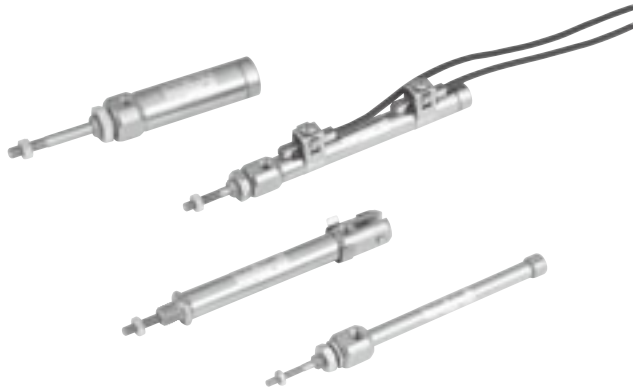
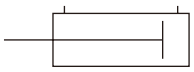
PEN CYLINDERS

Double Acting Type, Single Acting Push Type, Single Acting Pull Type

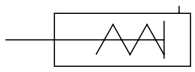


Symbols

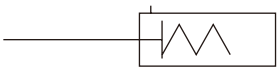
●Double acting type



●Single acting push type



●Single acting pull type



Specifications

Item \ Bore size mm [in.]	6 [0.236]	10 [0.394]	16 [0.630]
Operation type	Double acting type, Single acting push type, Single acting pull type		
Media	Air		
Mounting type	Basic type, Foot type, Flange type, Clevis type (clevis type of ϕ10 and ϕ16 only)		
Operating pressure range MPa [psi.] Note1	0.12～0.7 [17～102]	0.08～0.7 [12～102]	0.06～0.7 [9～102]
Proof pressure MPa [psi.]	1.05 [152]		
Operating temperature range °C [°F]	0～70 [32～158]		
Operating speed range mm/s [in./sec.]	50～750 [2.0～29.5]		
Cushion	None	Rubber bumper	
Lubrication	Not required		
Port size	M5×0.8 Note 2		

Notes: 1. For details of each cylinder's operation type, see the table for the minimum operating pressure.
2. M3×0.5 can also be selected at ϕ6 only.

Bore Size and Stroke

●Double acting type mm [in.]

Bore size	Standard strokes Note	Maximum available stroke	Stroke tolerance
6	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60	100	$^{+1.5}_{0}$ [$^{+0.059}_{0}$]
10	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 75, 100, 125, 150	150	
16	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 75, 100, 125, 150, 175, 200	200	

●Single acting type mm [in.]

Operation type	Bore size	Standard strokes Note	Maximum available stroke	Stroke tolerance
Single acting push type	6	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60	75	$^{+1.5}_{0}$ [$^{+0.059}_{0}$]
	10		105	
	16		120	
Single acting pull type	6	5, 10, 15, 20, 25, 30	30	$^{+1.5}_{0}$ [$^{+0.059}_{0}$]
	10			
	16			

Note: For non-standard strokes:
For strokes divisible by 5, cylinder tube cutting is used.
For strokes not divisible by 5, collar packed to the next size up stroke of cylinder.

Order Codes

PB □ □ 10×30 – □ – □ – □ – □ – □ □ □

Pen cylinder series

Operation type
DA — Double acting type
SA — Single acting push type
TA — Single acting pull type

Cylinder specification
Blank — Standard cylinder
S — Cylinder with magnet

Bore size × Stroke

Head cover piping specification
Blank — Axial direction piping
A — Lateral piping (Not available for clevis mounting type and single acting pull type)
M — Lateral piping with mounting thread※
※ (**-M** corresponds only to ϕ10 and ϕ16 of double acting type and single acting push type. Not available for clevis mounting type.)

Connection port
Blank — M5×0.8 (ϕ6, ϕ10, ϕ16)
M3 — M3×0.5 (ϕ6 only)

Mounting type (Included at shipping other than clevis mounting type)
Blank — Basic type
1 — Double foot mounting type (Mountable only on ϕ10 and ϕ16 of head cover **-M** specification double acting type and **-M** specification single acting push type)
1A — Single foot mounting type
3 — Flange mounting type
7 — Clevis mounting type (with pin for bore sizes of ϕ10 and ϕ16 only)
7-7C — Clevis mounting type with pin and clevis supporting bracket (For bore sizes of ϕ10 and ϕ16 only)

Rod end accessory
Blank — No rod end accessory
I — With **I** type knuckle
Y — With **Y** type knuckle (with pin)
● For bore sizes of ϕ10 and ϕ16 only.
● As for the cylinder joints and the cylinder rod ends, order separately.

Sensor switch
Blank — No sensor switch
ZC253 — 3-lead wire, solid state type
ZC230 — 2-lead wire, solid state type
ZC201 — 2-lead wire, reed switch type
ZC205 — 2-lead wire, reed switch type
●For details, see p.1544.

Lead wire length
A — 1000mm [39in.]
B — 3000mm [118in.]

Number of sensor switches
1 — With 1 sensor switch
2 — With 2 sensor switches
3 — With 3 sensor switches

Minimum Operating Pressure

Operation type	Bore size mm [in.]	Minimum operating pressure MPa [psi.]
Double acting type	**6 [0.236]**	0.12 [17]
	10 [0.394]	0.08 [12]
	16 [0.630]	0.06 [9]
Single acting push type	**6 [0.236]**	0.3 [44]
	10 [0.394]	0.15 [22]
	16 [0.630]	
Single acting pull type	**6 [0.236]**	0.35 [51]
	10 [0.394]	0.15 [22]
	16 [0.630]	

Mounting type

Mounting type	Name	Remark
1	Double foot type	Included at shipping
1A	Single foot type Note	Included at shipping
3	Flange type	Included at shipping
7	Clevis type (with pin)	Assembled and shipped
7-7C	Clevis type with supporting bracket (with pin)	Supporting bracket included at shipping

Note: When the stroke exceeds 60mm, use the double foot type for the foot bracket.

Mass

g [oz.]

