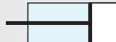


Symbol

IC : ISO6431 standard type



ICD : Double piston rod type

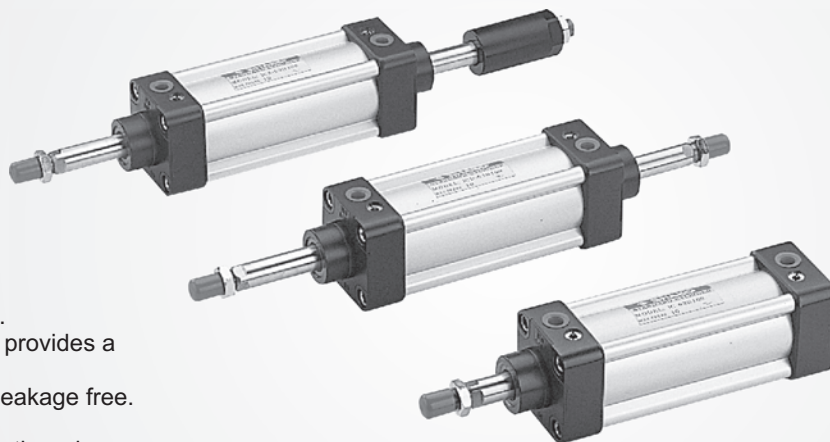


ICA, ICB : Adjustable type



Features

- * Identical to ISO6431 standard.
- * High quality of aluminum tube provides a long service life.
- * High quality of seals ensures leakage free.
- * Various sensors for option.
- * With adjustable cushions on both ends.



How to order

※For ϕ IC32~ ϕ IC100 non-rotated type, please contact our sales.

IC	32	B	50	SF	1	FA	Y
Type	Bore size	Magnet	Stroke	Sensor type	Number of sensor	Mounting parts	Rod end joint
IC ISO6431 standard type	32 ϕ 32	B W/I magnet		Blank W/O sensor		Blank W/O mounting parts	Blank W/O rod end joint
ICD Double piston rod type	40 ϕ 40	C W/O magnet		SF LED in front	1 pc	FA Front flange	Y Double knuckle joint
ICA Stroke adjustable 25mm	50 ϕ 50			ST LED on top	2 pcs	FB Rear flange	I Single knuckle joint
ICB Stroke adjustable 50mm	63 ϕ 63					TC Central trunnion	P Eyebolt floating joint
	80 ϕ 80					CA Male clevis	T Basic floating joint
	100 ϕ 100					CB Female clevis	
						LB Foot mounting	

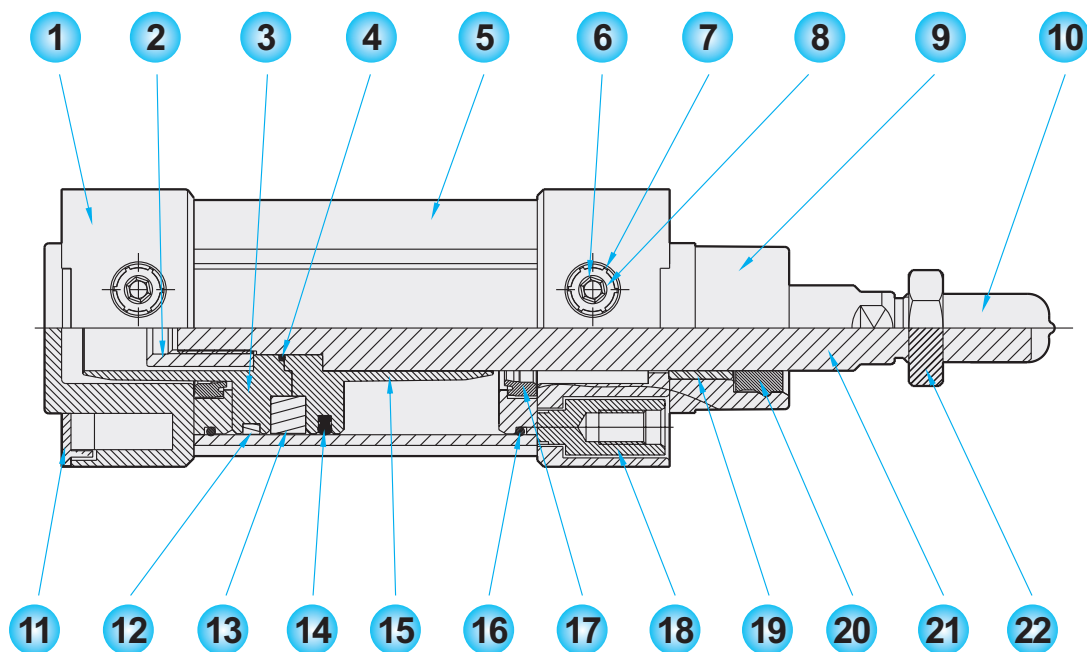
How to order Mounting parts / Rod end joints

