

Features

- * Identical to ISO6432 $\phi 20 \sim \phi 25$.
- * Built in magnet for sensor use.
- * Miniature size and space saving.



How to order

PCL		32	B	50	SF	1	FA	Y
Type	Bore size	Magnet	Stroke	Sensor type	Number of sensor	Mounting parts	Rod end joint	
PCL	20 $\phi 20$			Blank W/O sensor	1 pc	Blank W/O mounting parts	Blank W/O rod end joint	
PCCL	25 $\phi 25$			SF LED in front	2 pcs	FA Front flange	Y Double knuckle joint	
PCLD	32 $\phi 32$					FB Rear flange	I Single knuckle joint	
PCLA	40 $\phi 40$					TC Central trunnion	P Eyebolt floating joint	
PCLB						CA Male clevis	T Basic floating joint	
APCL				AL-20R		CB Female clevis	L Axial foot type floating joint	
APDL				ST LED on top		LB Foot mounting	F Flange type floating joint.	
APCCL								
APDCL								

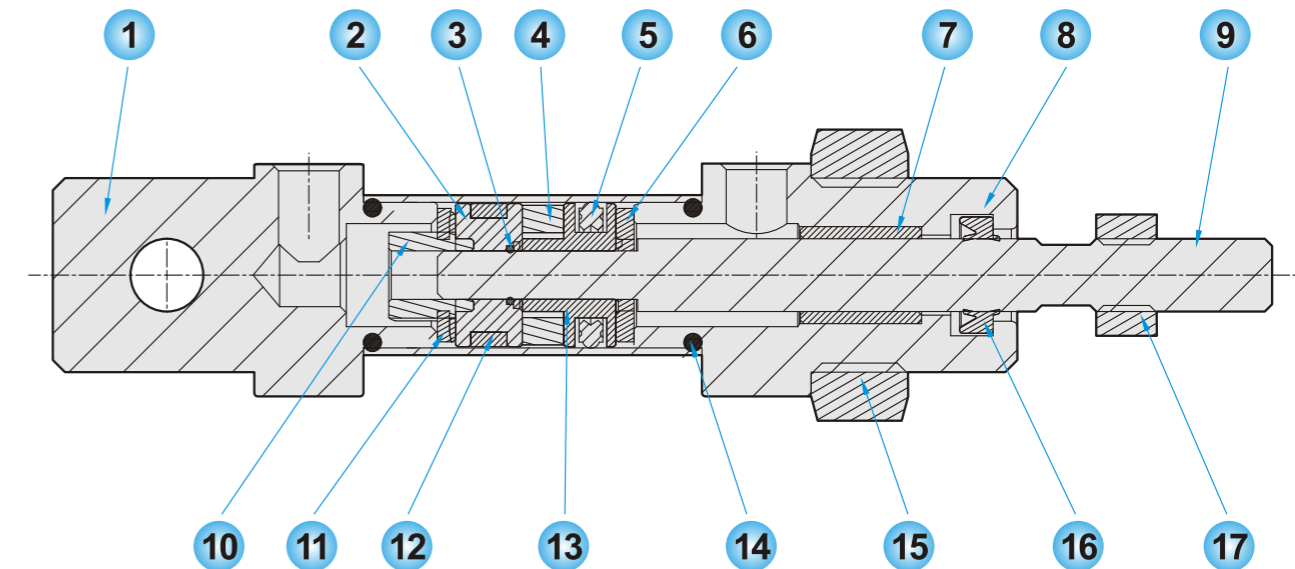
How to order Mounting parts / Rod end joints

ZIP	FA	Y	32
PC, PCL Series	Mounting parts	Rod end joint	Bore size
	Blank W/O mounting parts	Blank W/O rod end joint	20 $\phi 20$
	FA Front flange	FY Double knuckle joint	25 $\phi 25$
	FB Rear flange	FI Single knuckle joint	32 $\phi 32$
	TC Central trunnion	P Eyebolt floating joint	40 $\phi 40$
	CB Female clevis	T Basic floating joint	
	LB Foot mounting	L Axial foot type floating joint	
		F Flange type floating joint.	