Operation type	Mounting type	Bore mm	Stroke mm																		Additional mass						
																					Mounting type			Cylinder with magnet	Sensor switch (1 pc.)Note 2	Lateral piping	
			5	10	15	20	25	30	35	40	45	50	55	60	75	100	125	150	175	200	Single foot	Flange	Clevis Note 1			−A	−M
Double acting type	Basic type	**6**	12.9 [0.455]	13.5 [0.476]	14.1 [0.497]	14.7 [0.519]	15.3 [0.540]	15.9 [0.561]	16.5 [0.582]	17.1 [0.603]	17.7 [0.624]	18.3 [0.646]	18.9 [0.667]	19.5 [0.688]	—	—	—	—	—	—	7 [0.25]	5 [0.18]	—	0.5 [0.018]		—	—
		10	20.3 [0.716]	21.5 [0.758]	22.6 [0.797]	23.8 [0.840]	24.9 [0.878]	26 [0.917]	27.2 [0.959]	28.3 [0.998]	29.5 [1.041]	30.6 [1.079]	31.7 [1.118]	32.9 [1.160]	34 [1.199]	35.2 [1.242]	36.3 [1.280]	37.4 [1.319]	—	—	7 [0.25]	5 [0.18]	—	1 [0.04]		2 [0.07]	6 [0.21]
		16	38.5 [1.358]	40.3 [1.422]	42.1 [1.485]	43.9 [1.549]	45.7 [1.612]	47.5 [1.675]	49.3 [1.739]	51.1 [1.802]	52.9 [1.866]	54.7 [1.929]	56.5 [1.993]	58.3 [2.056]	60.1 [2.120]	61.9 [2.183]	63.7 [2.247]	65.5 [2.310]	67.3 [2.374]	69.1 [2.437]	18 [0.63]	12 [0.42]	—	2 [0.07]		3 [0.11]	8 [0.28]
	Clevis mounting type (with pin)	**10**	24.3 [0.857]	25.5 [0.899]	26.6 [0.938]	27.8 [0.981]	28.9 [1.019]	30 [1.058]	31.2 [1.101]	32.3 [1.139]	33.5 [1.182]	34.6 [1.220]	35.7 [1.259]	36.9 [1.302]	38 [1.340]	39.2 [1.383]	40.3 [1.422]	41.4 [1.460]	—	—	—	—	32 [1.13]	1 [0.04]		—	—
		16	49.5 [1.746]	51.3 [1.810]	53.1 [1.873]	54.3 [1.915]	56.7 [2.000]	58.5 [2.063]	60.3 [2.127]	62.1 [2.190]	63.9 [2.254]	65.7 [2.317]	67.5 [2.381]	69.3 [2.444]	71.1 [2.508]	72.9 [2.571]	74.7 [2.635]	76.5 [2.698]	78.3 [2.762]	80.1 [2.825]	—	—	45 [1.59]	2 [0.07]		—	—
Single acting push type	Basic type	**6**	9.6 [0.339]	10.2 [0.360]	10.8 [0.381]	13.9 [0.490]	14.5 [0.511]	15 [0.529]	16.5 [0.582]	17.1 [0.603]	17.6 [0.621]	18.3 [0.646]	18.9 [0.667]	19.4 [0.684]	—	—	—	—	—	—	7 [0.25]	5 [0.18]	—	0.5 [0.018]		—	—
		10	18.9 [0.667]	20 [0.705]	21.1 [0.744]	24 [0.847]	25.1 [0.885]	26.2 [0.924]	31.4 [1.108]	32.5 [1.146]	33.6 [1.185]	34.8 [1.228]	35.9 [1.266]	37 [1.305]	—	—	—	—	—	—	7 [0.25]	5 [0.18]	—	1 [0.04]		2 [0.07]	6 [0.21]
		16	39 [1.376]	40.8 [1.439]	42.5 [1.499]	47.7 [1.683]	49.5 [1.746]	51.2 [1.806]	61 [2.152]	62.8 [2.215]	64.5 [2.275]	66.3 [2.339]	68.1 [2.402]	69.8 [2.462]	—	—	—	—	—	—	18 [0.63]	12 [0.42]	—	2 [0.07]	A: 20 [0.71] B: 50 [1.76]	3 [0.11]	8 [0.28]
	Clevis mounting type (with pin)	**10**	20.9 [0.737]	24 [0.847]	25.1 [0.885]	27.9 [0.984]	29.1 [1.026]	30.2 [1.065]	35.4 [1.249]	36.5 [1.287]	37.6 [1.326]	38.8 [1.369]	39.9 [1.407]	41 [1.446]	—	—	—	—	—	—	—	—	32 [1.13]	1 [0.04]		—	—
		16	50 [1.764]	51.8 [1.827]	53.5 [1.887]	58.7 [2.071]	60.5 [2.134]	62.2 [2.194]	72 [2.540]	73.8 [2.603]	75.5 [2.663]	77.3 [2.727]	79.1 [2.790]	80.8 [2.850]	—	—	—	—	—	—	—	—	45 [1.59]	2 [0.07]		—	—
Single acting pull type	Basic type	**6**	11.6 [0.409]	12.2 [0.430]	12.8 [0.451]	15.8 [0.557]	16.4 [0.578]	16.9 [0.596]	—	—	—	—	—	—	—	—	—	—	—	—	7 [0.25]	5 [0.18]	—	0.5 [0.018]		—	—
		10	21 [0.741]	22.6 [0.797]	24.1 [0.850]	27 [0.952]	28.1 [0.991]	29.2 [1.030]	—	—	—	—	—	—	—	—	—	—	—	—	7 [0.25]	5 [0.18]	—	1 [0.04]		—	—
		16	41.7 [1.471]	43.5 [1.534]	45.3 [1.598]	50.3 [1.774]	52.1 [1.838]	53.8 [1.898]	—	—	—	—	—	—	—	—	—	—	—	—	18 [0.63]	12 [0.42]	—	2 [0.07]		—	—
	Clevis mounting type (with pin)	**10**	25 [0.882]	26.6 [0.938]	28.1 [0.991]	31.6 [1.115]	32.4 [1.143]	33.2 [1.171]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32 [1.13]	1 [0.04]		—	—
		16	52.7 [1.859]	54.5 [1.922]	56.3 [1.986]	61.3 [2.162]	63.1 [2.226]	64.8 [2.286]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	45 [1.59]	2 [0.07]		—	—

Remark : Includes mounting nut and rod end nut.
For the mass of the double foot bracket, add double the mass of the single foot bracket listed above.

Notes: 1. With supporting bracket and pin.
2. Same for all sensor switch models (**ZC253**□, **ZC230**□, **ZC201**□, **ZC205**□).

Calculation example: The mass for 2 units of ZC253A, with a double acting type cylinder with magnet with single foot bracket, bore size of 10mm, and stroke of 45mm, is 29.5＋7 ＋ 1 ＋ 40 ＝77.5g [2.734oz.].

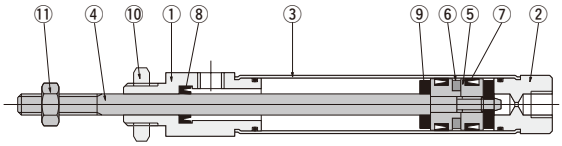
Single Acting Type Spring Return Force

N [lbf.]

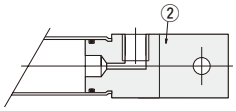
Bore size mm	Spring return force												End of stroke
	5St	10St	15St	20St	25St	30St	35St	40St	45St	50St	55St	60St	
6	3.0 [0.67]	2.5 [0.56]	2.0 [0.45]	2.5 [0.56]	2.3 [0.52]	2.0 [0.45]	2.7 [0.61]	2.5 [0.56]	2.4 [0.54]	2.3 [0.52]	2.2 [0.49]	2.0 [0.46]	3.5 [0.79]
10	5.1 [1.15]	4.4 [0.99]	3.7 [0.83]	4.4 [0.99]	4.0 [0.90]	3.7 [0.83]	4.6 [1.03]	4.4 [0.99]	4.2 [0.94]	4.0 [0.90]	3.8 [0.85]	3.7 [0.83]	5.9 [1.33]
16	8.5 [1.91]	7.3 [1.64]	6.1 [1.37]	7.3 [1.64]	6.7 [1.51]	6.1 [1.37]	7.6 [1.71]	7.3 [1.64]	7.0 [1.57]	6.7 [1.51]	6.4 [1.44]	6.1 [1.37]	9.8 [2.20]

Inner Construction (cannot be disassembled)

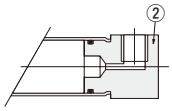
●Double acting type



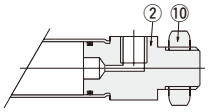
●Clevis mounting type (-7)



●Lateral piping (-A)



●Lateral piping with mounting thread (-M)

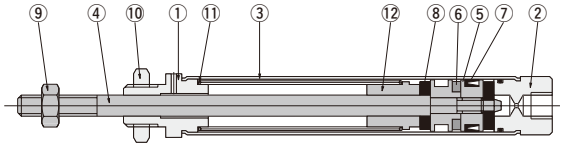


Major Parts and Materials

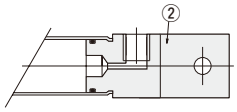
No.	Parts	Materials
①	Rod cover	Aluminum alloy (nickel plated)
②	Head cover	
③	Cylinder tube	Stainless steel
④	Piston rod	
⑤	Piston	Aluminum alloy
⑥	Magnet Note1	Plastic magnet
⑦	Piston seal	Synthetic rubber (NBR)
⑧	Rod seal	
⑨	Bumper Note2	
⑩	Mounting nut	Mild steel (nickel plated)
⑪	Rod end nut	

Notes: 1. For cylinders with magnets. Standard cylinders do not have a built-in magnet for the sensor switch.
2. Not available for bore size ϕ 6.