ZI	FA	FY	32
IC series	Mounting parts	Rod end joint	Bore size
	Blank W/O mounting parts	Blank W/O rod end joint	32 ϕ 32
	FA Front flange	FY Double knuckle joint	40 ϕ 40
	FB Rear flange	FI Single knuckle joint	50 ϕ 50
	TC Central trunnion	P Eyebolt floating joint	63 ϕ 63
	CA Male clevis	T Basic floating joint	80 ϕ 80
	CB Female clevis		100 ϕ 100
	LB Foot mounting		125 ϕ 125
			160 ϕ 160
			200 ϕ 200

Specifications

Bore size	ϕ 32	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 160	ϕ 200
Port size	1 / 8"	1 / 4"		3 / 8"		1 / 2"		3 / 4"	
Fluid	Compressed air								
Acting	Double acting								
Operating pressure range	1.5 ~ 9.5 kgf/cm ² (150~950Mpa)								
Barrel material	Aluminum alloy								
Cushion	Built in								
Magnet	Option								
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	12	Wear ring	Teflon	1
2	Piston mounting nut	Brass+Ni	1	13	Magnet	Rubber	1
3	Rear piston	Aluminum alloy	1	14	U-Piston seal	NBR	1
4	O-ring	NBR	1	15	Front piston	Aluminum alloy	1
5	Barrel	Aluminum alloy	1	16	O-ring	NBR	2
6	Cushion needle	Brass	1	17	Cushion	NBR	2
7	Fixing nut	Brass+Ni	2	18	Fixing bolt	Fe+Ni	8
8	O-ring	NBR	2	19	Bush bearing	Brass	1
9	Front cover	Aluminum alloy	1	20	Rod seal	NBR	1
10	Rubber cap	NBR	1	21	Piston rod	S45C+Cr	1
11	Rear plate	Plastic	1	22	Nut	Fe+Ni	1

Stroke table

Bore size		Acting	Standard stroke(mm)
φ 32	φ 63	Double acting	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
φ 40	φ 80		
φ 50	φ 100		

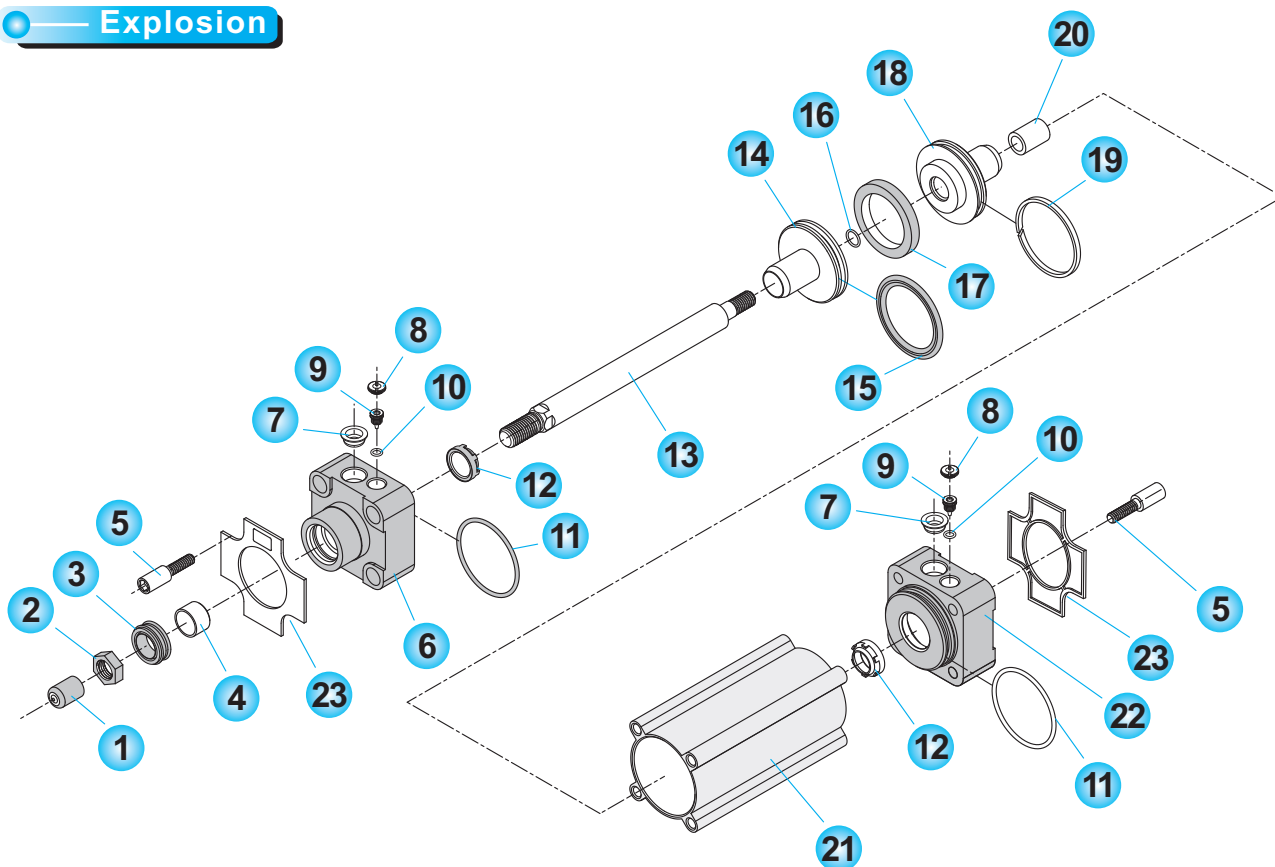
Note: Please contact our sales for non-standard stroke.

