unit : mm)

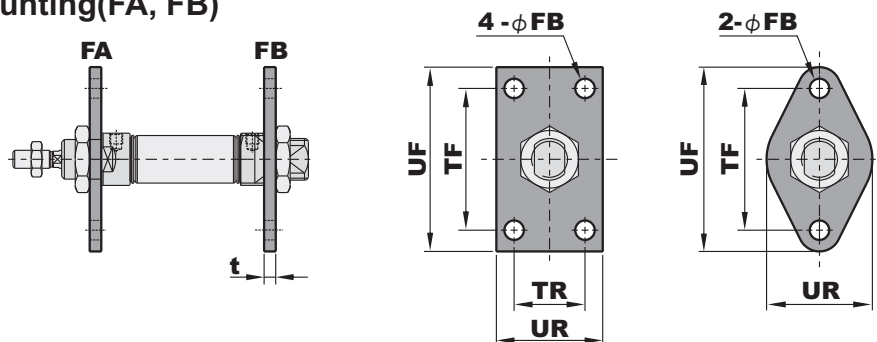
Bore size	SA	SB	ZC	ZT
φ32	101.5	65.5	225.5	217
φ40	103	67	234	225

Please refer to page 5-23 PC standard integrated clevis type for other dimensions.

- The cylinder constructed as one cylinder in line allows double the output force.
- Cylinder stroke could be controlled in three steps.
- Applicable to position transportation, quantitative filling and flow control, right and left displacement.
- Adjustable cushions on both ends.
- Permanent magnet is built-in.

Dimension of mounting parts

Flange mounting(FA, FB)



($\phi 32, \phi 40$)

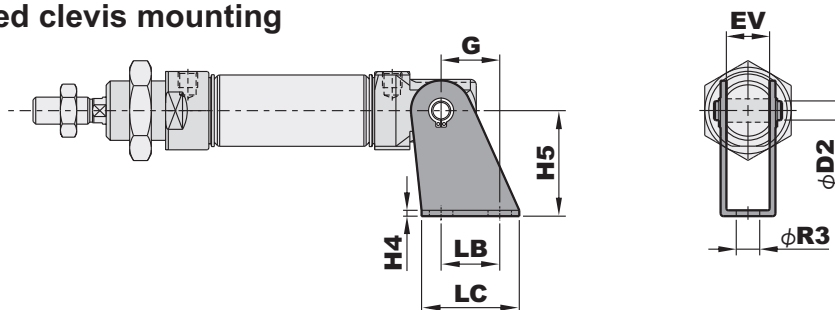
($\phi 12 \sim \phi 25$)

(Unit : mm)

Bore size	TF	TR	UF	UR	I	ϕ FB
$\phi 12$	40	--	52	30	3	$\phi 5.5$
$\phi 16$	40	--	52	30	3	$\phi 5.5$
$\phi 20$	50	--	66	40	3	$\phi 6.5$

Bore size	TF	TR	UF	UR	I	ϕ FB
$\phi 25$	50	--	66	40	3	$\phi 6.5$
$\phi 32$	50	26	64	40	3	$\phi 7$
$\phi 40$	54	30	74	50	4	$\phi 7$

CB Integrated clevis mounting

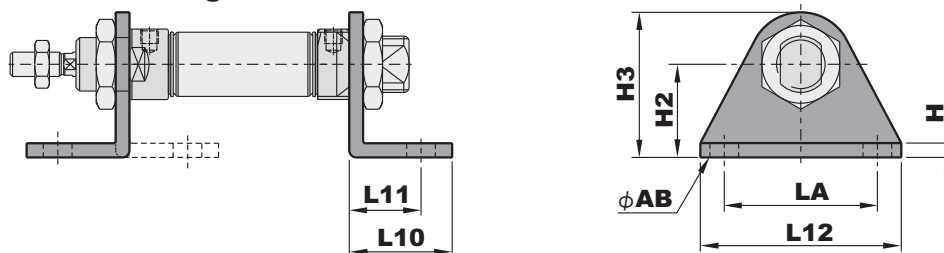


(Unit : mm)

Bore size	LB	LC	EV	H4	H5	G	ϕ D2	ϕ R3
$\phi 12$	15	25	12	3	27	15	$\phi 6$	$\phi 6$
$\phi 16$	15	25	12	3	27	15	$\phi 6$	$\phi 6$
$\phi 20$	20	32	16	3	30	18.5	$\phi 8$	$\phi 7$

Bore size	LB	LC	EV	H4	H5	G	ϕ D2	ϕ R3
$\phi 25$	20	32	16	3	30	18.5	$\phi 8$	$\phi 7$
$\phi 32$	25	40	22	3	40	22.5	$\phi 10$	$\phi 9$
$\phi 40$	25	40	26	3	40	22.5	$\phi 10$	$\phi 9$

LB Axial foot mounting



(Unit : mm)

Bore size	L10	L11	L12	LA	H	H2	H3	ϕ AB
$\phi 12$	20.5	14	42	32	3	20	33	$\phi 6$
$\phi 16$	20.5	14	42	32	3	20	33	$\phi 6$
$\phi 20$	26	17	54	40	3	25	45	$\phi 7$

Bore size	L10	L11	L12	LA	H	H2	H3	ϕ AB
$\phi 25$	26	17	54	40	3	25	45	$\phi 7$
$\phi 32$	25	18	64	50	3.5	28	48	$\phi 7$
$\phi 40$	30	20	74	54	4	31.5	60	$\phi 7$