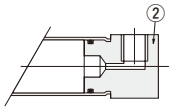
●Single acting push type



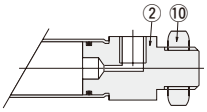
●Clevis mounting type (-7)



●Lateral piping (-A)



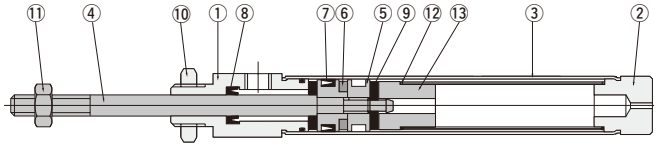
●Lateral piping with mounting thread (-M)



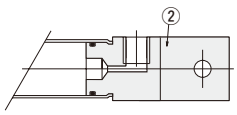
No.	Parts	Materials
①	Rod cover	Aluminum alloy (nickel plated)
②	Head cover	
③	Cylinder tube	Stainless steel
④	Piston rod	
⑤	Piston	Aluminum alloy
⑥	Magnet Note1	Plastic magnet
⑦	Piston seal	Synthetic rubber (NBR)
⑧	Bumper Note2	
⑨	Rod end nut	Mild steel (nickel plated)
⑩	Mounting nut	
⑪	Spring	Steel
⑫	Collar	Aluminum alloy

Notes: 1. For cylinders with magnets. Standard cylinders do not have a built-in magnet for the sensor switch.
2. Not available for bore size ϕ 6.

●Single acting pull type



●Clevis mounting type (-7)



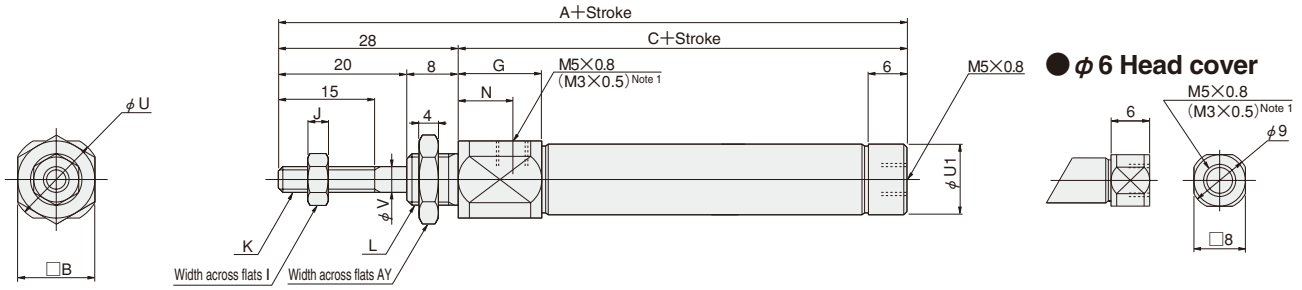
No.	Parts	Materials
①	Rod cover	Aluminum alloy (nickel plated)
②	Head cover	
③	Cylinder tube	Stainless steel
④	Piston rod	
⑤	Piston	Aluminum alloy
⑥	Magnet Note1	Plastic magnet
⑦	Piston seal	Synthetic rubber (NBR)
⑧	Rod seal	
⑨	Bumper Note2	
⑩	Mounting nut	Mild steel (nickel plated)
⑪	Rod end nut	
⑫	Spring	Steel
⑬	Collar	Aluminum alloy

Notes: 1. For cylinders with magnets. Standard cylinders do not have a built-in magnet for the sensor switch.
2. Not available for bore size ϕ 6.

Dimensions of Double Acting Type (mm)

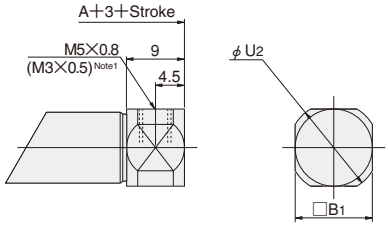
■Basic type PBDA □ Bore size × Stroke

CAD PBDA Bore size



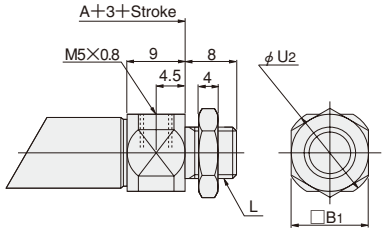
●Lateral piping (-A)

PBDA □ Bore size × Stroke -A



●Lateral piping with mounting thread (-M) Note 2

PBDA □ Bore size × Stroke -M

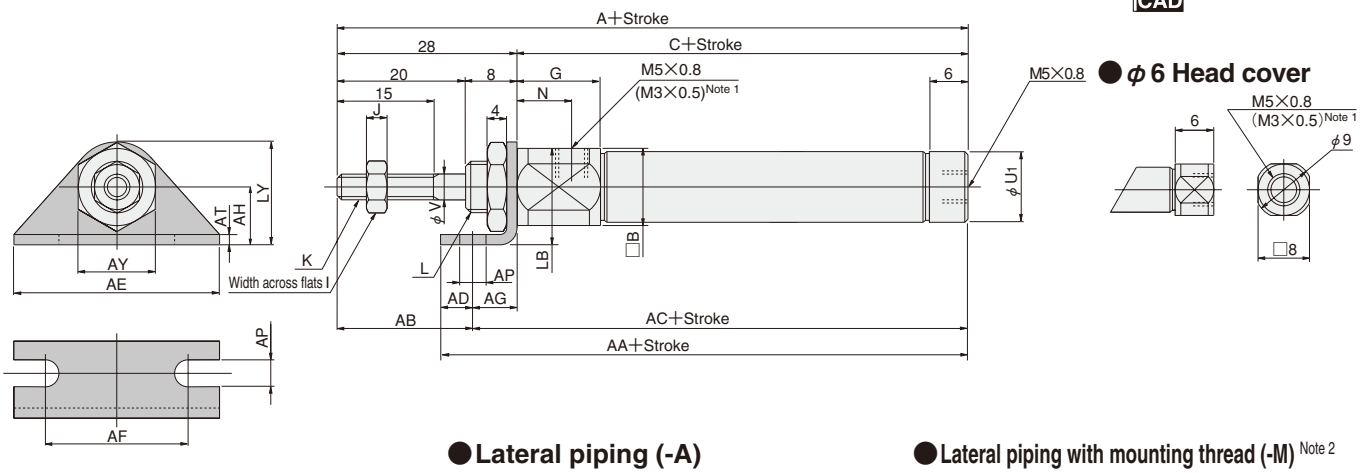


Bore mm [in.] / Code	A	C	B	B_1	G	I	J	K	L	N	U	U_1	U_2	V	AY
6 [0.236]	77	49	12	12	14.5	5.5	2.4	M3×0.5	M6×1	10	14	—	14	3	10
10 [0.394]	71	43	12	12	13	7	3.2	M4×0.7	M8×1	8.5	14	11	14	4	12
16 [0.630]	71.5	43.5	17	17	11.5	8	4	M5×0.8	M10×1	7	19	17	19	5	14

Notes: 1. For bore size ϕ6 only.
2. Not available for bore size ϕ6.