How to order Cylinder kit/Repair kit

Bore size	Cylinder kit	Repair kit
φ 32	ZGCI-32	ZGCIN-32
φ 40	ZGCI-40	ZGCIN-40
φ 50	ZGCI-50	ZGCIN-50
φ 63	ZGCI-63	ZGCIN-63
φ 80	ZGCI-80	ZGCIN-80

Bore size	Cylinder kit	Repair kit
φ 100	ZGCI-100	ZGCIN-100
φ 125	ZGCI-125	ZGCIN-125
φ 160	ZGCI-160	ZGCIN-160
φ 200	ZGCI-200	ZGCIN-200

Explosion



No.	Description	Qty.
1	Rubber cap	1
2	Rod nut	1
3	Front seal	1
4	Bush bearing	1
5	Fixing bolt	8
6	Front cover	1
7	Port plug	2
8	Fixing nut	2
9	Cushion needle	2
10	O-ring	2
11	Front cover o-ring	2
12	Cushion o-ring	2

No.	Description	Qty.
13	Piston rod	1
14	Front piston	1
15	U-Piston seal	1
16	O-ring	1
17	Rubber magnet	1
18	Rear piston	1
19	Wear ring	1
20	Piston mounting nut	1
21	Aluminum barrel	1
22	Rear cover	1
23	Rear plate	1

Theoretical force

Bore size		ϕ 32		ϕ 40		ϕ 50		ϕ 63		ϕ 80		ϕ 100	
Rod diameter		ϕ 12		ϕ 16		ϕ 20		ϕ 20		ϕ 25		ϕ 25	
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
Operating pressure (kgf/cm²)	1	8.04	6.91	12.5	10.5	19.6	16.5	31.1	28	50.2	45.3	78.5	73.6
	2	16	9.8	25.1	21	39.2	33	62.3	56	100	90.7	157	147
	3	24.1	13.8	37.6	31.5	58.9	49.5	93.5	84	150	136	235	220
	4	32.1	20.7	50.2	42	78.5	66	124	112	201	181	314	294
	5	40.2	27.6	62.8	52.5	98.1	82.5	155	140	251	226	392	368
	6	48.2	34.6	75.3	63	117	99	187	168	301	272	417	441
	7	56.2	41.5	87.9	73.5	137	116	218	196	351	317	549	515
	8	64.3	48.4	100	84	157	132	249	224	402	362	628	589
	9	72.3	55.3	113	94.5	176	149	280	252	452	408	706	662
	10	80.4	62.2	125	105	196	165	311	280	502	453	785	736

Push : $F_1 = A_1 \times P \times B$ (kgf)

Pull : $F_2 = A_2 \times P \times B$ (kgf)

Single acting force : $F_3 = (A_1 \times P - S) \times B$ (kgf)
(Spring return)

Single acting force : $F_4 = (A_2 \times P - S) \times B$ (kgf)
(Spring extend)

A_1 : Piston area for push

$$A_1 = \frac{\pi}{4} D^2$$

A_2 : Piston area for pull

$$A_2 = \frac{\pi}{4} (D^2 - d^2)$$

D : Bore size (mm)

d : Rod diameter (mm)