Specifications

Bore size	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Port size	1/8"			
Fluid	Compressed air			
Acting	Double acting or single acting			
Operating pressure range	1.5 ~ 8.5 kgf/cm ²			
Max operating pressure	9.5 kgf/cm ²			
Barrel material	Aluminum alloy			
Ambient temperature	-5°C ~ 60°C			
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	Aluminum alloy	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				

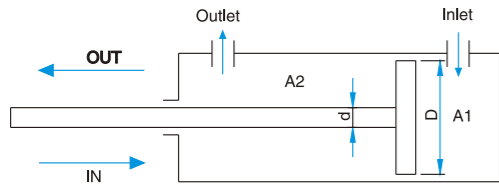
Stroke table

Bore size	Acting	Standard stroke (mm)
$\phi 20$	Single acting	25, 50
$\phi 20$	Double acting	25, 50, 75, 100, 125, 150, 200
$\phi 25$	Single acting	25, 50
$\phi 25$	Double acting	25, 50, 75, 100, 125, 150, 200, 250, 300
$\phi 32$	Single acting	25, 50
$\phi 32$	Double acting	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500
$\phi 40$	Single acting	25, 50
$\phi 40$	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 20		φ 25		φ 32		φ 40		
Rod diameter	φ 8		φ 10		φ 12		φ 16		
Acting	Double acting		Double acting		Double acting		Double acting		
	Push	Pull	Push	Pull	Push	Pull	Push	Pull	
Operating pressure (kgf/cm ²)	1	3	2	4	3	8	8	12	10
	2	6	5	9	8	16	13	25	21
	3	9	7	14	12	24	20	37	31
	4	12	10	19	16	32	27	50	42
	5	15	13	24	20	40	34	62	52
	6	18	15	29	24	48	47	75	63
	7	21	18	34	28	56	48	87	73
	8	25	21	39	32	64	55	100	84
	9	28	23	44	37	72	62	113	94
	10	31	26	49	41	80	69	126	105



Actual in force

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

Actual out force

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

Theoretical force

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

$$F = A \times P$$

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

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.

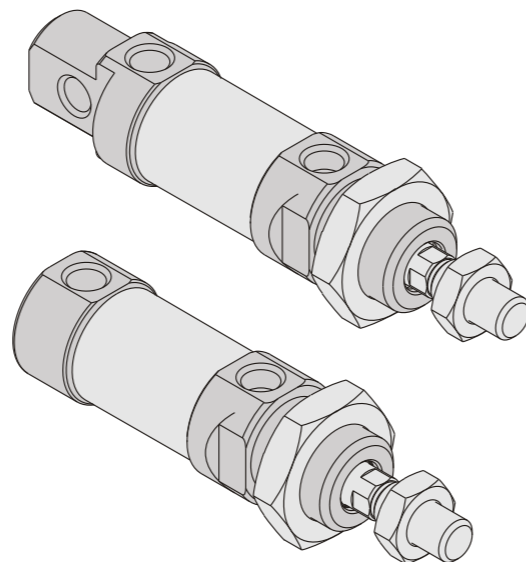
Normal operating speed takes 65 percent.

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.

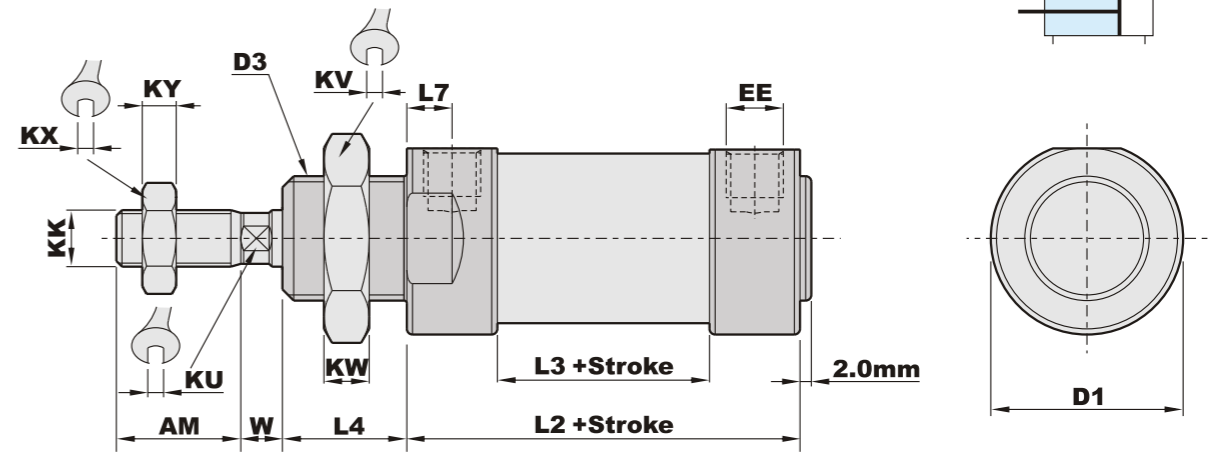
$$Q = \frac{(A1+A2)L(P+1)N}{1000} \text{ (l/min)} \times K$$