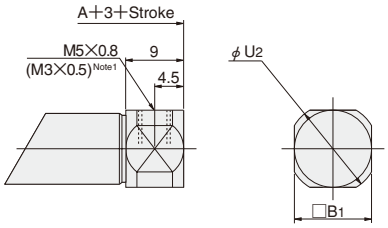
■Single foot type PBDA □ Bore size × Stroke -1A

CAD PBDA Bore size



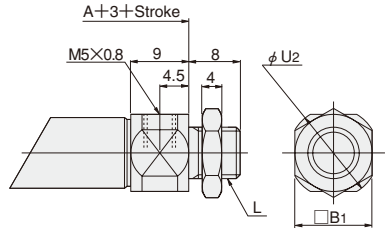
●Lateral piping (-A)

PBDA □ Bore size × Stroke -A-1A



●Lateral piping with mounting thread (-M) Note 2

PBDA □ Bore size × Stroke -M-1A



Bore mm [in.] / Code	A	B	C	B_1	G	I	J	K	L	N	U_1	U_2	V	AA	AB	AC	AD	AE	AF	AG	AH
6 [0.236]	77	12	49	12	14.5	5.5	2.4	M3×0.5	M6×1	10	—	14	3	61	21	56	5	32	22.2	7	9
10 [0.394]	71	12	43	12	13	7	3.2	M4×0.7	M8×1	8.5	11	14	4	55	21	50	5	32	22.2	7	9
16 [0.630]	71.5	17	43.5	17	11.5	8	4	M5×0.8	M10×1	7	17	19	5	58.5	19	52.5	6	42	29.2	9	14

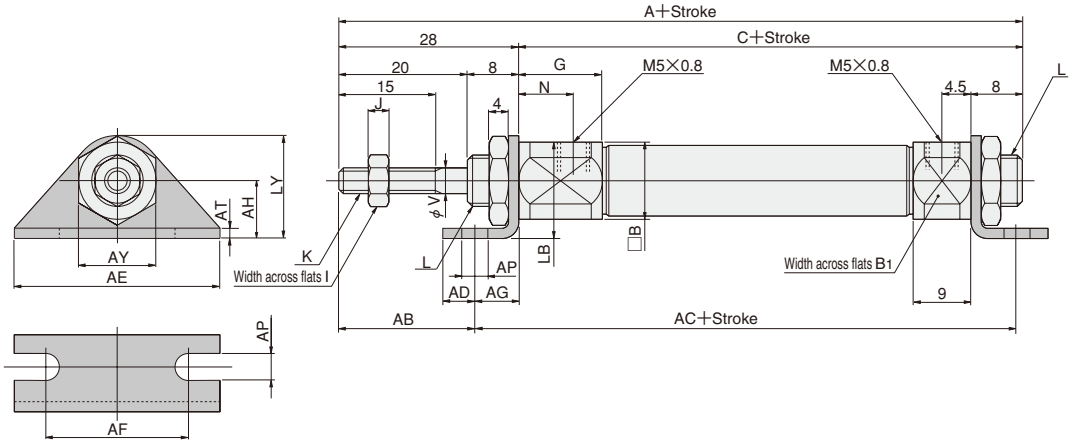
Bore mm [in.] / Code	AP	AT	AY	LB	LY
6 [0.236]	4.2	1.6	10	15	16
10 [0.394]	4.2	1.6	12	15	16
16 [0.630]	5.2	2.3	14	22.5	24

Notes: 1. For bore size ϕ6 only.
2. Not available for bore size ϕ6.

Dimensions of Double Acting Type (mm)

■Double foot type PBDA ☐ Bore size × Stroke -M-1

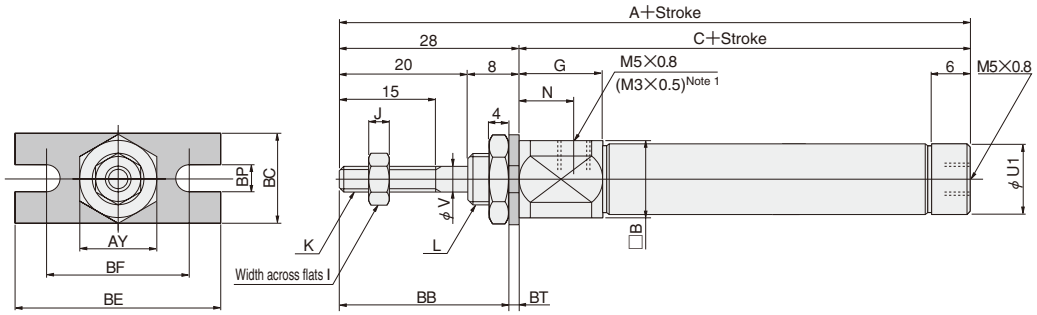
CAD PBDA Bore size



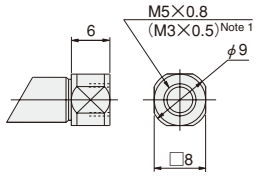
Bore mm [in.] \ Code	A	C	B	B_1	G	I	J	K	L	N	V	AB	AC	AD	AE	AF	AG	AH	AP	AT	AY	LB	LY
10 [0.394]	82	54	12	12	13	7	3.2	M4×0.7	M8×1	8.5	4	21	60	5	32	22.2	7	9	4.2	1.6	12	15	16
16 [0.630]	82.5	54.5	17	17	11.5	8	4	M5×0.8	M10×1	7	5	19	64.5	6	42	29.2	9	14	5.2	2.3	14	22.5	24

■Flange type PBDA ☐ Bore size × Stroke -3

CAD PBDA Bore size

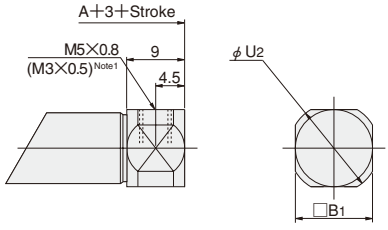


●φ6 Head cover



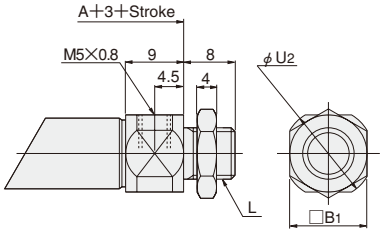
●Lateral piping (-A)