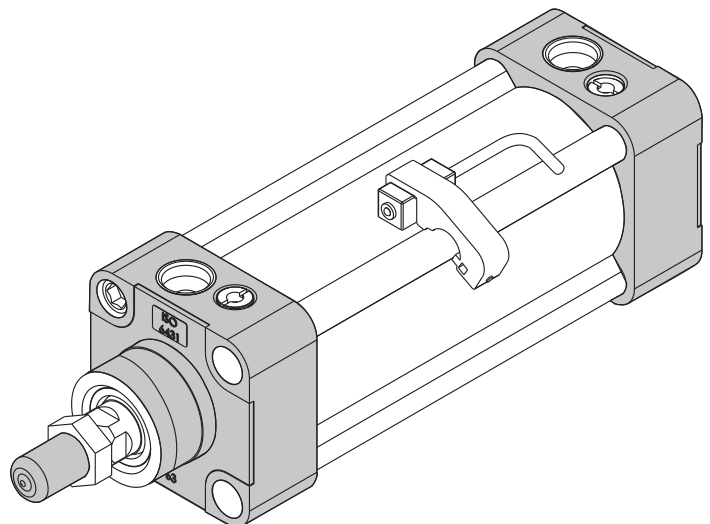
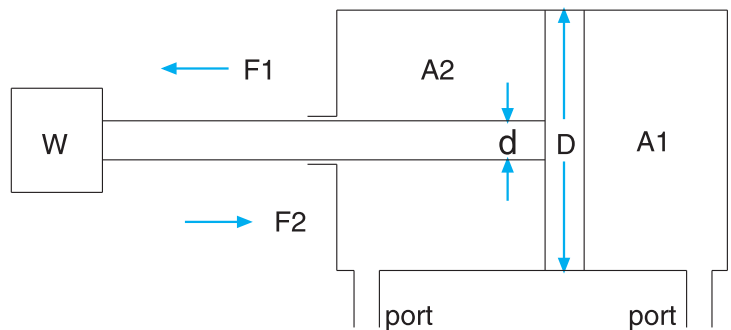
P : Operating pressure (kgf/cm²)

S : Spring force (kgf)