- 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



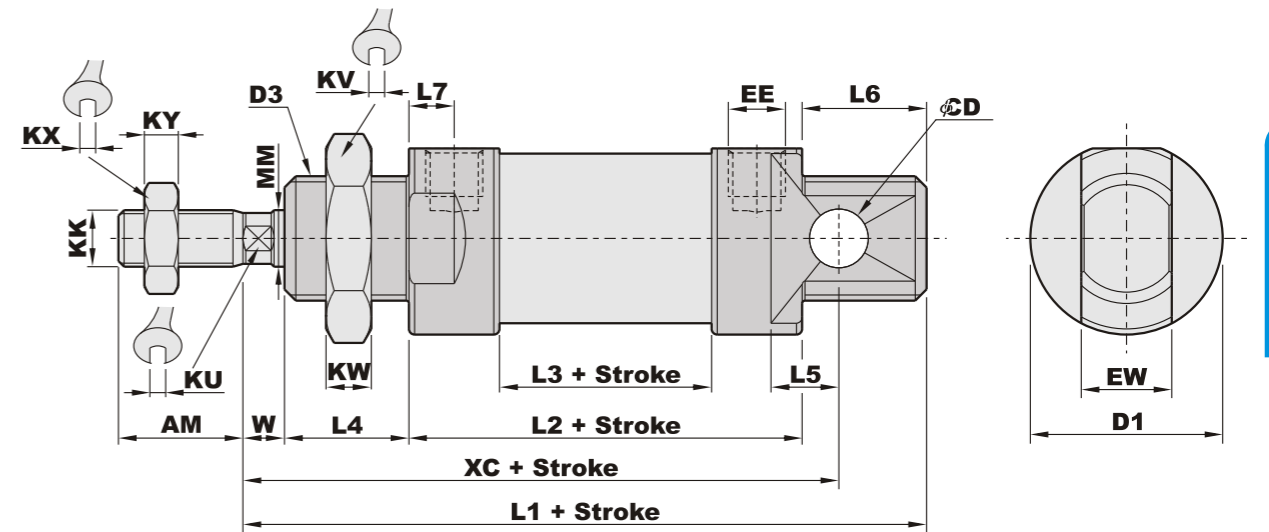
Dimensions

PCCL Boss-cut type



PCL, PCCL
ISO6432 Standard,
Boss-cut type

PCL Standard integrated clevis type



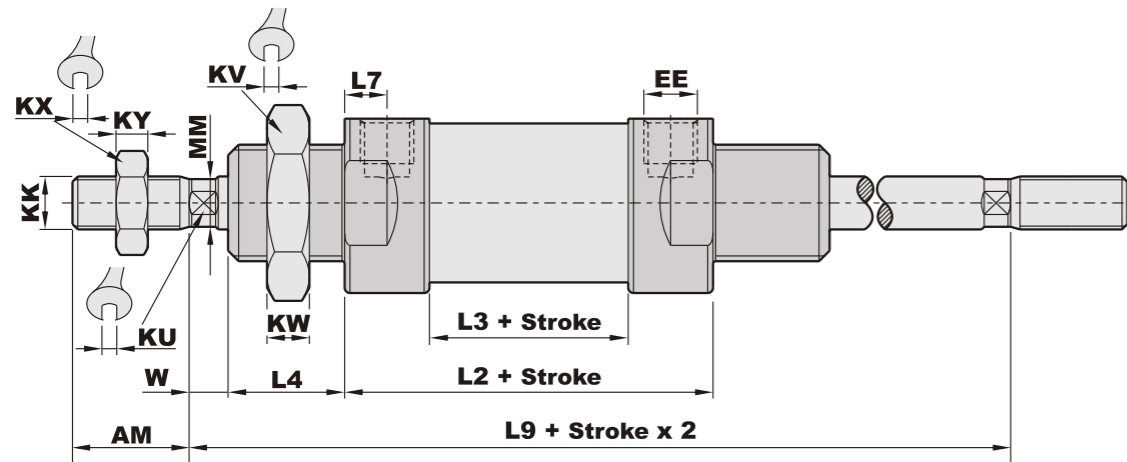
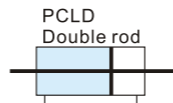
(Unit : mm)