PBDA ☐ Bore size × Stroke -A-3



●Lateral piping with mounting thread (-M) Note 2

PBDA ☐ Bore size × Stroke -M-3



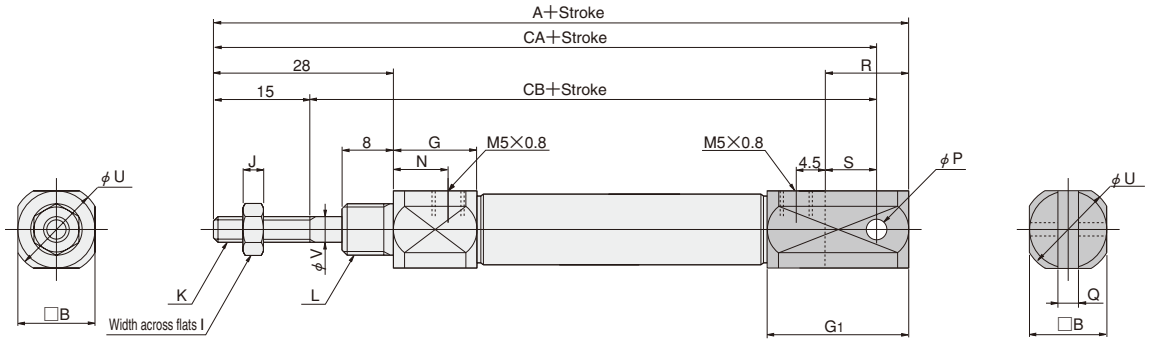
Bore mm [in.] \ Code	A	C	B	B_1	G	I	J	K	L	N	U_1	U_2	V	AY	BB	BC	BE	BF	BP	BT
6 [0.236]	77	49	12	12	14.5	5.5	2.4	M3×0.5	M6×1	10	—	14	3	10	26.4	14	32	22.2	4.2	1.6
10 [0.394]	71	43	12	12	13	7	3.2	M4×0.7	M8×1	8.5	11	14	4	12	26.4	14	32	22.2	4.2	1.6
16 [0.630]	71.5	43.5	17	17	11.5	8	4	M5×0.8	M10×1	7	17	19	5	14	25.7	20	42	29.2	5.2	2.3

Notes: 1. For bore size φ6 only.
2. Not available for bore size φ6.

Dimensions of Double Acting Type (mm)

●Clevis mounting type PBDA □ Bore size × Stroke -7

CAD PBDA Bore size 7

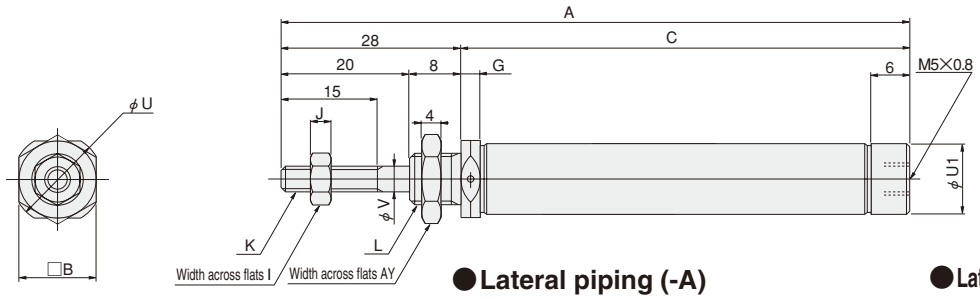


Bore mm [in.] \ Code	A	B	G	G_1	I	J	K	L	N	P	Q	R	S	U	V	CA	CB
10 [0.394]	87	12	13	22	7	3.2	M4×0.7	M8×1	8.5	$3.2^{+0.09}_{+0.06}$	$3.2^{+0.2}_{+0.1}$	13	8	14	4	82	67
16 [0.630]	92.5	17	11.5	27	8	4	M5×0.8	M10×1	7	$5^{+0.09}_{+0.06}$	$6.5^{+0.2}_{+0.1}$	18	10	19	5	84.5	69.5

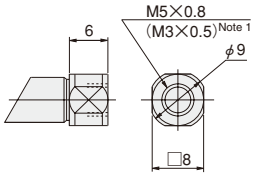
Dimensions of Single Acting Push Type (mm)

●Basic type PBSA □ Bore size × Stroke

PBSA Bore size

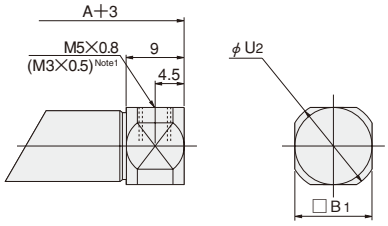


●ϕ6 Head cover



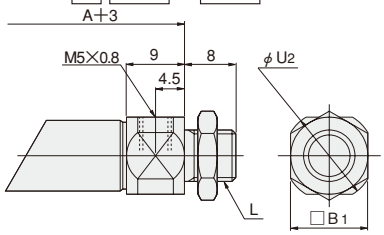
●Lateral piping (-A)

PBSA □ Bore size × Stroke -A



●Lateral piping with mounting thread (-M) Note 2

PBSA □ Bore size × Stroke -M



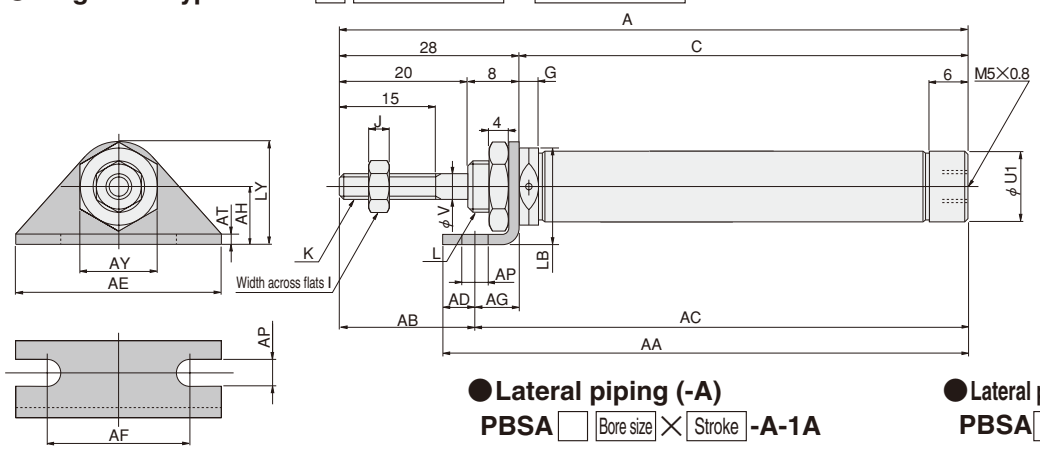
Notes: 1. For bore size ϕ6 only.
2. Not available for bore size ϕ6.

Bore mm [in.] \ Code	A												C											
Stroke	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60
6 [0.236]	72	77	82	92	97	102	122	127	132	137	142	147	44	49	54	64	69	74	94	99	104	109	114	119
10 [0.394]	71	76	81	91	96	101	116	121	126	131	136	141	43	48	53	63	68	73	88	93	98	103	108	113
16 [0.630]	76.5	81.5	86.5	96.5	101.5	106.5	121.5	126.5	131.5	136.5	141.5	146.5	48.5	53.5	58.5	68.5	73.5	78.5	93.5	98.5	103.5	108.5	113.5	118.5

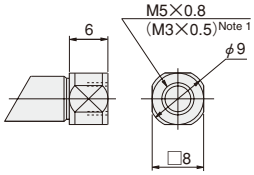
Bore mm [in.] \ Code	B	B_1	G	I	J	K	L	U	U_1	U_2	V	AY
6 [0.236]	8	8	4.5	5.5	2.4	M3×0.5	M6×1	9	—	10.8	3	10
10 [0.394]	12	12	3	7	3.2	M4×0.7	M8×1	14	11	14	4	12
16 [0.630]	17	17	6.5	8	4	M5×0.8	M10×1	19	17	19	5	14

●Single foot type PBSA □ Bore size × Stroke -1A

PBSA Bore size

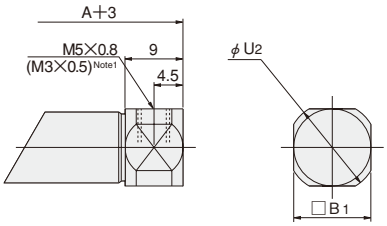


●ϕ6 Head cover



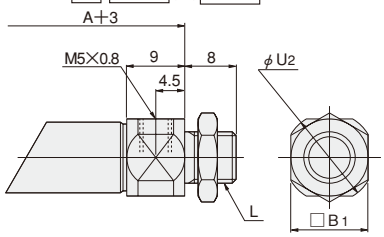
●Lateral piping (-A)

PBSA □ Bore size × Stroke -A-1A



●Lateral piping with mounting thread (-M) Note 2

PBSA □ Bore size × Stroke -M-1A



Notes: 1. For bore size ϕ6 only.
2. Not available for bore size ϕ6.