B : Loading rate : Medium speed.....65%

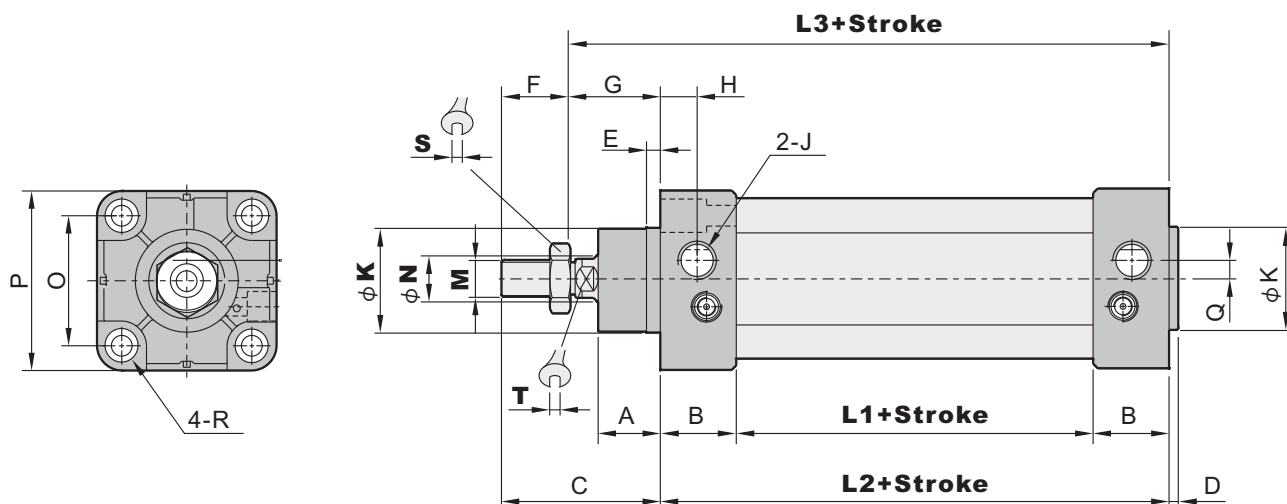
Low speed.....80%

High speed.....Below 50%



Dimensions

ISO6431 standard type



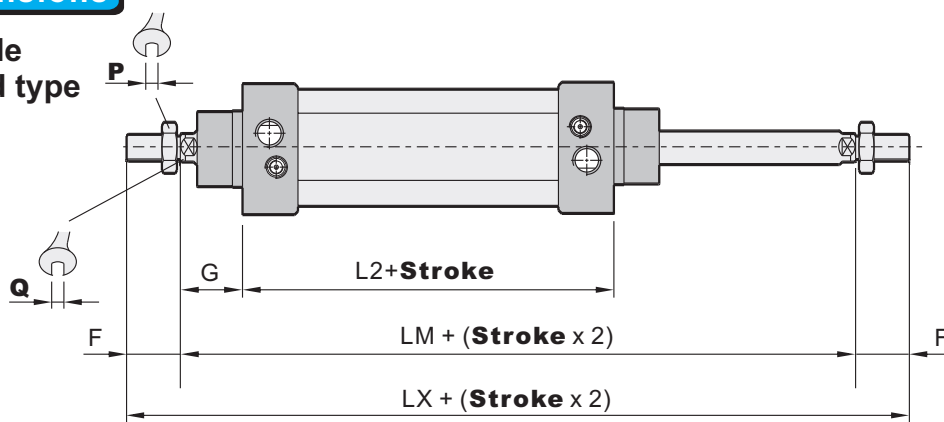
(Unit : mm)

Bore size	A	B	C	D	E	F	G	H	J	K
φ32	18	26	48	3	4.5	22	26	11.5	PS 1/8	φ 30
φ40	20.2	34.4	53	4	4.5	24	29	13.5	PS 1/4	φ 34.5
φ50	28	31	71	4	6	32	39	16	PS 1/4	φ 39.7
φ63	25.2	32.6	70.9	4	6	32	38.9	16	PS 3/8	φ 44.7
φ80	32.5	35.5	86.8	4	6	40	46.8	20.5	PS 3/8	φ 44.7
φ100	37	37	91.2	4.8	5.5	40	51.2	18	PS 1/2	φ 55.3

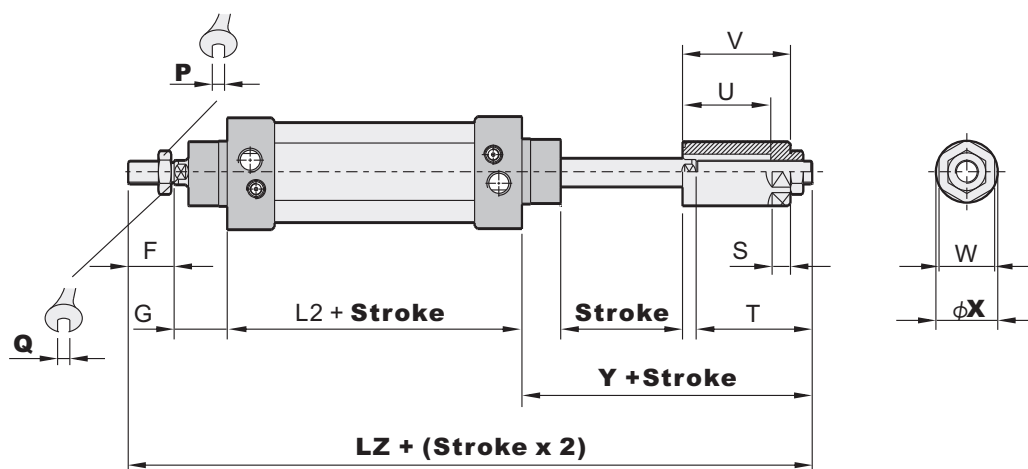
Bore size	L1	L2	L3	M	N	O	P	Q	R	S	T
φ32	42	94	120	M10xP1.25	φ 12	32.5	47	4.3	M6	17	10
φ40	37	105.8	134.8	M12xP1.25	φ 16	38	55	5.3	M6	19	13
φ50	44	106	147	M16xP1.5	φ 20	46.5	65	7	M8	24	17
φ63	55	120.2	159.1	M16xP1.5	φ 20	56.5	78	8	M8	24	17
φ80	57	128	174.8	M20xP1.5	φ 25	72	95	9	M10	30	22
φ100	64	138	189.2	M20xP1.5	φ 25	89	115	13	M10	30	22