Bore size	AM	D1	φ CD	D3	L1	L2	L3	L4	L5	L6	L7
φ 20	20	29	φ 8	M22xP1.5	109	67	36	18	12	20	7.75
φ 25	22	34	φ 8	M22xP1.5	117.5	69.5	37.5	20	12	20	8
φ 32	22	39.5	φ 10	M27xP2.0	133	83	47	20	13.5	22	9
φ 40	24	49	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
φ 20	M8xP1.25	4	32	8	14	4	φ 8	6	16	95	PS 1/8
φ 25	M10xP1.25	6	32	8	17	6	φ 10	8	16	104	PS 1/8
φ 32	M10xP1.25	6	36	9.5	17	6	φ 12	8	22	120	PS 1/8
φ 40	M12xP1.25	8	40.5	9.5	19	8	φ 16	11	26	125	PS 1/8

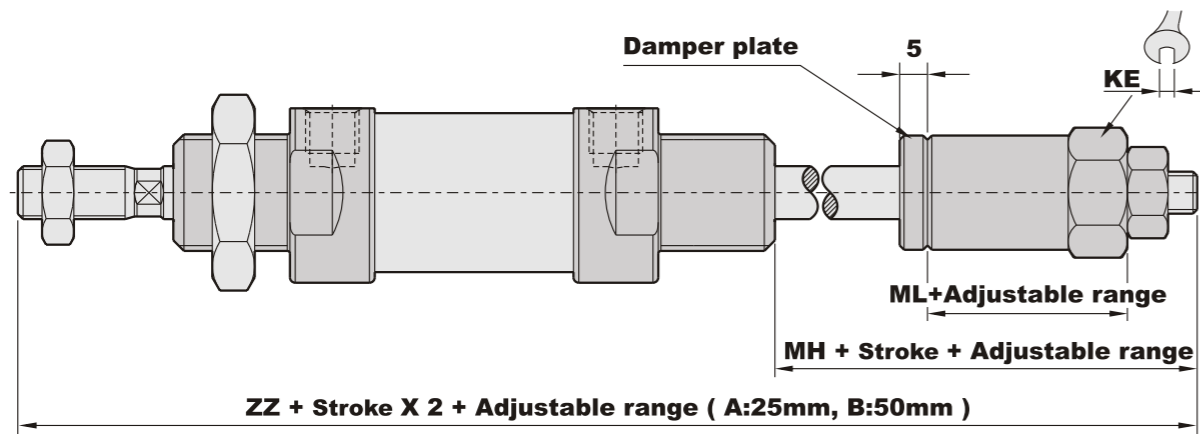
Dimensions

PCLD Double rod type



PCLA Stroke adjustable 25mm PCLB Stroke adjustable 50mm

PCLA, PCLB
Stroke adjustable 25mm, 50mm



(Unit : mm)

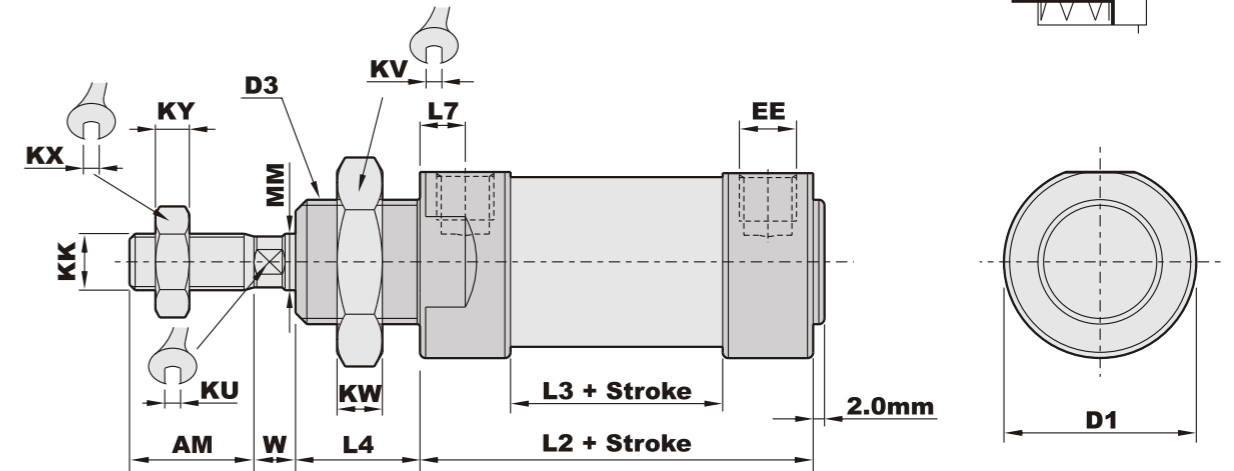
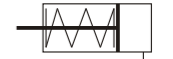
Bore size	AM	L2	L3	L4	L7	EE	KU	KV	KW	KX	KY
φ 20	20	67	36	18	7.75	PS 1/8	4	32	8	14	4
φ 25	22	69.5	37.5	20	8	PS 1/8	6	32	8	17	6
φ 32	22	83	47	20	9	PS 1/8	6	36	9.5	17	6
φ 40	24	85	49	20	9	PS 1/8	8	40.5	9.5	19	8