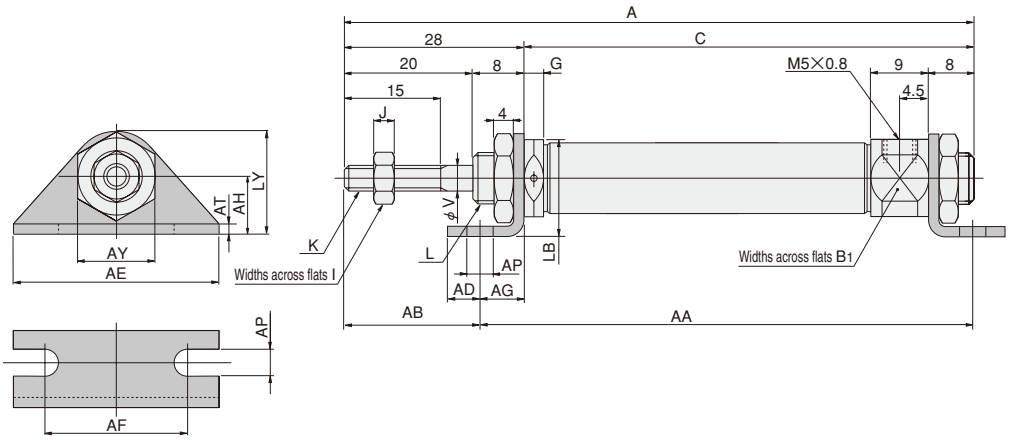
Bore mm [in.] \ Code	A												C												AA											
Stroke	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60
6 [0.236]	72	77	82	92	97	102	122	127	132	137	142	147	44	49	54	64	69	74	94	99	104	109	114	119	56	61	66	76	81	86	106	111	116	121	126	131
10 [0.394]	71	76	81	91	96	101	116	121	126	131	136	141	43	48	53	63	68	73	88	93	98	103	108	113	55	60	65	75	80	85	100	105	110	115	120	125
16 [0.630]	76.5	81.5	86.5	96.5	101.5	106.5	121.5	126.5	131.5	136.5	141.5	146.5	48.5	53.5	58.5	68.5	73.5	78.5	93.5	98.5	103.5	108.5	113.5	118.5	63.5	68.5	73.5	83.5	88.5	93.5	108.5	113.5	118.5	123.5	128.5	133.5

Bore mm [in.] \ Code	AC												B_1	G	I	J	K	L	U_1	U_2	V	AB	AD	AE	AF	AG	AH	AP	AT	AY	LB	LY
Stroke	5	10	15	20	25	30	35	40	45	50	55	60																					
6 [0.236]	51	56	61	71	76	81	101	106	111	116	121	126	8	4.5	5.5	2.4	M3×0.5	M6×1	—	10.8	3	21	5	32	22.2	7	9	4.2	1.6	10	13	16
10 [0.394]	50	55	60	70	75	80	95	100	105	110	115	120	12	3	7	3.2	M4×0.7	M8×1	11	14	4	21	5	32	22.2	7	9	4.2	1.6	12	15	16
16 [0.630]	57.5	62.5	67.5	77.5	82.5	87.5	102.5	107.5	112.5	117.5	122.5	127.5	17	6.5	8	4	M5×0.8	M10×1	17	19	5	19	6	42	29.2	9	14	5.2	2.3	14	22.5	24

Dimensions of Single Acting Push Type (mm)

■Double foot type PBSA □ Bore size × Stroke -M-1

CAD PBSA Bore size

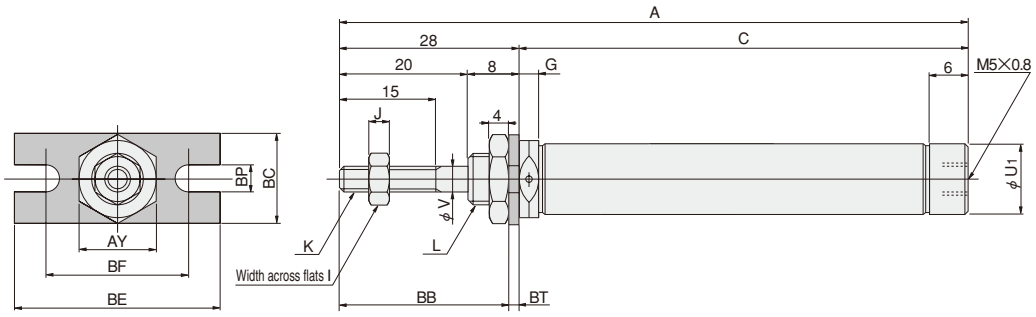


Code / Stroke / Bore mm [in.]	A												C												AA											
	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60
10 [0.394]	82	87	92	102	107	112	127	132	137	142	147	152	54	59	64	74	79	84	99	104	109	114	119	124	60	65	70	80	85	90	105	110	115	120	125	130
16 [0.630]	87.5	92.5	97.5	107.5	112.5	117.5	132.5	137.5	142.5	147.5	152.5	157.5	59.5	64.5	69.5	79.5	84.5	89.5	104.5	109.5	114.5	119.5	124.5	129.5	69.5	74.5	79.5	89.5	94.5	99.5	114.5	119.5	124.5	129.5	134.5	139.5

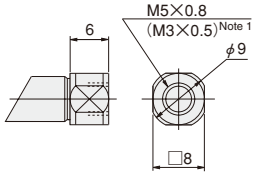
Bore mm [in.] / Code	B_1	G	I	J	K	L	V	AB	AD	AE	AF	AG	AH	AP	AT	AY	LB	LY
10 [0.394]	12	3	7	3.2	M4×0.7	M8×1	4	21	5	32	22.2	7	9	4.2	1.6	12	15	16
16 [0.630]	17	6.5	8	4	M5×0.8	M10×1	5	19	6	42	29.2	9	14	5.2	2.3	14	22.5	24

■Flange type PBSA □ Bore size × Stroke -3

CAD PBSA Bore size

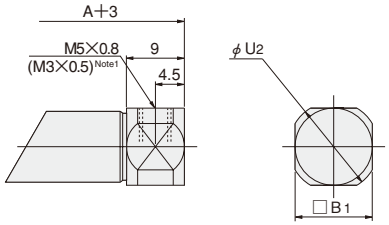


●φ6 Head cover



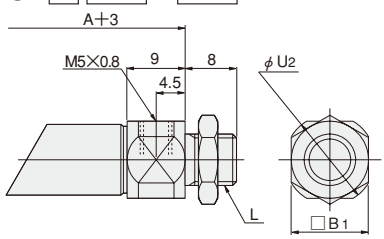
●Lateral piping (-A)