Dimensions

ICD Double piston rod type



ICA Stroke adjustable 25mm, ICB Stroke adjustable 50mm



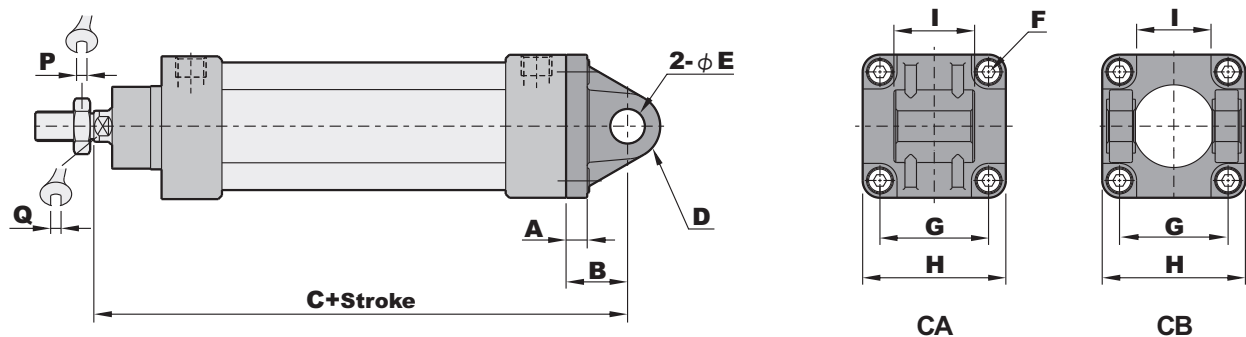
(Unit : mm)

Bore size	F	G	L2	LM	LX	LZ		P	Q	S
						ICA	ICB			
φ32	22	26	94	146	190	215	240	17	10	10
φ40	24	29.5	105	164	212	236	261	19	13	10
φ50	32	39	106	182	246	266	291	24	17	12
φ63	32	38.5	121	196.5	260.5	280.5	305.5	24	17	12
φ80	40	46	128	220	300	318	343	30	22	15
φ100	40	51	138	240	320	333	358	30	22	15

Bore size	T		U		V		W	X	Y	
	ICA	ICB	ICA	ICB	ICA	ICB			ICA	ICB
φ32	47	72	35	62	47	72	22	φ 25	73	98
φ40	48	73	37	62	47	72	27	φ 30	77.5	102.5
φ50	52	77	38	63	53	78	36	φ 40	91	116
φ63	52	77	38	63	53	78	36	φ 40	90.5	115.5
φ80	58	83	40	65	60	85	46	φ 50	104	129
φ100	58	83	40	65	60	85	46	φ 50	104	129

Dimension of mounting parts

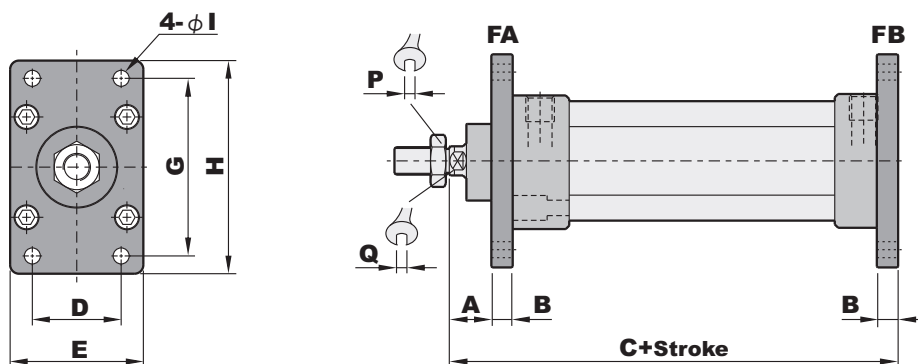
CA, CB Clevis mounting



(Unit : mm)

Bore size	A	B	C	D	E	F	G	H	I	P	Q
φ32	10	22	142	R11	φ 10	M6.0	32.5	46	26	17	10
φ40	10	25	160.8	R13	φ 12	M6.0	38	54	28	19	13
φ50	12	27	170	R13	φ 12	M8.0	46.5	64	32	24	17
φ63	12	32	190	R17	φ 16	M8.0	56.5	77	40	24	17
φ80	16	36	210.8	R17	φ 16	M10.0	72	94	50	30	22
φ100	16	41	230	R21	φ 20	M10.0	89	114	60	30	22

FA, FB Front & Rear flange mounting

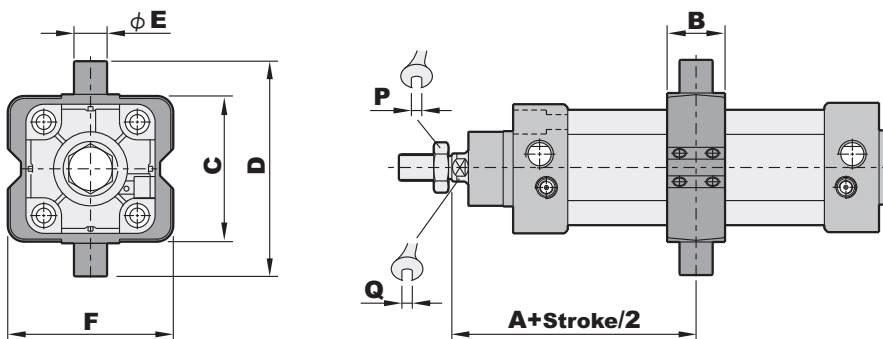


(Unit : mm)