Bore size	MM	W	KK	L9	ZZ	MH	ML	KE
φ 20	φ 8	6	M8xP1.25	115	160	31	20	19
φ 25	φ 10	8	M10xP1.25	125.5	172.5	33	20	19
φ 32	φ 12	8	M10xP1.25	139	188	35	22	21
φ 40	φ 16	11	M12xP1.25	147	195	35	22	26

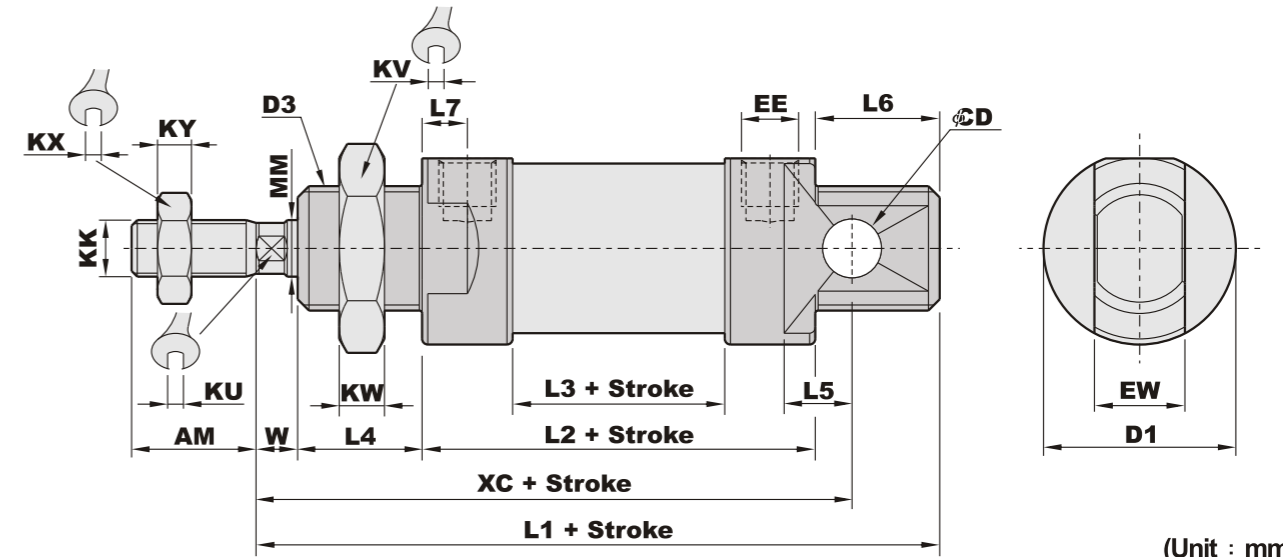
Dimensions

APCCL Single acting/Spring return/Boss-cut

APCL, APCCL
Single acting/Spring return



APCL Single acting/Spring return/Standard integrated clevis



(Unit : mm)