PBSA □ Bore size × Stroke -A-3



●Lateral piping with mounting thread (-M) Note 2

PBSA □ Bore size × Stroke -M-3



Code / Stroke / Bore mm [in.]	A												C											
	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60
6 [0.236]	72	77	82	92	97	102	122	127	132	137	142	147	44	49	54	64	69	74	94	99	104	109	114	119
10 [0.394]	71	76	81	91	96	101	116	121	126	131	136	141	43	48	53	63	68	73	88	93	98	103	108	113
16 [0.630]	76.5	81.5	86.5	96.5	101.5	106.5	121.5	126.5	131.5	136.5	141.5	146.5	48.5	53.5	58.5	68.5	73.5	78.5	93.5	98.5	103.5	108.5	113.5	118.5

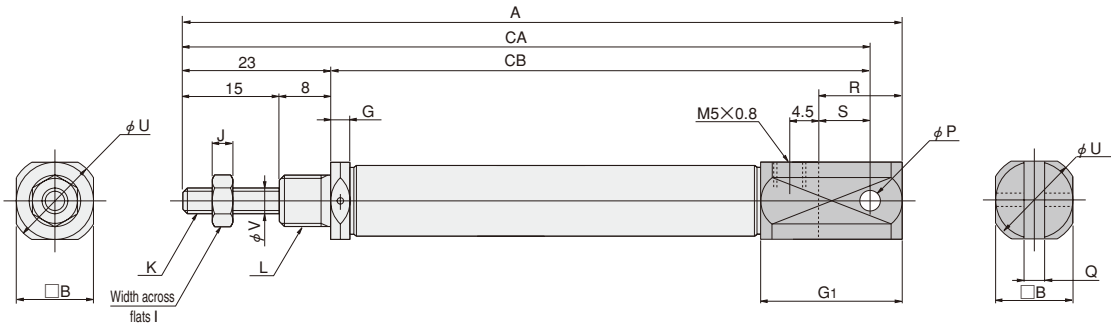
Bore mm [in.] / Code	B_1	G	I	J	K	L	U_1	U_2	V	AY	BB	BC	BE	BF	BP	BT
6 [0.236]	8	4.5	5.5	2.4	M3×0.5	M6×1	—	10.8	3	10	26.4	14	32	22.2	4.2	1.6
10 [0.394]	12	3	7	3.2	M4×0.7	M8×1	11	14	4	12	26.4	14	32	22.2	4.2	1.6
16 [0.630]	17	6.5	8	4	M5×0.8	M10×1	17	19	5	14	25.7	20	42	29.2	5.2	2.3

Notes: 1. For bore size φ6 only.
2. Not available for bore size φ6.

Dimensions of Single Acting Push Type (mm)

●Clevis mounting type PBSA □ Bore size × Stroke -7

CAD PBSA Bore size 7



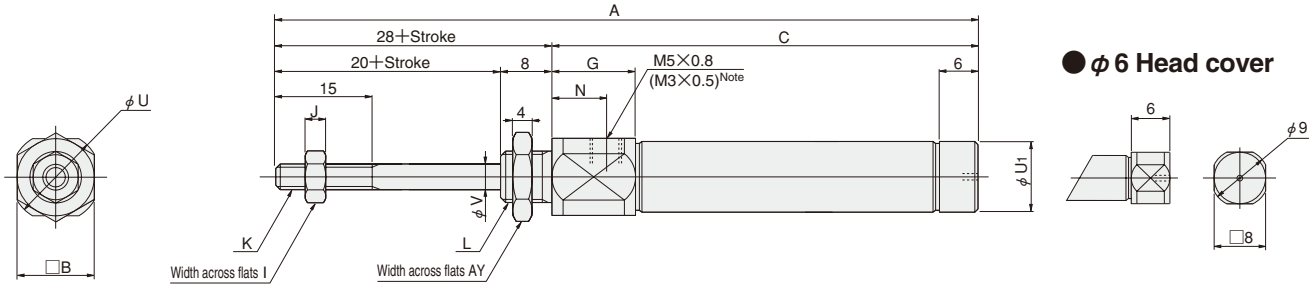
Code / Stroke / Bore mm [in.]	A												CA												CB											
	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60	5	10	15	20	25	30	35	40	45	50	55	60
10 [0.394]	82	87	92	102	107	112	127	132	137	142	147	152	77	82	87	97	102	107	122	127	132	137	142	147	54	59	64	74	79	84	99	104	109	114	119	124
16 [0.630]	92.5	97.5	102.5	112.5	117.5	122.5	137.5	142.5	147.5	152.5	157.5	162.5	84.5	89.5	94.5	104.5	109.5	114.5	129.5	134.5	139.5	144.5	149.5	154.5	61.5	66.5	71.5	81.5	86.5	91.5	106.5	111.5	116.5	121.5	126.5	131.5

Code / Bore mm [in.]	B	G	G_1	I	J	K	L	P	Q	R	S	U	V
10 [0.394]	12	3	22	7	3.2	M4×0.7	M8×1	$3.2^{+0.09}_{+0.06}$	$3.2^{+0.2}_{+0.1}$	13	8	14	4
16 [0.630]	17	6.5	27	8	4	M5×0.8	M10×1	$5^{+0.09}_{+0.06}$	$6.5^{+0.2}_{+0.1}$	18	10	19	5

Dimensions of Single Acting Pull Type (mm)

●Basic type PBTA □ Bore size × Stroke

CAD PBTA Bore size



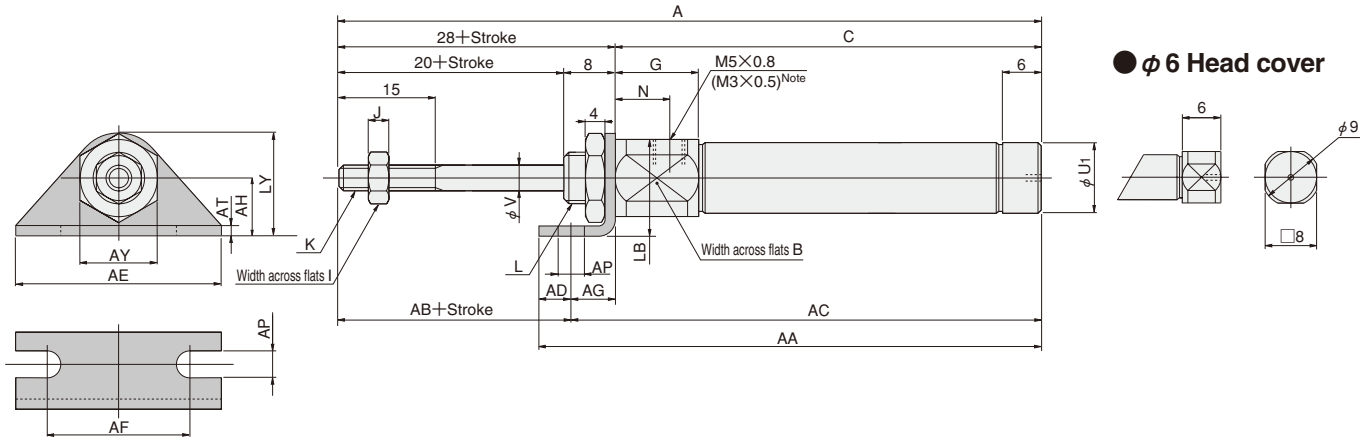
Code / Stroke / Bore mm [in.]	A						C					
	5	10	15	20	25	30	5	10	15	20	25	30
6 [0.236]	87	97	107	122	132	142	54	59	64	74	79	84
10 [0.394]	86	96	106	121	131	141	53	58	63	73	78	83
16 [0.630]	86.5	96.5	106.5	121.5	131.5	141.5	53.5	58.5	63.5	73.5	78.5	83.5

Bore mm [in.] / Code	B	G	I	J	K	L	N	U	U_1	V	AY
6 [0.236]	12	14.5	5.5	2.4	M3×0.5	M6×1	10	14	—	3	10
10 [0.394]	12	13	7	3.2	M4×0.7	M8×1	8.5	14	11	4	12
16 [0.630]	17	11.5	8	4	M5×0.8	M10×1	7	19	17	5	14

Note: For bore size ϕ6 only.