Bore size	A	B	C	D	E	G	H	I	P	Q
φ32	16	10	130	32	50	64	79	7	17	10
φ40	20	10	145	36	55	72	90	9	19	13
φ50	25	12	155	45	65	90	110	9	24	17
φ63	25	12	170	50	75	100	120	9	24	17
φ80	30	16	190	63	95	126	153	12	30	22
φ100	35	16	205	75	115	150	178	14	30	22

Dimension of mounting parts

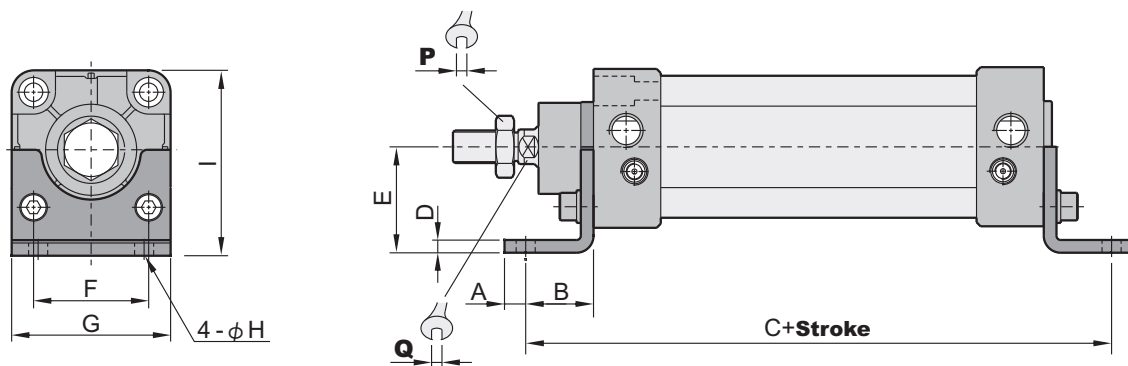
TC Central trunnion mounting



(Unit : mm)

Bore size	A	B	C	D	E	F	P	Q
φ32	73	22	50	74	φ 12 (e8)	58	17	10
φ40	82.5	28	63	95	φ 16 (e8)	70	19	13
φ50	90	32	75	107	φ 16 (e8)	85	24	17
φ63	97.5	35	90	130	φ 20 (e8)	100	24	17
φ80	110	40	110	150	φ 20 (e8)	120	30	22
φ100	120	45	132	182	φ 25 (e8)	145	30	22