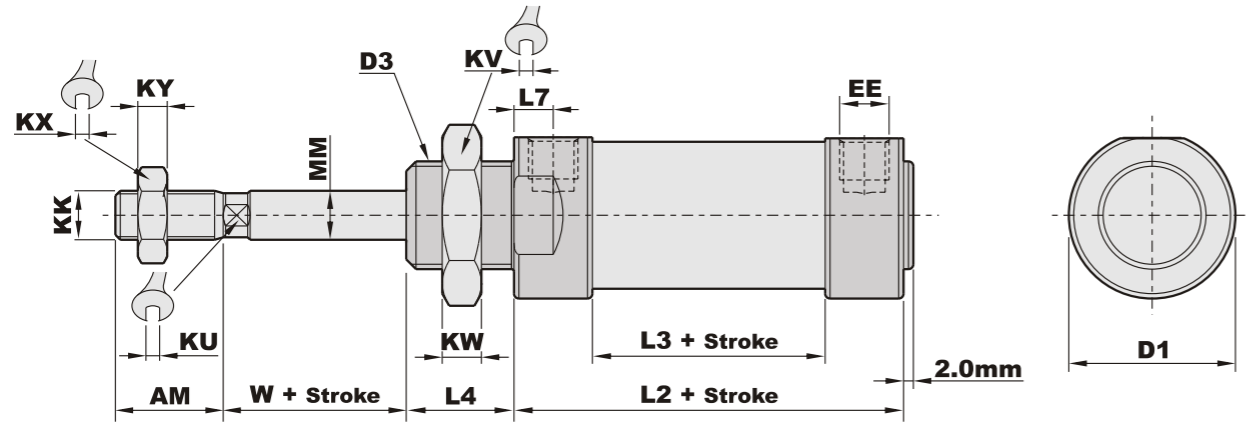
Bore size	AM	D1	φ CD	D3	L1	L2	L3	L4	L5	L6
φ 20	20	29	φ 8	M22xP1.5	134	92	61	18	12	20
φ 25	22	34	φ 8	M22xP1.5	142.5	94.5	62.5	20	12	20
φ 32	22	39.5	φ 10	M27xP2.0	158	108	72	20	13.5	22
φ 40	24	49	φ 10	M33xP2.0	163	110	74	20	13.5	22

Bore size	L7	KK	KU	KV	KW	KX	KY	MM	W	EW	XC	EE
φ 20	7.75	M8xP1.25	4	32	8	14	4	φ 8	6	16	120	PS 1/8
φ 25	8	M10xP1.25	6	32	8	17	6	φ 10	8	16	129	PS 1/8
φ 32	9	M10xP1.25	6	36	9.5	17	6	φ 12	8	22	145	PS 1/8
φ 40	9	M12xP1.25	8	40.5	9.5	19	8	φ 16	11	26	150	PS 1/8

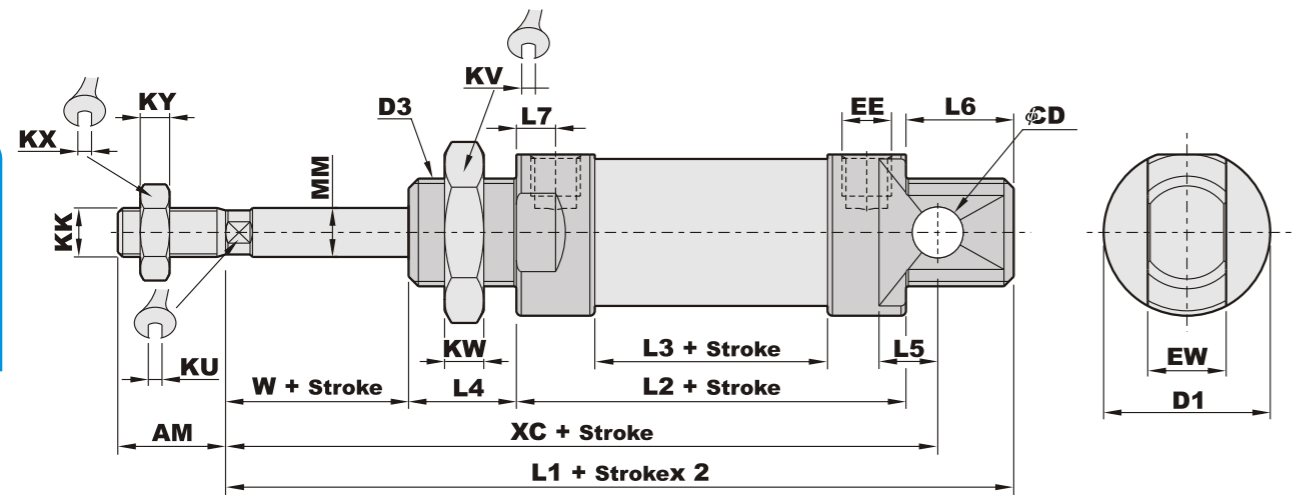
Dimensions

APDCL Single acting/Spring extended/Boss-cut

APDL, APDCL
Single acting/Spring
extended



APDL Single acting/Spring extended/Standard integrated clevis



(Unit : mm)