●Single foot type PBTA □ Bore size × Stroke -1A

CAD PBTA Bore size



Code / Stroke / Bore mm [in.]	A						C						AA						AC					
	5	10	15	20	25	30	5	10	15	20	25	30	5	10	15	20	25	30	5	10	15	20	25	30
6 [0.236]	87	97	107	122	132	142	54	59	64	74	79	84	66	71	76	86	91	96	61	66	71	81	86	91
10 [0.394]	86	96	106	121	131	141	53	58	63	73	78	83	65	70	75	85	90	95	60	65	70	80	85	90
16 [0.630]	86.5	96.5	106.5	121.5	131.5	141.5	53.5	58.5	63.5	73.5	78.5	83.5	68.5	73.5	78.5	88.5	93.5	98.5	62.5	67.5	72.5	82.5	87.5	92.5

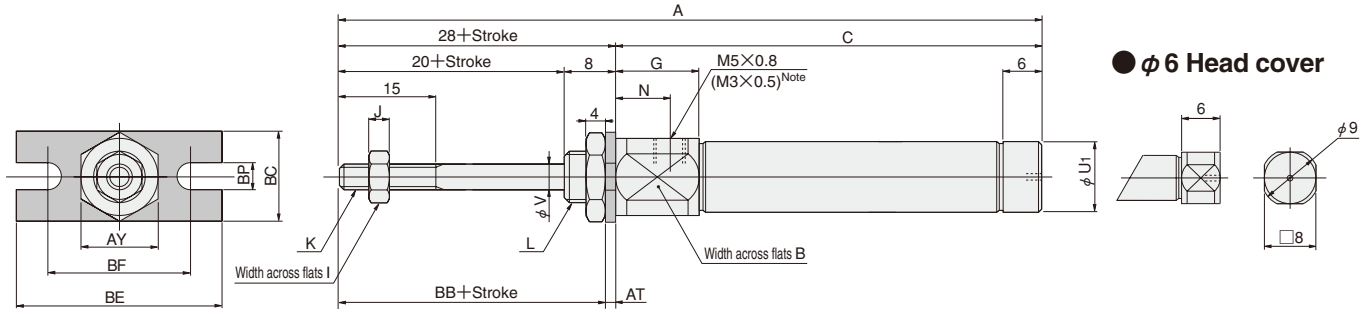
Bore mm [in.] / Code	B	G	I	J	K	L	N	U_1	V	AB	AD	AE	AF	AG	AH	AP	AT	AY	LB	LY
6 [0.236]	12	14.5	5.5	2.4	M3×0.5	M6×1	10	—	3	21	5	32	22.2	7	9	4.2	1.6	10	15	16
10 [0.394]	12	13	7	3.2	M4×0.7	M8×1	8.5	11	4	21	5	32	22.2	7	9	4.2	1.6	12	15	16
16 [0.630]	17	11.5	8	4	M5×0.8	M10×1	7	17	5	19	6	42	29.2	9	14	5.2	2.3	14	22.5	24

Note: For bore size ϕ6 only.

Dimensions of Single Acting Pull Type (mm)

●Flange type PBTA ☐ Bore size × Stroke -3

CAD PBTA Bore size



●ϕ6 Head cover

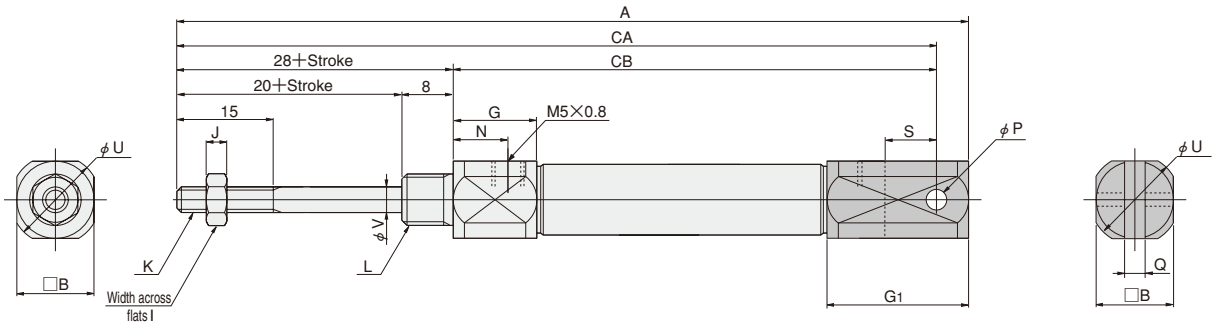
Code / Stroke / Bore mm [in.]	A						C					
	5	10	15	20	25	30	5	10	15	20	25	30
6 [0.236]	87	97	107	122	132	142	54	59	64	74	79	84
10 [0.394]	86	96	106	121	131	141	53	58	63	73	78	83
16 [0.630]	86.5	96.5	106.5	121.5	131.5	141.5	53.5	58.5	63.5	73.5	78.5	83.5

Bore mm [in.] / Code	B	G	I	J	K	L	N	U_1	V	AT	AY	BB	BC	BE	BF	BP
6 [0.236]	12	14.5	5.5	2.4	M3×0.5	M6×1	10	—	3	1.6	10	26.4	14	32	22.2	4.2
10 [0.394]	12	13	7	3.2	M4×0.7	M8×1	8.5	11	4	1.6	12	26.4	14	32	22.2	4.2
16 [0.630]	17	11.5	8	4	M5×0.8	M10×1	7	17	5	2.3	14	25.7	20	42	29.2	5.2

Note: For bore size ϕ6 only.

●Clevis mounting type PBTA ☐ Bore size × Stroke -7

CAD PBTA Bore size 7



Code / Stroke / Bore mm [in.]	A						CA						CB					
	5	10	15	20	25	30	5	10	15	20	25	30	5	10	15	20	25	30
10 [0.394]	102	112	122	137	147	157	97	107	117	132	142	152	64	69	74	84	89	94
16 [0.630]	107.5	117.5	127.5	142.5	152.5	162.5	99.5	109.5	119.5	134.5	144.5	154.5	66.5	71.5	76.5	86.5	91.5	96.5

Bore mm [in.] / Code	B	G	G_1	I	J	K	L	N	P	Q	S	U	V
10 [0.394]	12	13	22	7	3.2	M4×0.7	M8×1	8.5	$3.2^{+0.09}_{+0.06}$	$3.2^{+0.2}_{+0.1}$	8	14	4
16 [0.630]	17	11.5	27	8	4	M5×0.8	M10×1	7	$5^{+0.09}_{+0.06}$	$6.5^{+0.2}_{+0.1}$	10	19	5