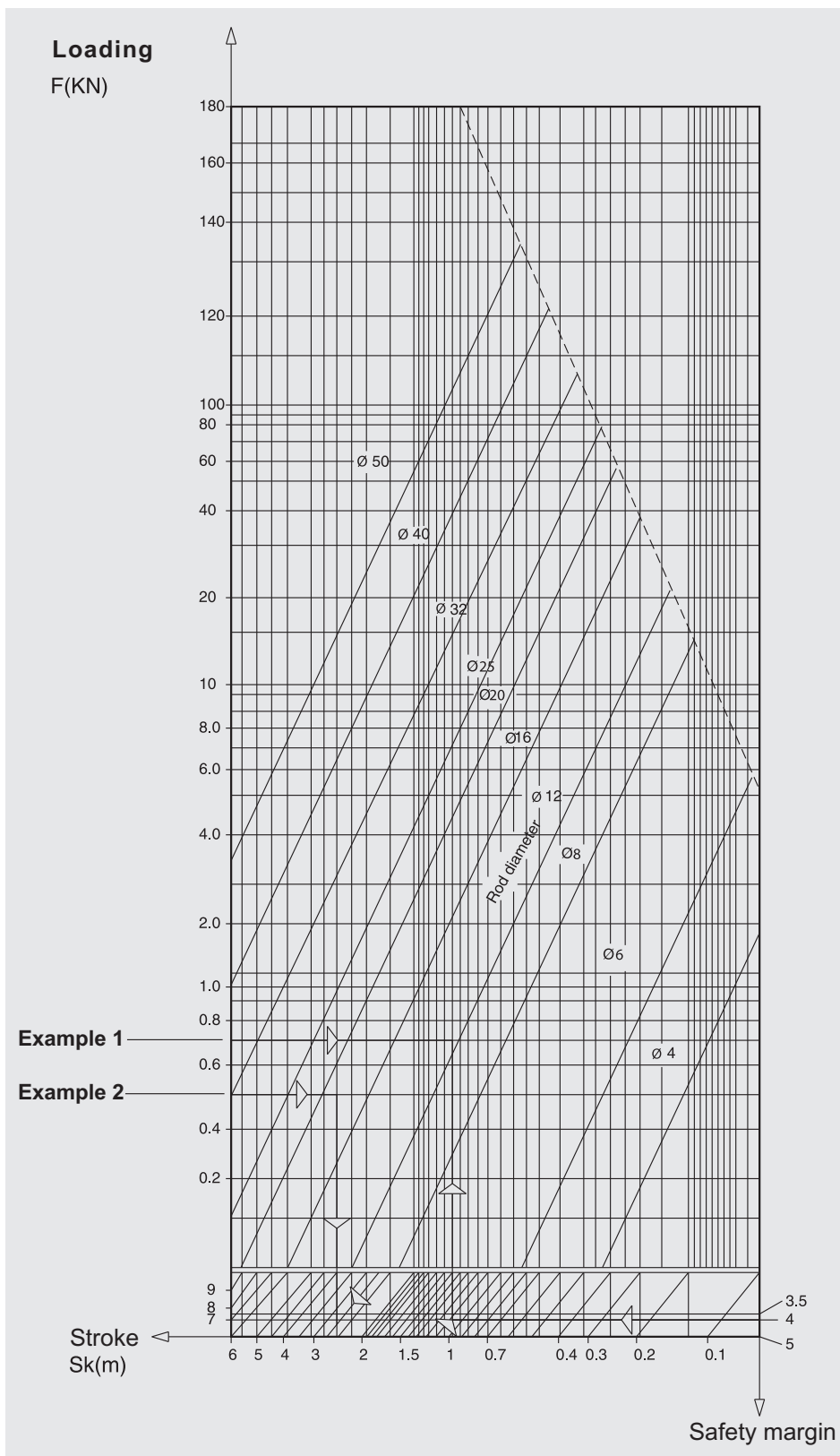
LB Foot mounting



(Unit : mm)

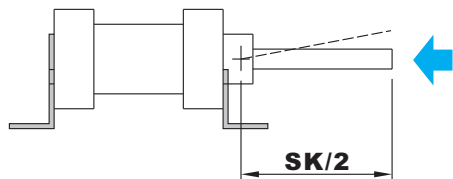
Bore size	A	B	C	D	E	F	G	H	I	P	Q
φ32	8	24	142	4	32	32	47	φ 7	56.5	17	10
φ40	10	28	161	4	36	36	53	φ 9	63.5	19	13
φ50	10	32	170	4	45	45	65	φ 9	77.5	24	17
φ63	10	32	185	4	50	50	75	φ 9	87.5	24	17
φ80	13	41	210	5	63	63	95	φ 12	110	30	22
φ100	13	41	220	6	71	75	115	φ 14	127.5	30	22

Rod loading chart

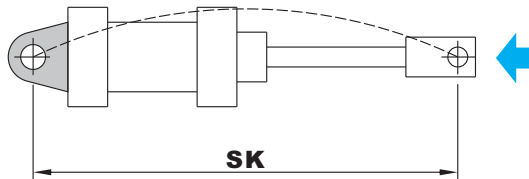


Rod swing length

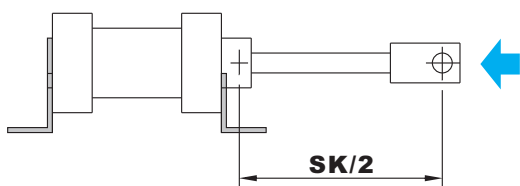
A, C, D



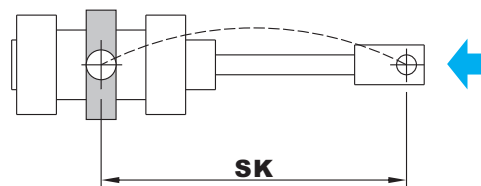
B



A, C, D



E



Example 1

Piston push force: 0.7Kn

Stroke: 1000mm

Pressure: Approx. 6 bar

Mounting: C

Ans: Referring to the rod loading chart, the rod diameter location between $\phi 12 \sim \phi 16$. Consider the rod loading, the actual diameter is $\phi 16$ mm, also, we can know the cylinder body diameter is $\phi 40$ mm.

Example 2

Cylinder diameter: $\phi 50$ mm

Rod diameter: $\phi 20$ mm

Stroke: 1000mm

Piston push force: 0.5Kn

Mounting: B

Ans: Referring to the rod loading chart,

Sk=2900mm

Max stroke=1450mm