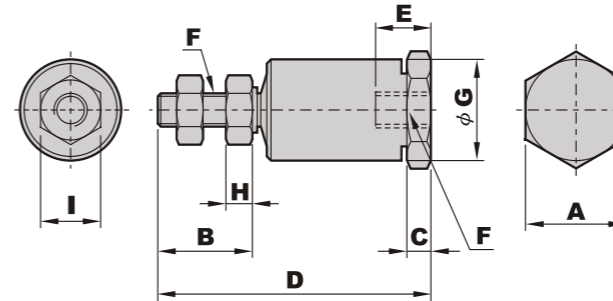
Bore size	AM	D1	φ CD	D3	L1	L2	L3	L4	L5	L6
φ 20	20	29	φ 8	M22xP1.5	134	93	61	18	12	20
φ 25	22	34	φ 8	M22xP1.5	140.5	94	62.5	20	12	20
φ 32	22	39.5	φ 10	M27xP2.0	158	108	72	20	13.5	22
φ 40	24	49	φ 10	M32xP2.0	163	110	74	20	13.5	22

Bore size	L7	KK	KU	KV	KW	KX	KY	MM	W	EW	XC	EE
φ 20	7.75	M8xP1.25	4	32	8	14	4	φ 8	6	16	120	PS 1/8
φ 25	8	M10xP1.25	6	32	8	17	6	φ 10	8	16	129	PS 1/8
φ 32	9	M10xP1.25	6	36	9.5	17	6	φ 12	8	22	145	PS 1/8
φ 40	9	M12xP1.25	8	40.5	9.5	19	8	φ 16	11	26	150	PS 1/8

Dimensions

Basic type floating joint (T)

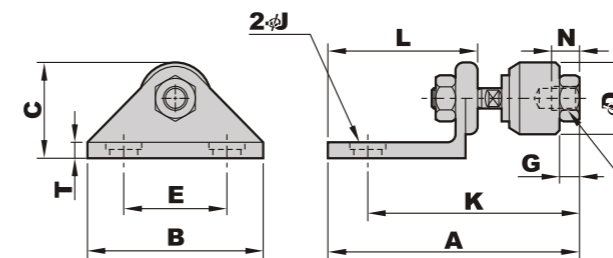
(Unit : mm)



Bore size	A	B	C	D	E	F	G	H	I
5	10	4	26	5	M4xP0.7	12	-	-	-
10	12.5	5	37	7	M6xP1.0	18	-	-	-
φ 10	10	12.5	5	37	7	M6xP1.0	18	-	-
φ 12	13	18	7	50	8	M8xP1.25	24	-	-
φ 16	17	20	8	58	9	M10xP1.25	26	6	17
φ 20	17	20	8	58	9	M10xP1.25	26	6	17
φ 25	17	21.5	8	58	9	M12xP1.25	28	7	19
φ 32	27	27	12	90	14	M16xP1.5	45	8	24
φ 40	27	27	12	90	14	M16xP1.5	45	8	24
φ 50	33	29	14	102	18	M20xP1.5	53	8	27
φ 63	33	29	14	102	18	M20xP1.5	53	8	27
φ 80									
φ 100									

Axial foot type floating joint (L)

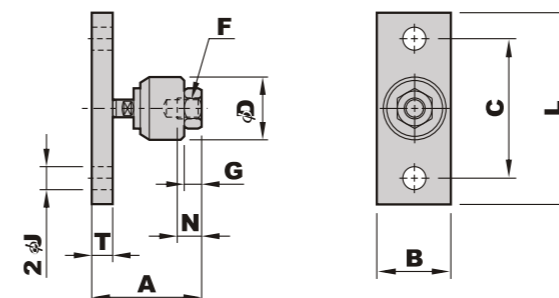
(Unit : mm)



Bore size	A	B	C	D	E	G	J	K	L	N	T	F
φ 20	63	44	15	24	26	7	9	53	29	8	4	M8xP1.25
φ 25	74	44	19	26	26	8	9	63	35	9	5	M10xP1.25
φ 32	71	45	19	28	26	8	9	60	35	9	5	M12xP1.25
φ 40	71	45	19	28	26	8	9	60	35	9	5	M12xP1.25
φ 50	151	60	28	45	32	13	11	105	90	15	15	M18xP1.5
φ 63	151	60	28	45	32	13	11	105	90	15	15	M18xP1.5
φ 80	178	68	35	53	36	15	14	124	106	18	20	M20xP1.5
φ 100	178	68	35	53	36	15	14	124	106	18	20	M20xP1.5

Flange type floating joint (F)

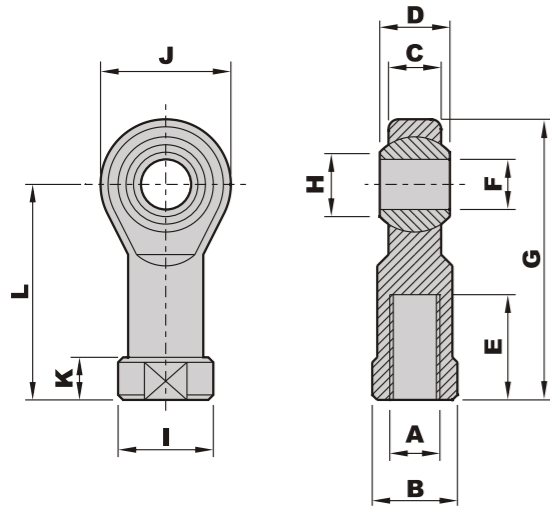
(Unit : mm)



Bore size	A	B	C	D	F	G	J	L	N	T
φ 20	39	25	40	24	M8xP1.25	7	φ6.6	52	8	6
φ 25	48	32	44	26	M10xP1.25	8	φ6.6	56	9	9
φ 32	45	32	44	28	M12xP1.25	8	φ6.6	80	9	9
φ 40	45	32	44	28	M12xP1.25	8	φ6.6	80	9	9
φ 50	76	74	45	45	M18xP1.5	13	φ11	-	15	15
φ 63	76	74	45	45	M18xP1.5	13	φ11	-	15	15
φ 80	87	87	100	62	M20xP1.5	15	φ14	-	18	18
φ 100	87	87	100	62	M20xP1.5	15	φ14	-	18	18

Dimensions

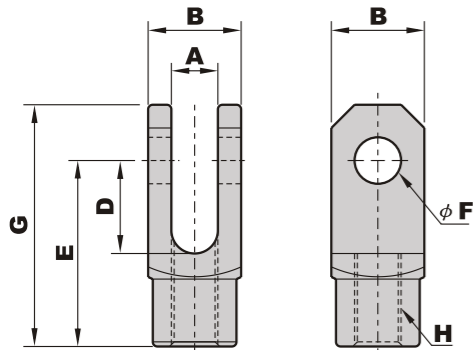
Eyebolt floating joint (P)



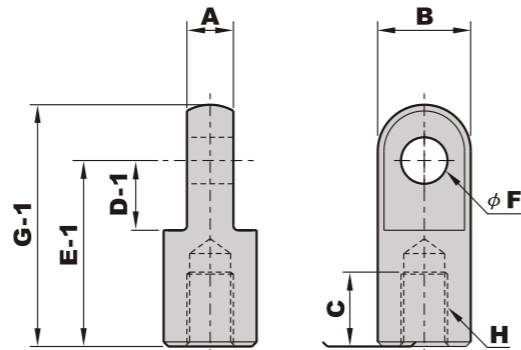
(Unit : mm)

Bore size	A	B	C	D	E	F	G	J	L
φ 12	M6xP1.0	11	6.7	9	14	φ6	39	18	30
φ 16	M6xP1.0	11	6.7	9	14	φ6	39	18	30
φ 20	M8xP1.25	14	9	12	17	φ8	47	22	36
φ 25	M10xP1.25	17	10.5	14	21	φ10	56	26	43
φ 32	M10xP1.25	17	10.5	14	21	φ10	56	26	43
φ 40	M12xP1.25	19	12	16	24	φ12	65	30	50
φ 50	M16xP1.5	22	15	21	33	φ16	83	38	64
φ 63	M16xP1.5	22	15	21	33	φ16	83	38	64
φ 80	M20xP1.5	30	18	25	40	φ20	100	46	77
φ 100	M30xP1.5	40	26	37	56	φ30	143.5	67	110

Double knuckle joint (Y)



Single knuckle joint (I)



(Unit : mm)

Bore size	A	B	C	D	D-1	E	E-1	F	G	G-1	H
φ 20	8	19	---	10	10	35	35	8	45	45	M8XP1.25
φ 25	8	19	---	10	10	35	35	8	45	45	M10XP1.25
φ 32	10	20	16	20	14	40	40	10	52	52	M10XP1.25
φ 40	12	25	18	24	16	48	48	12	62	62	M12XP1.25
φ 50	16	32	26	32	20	65	56	16	83	70	M16XP1.5
φ 63	16	32	26	32	20	65	56	16	83	70	M16XP1.5
φ 80	20	40	30	40	30	80	68	20	105	88	M20XP1.5
φ 100	20	40	30	40	30	80	68	20	105	88	M20XP1.5

